PRESQUE ISLE
INTERNATIONAL AIRPORT
AÉROPORT INTERNATIONAL DE PRESQUE ISLE

Final Report

McFarland Johnson

Stantec

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Chapter 1

Introduction

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1. Introduction

It is the desire of the Presque Isle International Airport (PQI or the Airport) to evaluate the Airport through preparation of a Master Plan Update (MPU), to assure that the Airport and its environs are safe and efficient as well as to assess the growing needs of the Airport users and the aviation needs of the surrounding communities. Initial tasks of the project acquired detailed airport mapping compliant with Federal Aviation Administration (FAA) Advisory Circular (AC) 150/5300-18B *General Guidance and Specifications for Submission of Aeronautical Surveys to NGS: Field Data Collection and Geographic Information System Standards Document Information*, and data for development of a flexible, scenario-based, MPU and Airport Layout Plan (ALP). Baseline data was collected and presented for use in subsequent planning analyses. The project contains the inventory of existing conditions, aviation activity forecast, environmental overview, facility requirements, alternatives analysis, implementation plan and financials, and the ALP drawing set elements of the MPU per guidance in FAA ACs 150/5070-6B *Airport Master Plans*, 150/5300-13A *Airport Design*, and other applicable State and local guidelines.

The Airport is located northwest of downtown Presque Isle in Northern Maine and is served by Essential Air Service (EAS) as well as used for general aviation (GA).

This MPU evaluates the airport facility needs and requirements for both GA traffic and year-round EAS and changing airline fleets. The PQI MPU features a scenario-based planning approach that can provide readily available background information for unanticipated scenarios, in addition to serving as a management decision making tool. Scenario-based planning and the associated analysis will allow the Airport to make more informed decisions using the data from otherwise un-planned alternatives to create a series of "what if" scenarios. The additional data use and analysis will provide a greater level of utility and useful life to a traditional, static master plan document.

To respond effectively to changes without either over building or under building requires a flexible planning project that can identify needed facilities as local conditions and/or Airport users change. The goals of the project include:

- Meet the aviation needs of citizens and businesses in the Airport's service area,
- Maintain safe and efficient airside facilities compliant with airport design standards and FAA and Maine Department of Transportation (Maine DOT) guidance,
- Identify opportunities for economic sustainability at the Airport as required by grant assurances, and
- Maintain planning flexibility for future changes in the aviation industry.

The specific objectives to be accomplished under the project include:

- Develop feasible and flexible alternatives to meet forecast demand,
- Develop a plan to meet the growing demands on the airport, and
- Define compatible land uses surrounding the Airport.

1.2 KEY ITEMS OF THIS MASTER PLAN UPDATE

As presented above, PQI's focus is to enhance the facility and services to the Northern Maine region. This MPU addresses optimizing airfield recommendations to promote landside and support facility investments. Key elements and considerations in this MPU include:

Scenario Based Forecast – The aviation industry is always changing with new opportunities continuing to present themselves. Evidenced by the storied history of EAS, the forecast contains several scenarios for enhanced growth in GA as well as considerations for year-round air carrier commercial service.

Airfield Geometry Improvements – Rectifying non-standard airfield geometry is one of the highest priorities of the FAA. This MPU addresses areas of non-standard airfield geometry.

Passenger Terminal Area – The existing terminal area is a focus as EAS fleet mix changes occur frequently and the building has aged out of its useful life. Any new building should continue the airport museum and document the history of PQI.

Phased and Prioritized Capital Development Plan – With limited funding available on an annual basis for larger capital expenditures, the implementation plan and financials chapter prioritizes these projects with a phasing plan that is consistent with historical and anticipated funding levels.

Airport Layout Plan Drawing Set – The MPU culminates with a comprehensive 19-sheet ALP drawing set that includes not only the ALP sheet but also airspace surfaces, obstructions, land-use and zoning, environmental features, and an airport property map.

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Chapter 2

Inventory

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2. Inventory

2.1. INTRODUCTION

The inventory chapter provides an overview of the Presque Isle International Airport (PQI or the Airport) formerly known as the Northern Maine Regional Airport, including its location and ownership, history, catchment and service areas, physical facilities, operational characteristics, airspace, land use, and zoning. This information was obtained through on-site investigations of the Airport, interviews with Airport personnel, and review of published information as of the Fall of 2018. Information was also obtained from available planning documents and studies concerning the Airport and surrounding areas. The information presented in this chapter serves as the basis for the development of aviation forecasts as well as the baseline data to be used in the Facility Requirements Chapter.

This chapter is organized into the following sections:

- Airport Location
- Aviation Activity
- Airport Catchment/Service Areas
- Airside Facilities
- Landside Facilities
- Support Facilities
- Airspace
- Air Traffic Control
- Land Use and Zoning

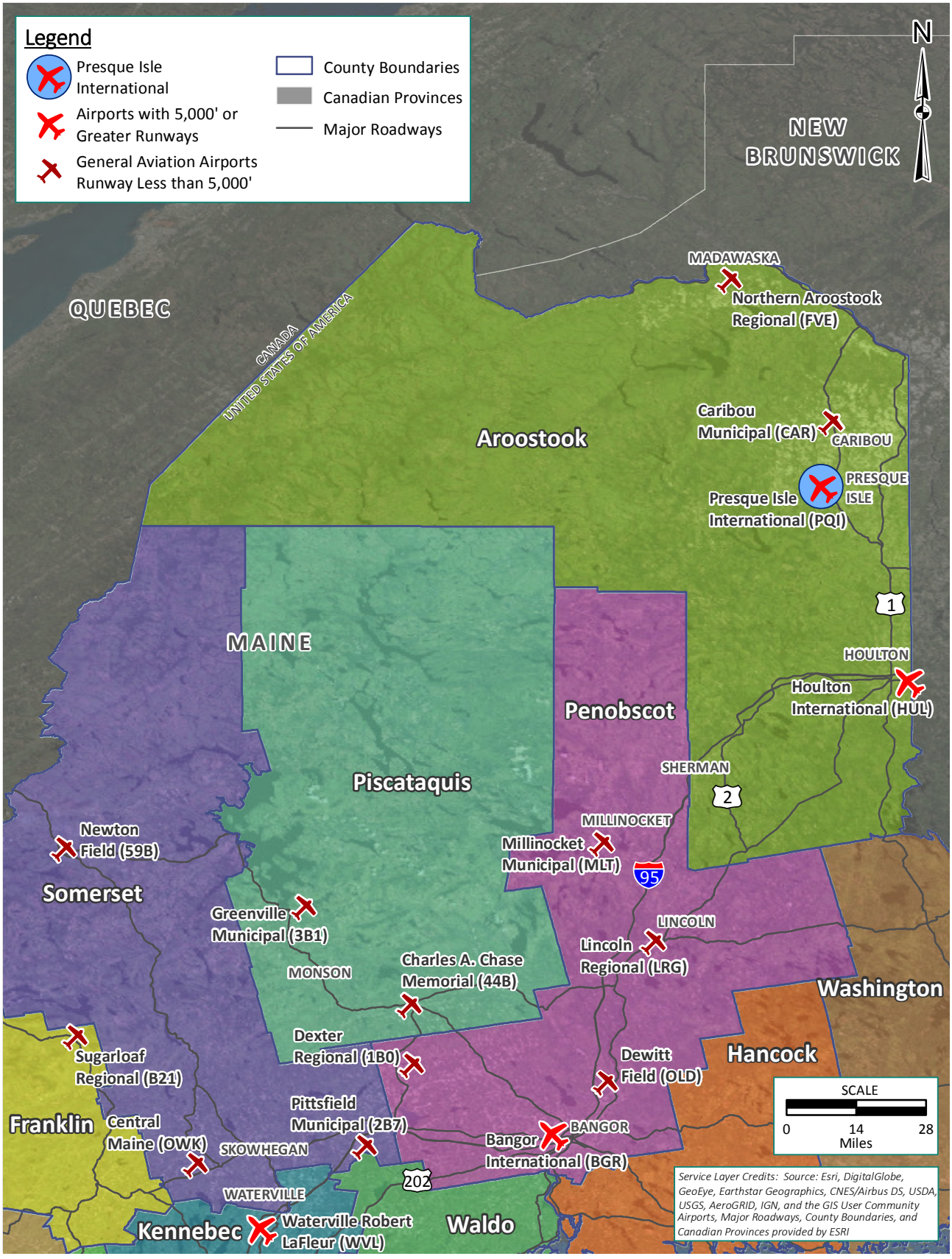
2.2. AIRPORT LOCATION

Presque Isle International Airport is located approximately one mile northwest of downtown Presque Isle. Major access to the Airport is provided by Routes 1 to State Street, to Central Drive, and then to Airport Drive (see **Figure 2-1**). The Airport property is located in the City of Presque Isle and the Town of Mapleton. **Figure 2-1** displays the Airport setting within the region.

The airport reference point (latitude and longitude of the approximate geometric center of the Airport) is located at 46˚ 41’ 20.26” North latitude and 68˚ 02’ 41.24” West longitude. The Airport is situated with an Airport elevation of 533.6 feet above mean sea level (MSL). PQI occupies 1,489 acres in a sparsely settled rural residential area.

The climate of Aroostook County can be described as a “humid continental” climate. This is characterized by large seasonal temperature contrasts with warm summers and cold winters. Humid continental climates experience ample precipitation which is evenly distributed throughout

Figure 2-1: Airport Location



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the year (Encyclopædia Britannica)[1]. Historical data from Caribou, Maine marks July as the hottest month of the year with an average maximum temperature of 76° F and January as the coldest month of the year with an average maximum temperature of 20° F. Records also indicate the annual average rainfall is 38.54 inches while the average annual snowfall is 109 inches (US Climate Data). On average, Presque Isle receives snow between October and April. Due to the high level of snow fall, average below freezing temperatures from November through March, and Takeoff and Landing Performance Assessment (TALPA) requirements, the Airport has challenges in the winter with increased airport closures, missed approaches, and weight penalties to air carrier operations.

2.3. AVIATION ACTIVITY

According to the Terminal Area Forecast (TAF) for PQI, there are 25 aircraft based on the field, consisting of 20 single-engine aircraft, 4 multi engine aircraft, and 1 jet.

An aircraft operation is defined as a takeoff or a landing. Operations are broken down into local and itinerant operations. A local operation is a flight that originates and terminates at the same airport, whereas an itinerant operation is one that originates at one airport and terminates at another. FAA Form 5010-1 indicates that there were 5,750 annual operations over a 12-month period, ending on July 31, 2015. These operations were comprised of 1,804 air carrier, 2,177 air taxi, 664 general aviation (GA) local, 1,031 GA itinerant, and 54 military.

Enplanements are another metric used to describe an airport's operating characteristics. An enplaned passenger is defined as a revenue passenger boarding an aircraft, including originating, stopover, and transfer passengers in scheduled and non-scheduled services. Enplanement numbers for commercial service airports are available from various sources including the U.S. Department of Transportation (DOT) and the FAA.

The FAA's TAF system is the official forecast of aviation activity at National Plan of Integrated Airport Systems (NPIAS) airports. These forecasts are prepared to meet the budget and planning needs of the FAA and to provide information for use by state and local authorities, the aviation industry, and the public. The TAF includes forecasts for active airports in the NPIAS.

Table 2-1 compares the number of annual enplanements from the years 2004-2017 according to the Airport records and the FAA TAF to show both could be used for historical records.

Table 2-1: Historical Passenger Enplanements

Year	Airport	FAA TAF
2004	16,150	15,274
2005	16,207	16,515
2006	16,253	15,951
2007	15,866	16,003
2008	13,496	13,419
2009	13,238	13,247

[1] T. (Ed.). (2016, March 14). Humid continental climate. In *Encyclopædia Britannica*. Retrieved October 9, 2018, from https://www.britannica.com/science/humid-continental-climate

Year	Airport	FAA TAF
2010	15,204	14,445
2011	14,453	14,315
2012	12,379	13,327
2013	11,555	10,886
2014	12,122	12,224
2015	12,878	12,701
2016	12,398	12,296
2017	12,780	12,654

Sources: Airport Management, FAA TAF, 2018.

Enplanement data can be seen graphically in **Figure 2-2** below.

Figure 2-2: Historical Passenger Enplanements

Sources: Airport Management, FAA TAF, 2018.

Table 2-2 identifies the Airport's basic characteristics.

Table 2-2: Airport Characteristics

Element	Airport Information
Owner	City of Presque Isle
Acreage	1,489
FAA Categories	Non-hub, 14 CFR* Part 139 Class I, ARFF* Index A
Based Aircraft	25 (20 single-engine, 4 multi-engine, and 1 jet)
Annual Operations	5,750

*CFR: Code of Federal Regulations; ARFF: Aircraft Rescue and Fire Fighting
Sources: FAA Form 5010, Airport Master Record, accessed September 10, 2018.

2.3.1. Recent Projects

The Airport has undergone several substantial projects since the last master plan in 2000. Some of the larger, more notable projects ($500,000 or greater) over the last ten years include:

- Rehabilitate Runway 10-28 including Runway Safety Areas (RSA)
- Extend Taxiway A to a full parallel taxiway
- Install perimeter fencing
- Replace ARFF Index A truck
- Final design and Phase I construction of GA Apron
- Reconstruct parallel Taxiway A
- Rehabilitate markings for both runways, taxiways, and apron
- Preventative maintenance crack sealing of both runways, taxiways, and apron
- The purchase of Snow Removal Equipment (SRE)

2.4. AIRPORT CATCHMENT/SERVICE AREAS

2.4.1. Commercial Service Catchment Area

At commercial service airports such as PQI, the term catchment area is often used to refer to the area/population from which the airport attracts passengers flying commercially. The catchment area generally includes all towns that are closer to the airport than to any other commercial service facility. Due to the remote nature of PQI, the closest commercial service airport is Bangor International (BGR). Therefore, the catchment area extends up to 3-hours' drive time from PQI, shown in 30-minute increments of uncongested drive-time isochrones in Figure 2-3. The catchment area for PQI extends both through Maine and Canada and will be further discussed in the Forecast Chapter.

As shown on this figure, the catchment area extends approximately 20 miles east, 48 miles north to the U.S.-Canada border, 88 miles west, and 76 miles south at the furthest points of the catchment area. The catchment area covers the majority of Aroostook County and the northern parts of Penobscot and Piscataquis Counties.

2.4.2. General Aviation Service Areas

GA also plays a key role at PQI. For purposes of GA, the area from which tenants/users are most likely to be located is referred to as a service area. For PQI, there are two types of GA service areas: GA jet service and GA non-jet service areas.

General Aviation Jet Service Area

For a study of surrounding GA jet service airports, we have made the assumption that in order to provide jet service, a GA airport must have at least one runway of 5,000 feet or greater. The GA jet service area is shown in Figure 2-4. In Northern and Central Maine, there are four jet service area airports: PQI, Houlton International (HUL), BGR, and Waterville Robert LaFleur (WVL). PQI and HUL are the only airports located in Aroostook County. Therefore, unless special circumstances

Figure 2-3: Commercial Service Area

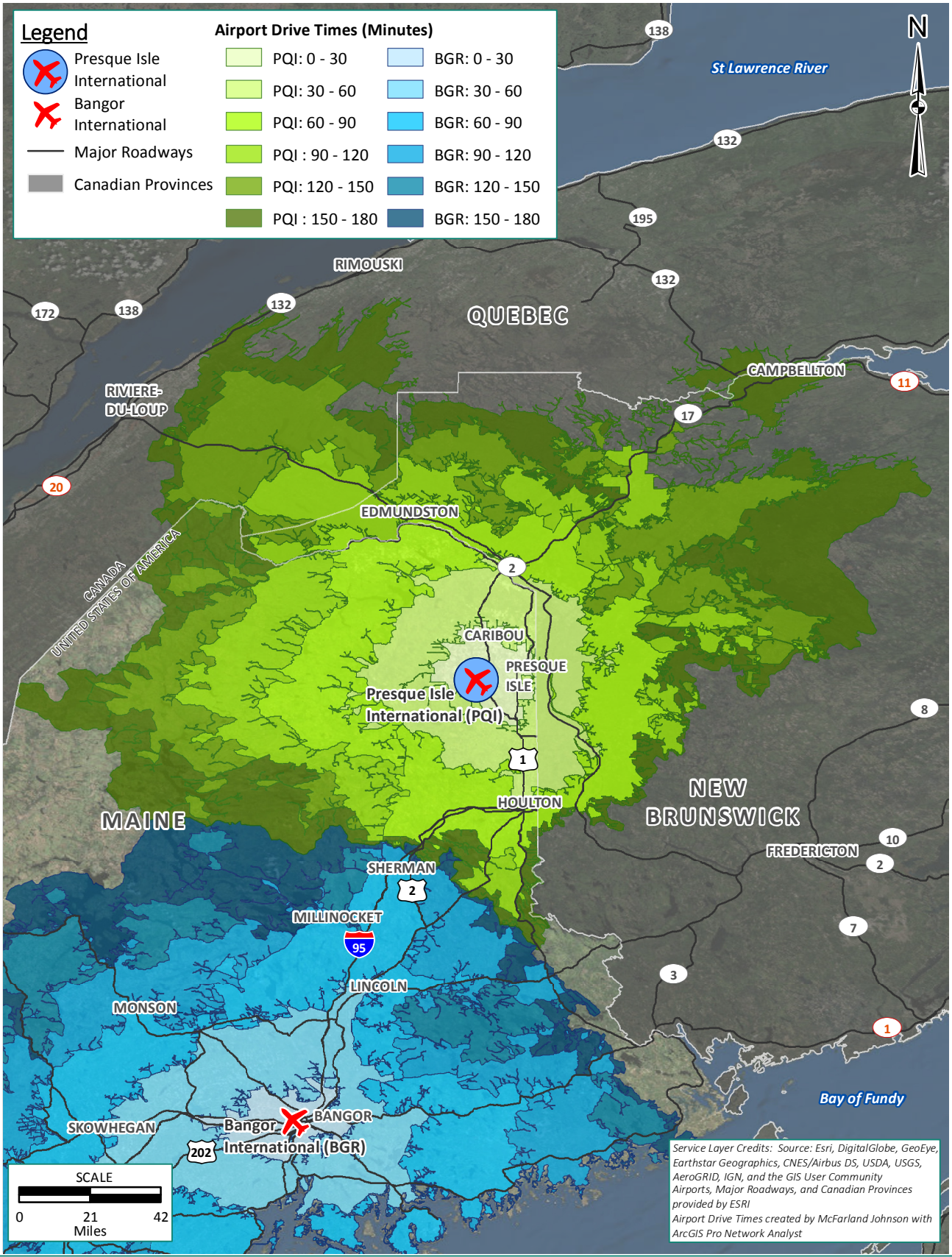

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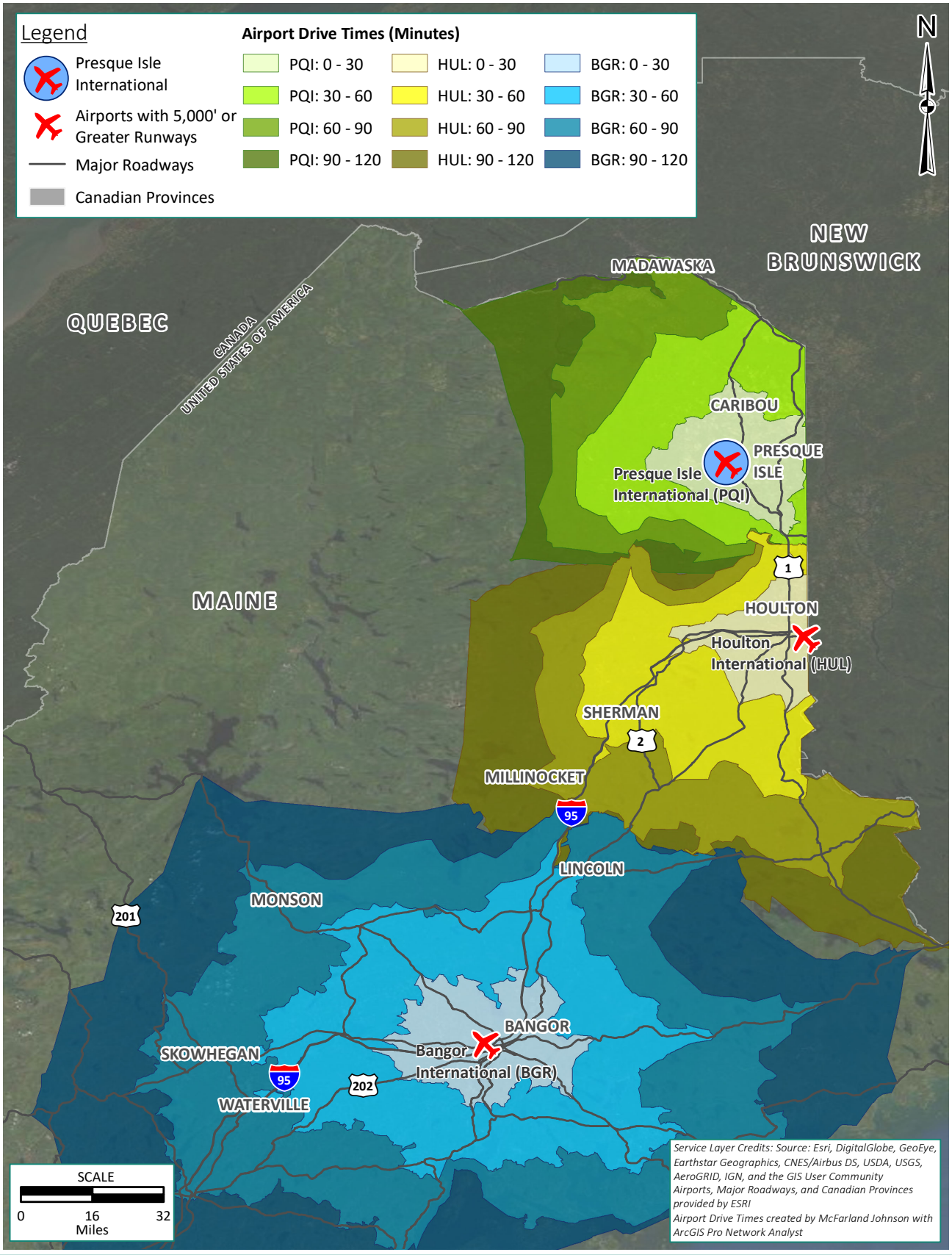
Figure 2-4: General Aviation Jet Service Area



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are present, the GA jet service area of PQI would not be affected by either BGR or WVL. Details associated with PQI and HUL can be viewed in **Table 2-3**.

Table 2-3: Aroostook County GA Jet Service Airports

Airport	RWY	RWY Dimensions	RWY Surface	Based Aircraft	Instrument Approaches	City	SM PQI
PQI	01-19 10-29	7,439' x 150' 6,001' x 100'	Asphalt Asphalt	25	Precision Non-Precision	Presque Isle	--
HUL	01-19 05-23	2,700' x 60' 5,015' x 100'	Asphalt Asphalt	20	Visual Non-Precision	Houlton	70.4 S

Source: FAA Form 5010.

General Aviation Non-Jet Service Area

For a study of surrounding GA non-jet service area, GA airports that had at least one paved runway, regardless of length were reviewed. The GA non-jet service area is shown in **Figure 2-5**. While there are numerous GA non-jet service airports in Northern and Central Maine, only four GA airports with at least one paved runway are located in Aroostook County. These airports are: PQI, HUL, Caribou Municipal (CAR), and Northern Aroostook Regional (FVE). Details associated with these four airports can be viewed in **Table 2-4**.

Table 2-4: Aroostook County GA Non-Jet Service Airports

Airport	RWY	RWY Length & Width	Runway Surface	Based Aircraft	Instrument Approaches	Associated City	Distance from PQI (statute miles)
PQI	01-19 10-28	7,439' X 150' 6,001' X 100'	Asphalt Asphalt	25	Precision Non-Precision	Presque Isle	----
CAR	01-19 11-29	4,003' X 100' 3,016' X 75'	Asphalt Asphalt	9	Non-Precision Non-Precision	Caribou	12.65 N
HUL	01-19 05-23	2,700' X 60' 5,015' X 100'	Asphalt Asphalt	20	Basic Non-Precision	Houlton	40.74 S
FVE	14-32	4,600' X 75'	Asphalt	9	Non-Precision	Frenchville	43.04 NW

Source: FAA 5010.

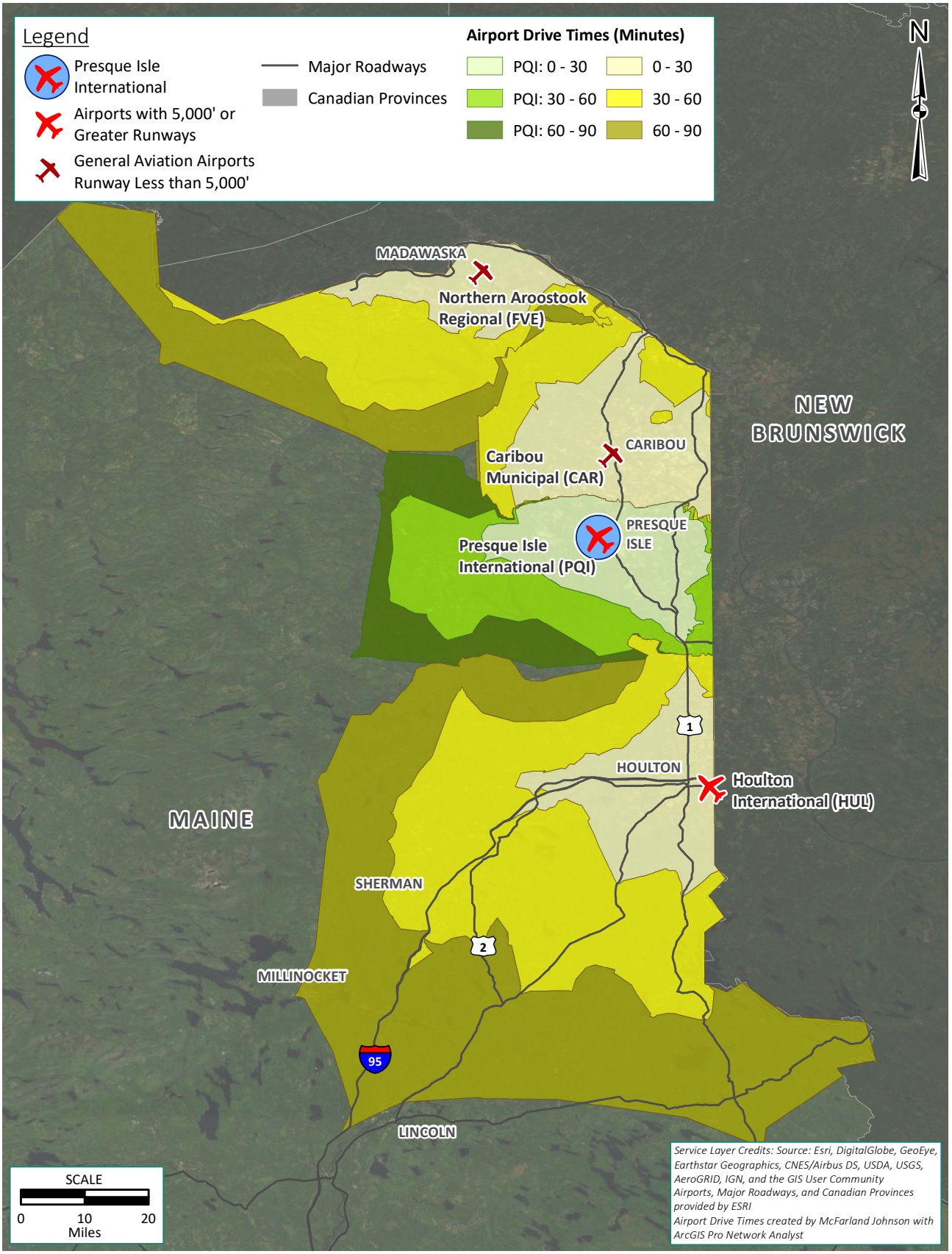
As shown in **Figure 2-4** and **Figure 2-5**, the service areas encompass a radius that extends to the furthest points of the service areas. The service areas for both GA jet service and non-jet service are mostly confined to Aroostook County.

2.5. AIRSIDE FACILITIES

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

- Runways
- Taxiways
- Instrumentation
- Visual Aids
- Airport Systems

Figure 2-5: General Aviation Non-Jet Service Area



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The locations of the runways and taxiways are depicted in the PQI Airport Layout, **Figure 2-6**.

2.5.1. Runways

PQI has two runways which consist of a primary, Runway 1-19, and a crosswind, Runway 10-28. Pertinent information regarding PQI's runways can be found in **Table 2-5**. A pavement condition study was conducted as part of this Master Plan update and is included as **Appendix A**.

Runway 1-19

Runway 1-19 is the Airport's primary runway and measures 7,439 feet long by 150 feet wide. It is generally aligned in a north-south direction which is consistent with the prevailing wind conditions. The runway has high intensity runway edge lights (HIRL). Runway 1 is equipped with a medium intensity approach light system with runway alignment indicator lights (MALSR). Runway 19 is equipped with a 4-box precision approach path indicator (PAPI) and flashing runway end identifier lights (REIL). Runway 1-19 has precision instrument markings in good condition. Runway 1 is equipped with a precision instrument (PIR) approach. Runway 19 is equipped with a non-precision instrument (NPI) approach.

Table 2-5: Runway Data

Runway	1/19	10/28
Surface	Asphalt	Asphalt
Dimensions	7,439' by 150'	6,001' by 100'
Displaced Threshold	None	None
Markings	Precision Instrument	Non-precision Instrument
Lighting	HIRL	MIRL
End Elevation (MSL)	455.0' / 533.6'	472.8' / 473.2'
CFR Part 77 Approach Surface Slope	50:1 – 40:1 / 34:1	20:1 / 34:1
Approach Minimums	½ Mile / 1 ½ Mile	Visual / 1 Mile
Visual Approach Aids	None / PAPI	None / PAPI
Instrument Approach Aids	ILS / None	None
CFR Part 77 Category	PIR/ NPI C	Visual B/ NPI C
Declared Distances	N/A	N/A
Pavement Strength (lbs.)		
Single Wheel	100,000	100,000
Dual Wheel	150,000	150,000
Tandem	240,000	240,000
Pavement Classification Number	94/F/A/W/T	94/F/A/W/T

Source: FAA Form 5010 (accessed on Sept. 13, 2018), FAA AC 150/5300-13A

Runway 10-28

The Airport's crosswind runway measures 6,001 feet long by 100 feet wide. It is generally aligned in an east-west direction. The runway is asphalt and in excellent condition with medium intensity runway edge lights (MIRL). Runway 10 does not have any visual approach aids. Runway 28 is

equipped with a 4-box PAPI. Runway 10-28 has non-precision instrument markings in good condition. Runway 28 is equipped with a non-precision instrument approach.

2.5.2. Taxiways

PQI has four taxiways designated A, B, C, and E. All of the taxiways are of asphalt construction and are equipped with blue, omni-directional medium intensity taxiway lights (MITL).

Taxiway A measures 50-60 feet wide and runs full-length and parallel to Runway 1-19 including providing access to both runway thresholds.

Taxiway B measures 60 feet wide and connects Taxiway A to Runway 1-19 adjacent to the GA Apron.

Taxiway C measures 75 feet wide and connects Taxiway A to Runway 1-19 in the middle of the runway.

Taxiway E measures 35 feet wide and connects the North Apron to Runway 19 threshold.

2.5.3. Instrumentation

Navigational aids (NAVAIDs) are any electronic or visual devices, airborne or on the ground, which provide point-to-point guidance information or position data to aircraft in flight. There is no air traffic control tower (ATCT) on the Airport. PQI has several electronic and visual navigational aids that pilots use to locate, navigate to, and land at the Airport, which are discussed below. Instrument approach procedures utilize the aircraft's onboard equipment, coupled with either terrestrial or space-based components to enable pilots to land in less than ideal meteorological conditions when visibility is compromised.

Instrument Landing System (ILS)

An ILS utilizes both a glideslope antenna and a localizer antennae (LOC) to provide both horizontal and vertical guidance to a specific point where a pilot must decide whether or not to continue the approach visually down to the runway. The localizer provides horizontal guidance, while the glideslope provides vertical guidance. Additionally, outer and middle markers are radio beacons positioned along the approach path and transmit a fan shaped signal the aircraft flies through, giving the pilot critical distance information throughout the approach.

Approach light systems are used in conjunction with an ILS to assist pilots in the transition from instrument to visual conditions. The Medium Intensity Approach Light System (MALS) portion is a series of steady burning light bars, spaced 200 feet apart, that begin at the runway threshold(s) and extend outward along the extended runway centerline for a distance of 1,400 feet. The RAIL (Runway Alignment Indicator Lights) portion of the MALSR consists of five sequenced flashing lights every 200 feet beyond the MALS, aligned with the extended runway centerline for a distance of 1,000 feet. Thus, the entire MALSR system extends for a total of 2,400 feet from the runway threshold.

Figure 2-6: Presque Isle International Airport Layout

Source: Presque Isle Airport, FAA Form 5010, FAA AGIS OCT. 2018, and Google Maps

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Runway 1 is equipped with an ILS with a MALSR. Due to the challenges of winter operations at the Airport, this approach is critical to the jet operations on the runway.

RNAV (GPS) Approaches

Global positioning system (GPS) approaches use satellites to geospatially pinpoint the aircraft position relative to the airport. GPS approaches are typically classified as area navigation (RNAV) and can also include a localizer performance with vertical guidance (LPV) as is the case with PQI's GPS approaches.

Instrument Approach Procedures

There are five published instrument approaches procedures at PQI; one which utilizes the ground-based component of the ILS, one which utilizes the very high frequency omni-directional range (VOR) and remainder while utilize the space-based satellites of the GPS. A summary of instrument approach minima at PQI is shows in **Table 2-6**.

Table 2-6: PQI Instrument Approach Procedures Minima

Runway End	Type of Approach	Approach Minima (Ceiling-Visibility)
Runway 1	ILS or LOC	200' Above Ground Level (AGL) – ½ Statute Mile (SM)
Runway 19	VOR(DME)-Category A/B	600' AGL – 1 SM
Runway 1	RNAV (GPS) - LPV	200' AGL – ½ SM
Runway 19	RNAV (GPS) - LPV	500' AGL – 1 ½ SM
Runway 28	RNAV (GPS) - LPV	300' AGL – 1 SM

DME – distance measuring equipment
Source: FAA PQI Terminal Procedures, effective date: October 11 – November 8, 2018.

2.5.4. Visual Approach Aids

Precision Approach Path Indicator (PAPI)

PQI has a 4-light PAPI system on the approach ends of Runway 19 and Runway 28. The systems consist of 4-light units installed on the left side of the runway. The light units are equipped with red and white beams that project various degrees of glide path to the runway. The PAPI allows a pilot to judge approximately how many degrees the aircraft is above or below the glide path based on the number of red versus white lights below.

The Runway 19 has a non-standard 3.70-degree glide path while the Runway 28 PAPI has a standard 3-degree glide path.

Runway End Identifier Lights (REILs)

REILs are installed at Runway 19. They consist of a pair of synchronized flashing lights located laterally on each side of the runway threshold.

Airport Beacon

A rotating beacon with alternate white-green lenses help pilots operating into the Airport environment and flying in the local area. Airport beacons assist pilots in locating airports at night and in inclement weather. The alternating white and green light denotes a lighted, civilian-use airport. The PQI beacon operates from dusk until dawn, unless weather conditions deteriorate in which case it is also on during daylight hours. It is located on top of the water tower at 74 Edgemont Drive approximately 4,000 feet northeast of the airport reference point.

Wind Cones

There is a lighted wind cone and segmented circle located north of the intersection of Runway 1-19 and Runway 10-28, adjacent to Taxiway A.

There are two supplemental wind cones located on the airfield as well. One wind cone is located north of Runway 28 adjacent to the runway aiming point marking. The other wind cone is located near the North Apron east of Runway 19.

Obstruction Lights

Obstruction lights are lights indicating the presence of an object or terrain that is dangerous to aircraft in flight. There are currently obstructions lights located on Dennet Hill. These lights are being reviewed to identify if they are in place for obstruction or improve the approach capability of the Airport.

2.5.5. Navigational Aids

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

Automated Weather Observing System (AWOS)

Weather reporting equipment at PQI consists of an AWOS accessible from both Runway 1 and Taxiway A via service road. “An AWOS automatically measures meteorological parameters, reduces and analyzes the data via computer, and broadcasts weather reports which can be received by aircraft operating up to 10,000 feet above ground level and 25 nautical miles (nm) from the AWOS. Pilots may use the certified weather information provided by the AWOS to partially fulfill the requirements of various regulations identified in Title 14 of the Code of Federal Regulations (14 CFR)” (FAA AC 150/5200-16E). It can be accessed by pilots via telephone at (207) 764-7248.

Presque Isle VOR/DME

The combined VOR/DME provides three services to aircraft from this single facility. The VOR is used by properly equipped aircraft to navigate. This VOR has an altitude code of high. This means it has several different service volumes it provides. The first starts at 1,000 feet above ground level (AGL) up to 14,500 feet AGL with a range of 40 nautical miles (NM). Between 14,500 and 18,000

feet AGL, it has a range of 100 NM. Between 18,000 and 45,000 feet AGL, it has a range of 130 NM. The last tier is between 45,000 feet and 60,000 feet AGL where it has a range of 100 NM.

The VOR transmits radio signals outward like the spokes of a wheel. When tuned to the VOR frequency, equipment in the aircraft gives pilots an indication of which spoke they are travelling on or through. Two VOR frequencies can be utilized to provide an exact fix of the aircraft position relative to the ground.

A DME can be utilized by properly equipped aircraft to give pilots an indication as to their relative distance to a particular VOR. The DME portion of the Presque Isle VOR/DME is unusable between 180 and 200 degrees beyond 30 NM when below 3,400 feet. The VOR is also used by the Hazardous In-Flight Weather Advisory (HIWAS) system. HIWAS is an automated, continuous broadcast of inflight weather advisories, provided by FSS over select VOR outlets[2]. The FAA has proposed to get rid of all HIWAS systems throughout the country. However, the Presque Isle VOR is on the list of systems to be retained.

While not located on Airport Property, the Presque Isle VOR/DME is a critical piece of infrastructure for pilots operating into the Airport environment and flying in the local area. The Presque Isle VOR/DME is located approximately 6.5 NM northwest of the Airport along Fire Lane 3 in Washburn, Maine. The Presque Isle VOR/DME is owned and operated by the FAA.

Non-Directional Beacon (NDB)

Non-direction beacon (NDB) is a low or medium frequency radio beacon that transmits non-directional signals whereby pilots can determine bearings. The Presque Isle NDB is located approximately 5.4 NM south of the Airport at 87 Mountain Road, Presque Isle, Maine. The NDB is owned and operated by the FAA. The collocated outer marker was decommissioned in June 2019.

2.6. LANDSIDE FACILITIES

2.6.1. Airport Buildings

The existing buildings at PQI are depicted in **Figure 2-6** and show the general location of buildings, hangars, and other Airport and tenant facilities located on airport property. A building conditions study will be conducted as part of this master plan and will be added at a later time.

Conventional Hangars

There are currently seven conventional hangars located on the Airport. Four former military hangars are located on the North Apron and three corporate hangars are located on the GA apron.

The North Apron is home to the four former military hangars. Each of these hangars are 4,500 square feet (SF) and measure 60-foot by 30-foot. These hangars include office space. The northern most hangar has an addition, which adds approximately 500 SF to the building. Of the four hangars,

[2] https://www.faa.gov/air_traffic/publications/media/aim_7_1_16.pdf

three are operated by the airport and have averaged four aircraft per hangar. The other hangar is currently being leased by an aerial spray operator.

The GA terminal building and hangar, along with another corporate hangar are located on the north end of the GA Apron. The GA terminal is 8,911 SF. This building has offices, a pilot lounge, kitchen, front desk reception space, and hangar space. Approximately 80 percent of the building is utilized for aircraft storage. The adjacent corporate hangar is a 10,767-SF building measuring 83 feet by 151 feet with two hangar doors. The corporate hangar is partially full and has space available for lease.

In the middle of the GA apron, there is a general hangar. This building was formerly the GA terminal before the aforementioned one was built. This 7,600 SF building measure 80-foot by 80-foot with a 60-foot hangar door. The hangar has an attached 20-foot by 60-foot office space. The space is currently being leased out for storage but is set to be demolished due to the non-standard grading of the surrounding apron and its deteriorating condition.

There are no existing individual hangars (t-hangars and box hangars) located on the Airport. However, a five-unit box hangar is scheduled to be constructed next to the terminal in 2020.

Buildings with Non-Aeronautical Uses and Land Leases

There are currently buildings and land leases located on airport property, outside the fence, that house non-aeronautical uses. These leases are managed by the Presque Isle Industrial Council.

Building 131 is 2,600 SF on 0.5 acres of land in the Airport Deed. It is heated and is serviced by water, sewer, and electrical utilities. The rate for lease is $4.62 per SF per year or $12,012 annually. Its been Vacant since October 2017.

Building 401 is 90,800 SF on 6.4 acres of land in the Airport Deed. It is an unheated space without water or sewer utilities. An estimated 65,800 SF is leased for year round and seasonal (6-8 months per year) cold storage. The leased area of the building averages $1.17 per SF per year or $76,707.10 annually. A portion of this building is used for year-round storage of Airport equipment.

Building 402 spans 8,556 SF on 0.84 acres of land in the Airport Deed that is currently being leased by Falcon Transport. It is uninsulated, unheated building which is leased as cold storage facility and is not currently connected to either water or sewer utilities. The building averages $1.44 per SF per year or $12,320 annually.

Building 403 is 51,260 SF of which 39,800 SF is leased to Coca-Cola Bottling at a rate of $1.43 per SF per year or $57,000 annually. The lease to Coca-Cola includes 6.0 acres of land in the Airport Deed. The remaining SF on this original 1941 hangar is used by the City of Presque Isle for seasonal equipment storage receives no income.

Building 450 is 4,000 SF on 2.2 acres of land in the Airport Deed and is used as the IC's Maintenance Department shops. It is heated and connected to water, sewer, and electrical utilities. It houses the park's maintenance staff and equipment. This building generates no income for the city.

Building 605 and 606 are both 1,475 SF and share .6 acres of land in the Airport Deed. These buildings generate no income for the City. They have been scheduled for demolition for a number of years.

Building 1202 is a 3,312 SF building built by the City of Presque Isle in 2000 and occupies 1.18 acres of land in the Airport Deed. It is currently leased for $5.51 per SF per year or $18,240 annually.

There are four long term land leases currently on Airport Deed Property. Theriault Real Estate leases 3.68 acres. Dead River Company leases 3.64 acres. Falcon Truck and Trailer Repair leases 4.5 acres. JT's Market leases 1.6 acres.

The average lease rate is $1,651.95 per acre per year or $21,780.00 annually. The $1,650.00 per acre lease rate is equivalent to the average rate charged for land throughout the rest of the industrial park.

2.6.2. Passenger Terminal Facilities

Passenger Terminal Building

The terminal building serves as the point of transition for travelers between surface and air transportation utilizing commercial airlines. The terminal layout is depicted on **Figure 2-7**.

Passenger Flow

The terminal building at the Airport is utilized by United Airlines, the Transportation Security Administration (TSA), and three rental car companies (ACE, Avis, and Budget). Passengers enter the terminal through one of three entrances. The east door is located at the front, center of the terminal facing Airport Drive. The north door is located closest to the north parking lot outside of the baggage claim area. The south door is located closest to the south parking lot outside of airport management offices.

When arriving through the front door, passengers walk through two sets of doors to arrive in the terminal waiting area. To the left is the ACE rental car counter. To the right are the Avis and Budget rental car counters separated by an office door in between. Straight ahead, passengers will find the United ticket counter. Retractable dividers are set up to allow passengers to form an orderly line to check into their flight and check baggage prior to their flight. Passengers who have already checked in whether it be in person or on their mobile device, are able to take a seat in the circulatory waiting area located to the right of the front entrance, opposite the Avis and Budget counters. Additional seating with tables and vending machines, is located to the left of the front entrance just past the ACE counter.

Restrooms are located left of the front entrance through a hall way on the south side of the terminal lobby. Both passengers and staff use these restrooms. Further down the hallway past the restrooms on the west side of the building is the Airport museum. This museum showcases the Airport's history as an active military airport and now civilian-use airport. Continuing past the airport museum are airport management offices, the airport conference room, and the Presque Isle Industrial Council administrative offices. Individuals visiting the Airport for the sole purpose of

meeting with Airport management or the Industrial Council have the ability to use the entrance on the south side of the terminal building.

Security is located next to United ticket counters and opposite the waiting area. The TSA line is formed to the right of the United Airlines counter and the TSA equipment and personnel are located on the far north side of the terminal lobby. Passengers wait in the main lobby seating area to avoid crowding around the TSA line prior to the checkpoint. Passengers remain in the sterile area (as defined in more detail in Section 2.7.3) until boarding begins. Passengers who have gone through security must remain standing until the boarding process begins if all available seats are occupied. There are no restrooms accessible to passengers once they have passed through security and entered the sterile area.

Passengers landing at the Airport walk from the airplane to the terminal building in an area exposed to the elements. The door passengers are directed to leads directly to the baggage claim area. After baggage has been retrieved, passengers will exit through the north side terminal door for their parked automobiles or through the front doors if being picked up.

Inadequate portions of the terminal and passenger flow will be identified in the Facility Requirements chapter of this report.

Automobile Parking Facilities

There are three automobile parking lots for the terminal building at PQI: public parking, employee parking, and rental car parking.

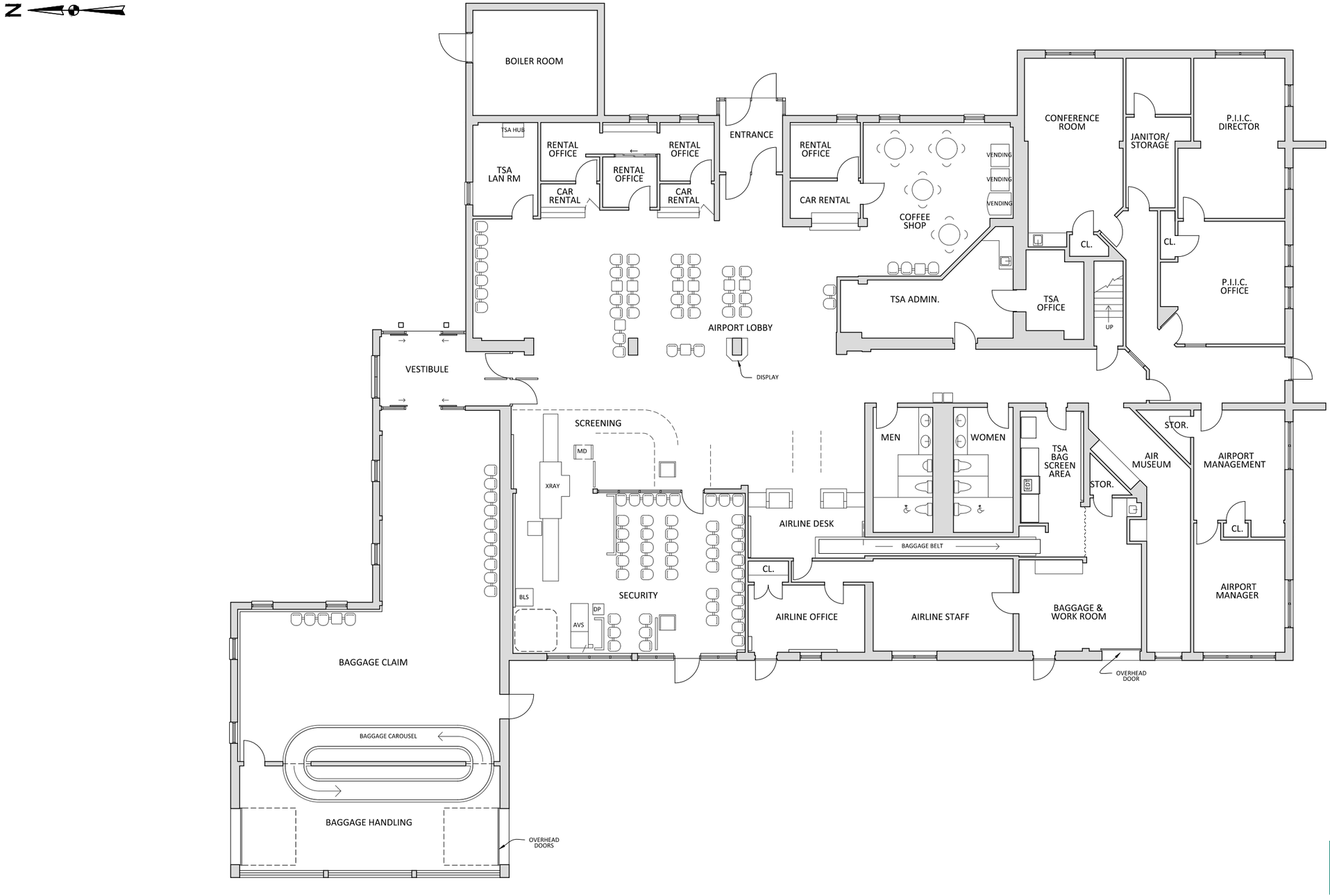
The public parking lot is located north of the terminal and serves as short-term and long-term passenger or guest parking. This portion of the parking lot has 79 marked parking spaces including four designated handicapped accessible spots. The Airport provides free short-term parking. Overnight parking costs $7 per night. Airport staff leave envelopes on the windshields of parked cars and mark off each subsequent night the car remains in the lot. Guests can drop off payments to Airport management through the depository on the front of the terminal building or mail in the charged amount.

Rental car parking is designated parallel to and southeast of the terminal building, along Airport Drive. There are three rental car facilities and each is assigned ten parking spots for a total of 30 rental car spots.

The employee parking lot is located south of the terminal building. There are 49 remaining marked parking spaces provided for employee and special events parking. On an average day, approximately 15 parking spaces are filled in the employee lot.

In addition to the paved parking lots, there are two gravel parking lots and one area that was formerly a gravel parking lot with the potential to return to that usage. The gravel lot located north of the passenger parking lot is approximately 3,600 SY. The gravel lot located directly across Airport Drive from the terminal is approximately 1,800 SY. The former gravel parking lot has approximately 870 SY available to convert back to a gravel parking lot. These parking lots are available for overflow parking. These gravel lots can be seen in Figure 2-6.

Figure 2-7: Terminal Building Layout



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Ground Access and Circulation

Airport Drive provides access to PQI. There is one access point on the north side of the public parking lot to the parking area. Passengers can either park or be dropped off at the terminal curb. A one-way circular drive surrounds the public parking lot. Rental car vehicles and people using the employee parking lot can use a driveway further south on Airport Drive, which also serves as an exit location for vehicles dropping off passengers at the terminal curb.

Ground Transportation

There is no public transportation available to and from the Airport. Local taxis provide access to the Airport for those passengers without a private vehicle.

Terminal Apron

Total apron area is approximately 12,000 SY. A Pavement Management Study is underway as part of this Master Plan project.

The terminal apron provides access to the air carrier gate as well as direct access to the baggage claim area. No passenger boarding bridges are available and passengers are exposed to the elements while traversing between the terminal building and the aircraft.

Deicing is available (Type I fluid and Type IV fluid). Deicing occurs on the south end of the terminal apron and is done by United staff and equipment.

2.6.3. Airport Security

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

As a commercial service airport, PQI operates under an Airport Security Plan (ASP) which is approved by the TSA and outlines how the Airport remains in compliance with CFR Part 1542. Items outlined in the ASP include the designation of certain portions of the Airport as follows:

- Security Identification Display Area (SIDA): where anyone entering or present must display proper identification and be appropriately badged or be escorted by someone meeting the requirements.

- Secured Area: where commercial service aircraft are enplaned and deplaned. The Secured Area must have access controls to deny access to individuals without proper authorization or operational need to be present in that area.

- Sterile Area: where ticked passengers wait to board commercial service aircraft after passing through a passenger screening checkpoint to ensure they are not carrying any dangerous or prohibited items.

The ASP also identifies how the Airport will comply with other requirements of CFR Part 1542 such as training requirements, law enforcement support of TSA screening operations, record-keeping, public advisories, incident management, etc.

The TSA is responsible for providing passenger and baggage screening services. In addition, there are numerous gates and fences on and around the Airport, as well as security signage displayed throughout airport property. Local law enforcement are present at the airport during commercial flight arrivals and departures to provide additional security.

PQI is a designated port-of-entry but is limited to aircraft with 15 or fewer souls on board. In the event of an emergency requiring an air carrier to divert to the airport with passengers who have not cleared CBP the aircraft must contact airport management or the Fixed Base Operator (FBO), Presque Isle General Aviation for assistance. In the event of an emergency diversion while the airport is unmanned, contact the City of Presque Isle Police Department Dispatcher. The local CBP would be contacted immediately and necessary procedures and accommodations will be made[3].

Passenger Screening

The TSA security checkpoint is located on the far north side of the terminal lobby. The checkpoint consists of one carry-on x-ray baggage scanner and passenger metal detector. Due to space constraints, TSA is only able to process one passengers at a time. Therefore, passenger throughput decreased.

TSA offices are located in a room opposite the restroom facilities in the terminal.

Baggage Screening

The TSA checked baggage screening is located in a secured room on the west side of the terminal building south of the restroom facilities. Passengers are able to bring their checked baggage up to the United Airlines ticket counter. United staff members place the baggage on a small belt to transport the baggage to the secured room for scanning by TSA staff.

Typically, the TSA security checkpoint and the checked baggage screening are located together. The TSA staff at PQI is forced to split its workforce to manage tasks in two separate locations rather than being able to perform all duties in one place.

2.6.4. General Aviation

Fixed Base Operator (FBO) Services

The Airport provides FBO services through the GA terminal and are available 365 days a year. The services offered include fuel services, ground power, customs/agricultural clearance, deicing, catering, preheats, heated hangars, and car rentals.

[3] 2012 Northern Maine Regional Airport (PQI) Tarmac Delay Emergency Contingency Plan

FBO have specified hours, but are available 24 hours a day via request. Services outside of specified hours are subject to an extra fee.

Customs clearance is available at the Airport for aircraft carrying 15 passengers or less. Clearance with customs requires advance notice of at least one hour prior to arrival. Agriculture clearance is also available to dispose of galley waste.

Airport Tenants

The Airport has numerous tenants that lease hangar space. These include both corporate tenants as well as individuals leasing space for personal aircraft. Corporate tenants include Crown Ambulance Services, who provides emergency medical response and M.S. Lavoie, who is an air applicator specializing in agriculture and forest industries.

Aprons

There are two aprons utilized by GA operations. The GA Apron is located adjacent to Taxiway A and the North Apron is located at the north end of Taxiway E.

The GA Apron is constructed of asphalt pavement and has a total apron area of approximately 30,000 SY. The GA Apron has access to Runway 1-19 via Taxiways A and B as well as access to Runway 10-28 via Taxiway A. Aircraft tie-down locations are provided on the apron with space available for 18 aircraft. Tie-downs are not typically used during winter months.

The North Apron is constructed of a combination of asphalt and concrete pavement and has a total apron area of approximately 8,000 SY and 12 tie-downs. The North Apron has direct access to the Runway 19 threshold via Taxiway E.

2.7. SUPPORT FACILITIES

2.7.1. Aviation Fueling Facilities

PQI offers two types of fuel at the airport: Jet A and 100 LL Avgas.

The Jet A fuel is stored in a 15,000-gallon above ground tank and located on the south end of the GA apron. Prist Injection is available with Jet A fueling services. While the Jet A fuel tank has self-service capabilities, most fueling service is provided by a 5,000-gallon Jet A fuel truck. PQI receives approximately 10,000-gallon deliveries every 1.5 weeks. There may be a business decision to add a second Jet A fuel tank.

The 100 LL Avgas is stored in a 12,000-gallon below ground tank and is located on the south end of the GA apron. Avgas is available through self-service fueling. Fueling services are also provided through a 2,100-gallon Avgas fueling truck.

Over the past five years, the Airport has seen a steady decline in 100 LL fuel sales, while simultaneously seeing a growth in Jet A fuel sales. Table 2-7 shows gallons of fuel sold from 2014 to 2018.

Table 2-7: Gallons of Fuel Sold

	2018	2017	2016	2015	2014
Jet A	374,916	257,812	264,093	283,232	299,546
100 LL	10,785	13,461	14,345	16,797	20,639

Source: Airport Management, 2019.

2.7.2. Aircraft Rescue and Fire Fighting (ARFF)

ARFF is housed in a shared building with airport maintenance and equipment storage. The ARFF/Airport maintenance building was constructed in 1993 and totals approximately 10,000 SF. This facility comprises a working/office/ training facility. There is one ARFF bay on the south side of the building. The ARFF space of this building occupies approximately 3,400 SF of the 10,000 SF total.

CFR Part 139, *Certification and Operations: Land Airports Serving Certain Air Carriers*, Section 139.315, *Aircraft Rescue and Firefighting: Index Determination*, indicates that an index is required for each CFR Part 139 certificate holder. The index is based on the length of air carrier aircraft using the airport and the average number of daily departures. Index A includes aircraft that are less than 90 feet in length. According to Section 139.315, if there are five or more daily departures of air carrier aircraft in a single Index group serving that airport, the longest Index group with an average of five or more daily departures is the Index required for the airport. If there are less than five average daily departures of air carrier aircraft in a single Index group serving the airport, the next lower Index from the longest Index group with air carrier aircraft in it is the Index required for the airport. The minimum designated Index is Index A. PQI is ARFF Index A.

According to 14 CFR Part 139 Section 139.317, *Aircraft Rescue and Firefighting: Equipment and Agents*, Index A requires a minimum of one of the following:

(1) One vehicle carrying at least 500 pounds of sodium based dry chemical, halon 1211, or clean agent; or
(2) One vehicle carrying 450 pounds of potassium-based dry chemical and water with commensurate quantity of aqueous film forming foam agent (AFFF) to total 100 gallons for simultaneous dry chemical and AFFF application. [4]

Currently, PQI is equipped with an Index B ARFF truck, which meets Index A and B ARFF requirements.

2.7.3. Airfield Maintenance and Snow Removal Equipment (SRE)

Airfield maintenance and SRE equipment are housed in a shared facility with ARFF. This 10,000 SF building has one maintenance bay, four equipment bays, and one sand bay. The maintenance and storage bays occupy approximately 6,600 SF of the 10,000 SF total. This facility provides shared office space and training spaces with ARFF. Presently, the non-ARFF portion of this building houses nine vehicles and will be used to house two additional vehicles as winter weather approaches. This

[4] https://www.law.cornell.edu/cfr/text/14/139.317

facility is too small to house all SRE and maintenance equipment owned by the Airport. Equipment that does not fit in this building are stored outside or in city owned buildings located off Airport. A complete list of equipment owned by the Airport includes:

- 3 Snow Plows (Including a 2012 Western Star)
- Kubota RTV 1100 Airfield and Fence Inspection Vehicle
- Komatsu WA 95 Utility Loader
- John Deere 744H Loader
- John Deere 744K Loader
- Oshkosh Snow Blower
- M-B and rotary broom and blowerhead
- 2 M-B 20-foot rotary brooms
- Skid steer with snow blower and edge light cleaner attachments
- 2005 International Chemical Sprayer Truck
- John Deere 9430T Tractor
- John Deere 4066R Tractor + finish mower
- 20-foot Bush Hog for JD 9430
- 2 Chevy Pick-up Trucks
- Global 1800 Deicing Truck
- Jet-A 5,000 Gallon Fuel Truck
- 100LL 2,100 Gallon Fuel Truck

The following pieces of equipment are unable to be stored in the SRE and maintenance building: 1 Chevy pick-up truck, Global 1800 deicing truck, Jet-A 5,000 gallon fuel truck, and the 100LL 2,100 gallon fuel truck.

The following is a list of equipment used by the Presque Isle Industrial Council to maintain the properties in both the IC and on Airport Deeded property:

- 1-Ton Dump Truck
- ½-Ton 4x4 Maintenance Truck
- Commercial Warehouse Forklift
- Rough Terrain Scissor Lift
- 75 HP 4x4 Tractor
- 35 HP 4x4 Tractor
- 4-Heavy Duty Commercial Flail Mowers
- Diesel 6’ Commercial Z Mower
- 8’ Commercial 3-Point Hitch Snow Blower
- 6’ Commercial Snow Pusher Blade
- Miscellaneous Small Grounds Maintenance Equipment, Mechanic Tools, Metal and Wood Working Equipment, Pressure Washers, and Safety Equipment

Airport Utilities

Airport utility providers are as follows:

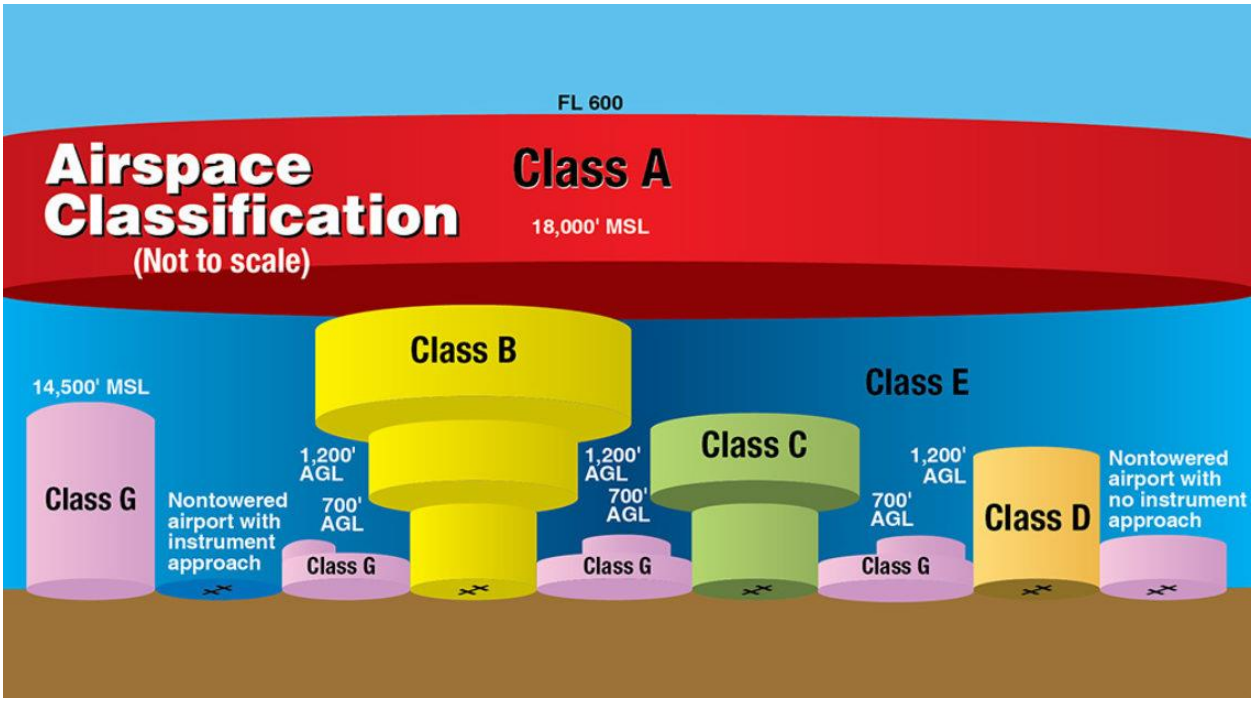
- **Electric:** Emera Maine
- **Gas:** Natural gas not provided to the Airport

- **Water and Sanitary Sewer:** Presque Isle Water and Sewer District
- **Telephone:** Consolidated
- **Internet:** Spectrum
- **Trash/Recycling:** Trash pick-up is provided by the City of Presque Isle. The Presque Isle Transfer Station for recycling located at 655 Missile Street adjacent to the north side of the Airport closed in 2019. Information about the Airport's waste and recycling plan can be found in **Appendix B**.

2.8. AIRSPACE

Airspace in the United States is classified as controlled, uncontrolled, or special use. Examples of the different types of airspace can be seen in **Figure 2-8**. Controlled airspace covers the five different classes of airspace: Class A, B, C, D, and E and defines which air traffic control (ATC) service is provided to IFR (instrument flight rules) and VFR (visual flight rules) flights. Class G is uncontrolled airspace where ATC has no authority or responsibility to control aircraft. Typically, special use areas are located around military training facilities. To view the airspace surrounding the Presque Isle International Airport, refer to **Figure 2-9.**

Figure 2-8: Airspace Classifications

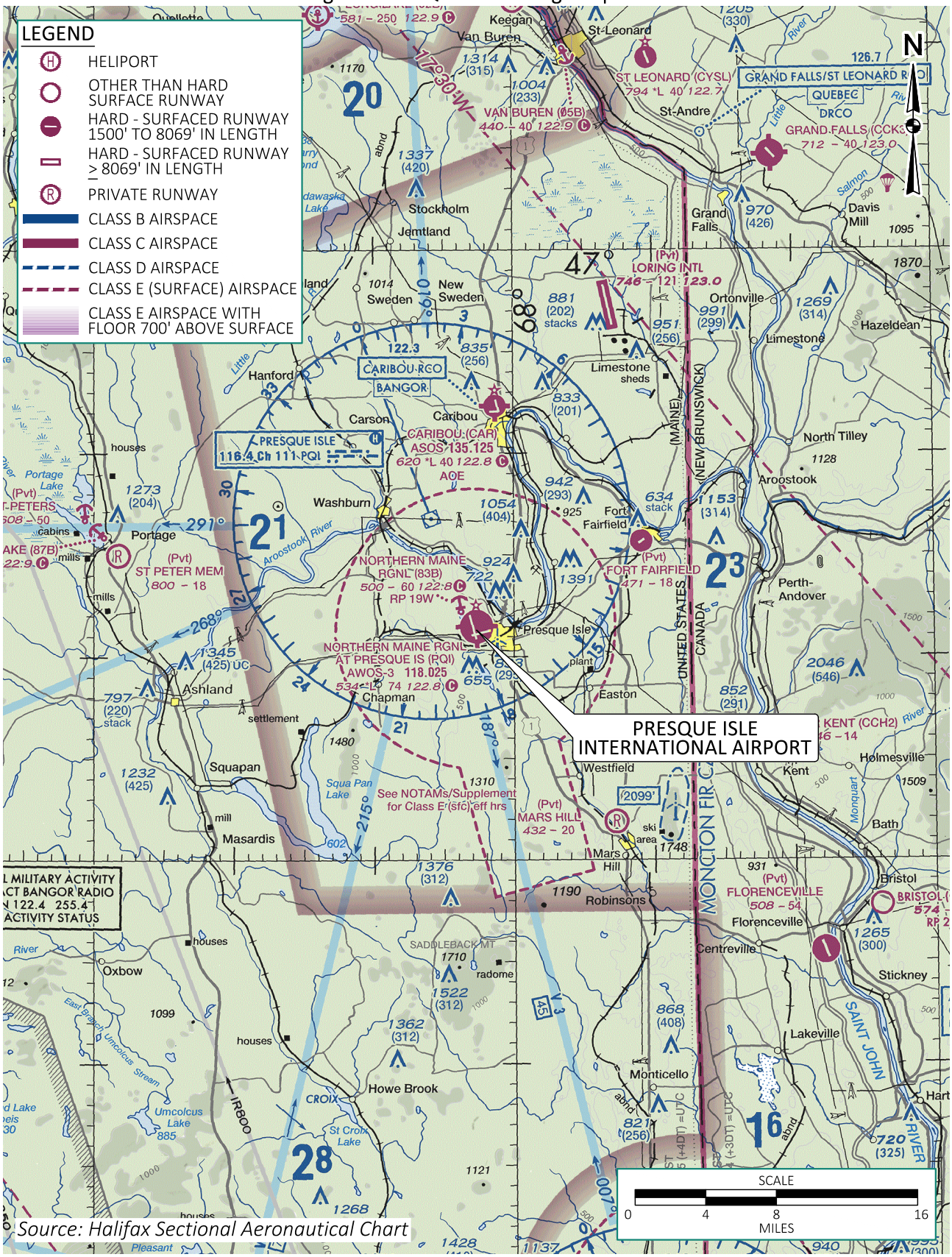


Source: https://aerial-guide.com/article/sectional-chart-airspace-classification-overview.

2.8.1. Controlled Airspace Classes

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

Figure 2-9: PQI Surrounding Airspace



Source: Halifax Sectional Aeronautical Chart

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- **Class B:** Requires ATC clearance before operating an aircraft within this airspace. All aircraft are subject to IFR or Controlled Visual Flight Rules (CVFR). Class B airspace surrounds the nation's busiest airports and has the appearance of an upside down multi-tier cake that funnels aircraft traffic toward the airport. Generally, the airspace is within a 20-nautical mile radius and 10,000 feet MSL from the surface. Quebec City Jean Lesage International (CYQB) is the closest airport to PQI with Class B airspace surrounding it and is located 137.8 NM west of PQI. Boston Logan International (BOS) is the closest United States airport to PQI with Class B airspace surrounding it and is located 288.8 NM south east of PQI.

- **Class C:** Similar to Class B, this airspace requires ATC clearance before operating an aircraft within this airspace. All aircraft are subject to IFR or CVFR. Class C airspace generally starts at 4,000 feet MSL and has two tiers, the top cylinder has a radius of 10 NM and the bottom cylinder has a radius of five nautical miles. Bangor International (BGR) is the closest airport to PQI with Class C airspace surrounding it and is located 117.6 NM south east of PQI.

- **Class D:** This airspace generally extends upward to an altitude of 2,500 feet MSL and is within a five-statute mile radius. Aircraft must maintain two-way radio communication with the control facility while operating in this airspace. Portsmouth International at Pease (PSM) is the closest airport to PQI with Class D airspace surrounding it and is located 246.7 NM south east of PQI.

- **Class E:** Covers all the controlled airspace that is not classified as A, B, C, or D. The airspace is also used as a transitional airspace to and from the terminal and begins at the surface, or at 700 feet or 1,200 feet above ground level (AGL) (or 14,500 feet MSL in remote areas). This class has no special restrictions on pilot qualifications or aircraft equipment rules. Nevertheless, it is still controlled airspace and ATC services can still be provided through Air Route Traffic Control Center (ARTCC). The FAA has designated the airspace around PQI as Class E airspace. PQI airspace extends from the surface up to 18,000 feet where Class A airspace begins. Horizontally, this Class E airspace forms a diameter around the airport measuring approximately 15 miles as well as a 5 mile by 7-mile extension to the southeast in line with the Runway 1 approach. Outside of PQI airspace, Class E airspace has a floor of 700 feet above the surface. This airspace abuts the Canadian border which is approximately 12 miles east of the Airport. This airspace is approximately 15 miles south of the airport and extends from the Canadian border west approximately 22 miles, extends northwest approximately 34 miles and then 25 miles north east back to the Canadian border. Hours of Class E airspace at PQI may vary and should be reviewed on current Notices to Airmen (NOTAM). During certain times, airspace around PQI could become Class G uncontrolled airspace.

2.8.2. Uncontrolled Airspace Class

- **Class G:** Covers all uncontrolled airspace. VFR minimums apply in this airspace. This includes all low-level airspace below 700 feet or 1,200 feet AGL and it extends up to 14,500 feet MSL in remote areas without airport traffic.

2.8.3. Special Use Airspace

- **Special Use Airspace:** Consists of prohibited, restricted, warning, alert, controlled firing, and military operation areas (MOA). Pilots are cautioned to be extra vigilant when transitioning through MOA's; however, restricted airspace is off limits when in use by a controlling agency such as the U.S. military. Southwest of PQI is a Special Military Activity area protecting the Military Training Routes (MRTs) IR 850 and IR 851.

- **Other Airspace:** PQI is located less than 15 NM from the Canadian Border. Pilots must be aware of the bounds of Canadian Airspace. There is also a special conservation area southwest of PQI protecting the airspace over Baxter State Park.

2.9. AIR TRAFFIC CONTROL

PQI is an un-towered airport. Pilots self-report on the Airport frequency of their intent. Pilots flying in and out of the Airport may file a flight plan with the Bangor Flight Service Station (FSS). Once in the air, all pilots utilizing IFR flight plans communicate with Boston ARTCC.

The current Unicom frequency is 122.8 to communicate at the Airport. However, the frequency 122.6 is used to turn on the lights at PQI. Pilots trying to turn on the lights at PQI with the frequency 122.8, trigger the lights at CAR. Both PQI and CAR have runways with the magnetitic declination: Runway 1-19. This has caused confusion that has led to pilots accidentally landing at the incorrect airport. The shared frequency is an area of concern for the Airport.

2.10. LAND USE AND ZONING

2.10.1. Land Use

Neither Presque Isle nor Mapleton have land use designations.

2.10.2. Zoning

The Airport property is currently zoned as five different zoning codes as can be seen in **Figure 2-10**. The Airport property is subjected to the zoning ordinance of both the City of Presque Isle[5] and the Town of Mapleton[6]. The following are definitions of zoning areas on the Airport:

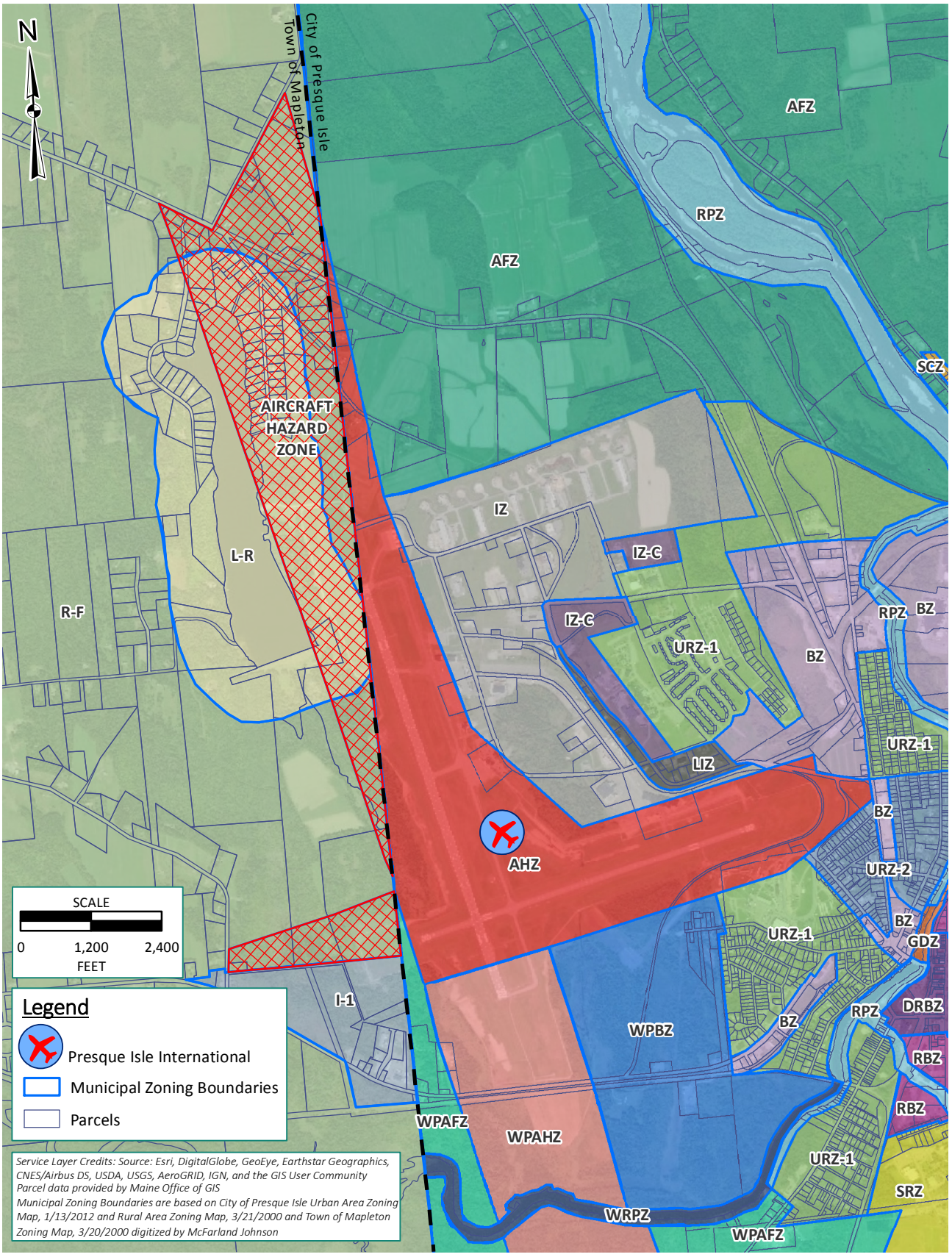
- **Aircraft Hazard Zone (AHZ):** The AHZ is intended to protect the airport from adverse developmental effect and to prohibit large concentrations of people.

- **Watershed Protection Aircraft Hazard Zone (WPAHZ):** The WPAHZ is intended to protect, maintain, and where warranted, improve the water quality of the public water supply and to protect the airport from adverse developmental effects, and, to prohibit large concentrations of people.

[5] City of Presque Isle Land Use and Development Code Ordinance August 1, 2016

[6] The Mapleton Zoning Ordinance March 17, 2003

Figure 2-10: Zoning Map



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- **Industrial Zone (IZ):** The IZ is intended to provide areas within the City of Presque Isle for manufacturing, processing, treatment, and research, and to which end all the performance standards set forth in the Code shall apply.

- **Industrial Zone Conditional (IZ-C):** The IZ-C is intended to provide areas within the City of Presque Isle for schools and other educational institutions, light manufacturing, research facilities and alternative energy generational facilities.

- **Watershed Protection Agricultural Farming Zone (WPAFZ):** The WPAHZ is intended to protect, maintain, and, where warranted, improve the water quality of the public water supply and to protect the natural rural quality and farm land properties from development sprawl by prescribing the most appropriate uses and standards.

- **Urban Residential Zone-1 (URZ-1):** The URZ-1 is intended to preserve and/or maintain the physical, aesthetic and social qualities of Presque Isle's residential neighborhood areas and, as well as residential character in those area(s) so designated and consistent with this stated goal, to provide therein for the location of a variety of residential uses in accordance with the standards of this code. To this end, residential development shall not exceed the net residential density allowable herein and may preferably occur in accordance with the provisions of Chapter II, Section IV, of this Code.

The other zoning classifications bordering PQI are defined by the Presque Isle Zoning Ordinance as follows:

- **Light Industrial Zone (LIZ):** The LIZ is intended to provide areas within the City of Presque Isle for urban and suburban light manufacturing, processing, storage, wholesaling and distribution operations, and limited commercial uses. The regulations established in this Code are intended to allow efficient use of the land while at the same time making the district attractive and compatible for a variety of uses.

- **Business Zone (BZ):** The BZ is intended to provide general retail sales, services and business space within the City of Presque Isle in locations capable of conveniently serving community-wide and/or regional trade areas.

- **Urban Residential Zone-2 (URZ-2):** The URZ-2 is intended to preserve and/or maintain the physical, aesthetic, and social qualities of Presque Isle's residential neighborhoods, as well as residential character in those area(s) so designated and consistent with this stated goal, to provide therein for the location of a variety of residential uses in accordance with the standards of this code. To this end, residential development shall not exceed the net residential density allowable herein and may preferably occur in accordance with the provisions of Chapter II, Section IV of this Code.

- **Watershed Resource Protection Zone (WRPZ):** The WRPZ is intended to protect, maintain, and, where warranted, improve the water quality of the public water supply, while furthering the maintenance of safe and healthful conditions; preventing and controlling potential water pollution sources; protecting spawning ground, fish, aquatic life, bird, and

other wildlife habitat; and conserving shore cover, visual as well as actual points of access to inland and coastal waters and natural beauty. To this end, no structures will be permitted except as herein defined.

- Agricultural Farming Zone (AFZ): The AFZ is intended to protect the natural rural quality and farm land properties from development sprawl by prescribing the most appropriates uses and standards.

The other zoning classifications bordering PQI are defined by the Mapleton Zoning Ordinance as follows:

- Lake and Recreation District (L-R): The L-R District is established as a district defined as being within a radius of 1,000 feet of the normal high water mark. The principal use is lake and lake shore oriented activities and associated uses including boating, swimming, picnicking, fishing, camping, ice skating, and in specific fish, wildlife, or migratory fowl habitat.

- Light Industrial District (I-1): The I-1 District is established as a district in which the principal use of the land is for light industry and its associated uses. Certain open areas favorably situated with respect to transportation and containing other factors conducive to light industrial development are also included. This is for the purpose of reserving suitable land for the expansion of existing light industry and location of new light industry, and to enhance economic development and employment opportunities.

- Residence and Farming District (R-F): The R-F District is established as a district in which the principal use of the land is for agriculture, forestry, rural-type residence, and customary associated uses. Included in this district are certain uses unsuited to the more densely developed urbanized portions of town. Large lots, with ample space between buildings, are required as a means of reducing fire hazards, and to provide sufficient area for both private water supply and septic disposal system on the same lot. Other purposes of this district include conservation of natural resources, reduction of soil erosion, and encouragement of appropriate recreational use of the land.

PRESQUE ISLE
INTERNATIONAL AIRPORT
AÉROPORT INTERNATIONAL DE PRESQUE ISLE

Chapter 3

Aviation Forecasts

McFarland Johnson

Stantec

3. Aviation Forecasts

3.1. INTRODUCTION

The purpose of aviation forecasting is to outline future growth of aviation activity over a 20-year period at the Presque Isle International Airport (PQI or the Airport). The Federal Aviation Administration (FAA) requires that all airport planning efforts be based upon an approved forecast methodology as the resulting analysis assists in determining the facility requirements for meeting future demand.

The key elements of this chapter include:

- Forecast Influencing Factors
- Socioeconomic Data
- Commercial Passenger Enplanements
- Aircraft Operations
- Based Aircraft
- General Aviation Passengers
- Annual Instrument Operations
- Forecast Summary
- Existing and Future Design Aircraft

Key metrics of the aviation forecasts and their focus at PQI include the following:

Annual Commercial Passenger Enplanements – The number of people boarding aircraft at PQI each year, which is used to identify the need for future passenger terminal area space, parking facilities, and airport access. In the dynamic commercial aviation industry forecasting passenger enplanements requires a broad view of trends and influencing factors as opposed to looking at past relationships through regression analysis. These growth-influencing factors range from socioeconomic patterns to air service analyses.

Aircraft Operations – The number of takeoffs and landings at PQI each year, which is used to determine the necessary capacity of the airfield and aircraft operating area. A takeoff and landing is each counted individually as one operation.

General Aviation Operations – The estimated number of general aviation (GA) takeoffs and landings at PQI, which is used to determine the necessary capacity of the airfield and GA support facilities.

Annual Military Operations – The estimated number of military takeoffs and landings at PQI.

Based Aircraft by Type – The number and type of GA aircraft maintained at the Airport on a permanent basis, which is used to identify the space requirements of future facilities.

General Aviation Passengers: The estimated number of non-pilots utilizing general aviation facilities.

Annual Instrument Approaches – The estimated number of approaches using a flight plan.

The forecast efforts will carefully consider the uses and applications for which the forecast demand will be applied. An emphasis has been placed on activity indicators that drive facility planning such as peak hour enplanements, air cargo, and GA demand.

3.2. FORECAST INFLUENCING FACTORS

The forecast analysis for the PQI master plan reflects a snapshot in time based on historical trends and industry data from the year 2018 from here on referred to as the baseline year. Influencing factors presented in this section identify considerations and areas of uncertainty that provide additional context for the PQI forecast. Changing variables and guaranteed uncertainty are underlying reasons for the dynamic master plan approach which includes the scenario-based forecasts and Dynamic Analysis Tool that combine to enhance the utility of the forecast as the industry evolves.

3.2.1. Service Area

As defined in Chapter 2 – *Inventory*, PQI's potential commercial service area is largely determined by the remote nature of the Airport. Therefore, the true service area is defined as the area for which PQI is the closest commercial service airport. This area extends up to 3-hours' drive time from PQI as shown in Figure 2-3. The closest commercial service airport to PQI in the state of Maine is Bangor International (BGR). Currently, cars bearing Canadian license plates make up approximately 14 percent of the overnight parking generating revenue at the Airport. With its proximity to the Canadian border, PQI's service area extends into New Brunswick Provence. The closest Canadian commercial service airports to PQI are Quebec City (YQB) and Fredericton (YFC).

The GA service for PQI divided into jet service and non-jet service airports as shown in Figure 2-4 and Figure 2-5, respectively. For the purpose of this study, jet service is assumed to need at least one 5,000-foot runway and non-jet service are all other GA airports with at least one paved runway of less than 5,000 feet. Within Aroostook County, PQI and Houlton International (HUL) are the only airports with at least one 5,000-foot runway to provide jet service. For non-jet service, there are only four GA airports with at least one paved runway located in Aroostook County. These airports are: PQI, HUL, Caribou Municipal (CAR), and Northern Aroostook Regional (FVE).

For both commercial and GA, changes in facilities or activity at other airports in the service area have the potential to affect demand and activity levels at PQI both positively and negatively.

Considerations for the local economy are based on existing conditions and past performance. Analysis and speculation regarding possible future economic performance is not part of this master plan. However, any significant future changes in the local economic performance, for better or for worse, would warrant a cursory review of the forecast inputs and assumptions.

3.2.2. Aviation Industry

The airline industry is evolving rapidly to maintain sustained profitability as the economy continues to improve. There have been a number of airline mergers reducing overall system capacity and affecting individual market competition. These mergers have created more efficient airlines with

increased load factors and profits, primarily resulting from reduced competition and unbundled products driving new ancillary revenues for things such as checked baggage and seat assignments.

The decreases in fuel price across the country have also facilitated record profits for most U.S. airlines. As of August 2017, this trend has plateaued and airlines may be susceptible to the pressure of rising fuel costs once again. Recovery of the economy has led to steady increases in leisure and business travel while the airlines have continued slow growth in seating capacity. The net result between the economy, airline mergers, and the growth of ancillary services and fees is fewer flight options nationwide, moderately higher ticket costs to the passengers, and stronger airline profits. The bulk of the traffic growth has been occurring at large-hub airports where competition is at its greatest.

Some specific aviation industry influencers include:

Pilot Supply – In recent years, the industry has begun to see impacts associated with a reduced number of pilots entering the aviation industry. Reduced pay, with the onset of regional jet flying in the 2000's, and regulatory changes requiring 1,500 hours for first officers have added to an already increasingly expensive training process. These are compounding factors that will likely increase the severity of this issue in the coming years. Some industry groups also predict a similar shortage in qualified aircraft mechanics. Limited pilot supply is a contributing factor to the recent aircraft up-gauging trend.

NextGen – For the past 10 years, the FAA has been incrementally implementing new technology with the broader goal of modernizing the nation's air traffic control system. Some of the key objectives involve improving the safety and efficiency of airspace in and around high-volume airport regions such as Atlanta, New York, and Washington. These improvements may not have a noticeable impact on PQI's operational efficiency; however, they may reduce delays to hub airports and provide the opportunity for additional schedule frequencies resulting in an improved passenger experience.

Fuel Prices – Over the past 10 years the aviation industry has demonstrated its sensitivity to fuel prices and their impact on operational cost and ultimately aviation demand. On average, fuel represents approximately one-third of the cost of commercial aviation activity. Thus, during spikes in fuel prices like in 2008, the impacts to both supply and demand are tremendous. Advancements in fuel technology will help reduce industry sensitivity to fuel although it will likely continue to be a key influencer for activity for some time.

Aircraft Technology – Over the past 20 years there have been significant advances and innovations to aviation and aircraft technology. With global positioning system (GPS) technology, unmanned aerial systems (UAS), and single pilot operations for complex aircraft systems, the next 20 years will likely yield numerous additional advances in technology that could impact various airline business models. Monitoring and maintaining an awareness of technology enhancements and potential applications for PQI will help ensure the Airport is always well-positioned to respond to a changing industry.

Essential Air Service (EAS) - PQI is served by an airline receiving subsidy from the EAS program. EAS subsidy is provided to qualifying airports generally for two to four round trips per day to a major

hub airport[1]. The nearest large hub airport is Boston-Logan International (BOS) which is located 288.8 nautical miles (NM) from the Airport. The nearest medium hub airport is Bradley International (BDL) which is 347.5 NM from the Airport. To receive EAS, airports need to meet the following eligibility requirements:

- It is located more than 70 miles from the nearest large or medium hub airport
- It requires a rate of subsidy per passenger of $200 or less, unless the community is more than 210 miles from the nearest large or medium hub airport
- The average rate of subsidy per passenger was less than $1,000 during the most recent fiscal year at the end of each EAS contract, regardless of the distance from a hub airport
- It had an average of 10 or more enplanements per service day during the most recent fiscal year, unless it is more than 175 driving miles from the nearest medium or large hub airport or unless the Department of Transportation is satisfied that any decline below 10 enplanements is temporary[2].

3.3. SOCIOECONOMIC DATA

In an effort to understand the socioeconomic atmosphere surrounding the Airport, data was collected and placed in multiple tables below. These tables provide a comparison between the United States, the State of Maine, Aroostook County, and surrounding cities and towns that comprise the local area.

The total percent change in population from 2000 to 2017, shows that the Presque Isle vicinity has experienced a steady decline in population. While the U.S. and the State of Maine have seen increases in population. Aroostook County, Presque Isle, Caribou, and Fort Fairfield have seen declines in population as shown in Table 3-1.

Table 3-1: Population Change 2000-2017

Area	2000 Population	2010 Population	2017 Population (Estimate)	Total % Population Change (2000-2017)
United States	281,421,906	308,745,538	325,719,178	15.74%
State of Maine	1,274,923	1,328,361	1,335,907	4.78%
County of Aroostook	73,938	71,870	67,653	-8.50%
City of Presque Isle	9,511	9,692	9,078	-4.55%
City of Caribou	8,312	8,189	7,684	-7.55%
Town of Fort Fairfield	3,579	3,496	3,392*	-5.22%*

Sources: U.S. Census Bureau, American Fact Finder 2018.
Note: *2016 Data utilized

[1] Per the 2019 – 2023 National Plan of Integrated Airport Systems (NPIAS), hub designation is based on the percentage of U.S. enplanements enplaned at a specific airport. Large Hub is ≥1%. Medium Hub is ≥0.25% to <1.00%. Small Hub is ≥0.05% to <0.25%, and Non-Hub is >10,000 but < 0.05%.

[2] Essential Air Service (EAS). Research report no. R44176, Congressional Research Service, 19 Dec. 2018.

The Presque Isle surrounding area is rather homogenous. However, the one exception is the City of Presque Isle has more than four times the representation of Native Americans compared to the state and the nation. Nationally, there is a higher percentage of all remaining minority populations than in Presque Isle or surrounding cities. National, state, and local demographics can be seen in Table 3-2.

Table 3-2: Racial and Ethnic Characteristics (2016 Data)

Area	White	African American	Asian	Native American	Hispanic/ Latino
United States	62.0%	12.3%	5.2%	0.7%	17.3%
State of Maine	93.7%	1.2%	1.1%	0.6%	1.5%
County of Aroostook	94.6%	0.8%	0.5%	1.6%	1.1%
City of Presque Isle	93.2%	0.5%	0.7%	2.9%	0.7%
City of Caribou	91.3%	3.3%	0.3%	0.9%	1.9%
Town of Fort Fairfield	97.3%	0.0%	0.0%	0.9%	1.7%

Sources: U.S. Census Bureau, American Fact Finder 2018.

The majority of municipalities that surround the Airport are below the state and national unemployment and median household income rate, as shown in Table 3-3. The County of Aroostook has a minimally higher unemployment rate than the state. However, Presque Isle and surrounding cities do not. Aroostook County and municipalities near Presque Isle all have median household incomes lower than the state and the nation.

According to the 2016 American Community Survey provided by the U.S. Census American Fact Finder, the County of Aroostook major industries are educational services, health care, and social services (29.8%); retail (13.7%); and manufacturing (10.2%). The top ten employers in the county include medical service providers, hospitals, paper mills, manufacturing (food in particular), and retailers such as Walmart (Maine Dept. of Labor)[3].

Table 3-3: Employment and Income

Area	Unemployment Rate	Percent in Labor Force	Median Household Income
United States	7.4%	63.5%	$55,322
State of Maine	6.0%	63.2%	$50,826
County of Aroostook	6.2%	56.3%	$38,087
City of Presque Isle	5.5%	61.3%	$36,789
City of Caribou	4.7%	55.9%	$35,635
Town of Fort Fairfield	5.9%	57.2%	$35,208

Sources: U.S. Census Bureau, American Fact Finder 2017.

[3] https://www.maine.gov/labor/cwri/publications/pdf/MaineCountyTop25Employers.pdf

3.4. COMMERCIAL PASSENGER ENPLANEMENTS

Passenger enplanements are a key measure in the forecasting efforts for commercial service airports. The enplanements forecast focuses on the total annual enplanements as well as the peak hour characteristics of busier traffic periods. The results of these forecasts are particularly useful in the assessment of the passenger terminal building and associated facilities such as auto parking lots, helping to ensure that they are adequately sized for future demand.

3.4.1. Historical Activity

The historical data for passenger enplanements presented in **Figure 3-1.** The dip in enplanements in 2008/2009 can be attributed to a nationwide dip of travelers due to the Great Recession. In 2012 PenAir started flying EAS service between PQI and Boston. In 2012 Colgan Air petitioned to end its service from PQI to Boston[4], which could be the cause for the reduced enplanements in 2012/2013 until PenAir was established. Since then, enplanements have been on an upward trend. In 2018, United Airlines took over the EAS after PenAir stopped providing service in June, which resulted in the slight dip in 2018. United Airlines provides service from PQI to Newark Liberty International Airport. PQI is experiencing the best enplanement numbers in nine years.

3.4.2. Passenger Service Area Dynamics

Service Area Options

Having no other commercial service airport within a 3-hour drive, the City of Presque Isle's remote location creates a greater reliance on air travel for inter-city and inter-state travel. Beyond the city itself, the is a substantial portion of Maine and parts of Canada for which PQI is the closest commercial service airport. Additionally, PQI only captured seven percent of its current market area.

PQI provides EAS to the residents of northern Maine. "The Essential Air Service (EAS) program was put into place to guarantee that small communities that were served by certificated air carriers before airline deregulation maintain a minimal level of scheduled air service. The United States Department of Transportation (the Department) is mandated to provide eligible EAS communities with access to the National Air Transportation System. This is generally accomplished by subsidizing two round trips a day with 30- to 50-seat aircraft, or additional frequencies with aircraft with 9-seat or fewer, usually to a large- or medium-hub airport."[5] At PQI, there are up to two flights per day to and from Newark International Airport.

[4] https://bangordailynews.com/2011/12/13/business/penair-finalizes-bid-to-service-presque-isle-airport/
[5]https://www.transportation.gov/policy/aviation-policy/small-community-rural-air-service/essential-air-service

Figure 3-1: Historical Passenger Enplanements

*Sources: Airport Management, FAA Terminal Area Forecast (TAF), 2019. *estimated based on average September through December enplanements from the past 10 years.*

3.4.3. Forecast Methodology and Industry Factors

The presence of EAS service at the Airport makes PQI unique. Therefore, general assumptions are made during the forecast to most accurately reflect this unique circumstance. The assumptions made are that passenger demand will grow over time within the current schedule. New branded service, increased comfort, reliability, and better national connectivity are all expected to factor into demand.

Aircraft Load Factor – This forecast methodology looks at the capacity utilization of aircrafts on scheduled routes. United Airlines, which provides EAS service to PQI, has a current 82.7 percent load factor on regional flights[6]. Presently, the load factor is low due to a new service location. Educating the community on the new type of service and to the increased connections offered at Newark International as compared to former EAS destinations. The forecast methodology grows the load factor from existing levels up to what would be considered near the industry average over time on the basis and assumption that a branded network carrier and a more comfortable jet aircraft will increase traffic use at the airport compared to previous service options at PQI.

EAS Restrictions – PQI is served by an airline receiving subsidy from the EAS program. Schedules are a function of the EAS bid and therefore it is assumed that growth will be limited to the existing schedule. As result, operations are not changed whereas enplanements growth occurring in the

[6] https://hub.united.com/united-reports-march-operational-performance-2567373642.html

form of increased load factors. If load factors increase, the schedule will be adjusted to add new flights.

3.4.4. Selected Forecast

The load factor method forecast scenario is the selected forecast for enplanements and is displayed in Table 3-4. The baseline forecast numbers were collected data from the Airport. The load factor method estimated the number of enplanements based on the number of annual operations with the average load factor increasing each year from 44 percent in 2019 to approximately 86 percent in 2038 with a 97 percent completion factor (assuming three percent of flights might not take place due to weather, air traffic control (Newark) or mechanical factors).

Table 3-4: Baseline Enplanement Forecast

Year	Enplanements
Baseline	11,974
2023	16,948
2028	19,974
2038	26,027

Sources: Airport Management, McFarland Johnson, 2019 .

3.4.5. Derivative Forecast Scenarios

This section outlines additional derivative forecast scenarios that have been developed to address potential market conditions that are reasonably foreseeable but not able to be specifically quantified based on service announcements or contracts. These forecast scenarios will be additive to the selected baseline forecast and will be used for facility planning only.

New Ultra-Low Cost Carrier Service - This scenario would consider the introduction of a new ultra-low cost carrier (ULCC) to a new leisure destination. The service would be shown as an average of two weekly flights, nine months of the year. An additional weekly frequency will be shown as being added every three years. Flights would be conducted on 177-seat Airbus 320 aircraft. This scenario is modeled after the service patterns at other U.S.-Canadian Border airports such as Ogdensburg, Plattsburgh, and Niagara Falls.

New Small Regional Carrier - This scenario would consider the introduction of a new carrier flying aircraft with nine seats to a nearby regional hub such as Portland or Boston. Service is assumed to be 12 weekly flights (two on weekdays and one on weekends)

Additional Network Carrier Flight - This scenario would introduce a third flight to an existing or new destination. Flight would start as five times weekly for years one through five, six times weekly years 6-10, and daily after 10 years; flight would be operated by 50-seat aircraft.

New Maintenance, Repair, and Overhaul Facility/Major Tenant - This scenario would consider the impacts of a new major tenant such as a maintenance, repair, and overhaul (MRO) facility. The scenario would consider facilities and operations, but not any potentially ancillary scheduled air service.

Constrained EAS - Recent years have seen increased scrutiny under the EAS program which has resulted in some airports leaving the program. Due to the remoteness of PQI relative to other EAS airports, it is not anticipated that PQI lose EAS funding. This scenario however considers a constrained EAS market demand scenario based on unforeseen factors which could include causes such as schedule changes or reduced subsidy (higher fares). In this scenario, growth is reduced to minimal and to capture the effective difference; the enplanements are shown as a decrease relative to the baseline.

Table 3-5 displays the additional service levels of the derivative scenarios associated with new service at PQI.

Table 3-5: New Service Derivative Scenarios

	New ULCC		New Small Regional Carrier		Additional Network Carrier		New MRO/ Major Tenant		Constrained EAS	
Year	Ops	Enpl	Ops	Enpl	Ops	Enpl	Ops	Enpl	Ops	Enpl
1	168	12,192	1,248	3,120	520	10,400	208	0	0	-1,111
5	192	14,443	1,248	3,120	520	10,400	312	0	0	-4,137
10	328	24,674	1,248	3,432	624	12,480	416	0	0	-7,164
20	408	30,692	1,352	4,056	728	14,560	624	0	0	-13,216

Ops – operations; Enpl - enplanements
Source: McFarland Johnson, 2019.

3.4.6. Peak Hour Enplanements/Peaking Characteristics

When divided equally over the year and throughout the day, annual enplanement numbers will not accurately identify specific facility needs. To accurately identify airport requirements for facility planning, peaking characteristics are broken down into the following elements:

Peak Month – The PQI passenger market experiences peaks in activity during the summer months. The peak month may not be the same each year; for PQI, the peak months typically occur during the summer, June through August, with a spike seen around December as well. The peak month was calculated at 10 percent of the annual enplanements.

Average Day Peak Month – The average day of the peak month (ADPM) is the industry standard measure used in planning and analyzing an airport's peaking characteristics. The peak month activity is divided by 30 days.

Peak Hour – Peak hour enplanements is the critical metric when planning for passenger terminal facilities. At small airports, like PQI, with a single airline, the peak hour is based on a single operation. Peak enplanement characteristics for PQI are displayed in Table 3-6.

Table 3-6: Enplanement Peaking Characteristics

	Baseline	2023	2028	2038
Enplanements	11,974	16,948	19,974	26,027
Peak Month	1,197	1,695	1,997	2,603
Average Day Peak Month	40	56	67	87
Peak Hour	50	50	50	50

Sources: Airport Management, McFarland Johnson, 2019.

3.5. AIRCRAFT OPERATIONS

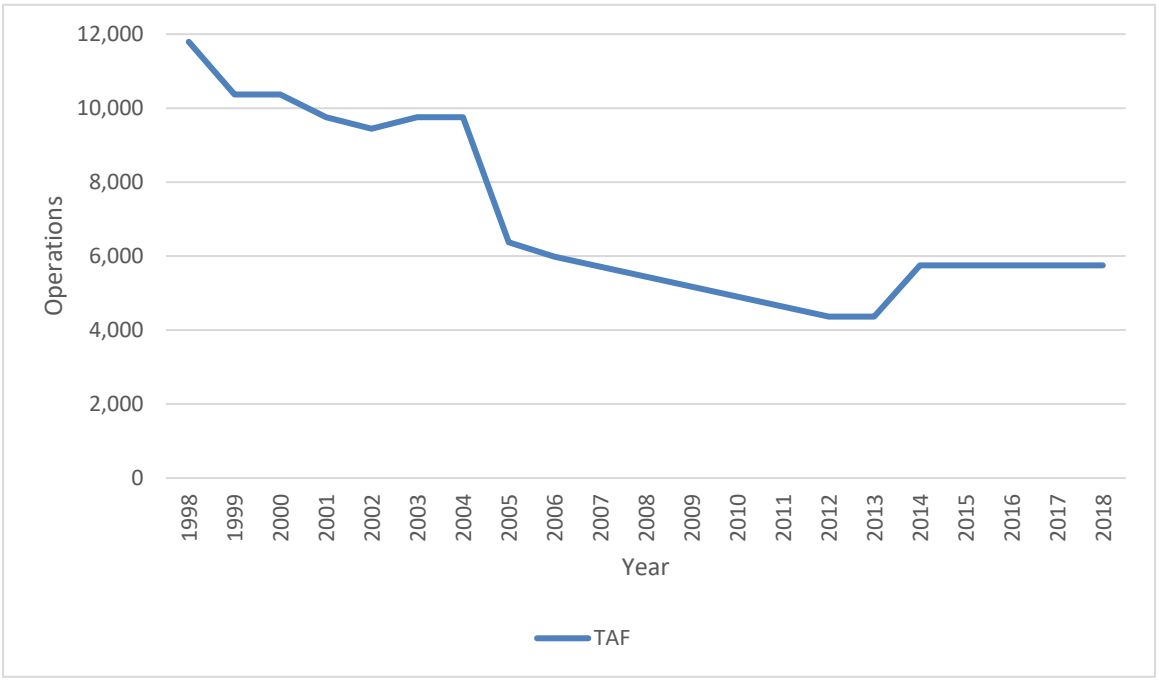
The FAA defines an aircraft operation as a takeoff or a landing and categorizes the operations by aircraft type and purpose. These categories include commercial (all airline operations at the passenger terminal), GA (both recreational and corporate), and military. The forecasting of these operations by category is used in the planning of terminal buildings, runways, taxiways, and other airport infrastructure.

The growth elements discussed for each operation type below include both local and airline industry factors that could impact aircraft operations at PQI.

3.5.1. Historical Activity

The historical data for aircraft operations, shown in **Figure 3-2**, depicts various trends for each type of operation. Overall activity has declined at consistent rate for many years, with levels being relatively stable in recent years.

Figure 3-2: Historical Aircraft Operations



Source: FAA TAF, 2018

3.5.2. Forecast Methodologies

Trend Analysis – This forecast methodology examines historical trends in activity at a specific airport and applies the historical trends to current demand levels to produce projections of future activity. Trend line analysis assumes that activity and the factor which have historically affected activity will continue to influence demand levels are similar rates over an extended period of time. Linear trend projections are typically used to provide baseline forecast that reflect stable market conditions. Average annual growth rates (AAGR) for 5, 10, and 15-year increments were looked at for PQI.

Market Share Analysis – This forecast methodology is a method for projecting future aeronautical activity that can be applied to any measure for which a reliable higher-level forecast is available. Using this methodology historical shares are calculated and used as a basis for projecting future shares. This approach is a "top-down" method of forecasting since forecasts of larger aggregates are used to derive forecasts for smaller elements of the system – in this case, PQI.

National Growth Rate – This forecast methodology looks at FAA presented aviation activity forecasts from several different sources which can be referenced when forecasting future aeronautical demands for a specific airport. Primarily, they include the FAA National Aerospace Forecast which provides growth projections for the entire aviation industry and the FAA TAF which utilizes identified national growth trends coupled with historical local growth trends to produce airport-specific activity forecast. The FAA's National Aerospace Forecast for 2018-2038 identifies projected AAGR for a variety of fixed wing aircraft through the end of its forecast period (2038).

Operations Per Based Aircraft (OPBA) – This forecast methodology assigns a representative level of aircraft operations for each based aircraft. For non-towered airports, this methodology is recommended by the FAA to project the level of activity using the forecast of based aircraft once established. FAA Order 5090.3C establishes a general guideline for estimating OPBA. These recommendations range from 250 operations for each based aircraft at rural GA airports to 750 operations for each based aircraft at busy reliever airports. Due to the EAS status of PQI, these numbers do not accurately reflect the conditions of the Airport. To account for this, the existing OPBA ratio (5,750/25, or 230) was utilized as the OPBA metric in this analysis.

3.5.3. Industry Factors

GA Active Fleet Decline –The FAA's most recent National Aerospace Forecast (FY 2018-2038) shows the total active GA fleet mix is estimated to main stable over the planning period. However, the largest segment of the fleet, fixed wing piston hours are forecasted to decrease by 1.0 percent. The decline can mostly be contributed to unfavorable pilot demographics, increasing costs of aircraft ownership, and new aircraft deliveries being out paced by the retirement of aging aircraft. This trend is expected to continue across the national airspace system.

Aircraft Up-Gauging – Industry wide, and especially at small and medium sized airports, regional jets and turboprops with 50 seats or less are being consolidated into larger regional aircraft. In most cases, these larger aircraft come at the expense of frequency. Due to the larger aircraft, operations for commercial service are not expected to grow since aircraft are not reaching full load factors.

3.5.4. Air Carrier

When looking at historic data and the five-year trend, commercial service has been consistent. Due to the existence of EAS and the current load factor on these aircraft, the operations are not expected to increase throughout the planning period.

3.5.5. Air Taxi

An air taxi operator is defined as a company which operates aircraft originally designed to have no more than 60 passenger seats and carries passengers on an on-demand basis or limited scheduled basis (i.e., four or fewer round trips a week on at least one route according to published flight schedules) only[7]. When looking at historic data, air taxi operations were passenger service that were separate from EAS service.

3.5.6. General Aviation

When looking at the historic data, incremental trends, market share, national growth rates, and operations per based aircraft were analyzed.

3.5.7. Military

With constant changes in national security and relief needs, military operations tend to fluctuate over time. At PQI, itinerant military operations have been relatively stable over the past 20 years ranging between 30 and 100 total operations. The FAA TAF reports zero growth in military operations at PQI; it is anticipated the annual averages will fluctuate within the historical ranges.

3.5.8. Annual Operations by Type

The preferred methodology used to forecast aircraft operations was OPBA since it best represents the operations the Airport can see within the planning period. Trend analysis shows a negative growth, which is not anticipated to continue, and the market share assumes PQI follows the regional or national trends, which is not the case due to the EAS being provided and its remote status. OPBA establishes a 1.03% growth rate over the planning period. Annual operations broken down by aircraft type can be seen in **Table 3-7** and **Figure 3-3**. Due to the change in EAS provider, air carrier operations are lower with United than they were with PenAir as United flies the 50-seat ERJ-145 less frequently than PenAir flew its 34-seet Saab 340. Air carrier operations are expected to remain steady throughout the planning period.

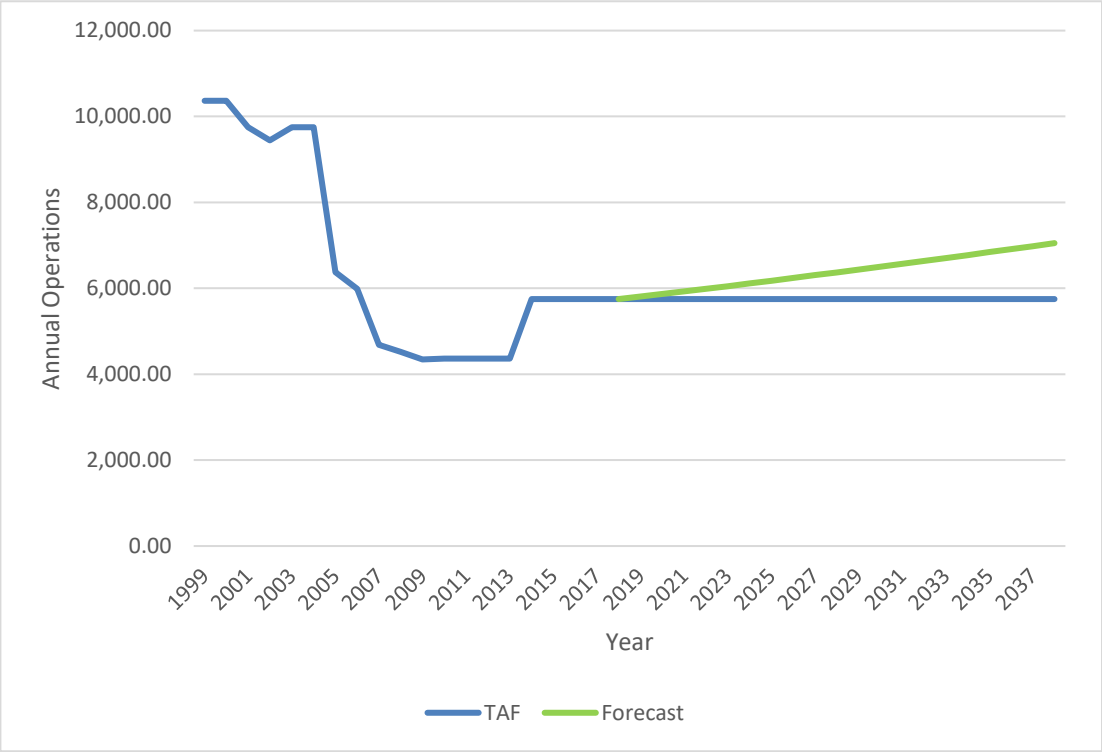
[7] http://fsims.faa.gov/wdocs/8900.1/v02%20air%20op%20&%20agency%20cert/chapter%2002/02_002_002.htm

Table 3-7: Annual Operations Forecast By Type

	Itinerant					Local			Total
Year	Air Carrier	Air Taxi	GA	Mil	Total	GA	Mil	Total	Ops
Baseline	1,804	2,177	1,031	54	5,066	684	0	684	5,750
2023	1,248	2,650	1,255	66	5,218	832	0	832	6,051
2028	1,248	2,825	1,338	70	5,480	887	0	887	6,368
2038	1,248	3,202	1,517	79	6,046	1,006	0	1,006	7,052

Sources: FAA TAF, 2018, McFarland Johnson 2019.

Figure 3-3: Forecast Annual Operations



Sources: TAF, 2018; McFarland Johnson, 2019.

3.5.9. Peaking Characteristics - Aircraft Operations

Like the peaking characteristics used for passenger enplanements, annual operations numbers when divided equally over the year and throughout the day will not accurately identify capacity constraints or facility needs during busier periods. To accurately identify airport requirements for facility planning, peaking characteristics are broken down into the following elements:

Peak Month – The peak month at an airport represents the busiest month during a calendar year. The peak month may not be the same each year; for PQI, the peak months typically occur during the summer, June through August, with a spike seen around December as well. The peak month commonly accounts for 10 percent of total annual operations.

Average Day Peak Month – The average day of the peak month (ADPM) is the industry standard measure used in planning when planning and analyzing an airport's peaking characteristics. In the case of PQI the peak month activity is divided by 30 days.

Peak Hour – Peak hour operations is a critical metric when planning for airfield capacity. Traditionally the operational peak hour typically represents between 12 percent and 17 percent of the daily operations total. A peaking factor of 15 percent will be applied to the peak hour planning for PQI.

Peak operational characteristics for PQI are displayed in **Table 3-8.**

Table 3-8: Peak Hour Operations

	2018	2023	2028	2038
Operations	5,750	6,051	6,368	7,052
Peak Month	575	605	637	705
Average Day Peak Month	19	20	21	24
Peak Hour	3	3	3	4

Sources: Traffic Flow Management System Count (TFMSC) 2018, McFarland Johnson 2019.

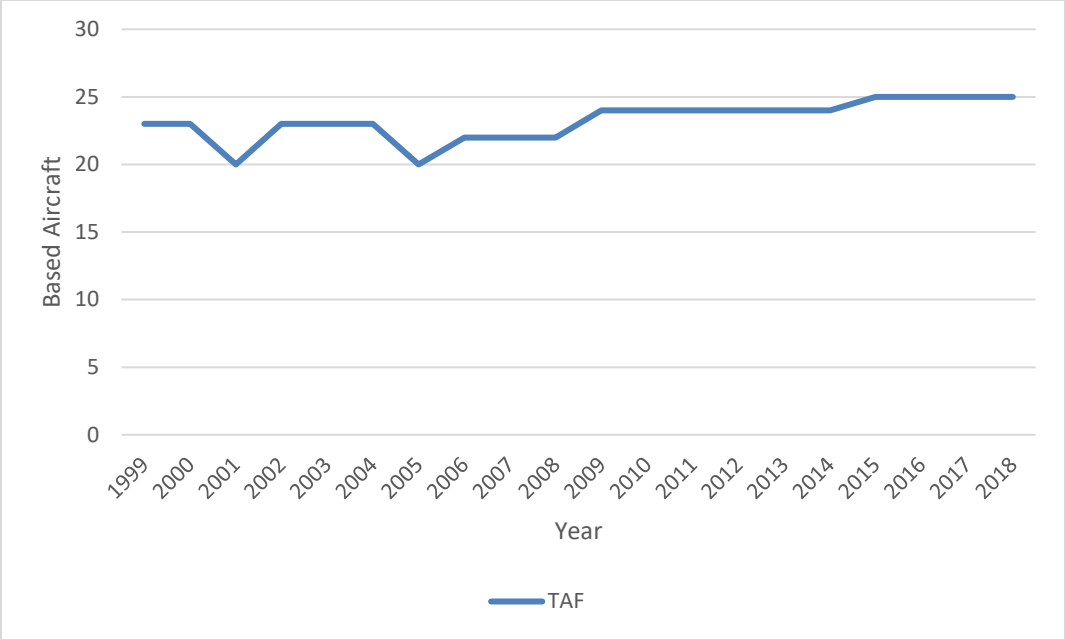
3.6. BASED AIRCRAFT

Forecasting the number and type of based aircraft is critical to planning future GA facilities, especially for the type and size of hangers and aircraft movement and parking areas. The growth elements below discuss the factors that influence the number of based aircraft at PQI.

3.6.1. Historical Activity

The Federal Aviation Administration (FAA) defines a based aircraft as an aircraft that is operational and airworthy which is based at the facility in question for the majority of the year. Based aircraft are major contributors to the economics of an airport as they generate revenue from tie-down, hangar rentals, and fuel sales. According to the 2017 TAF, PQI has 25 based aircraft. **Figure 3-4** shows the history of based aircraft at the Airport.

Figure 3-4: History of Based Aircraft



Sources: FAA TAF, 2018; McFarland Johnson, 2019.

3.6.2. Forecast Methodologies

Trend Analysis – This forecast methodology examines historical trends in activity at a specific airport and applies the historical trends to current demand levels to produce projections of future activity. Trend line analysis assumes that activity and the factor which have historically affected activity will continue to influence demand levels are similar rates over an extended period of time. Linear trend projections are typically used to provide baseline forecast that reflect stable market conditions. AAGR for 5, 10, and 15-year increments were looked at for PQI.

Market Share Analysis – This forecast methodology is a method for projecting future aeronautical activity that can be applied to any measure for which a reliable higher-level forecast is available. Using this methodology historical shares are calculated and used as a basis for projecting future shares. This approach is a "top-down" method of forecasting since forecasts of larger aggregates are used to derive forecasts for smaller elements of the system – in this case, PQI.

National Growth Rate – This forecast methodology looks at FAA presented aviation activity forecasts from several different sources which can be referenced when forecasting future aeronautical demands for a specific airport. Primarily, they include the FAA National Aerospace Forecast which provides growth projections for the entire aviation industry and the FAA TAF which utilizes identified national growth trends coupled with historical local growth trends to produce airport-specific activity forecast. The FAA's National Aerospace Forecast for 2018-2038 identifies projected AAGR for a variety of fixed wing aircraft through the end of its forecast period (2038).

3.6.3. Industry Factors

GA Active Fleet Decline –The FAA's most recent National Aerospace Forecast (FY 2018-2038) shows the active GA fleet in 2016 (211,793 aircraft) being up 0.8 percent above that of 2015. Overall, the

total active GA fleet mix is estimated to main stable over the planning period. However, the largest segment of the fleet, fixed wing piston aircraft, are predicted to shrink over the 20-year forecast period by an average annual rate of -0.8 percent. The decline can mostly be contributed to unfavorable pilot demographics, increasing costs of aircraft ownership, and new aircraft deliveries being out paced by the retirement of aging aircraft. This trend is expected to continue across the national airspace system.

3.6.4. Based Aircraft Forecast

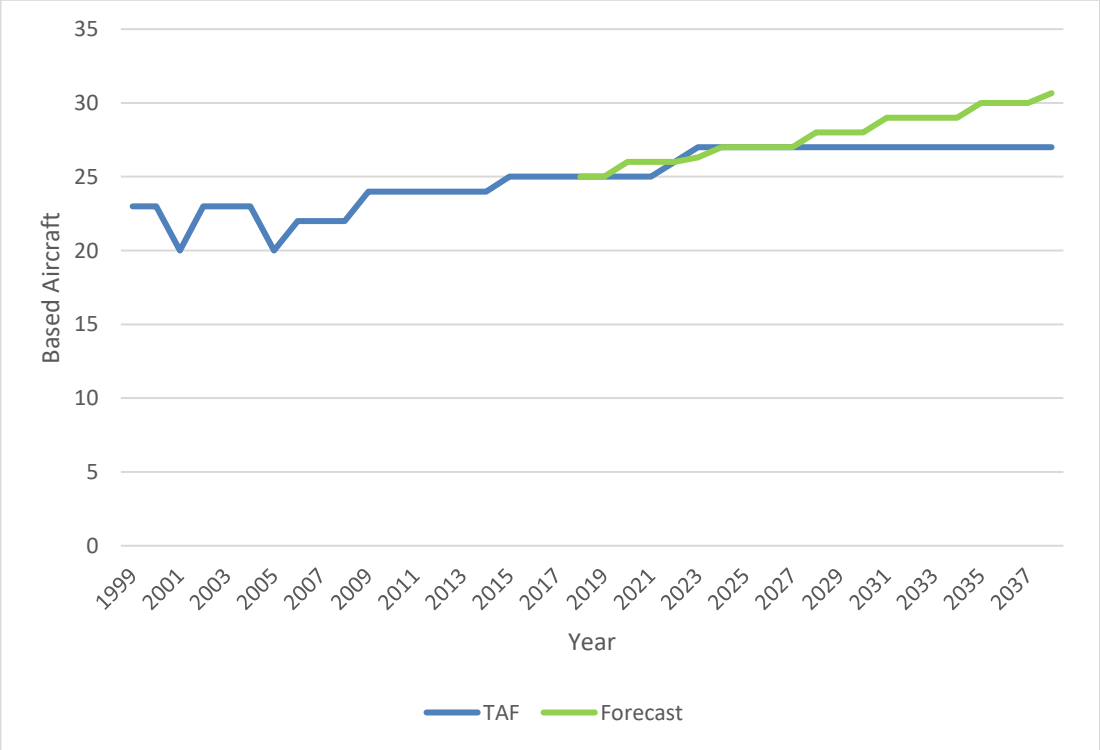
The five-year trend methodology was chosen as the preferred forecast for based aircraft at the Airport because it best represents growth at the Airport within the planning period. Based aircraft have grown 1.43% in the past ten years and 1.03% in the past five years which shows that PQI is picking up market share and going against the national growth. This methodology produced an AAGR of 1.03% growth in based aircraft. **Table 3-9** and **Figure 3-5** display the based aircraft forecast for PQI.

Table 3-9: PQI Based Aircraft Forecast

Year	Single	Multi	Jet	Rotor	Total
Baseline	20	4	1	0	25
2023	20	4	2	0	26
2028	20	5	3	0	28
2038	22	5	4	0	31

Source: FAA TAF 2018, McFarland Johnson 2019.

Figure 3-5: Based Aircraft Forecasts



Sources: FAA TAF, 2018; McFarland Johnson, 2019.

3.7. GENERAL AVIATION PASSENGERS

GA passengers are defined as the boarding of a passenger on an aircraft at an airport. For PQI, enplanements consist of passengers traveling to/from the Airport (itinerant) using GA facilities (excluding pilots). GA passengers include passengers of GA flights and some air taxi passengers. Unlike commercial airline passengers and charters, the number of GA passengers is not recorded by either the FAA or the Airport.

To estimate GA passenger enplanements at the Airport, guidance pertaining to the sizing of GA Terminal Buildings contained in *ACRP Report 113, Guidebook on General Aviation Facility Planning* (ACRP 113) is utilized to establish a reasonable point of reference. ACRP 113 states that for planning purposes, a factor of 2.5 people (pilots and passengers) per peak-hour operation can be assumed. For this analysis, the planning factor of 2.5 people is applied to 2018 GA itinerant and air taxi operations to determine the reasonableness of the Airport's passenger enplanement estimate. Additionally, since the purpose of this analysis is to forecast passengers only, the factor was also reduced to 1.5 people per air taxi operation. The results are presented in Table 3-10.

Table 3-10: GA Passenger Estimate -2018

Item	GA Passengers and Crew	GA Passengers Only
2018 GA Itinerant and Air Taxi Operations	3,208	3,208
Planning Factor (People per Operation)	2.5	1.5
2018 GA Passengers	8,020	4,812
2038 GA Passengers	11,798	7,079

Source: McFarland Johnson, 2019.

3.8. ANNUAL INSTRUMENT OPERATIONS

Annual instrument arrivals are important to an airport when planning for capacity and demand instrument conditions. Most GA pilots are visual flight rules (VFR) pilots, but those who are instrument flight rules (IFR) certified and plan on flying into inclement weather will need to file a flight plan. Flight plans may be filed for both VFR and IFR flights but are most commonly used for IFR or combined IFR and VFR flights. The FAA's Traffic Flow Management System Count (TFMSC) identified 4,389 instrument operations in 2018. In 2018, the TAF reported PQI to have 5,750 total aircraft operations. The 4,389 instrument approaches account for approximately 76 percent of total operations. However, due to the anomalies that existed in 2018 as a result of the switch in EAS providers, future annual instrument operations were forecasted using the 85 percent of total operations mark that persisted in the previous four years.

The forecast of annual instrument arrivals projects future instrument arrivals based upon the TFMSC data described and the growth rates associated with the total airport operations forecast. Table 3-11 presents the forecast of annual instrument operations for each growth scenario.

Table 3-11: Annual Instrumental Operations Forecasts

Year	Annual Instrument Operations
Baseline	4,389
2023	5,092
2028	5,326
2038	5,817

Sources: TFMSC 2018, McFarland Johnson, 2019.

3.9. FORECAST SUMMARY

Table 3-12 presents a summary of the aviation demand forecasts developed for PQI. These forecasts are considered reasonable and achievable and will be used throughout the Master Plan Update in the development of facility requirements and the identification of alternatives.

Table 3-12: Aviation Demand Forecast Summary

	Forecast			
	Baseline	2023	2028	2038
Enplanements				
Air Carrier	11,974	16,948	19,974	26,027
Peak Hour	50	50	50	50
Aircraft Operations	**5,750**	**6,051**	**6,368**	**7,052**
Air Carrier	1,804	1,248	1,248	1,248
Air Taxi	2,177	2,650	2,825	3,202
General Aviation				
GA Itinerant	1,031	1,225	1,338	1,517
GA Local	684	832	887	1,006
Military	54	66	70	79
Peak Hour	3	3	3	4
Based Aircraft	**25**	**26**	**28**	**31**
Single	20	20	20	22
Multi	4	4	5	5
Jet	1	2	3	4
Rotor	0	0	0	0

Sources: McFarland Johnson, 2019; FAA TAF, 2018.

3.9.1. Comparison with FAA Terminal Area Forecast

To confirm validity, master plan aviation forecasts are often compared with other aviation forecasts prepared for the Airport and the region. Ideally, this report's forecasts should be reasonably consistent with other forecasts of future airport activity, and compatible with forecasts for the larger region. With master plan forecasts being much more specific to an airport, it is not unusual to see some variation from national forecasts. The most useful forecasts for comparison are those prepared by the FAA with the standard being the TAF and the national and regional forecasts previously referenced in this report. The TAF is prepared annually and includes airport

forecasts for all active National Plan of Integrated Airport Systems (NPIAS) airports. Table 3-13 shows the compared results between the selected forecast and that of the FAA's TAF.

The comparison shows that the results of the Master Plan operations forecast fall within the general guidelines identified by the FAA (10 percent within 5 years, 15 percent within 10 years) except for the enplanements forecast. This is due to the switch in EAS provider from PenAir's Saab 340 (34-seat aircraft) to United's ERJ-145 (50-seat aircraft) and anticipation of an increased load factor from existing conditions up to United's regional average in the 80 percentiles. This is not expected to drive any airside facility requirements.

Table 3-13: Aviation Demand Forecast Compared to FAA Terminal Area Forecast

	Actual	Forecast			
	Baseline	2023	2028	2038	AAGR
FAA TAF					
Enplanements	11,038	11,286	11,486	12,000	0.42%
Total Operations	5,750	5,750	5,750	5,750	0.00%
Based Aircraft	25	27	27	27	0.41%
Master Plan Forecast					
Enplanements	11,974	16,948	19,974	26,027	3.96%
Total Operations	5,750	6,051	6,368	7,052	1.03%
Based Aircraft	25	26	28	31	1.03%
Pct. Difference From TAF					
Enplanements	8.48%	50.17%	73.90%	116.89%	-
Total Operations	0.00%	5.24%	10.74%	22.64%	-
Based Aircraft	0.00%	-2.56%	2.54%	13.56%	-

Sources: Airport Management; FAA TAF, 2019, McFarland Johnson, 2019.

3.10. EXISTING AND FUTURE DESIGN AIRCRAFT

The Runway Design Code (RDC) used in airport planning is derived from the features of the most demanding aircraft using the Airport on a regular basis coupled with the best available instrument approach minimums. The first component, depicted by a letter, is the Aircraft Approach Category (AAC) and relates to aircraft approach speed (operational characteristics). The second component, depicted by a Roman numeral, is the Airplane Design Group (ADG) and relates to either the aircraft wingspan or tail height (physical characteristics), whichever is most restrictive. The third component relates to the visibility minimums expressed by Runway Visual Range (RVR) values. Table 3-14 displays the RDC criteria used in airport planning.

The Embraer Regional Jet 145 (ERJ-145) currently meets the critical aircraft requirement of a minimum of 500 annual itinerant operations at PQI and is classified as an AAC-ADG C-II aircraft based on 617 operations in the last six months of 2018 according to the Traffic Flow Management System Count (TFMSC). United Airlines became the EAS provider at the Airport in August 2018. The critical forecast is projected to remain the ERJ-145 (C-II) throughout the planning period. Table

3-15 presents the design details for the existing and future design aircraft. While in the short-term, the critical aircraft is sensitive to the carriers selected for the two-year EAS program, within the planning period it is anticipated that regional jets such as the Embraer and Bombardier (Canadair) will be the critical aircraft since other EAS aircraft will age out of the market or not be ideal for service at PQI. Additionally, jet operations in EAS has been increasing significantly in the past four years. In 2016, 30 percent of routes were served by jet aircraft; in 2019 it was 53 percent. While there is a chance that in the short-term PQI may be served by a turboprop aircraft during one of the EAS selection periods, in the longer-term planning period it is anticipated that EAS will be served by jet aircraft.

Local businesses operate the Cessna 208 Caravan (AAC-ADG B-II aircraft) from PQI on a regular basis. The 2018 TFMSC shows over 1,100 Cessna 208 Caravan operations. This B-II aircraft represents the existing and future critical aircraft for Runway 10-28.

The Airport presently has a C-III designation. PQI is the only large airport north of Bangor (BGR). Due to the potential of changing landscapes associated with EAS, further analysis will be performed in Chapter 5, *Facility Requirements* to protect the C-III designation at the Airport.

Table 3-14: FAA Airport Reference Code

FAA Airport Reference Code Parameters				
Category	Approach Speed	Group No.	Wing Span (ft.)	Tail Height (ft.)
	(knots)	I	< 49	< 20
A	<91	II	49 to < 79	20 to < 30
B	91 to < 121	III	79 to < 118	30 to < 45
C	121 to < 141	IV	118 to < 171	45 to < 60
D	141 to < 166	V	171 to < 214	60 to < 66
E	166 or more	VI	214 to < 262	66 to < 80

Source: FAA AC 150/5300-13A.

Table 3-15: Existing and Future Design Aircraft

Runway	01-19	10-28
Aircraft Model	**ERJ-145**	**Cessna 208 Caravan**
Length Overall	98’	37.6’
Wingspan	65.8’	52.1’
Tail Height	22.2’	14.8’
Maximum Takeoff Weight (pounds)	48,501	8,000
Typical Approach Speed (knots)	135	97.5
Approach Speed Category	C	B
Aircraft Design Group	II	II

Sources: FAA AC 150/5300-13A; Jane’s All the World’s Aircraft, 2011-2012.

PRESQUE ISLE
INTERNATIONAL AIRPORT
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Chapter 4

Environmental Overview

McFarland Johnson

Stantec

4. Environmental Overview

4.1. INTRODUCTION

The operation and development of an airport has the potential to affect neighboring land-uses and natural and human environments, which are of fundamental concern in the airport planning process. Therefore, it is imperative to identify the resources and potential impacts to the environment and surrounding community during the initial stages of the planning process. This allows airport planners and engineers to incorporate measures in accordance with federal, state, and local rules and regulations to avoid, minimize, or mitigate potential impacts to the environment.

The National Environmental Policy Act (NEPA) of 1969 requires that all federal agencies consider the potential impacts their projects and policies have on the environment. In order to ensure that airport development complies with NEPA, the Federal Aviation Administration (FAA), an agency of the United States Department of Transportation (USDOT), developed the *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*, also referred to as FAA Order 5050.4B. The Order describes the environmental review process and identifies environmental categories which must be addressed prior to implementation of a federal action at an airport, including the funding of a development project. The current version of FAA Order 5050.4B, dated April 2006, in conjunction with *Environmental Impacts: Policies and Procedures*, also known as FAA Order 1050.1F and dated July 16, 2015, provides guidance for reviewing and documenting the effects of opposed airport development projects on the environment. FAA Orders 5050.4B and 1050.1F identify specific environmental categories that must be considered in relation to a proposed action to determine whether a significant impact would result and, if so, determine what reasons would be appropriate to avoid or minimize an impact's effect. FAA Order 1050.1F specifies the threshold of significance for each of the categories addressed. The following is a list of environmental impact categories, identified in Order 1050.1F, that may be relevant to FAA actions:

- Biotic resources (including fish, wildlife, and plants)
- Water Resources (including wetlands, surface waters, wild and scenic rivers, floodplains, and groundwater)
- Coastal Resources
- Department of Transportation Act, Section 4(f) Resources
- Historic Resources (including architectural, archeological, and cultural resources)
- Farmlands
- Land use
- Noise
- Visual effects
- Air Quality
- Hazardous Materials and Solid Waste
- Energy
- Climate
- Socioeconomics, Environmental Justice, and Children's Environmental Health and Safety Risks

This chapter provides a summary of the environmental conditions and constraints at the Presque Isle International Airport (PQI or the Airport). The information provided in this chapter will be carefully considered as part of the alternatives analysis that will be completed for this Master Plan Update (MPU). Future airport development proposed in this MPU will be reviewed in further detail in the subsequent environmental documentation to satisfy the requirements of NEPA. The information provided in this chapter is based on information obtained from appropriate federal, state, and local agencies along with data collected during field investigations.

4.2. BIOTIC RESOURCES

Biotic resources refer to the various types of flora (plants) and fauna (fish, birds, reptiles, amphibians, mammals, etc.), including state and federally listed threatened and endangered species, in a particular area. It also encompasses the habitats supporting the various flora and fauna including rivers, lakes, wetlands, forests, and other ecological communities. Airport projects can affect these ecological communities and thereby affect vegetation and wildlife populations.

4.2.1. Ecological Communities

Information regarding the ecological communities is derived from the *Wetland and Waterway Delineation and Function and Values Assessment Report*, prepared by Stantec Consulting Services, Inc. is included in Appendix D. The majority of the Airport is located within the perimeter fence, primarily consisting of upland habitat and is mowed regularly. Vegetation within 250 feet of the runway consists primarily of grass species and is mowed to a height of two to four inches. Vegetation beyond 250 feet of the runway within the perimeter fence is mowed to a height of six to twelve inches. Vegetation in this area is dominated by timothy grass *(Phleum pratense*), bird vetch (*Vicia cracca*), red clover (*Trifolium pratense*), bull thistle (*Cirsium vulgare*), wrinkle-leaf goldenrod (*Solidago rugosa*), red osier dogwood (*Cornus alba*), and red raspberry (*Rubus idaeus*).

There are forested areas to the west and southeast of the Airport outside of the perimeter fence, and on either side of Airport Drive. Within the upland portions of the forested areas, dominant species include quaking aspen (*Populus tremuloides*), sugar maple (*Acer saccharum*), paper birch (*Betula papyrifera*), American larch (*Larix laricina*), black cherry (*Prunus serotina*), possumhaw (*Viburnum nudum*), and Morrow's honeysuckle (*Lonicera morrowii*). Forested wetlands are discussed below in Section 4.3.1.

The Maine Natural Areas Program reviewed the Airport property on December 4, 2018 for the presence of rare or unique botanical features. According to their database, there were no documented records of occurrence within the Airport boundary. Further information regarding state and federally regulated waterways and wetlands is presented in Section 4.3.1.

4.2.2. Threatened and Endangered Species

The Endangered Species Act (ESA) directs all federal agencies to work to conserve federally listed endangered and threatened species, and to use their authorities to further the purposes of the ESA. Section 7 of the ESA, titled "Interagency Cooperation," is the mechanism by which federal agencies ensure the actions they take, including those they fund or authorize, do not jeopardize the existence of any federally listed species. Endangered species are those that are in danger of

extinction throughout their range or a significant portion of their range. Threatened species are those that are likely to become endangered within the foreseeable future throughout all or a significant portion of their range. Candidate species are species for which the United States Fish and Wildlife Service (USFWS) has sufficient information on the biological vulnerability and threats to support issuance of a proposal list, but issuance of a proposed rule is currently precluded by higher priority listing actions. Candidate species do not receive substantive or procedural protection under the ESA. However, USFWS encourages federal agencies and other appropriate parties to consider these species in the planning process.

An Official Species List from the USFWS was obtained on November 12, 2018 and is included in Appendix E. The list indicates that there are two listed species under the Federal Endangered Species Act within the vicinity of the Airport, the threatened Canada Lynx (*Lynx canadensis*) and threatened northern long-eared bat (*Myotis septentrionalis*). The correspondence also indicated that there are no critical habitats within the Airport property.

The State of Maine Endangered Species Act (MESA) of 1975 protects Maine's listed inland fish and wildlife along with their established essential habitats. The Maine Department of Inland Fisheries and Wildlife (MDIFW) is responsible for implementing MESA for inland fish and wildlife; the Department of Marine Resources is responsible for threatened and endangered marine species; and the Maine Natural Areas Program is responsible for threatened and endangered plants.

Consultation with MDIFW indicated that several state threatened and endangered bat species may occur within the Airport property, and to contact the U.S. Fish and Wildlife Service at the Maine Fish and Wildlife Service Complex for further guidance. Consultation also indicated that state threatened upland sandpipers (*Bartramia longicauda*) have been documented on Airport property. Upland sandpipers are protected under MESA and are afforded special protection under 12 M.R.S §12801 - §12810. The Airport also intersects with Inland Waterfowl and Wading Bird Habitats (IWWHs), which are considered Significant Wildlife Habitat under Maine's Natural Resource Protection Act (NRPA). These areas include the wetland complex and a 250-foot upland buffer (Appendix E).

As specific airport development alternatives are identified and considered, the potential to affect these or other state or federally listed rare, threatened, and endangered species will be re-assessed on an individual basis and in consultation with the MDIFW, USFWS, Maine Department of Environmental Protection (Maine DEP), and FAA.

4.3. WATER RESOURCES

4.3.1. Wetlands

The United States Army Corps of Engineers (USACE) regulates activities in wetlands that have a significant nexus to Traditional Navigable Waters of the United States (TNWs) under Section 404 of the Clean Water Act (CWA). The USACE requires that an area have predominately hydrophytic vegetation, hydric soils, and wetland hydrology present in order to be considered a wetland.

In addition, Executive Order (EO) 11990 - *Protection of Wetlands*, states that federal agencies shall provide leadership and shall take action to "minimize the destruction, loss, or degradation of

wetlands, and to preserve and enhance natural and beneficial values of wetlands" in carrying out the agency's responsibilities. Under EO 11990, wetlands are defined as those areas that are inundated by surface or ground water with a frequency sufficient to support, and under normal circumstances do or would support, a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction.

The Maine Department of Environmental Protection also regulates wetlands within the state under chapter 310 of the NRPA. There are three tiers of review process for alterations of wetlands, with Tier 1 applying to any activity that involves a freshwater wetland alteration of up to 15,000 square feet; Tier 2 applying to any activity that involves a freshwater wetland alteration of 15,000 square feet up to one acre; and Tier 3 applying to any activity that involves freshwater wetland alteration of one acre or more, or an alteration of a freshwater wetland listed in subsection 4 or 5 (wetlands of special significance).

A wetland delineation of the project study area (Figure 4-1) was performed by Stantec on October 23 and 24, 2018. The wetland delineation was conducted through field investigations of vegetation, soils, and hydrology in accordance with the 1987 United States Army Corps of Engineers *Wetlands Delineation Manual* (1987 USACE Manual) and 2012 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (2012 Regional Supplement)*.

According to the report provided by Stantec, a total of 22 wetlands, Wetland 01TTA through 01TTX, three perennial streams, and one intermittent stream were identified during the wetlands and waterways delineation. Of the 22 wetlands, 19 were classified as palustrine emergent (PEM), and nine could be considered wetlands of special significance (WSS) under NRPA.

Impacts to federally regulated wetlands will necessitate approval from the USACE and may require compensatory mitigation as a permit condition depending on the specific details of the proposed project(s). Wetland mitigation can come in the form of restoration, establishment, enhancement, and/or preservation of wetlands. Typical mitigation ratios recommended by the USACE are shown in Table 4-1. The Maine Department of Environmental Protection (MEDEP) compensation ratio for wetlands not of special significance is 1:1, for wetlands of special significance is 2:1, and for preservation is 8:1. Further information regarding the delineated wetlands has been included in the *Wetland and Waterway Delineation and Function and Values Assessment Report*, included in Appendix D.

Five federal agencies, including the FAA and USACE, signed a Memorandum of Agreement (MOA) in July 2003 to facilitate interagency cooperation on aircraft-wildlife strikes related issues, including wetland management at airports. As part of the MOA, the signatory agencies are required to diligently consider the siting criteria recommendations as stated in FAA Advisory Circular (AC) 150/5200-33B, *Hazardous Wildlife Attractants On or Near Airports*.

Figure 4-1: Delineated Wetlands and Waterways

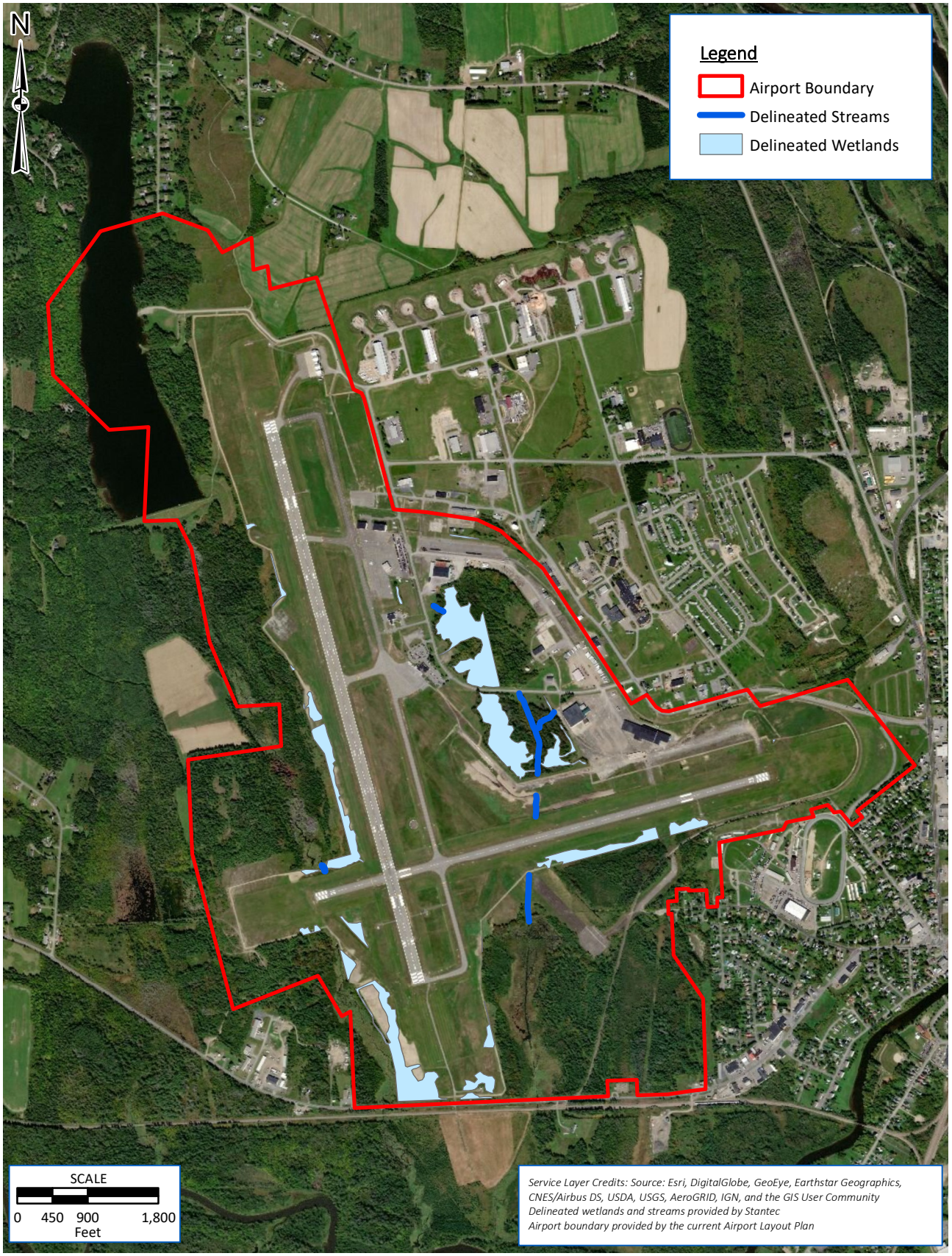

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Table 4-1: Typical USACE Recommended Wetland Mitigation Ratios

Wetland Type	Restoration (Re-Establishment)	Creation (Establishment)	Enhancement (Rehabilitation)	Preservation (Protection/ Management)
Open Water (PUB)	1:1	1:1	Project Specific	Project Specific
Palustrine Emergent (PEM)	2:1	2:1 to 3:1	3:1 to 10:1	15:1
Scrub-Shrub (PSS)	2:1	2:1 to 3:1	3:1 to 10:1	15:1
Forested (PFO)	2:1 to 3:1	3:1 to 4:1	5:1 to 10:1	15:1

Source: Excerpted from USACE's "New England District Compensation Mitigation Guidance" dated July 20, 2010.

FAA AC 150/5200-33B recommends separation distances between the airport operations area (AOA) and potential wildlife hazards, including proposed wetland mitigation sites. These siting distances are:

- 5,000 feet of a runway that serves piston-powered aircraft
- 10,000 feet of a runway that serves turbine-powered aircraft
- 5 statute miles if the attractant could cause hazardous wildlife movement into or across the approach or departure airspace

The above siting criteria will also be taken into consideration when considering potential wetland mitigation options and site selection.

Future proposed projects will take measures in design and construction to avoid, minimize, or mitigate any possible adverse impacts to wetland resources to the degree practicable. The use of Best Management Practices (BMPs) during construction projects will minimize indirect impacts to wetland resources. Projects that have no practicable alternatives to avoid direct impacts to state regulated wetlands will require a Chapter 310 NRPA permit from the MEDEP, while impacts to federally regulated surface waters will require a Section 404 permit from USACE and a Chapter 310 NRPA permit from the MEDEP. In addition, when impacts to wetlands cannot be avoided, an EO 11990 "Wetland Finding" must be prepared to document compliance with the order and that the wetland impacts are justified.

4.3.2. Surface Waters

The USACE regulates surface waters under Section 10 of the Rivers and Harbors Appropriation Act (RHA) that are considered to be a TNW as defined in the Act. The USACE also regulates surface water bodies through Section 404 of the CWA that have a significant nexus to a TNW as defined in either Section 10 of the RHA or Section 404 of the CWA. A significant nexus is generally defined as having more than an insubstantial or speculative effect on the chemical, physical, or biological integrity of a downstream TNW. Surficial open waterbodies, including streams, ponds, and lakes,

are delineated by their Ordinary High Water Mark as defined in Title 33, Code of Federal Regulations, Part 328 (33 CFR Part 328).

The MEDEP also regulates wetlands and waterbodies within the state under chapter 310 of the NRPA. Coastal wetlands and great ponds are included as wetlands of special significance. Hanson Brook Lake, adjacent to the northeastern boundary of the Airport, is approximately 118 acres in size and thus a great pond. Additionally, three perennial streams and one intermittent stream were identified within the Airport during the wetland delineation.

4.3.3. Wild and Scenic Rivers

The Wild and Scenic Rivers Act (Public Law 90-542) describes river areas eligible to be included in a system afforded protection under the Act as free flowing and possessing "…outstanding remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural or similar values." There are no federal wild and scenic rivers on or adjacent to Airport property.

The State of Maine provides protection of outstanding rivers and river segments under Section 480-P of the NRPA[1]. According to NRPA, the section of the Aroostook River that spans from the Canadian border to the Masardis and T.10 R.6 W.E.L.S. town line, which includes the portion of the Aroostook River that flows through Presque Isle, is listed as an outstanding river segment. The portion of the Aroostook River listed above is located approximately 1.1 miles northeast of the Airport.

4.3.4. Floodplains

Floodplains are land areas associated with bodies of water (lakes, rivers, and wetlands) that are likely to become inundated during a flooding event. The area or magnitude of a flood will vary according to the magnitude of the storm event as determined by the storm interval occurrences. For example, a five-year storm has a magnitude that can be expected once every five years. Typically, the Federal Emergency Management Agency (FEMA) utilizes a 100-year storm interval for flood preparation. Flooding related to a 100-year storm statistically has a 1-percent chance of occurring during any given year. The 100-year period has been selected as having special significance for floodplain management because it is the maximum level of flooding that can reasonably be expected and planned for during a project's expected life span.

EO 11988, *Floodplain Management,* directs all federal agencies to avoid the direct and indirect support of floodplain development wherever there is a practicable alternative. A Flood Insurance Study (FIS) for Presque Isle was published by FEMA on April 15, 1980. According to the Flood Insurance Rate Map (FIRM) panels depicting the Airport (FIRM 2300250050C and FIRM 2300250041C) there is a portion of the Airport along the western boundary that is located within a 100-year, Zone A, floodplain associated with Hanson Brook, and a smaller portion along the northwestern boundary located within a 100-year, Zone AE, floodplain associated with Hanson Brook Lake. Locations of floodplains are shown in **Figure 4-2.**

[1] http://www.mainelegislature.org/legis/statutes/38/title38sec480-P.html

As specific Airport developments are identified and analyzed, as part of this MPU and through future NEPA documentation requirements, their potential to encroach upon FEMA designated floodplains will be evaluated.

4.3.5. Groundwater

The Environmental Protection Agency (EPA) Sole Source Aquifer (SSA) program was established under the Safe Drinking Water Act (SDWA). According to the EPA, an SSA is defined as one that supplies at least 50 percent of the drinking water for its service area, and wherein there is no reasonably available alternative drinking water sources should the aquifer become contaminated. The SSA program allows for EPA review of federally funded projects that have the potential to affect designated SSAs and their source areas. According to the EPA, Airport property is not located over an SSA and therefore potential projects are not subject to EPA Section 1424(e) of the SDWA.

The United States Geologic Survey (USGS) tracks Principle Aquifers, defined as "a regionally extensive aquifer or aquifer system that has the potential to be used as a source of potable water." According to the USGS map, the Airport is located approximately two miles west of the New York and New England principle aquifer. Future proposed projects will take measures in design and construction to avoid, minimize, or mitigate any possible adverse impacts to groundwater.

The Maine Geologic Survey published the Significant Sand and Gravel Aquifers in the Presque Isle Quadrangle map on January 1, 2002. According to the map, there is a significant sand and gravel aquifer with a potential yield of 10-50 gallons per minute in the immediate vicinity of the Airport (Figure 4-3).

4.4. COASTAL RESOURCES

The Coastal Zone Management Act is a federal program that provides for management and protection of all of the nation's ocean and Great Lakes coasts. The Airport is not located within the state's mapped Coastal Zone Management areas.

4.5. SECTION 4(F) RESOURCES

Section 4(f) of the Department of Transportation Act of 1966 protects publicly owned parks, recreation areas, wildlife and waterfowl refuges, and historic sites of national, state, or local significance from development unless there are no feasible alternatives. There are no conservation lands or wildlife and waterfowl refuges within the immediate vicinity of the Airport.

The following parks are located within a one-mile radius of the Airport:

- Peace park (adjacent to eastern boundary): https://www.pirec.org/facilities-and-parks/peace-park.html
- Bicentennial Park: https://www.pirec.org/facilities-and-parks/riverside-bicentennial-park.html (3,400 feet south of the Airport)
- Veteran's Memorial Park: https://www.pirec.org/facilities-and-parks/veterans-park.html (3,600 feet west of the Airport)

Figure 4-2: FEMA Floodplains

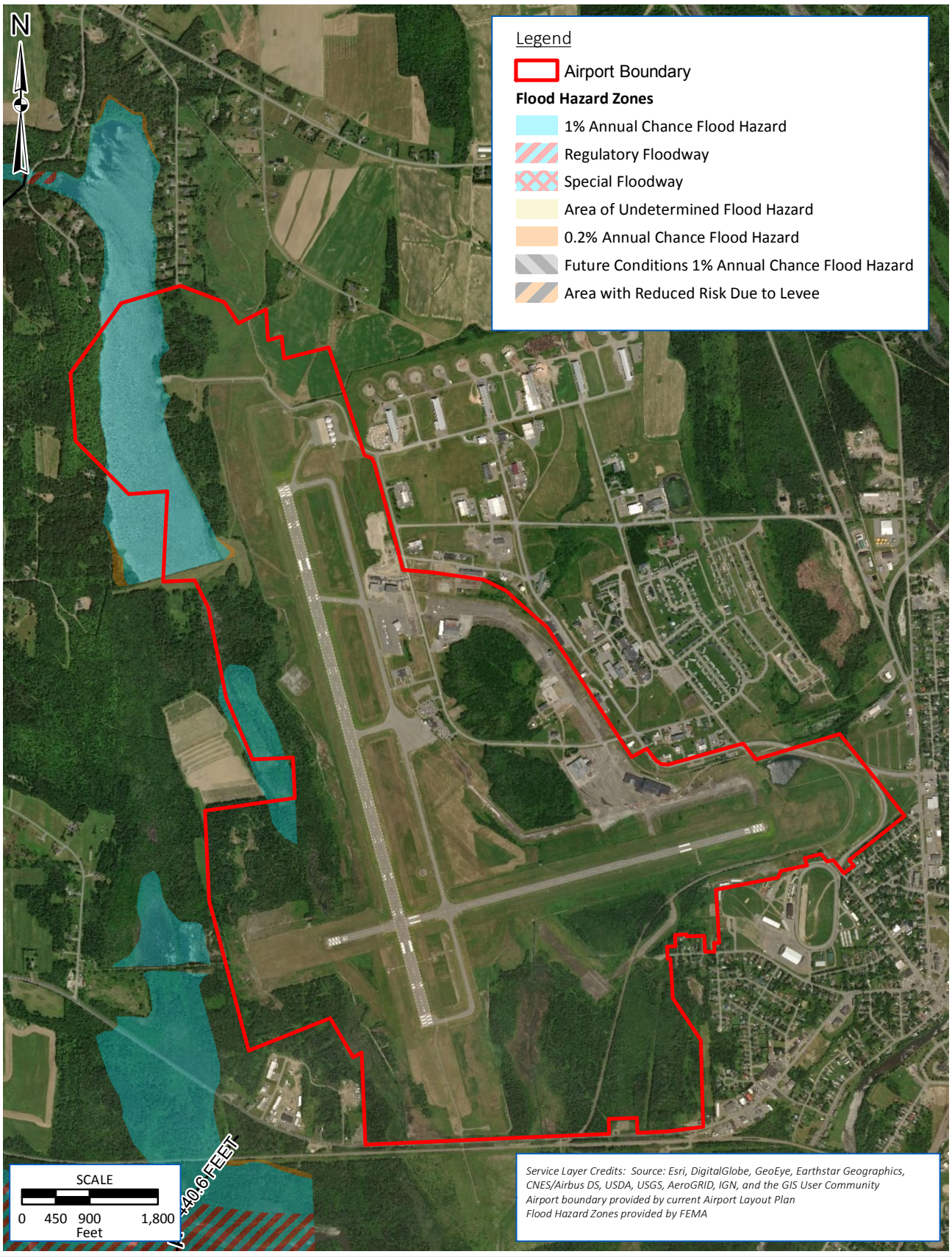

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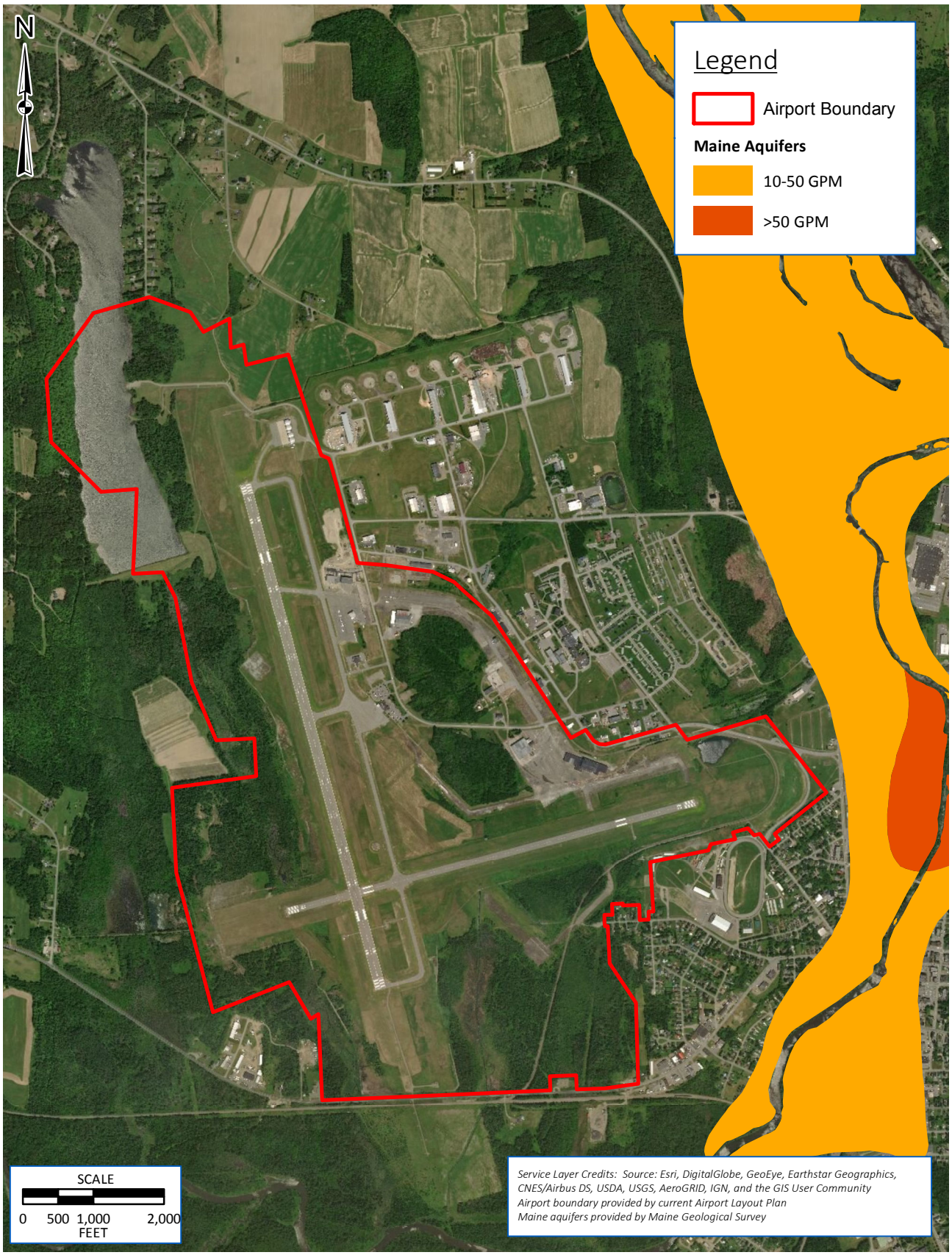
Figure 4-3: Aquifers



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The Maine Historic Preservation Commission (MHPC) was consulted regarding potential or known cultural resources, historic places, or archeological resources located on or in the immediate vicinity of the Airport. For more information regarding historic resources, see Section 4.6.

4.6. HISTORIC RESOURCES

According to 36 CFR Part 800, a historic property is "any prehistoric or historic district, site, building, structure, or object included in or eligible for inclusion in the National Register of Historic Places (NHRP)." The National Historic Preservation Act (NHPA) Section 106 requires that federal agencies, such as the FAA, consider the effects of their actions on historic properties via consultation with the State Historic Preservation Office (SHPO).

Consultation with the Maine Historic Preservation Commission (Appendix F) indicated that the Alert Hangar Complex including the apron are eligible for listing in the National Register of Historic Places, which is a new determination of eligibility. No other properties within the Airport were identified as eligible for listing on the national register, and there were no areas identified as sensitive for archaeological resources. Further consultation is recommended upon the identification of specific projects.

4.7. FARMLANDS

The Farmland Protection Policy Act (FPPA), 7 CFR Part 658, requires federal agencies to consider project alternatives that will minimize unnecessary and irreversible conversion of farmland to non-agricultural uses. For the purposes of the FPPA, farmland refers to soils classified as prime farmland, unique farmland, and land of statewide or local importance. According to the U.S. Natural Resource Conservation Service (NRCS) Web Soil Survey, accessed on November 12, 2018, approximately 12 percent (177.4 acres) of the Airport is classified as prime farmland soils and 13 percent (195 acres) is classified as farmland of statewide importance.

The FPPA does not apply to land already committed to "urban development or water storage." Airport property that has been previously committed to urban development or current airport utilization and development and would not be subject to the FPPA regulations.

The Maine Agriculture Protection Act protects farmers from neighbors' complaints about noise, odor, or other aspects of agricultural operation. There are no zoned agricultural areas in the vicinity of the Airport.

4.8. LAND USE

When considering improvement projects that meet airport development goals, it is important early in the planning process to identify potential impacts to existing land uses on airport property and in the surrounding area and to determine how potential airport projects will affect future land use and development patterns. This will enable the plan to incorporate measures into the future design and layout of airport developments that will avoid or minimize land use conflicts as well as improve on existing conflicts when practicable.

Land uses that are considered more susceptible to impacts from airport development include, but are not limited to, residential areas, schools, religious institutions, hospitals, and public places, including some recreational areas and parks where quiet enjoyment is an expected part of the

user experience. Northern Maine Community College is located immediately adjacent to the Airport to the east on Edgemont Drive. Alternatively, there are some land uses that can negatively impact the operation of the Airport and are considered incompatible with Airport activity. These land uses can include parks and recreational areas, golf courses, landfills, open water areas, and other land uses that have the potential to serve as wildlife attractants, and commercial and industrial facilities that generate high-voltage electricity, utilize bright lights, or create a significant amount of glare, smoke, or steam.

The Airport is located within the Aircraft Hazard Zone and Watershed Protection Aircraft Hazard Zone within the designated urban portion of Presque Isle. Taxiway Street is located within the Industrial Zone. Surrounding land use within the immediate vicinity of the Airport consists of Urban Residential Zones, Business Zone, and a Watershed Protection Business Zone.

FAA AC 150/5200-33B, *Hazardous Wildlife Attractants On or Near Airports*, provides guidance on certain land uses that have the potential to attract hazardous wildlife on or near public-use airports. Potential wildlife attractants and congregation areas can include areas such as shopping malls, agricultural fields, livestock operations, golf courses, parks, waste handling facilities, waterbodies, wetlands, and water management facilities. There is a seed farm north of the Airport and Hanson Lake to the west that can both serve as wildlife attractants for a variety of species that can be hazardous to aircraft operations.

FAA AC 150/5300-13A, *Airport Design,* identifies several land uses that are compatible with an airport's runway protection zone (RPZ). The RPZ functions to enhance the protection of people and property on the ground and the area is maintained clear of incompatible objects and activities. Land uses incompatible with the RPZ include buildings and structures (including residences, schools, churches, hospitals, and industrial buildings), recreational areas, transportation facilities (including roads), fuel and hazardous materials storage facilities, wastewater treatment facilities, and above-ground utility infrastructure.

As future improvements are considered as part of the MPU process, the presence of future structures and transportation facilities within the RPZs, as well as potential impacts should the RPZs be adjusted, will be considered.

4.9. NOISE

Aircraft noise emissions, inherent to the operation of an airport, can adversely impact land use compatibility between an airport and surrounding properties, particularly in the presence of noise-sensitive receptors. Churches, hospitals, schools, amphitheaters, and residential districts are receptors that are sensitive to elevated noise levels. Recreational areas and some commercial uses are moderately sensitive to elevated noise levels. Therefore, it is important to predict any change in noise levels associated with airport development, to determine the significance, if any, of the impact to noise sensitive land-uses. Then, abatement measures can be incorporated into airport development plans to avoid or minimize the impacts.

In order to evaluate the noise impacts of aviation activity on surrounding areas, the FAA has developed the Aviation Environmental Design Tool (AEDT), Version 2d. The modeling software is based on the algorithms that calculate cumulative aircraft noise at ground level expressed in decibels (dB), using the Day-Night Average Level (DNL). The DNL is the average daily noise level,

with an additional 10 dB weight for nighttime aircraft operations. Decibels are measured in A-weighted units, which approximate the range of human hearing. The FAA considers the 65 dB DNL level to be the threshold of impact for noise-sensitive areas. In order to help put the 65 dB DNL into perspective, the typical ambient noise level in suburban residential areas is 55 dB DNL. **Table 4-2** shows the typical noise levels associated with specific areas commonly encountered every day. **Table 4-3** presents the noise levels that are used by the FAA to evaluate land use compatibility with respect to airports.

Table 4-2: Typical Outdoor Day-Night Noise Levels

DNL Day-Night Noise Level (dB)	Location
50 dB	Small town residential area or quiet suburban area
55 dB	Suburban residential area
60 dB	Urban residential
65 dB	Noise urban residential area
70 dB	Very noisy urban residential area
80 dB	City Noise (Downtown of a Major Metropolitan Area)
80 dB	3rd Floor Apartment in a Major City Next to a Freeway

Source: "Community Response to Noise", U.S. Department of Transportation, Federal Aviation Administration.

A noise contour analysis will be completed as part of Land Use Plan included in the Airport Layout Plan set. This analysis will include the forecasted number of future operations utilizing a fleet mix anticipated to occur at the Airport and will be based on the final infrastructure improvements recommended as part of this Master Plan. The Land Use Plan will identify land uses of adjacent properties and the noise contours generated will be utilized to identify any potential impacts associated with the proposed development.

Table 4-3: Typical Outdoor Day-Night Noise Levels

Land Use	Yearly Day-Night Average Noise Level (DNL, dB)		
	Compatible Below 65	Compatible Between 65 and 70	Compatible Between 70 and 75
Residential	YES	NO*	NO*
Mobile Home Parks	YES	NO	NO
Transient Lodgings	YES	NO*	NO*
Schools	YES	NO*	NO*
Hospitals/Nursing Homes	YES	YES*	YES*
Churches/Auditoriums	YES	YES*	YES*
Governmental Services	YES	YES	YES*
Transportation/Parking	YES	YES*	YES*
Offices/Business/Professional	YES	YES	YES*
Wholesale and Retail	YES	YES	YES*
Utilities	YES	YES	YES*
Communications	YES	YES	YES*
Manufacturing	YES	YES	YES*
Photographic/Optical	YES	YES	YES*
Agriculture and Forestry	YES	YES*	YES*
Livestock Farming	YES	YES*	YES*
Mining/Fishing	YES	YES	YES
Outdoor Sports Arenas	YES	YES*	YES*
Outdoor Music Shells	YES	NO	NO
Nature Exhibits/Zoos	YES	YES	NO
Amusements/Parks/Camps	YES	YES	YES
Golf Courses/Stables	YES	YES	YES*

Source: 14 CFR Part 150, Airport Noise Compatibility Planning.
**Measures must be incorporated into the design of the structure or use that will allow this activity to continue at the indicated noise exposure level*

4.10. VISUAL EFFECTS

The Airport is a publicly owned non-hub primary commercial service airport. Commercial service airports are required to comply with FAA standards and guidelines which include lighting and signage utilized both on the ground and in the air as well as other airport procedures. Airport improvements may include the installation of additional lighting or changes to the location of existing lighting on airport property to meet the requirements of the FAA advisory circulars for airport lighting, or to accommodate the construction of the infrastructure improvement. These installations can alter the existing lighting conditions both on, and in the vicinity of, the Airport.

Light emissions are typically one of the greatest concerns for residents in neighborhoods, as well as users of other incompatible land uses, adjacent to an airport that could be directly impacted by

a change in lighting. Given the Airport's size, location, history, and surrounding land use, an increase in light emissions is unlikely to be significant for the installation or replacement of lighting on Airport, with the exception of the installation of approach lighting systems on runways where the technology is not currently available. In some instances, these lighting systems could extend beyond Airport property into neighborhoods where impacts to residential land uses could occur and would require further analysis during the completion of required NEPA documentation prior to installation. Additionally, if obstruction removal (i.e. tree clearing) is proposed, resulting visual changes and potential impacts would also be considered and evaluated.

4.11. AIR QUALITY

Under Section 176(c) of the Clean Air Act (CAA) Amendments of 1977, the FAA is responsible for ensuring that federal airport actions conform to the State Implementation Plan (SIP), which protects against regional air pollution impacts. The criteria and procedures for implementing this conformity are detailed in Title 40 CFR Part 93, *Determining Conformity of Federal Actions to State or Federal Implementation Plans.* Many federal actions on an airport are considered to be general conformity actions. Presently, the general conformity rules only apply in areas that have been determined by the EPA to be in nonattainment or maintenance for the CAA's National Ambient Air Quality Standards (NAAQS) of the six priority pollutants (ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, particulate matter, and lead). Under NEPA, the FAA may be required to prepare detailed air quality analysis for proposed projects whose air quality emissions have the potential to cause violations of the NAAQS for the six criteria pollutants.

The Airport is located in Aroostook County, which the EPA does not currently list as an area of nonattainment or maintenance for NAAQS. Most Airport projects will not cause or create a reasonably foreseeable emissions increase, which can be sufficiently documented and disclosed through a qualitative air quality assessment to satisfy the requirements of the CAA and NEPA. If large scale projects are proposed that may create an increase in emissions, a full emissions inventory will be required.

4.12. HAZARDOUS MATERIALS AND SOLID WASTE

A Hazardous Waste/Contaminated Material (HWCM) desktop screening was conducted to determine the potential for the presence of HWCM on or in the vicinity of Airport property. The screening involved the review of online governmental databases and an Environmental Database Reports provided by Nationwide Environmental Title Research Online (NETROnline). An environmental regulatory agency records review of this nature is based on publicly available information from state and federal agencies.

Review of the environmental database report identified nine records of leaking underground storage tanks within a one-mile radius of the Airport. The Coca Cola facility, located at 1005 Airport Drive, was listed for soil and groundwater contamination observed in June of 1992 during a tank removal. The contaminated soil was excavated, and a fuel oil recovery system was put in place for site remediation. A letter from the MEDEP dated October 3, 1997 indicated that the actions taken were sufficient to meet the Department's remedial objectives for the property.

Given the potential for soil and groundwater contamination to exist on Airport property, as each individual project is proposed, they will be evaluated for their specific potential to encounter chemical, petroleum, or hazardous materials in direct consultation with MEDEP and EPA. In the event that previously unidentified chemical, hazardous, or petroleum related wastes are encountered during the construction of any future proposed projects, the MEDEP will be notified and the wastes will be handled and disposed of based on consultation with the MEDEP and in accordance with all applicable federal, state, and local regulations.

As projects are proposed, they will be evaluated for their specific potential to encounter chemical, petroleum, or hazardous materials in direct consultation with DEP and EPA. In the event that previously unidentified chemical, hazardous, or petroleum related wastes are encountered during the construction of any future proposed projects, the wastes will be handled and disposed of in accordance with all applicable federal, state, and local regulations.

4.12.1. Per- and Polyfluoroalkyl Substances (PFAS)

Perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS) are two man-made chemicals that were commonly used in household and industrial products, and historically in firefighting foams. PFOA and PFOS are persistent in the environment and have been increasingly tested for, and found in groundwater, often in drinking water wells. While PFAS is not currently regulated, in 2016 the EPA issued a Health Advisory at 70 parts per trillion (ppt) in drinking water for both contaminants combined or individually. If there are more than 70 ppt in drinking water, actions should be taken to reduce exposure.

The MEDEP provides information about sites where PFOA and PFOS may have been detected. The Loring Air Force Base, an EPA Superfund site, located approximately 20 miles north of Presque Isle, has begun testing for PFAS. According to the EPA superfund page for Loring, sampling of groundwater, surface water, soil, and sediment collected on the former base has identified the presence of PFAS and future studies are planned.

4.13. ENERGY

The use of energy supplies and natural resources are closely linked to construction of Airport improvements and operations. Anticipated growth and development at the Airport is likely to increase the use of energy and natural resources. However, energy, and natural resources are relatively abundant in Northern Maine and planned growth at the Airport is not of sufficient magnitude to alter regional energy demand or limit natural resource availability.

Each proposed project will be evaluated for the potential effect upon these resources and methods to reduce potential energy uses will be developed and considered during the review process.

4.14. CLIMATE

Climate change is a global phenomenon that has been attributed to increasing concentrations of greenhouse gases (GHGs) in the atmosphere. GHGs include carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF6).

Under EO 13693, *Planning for Federal Sustainability*, federal agencies must make efforts to measure, report, and reduce their GHGs emissions from direct and indirect activities.

The FAA has not identified a significance threshold for GHG emissions, as there is no current accepted method of determining the level of significance applicable to airport projects given the small percentage of emissions they contribute. Any increase in emissions of GHGs as the result of a proposed action at the Airport would be considered negligible in comparison with U.S. annual emissions and therefore would not have a significant impact on global climate change.

NEPA requires the consideration of GHGs and the evaluation of potential incremental changes in emissions that would result from the proposed action and alternatives compared to no-action alternatives. Where proposed projects would result in an increase in GHG emissions, the emissions should be assessed either qualitatively or quantitatively as described in the order. However, there are no significant thresholds or federal standards for GHG emissions applicable to aviation at this time.

4.15. SOCIOECONOMICS, ENVIRONMENTAL JUSTICE, AND CHILDREN'S ENVIRONMENTAL HEALTH AND SAFETY RISKS

Under the Council on Environmental Quality (CEQ) regulations implementing NEPA (40 CFR Part 1502.1), federal agencies are required to consider the effects to the area population's health, safety risks to children, and socioeconomic impacts. Under 40 CFR 1508.14, the CEQ requires that the human environment be considered for federal projects to address the relationship of people with their natural and physical environments.

4.15.1. Socioeconomics

Principal impacts to be considered include the displacement of families or businesses, effects to neighborhood characteristics, dividing or disrupting established communities, changing ground transportation patterns, disruption of orderly planned community developments, or creating measurable changes in employment. If land acquisition were necessary for proposed Airport development alternatives, it would be accomplished in accordance with 49 CFR Part 24, *Uniform Relocation Assistance and Real Property Acquisition Policies Act*, (Uniform Act) and FAA AC 150/5100-17, *Land Acquisition and Relocation Assistance for Airport Improvement Program Assisted Projects*. The Uniform Act standardizes real property acquisition policies and requires the uniform and equitable treatment of persons relocated due to a federally assisted project.

Proposed projects will be evaluated for the potential effects to the community economy, social structure, and necessary community health and safety services as specific alternatives are developed during the design process.

4.15.2. Environmental Justice

Environmental justice evaluations consider the potential of federal actions, including those involving federally obligated airports, to cause a disproportionate and adverse effect upon low-income or minority populations. The Airport is located in the City of Presque Isle, along the border of Mapletown, both in Aroostook County.

As shown in Table 4-4, the 2010 Census recorded the City of Presque Isle population at 9,692 with 94.5% white population and 9.2% of the individuals below the poverty line. The Town of Mapleton had a population of 1,948, 98% of which were white and 6.2% of the population below the poverty line. The percentage of the population who identified as minority in Presque Isle, Mapleton, and Aroostook County is much lower than that reported for the nation. Additionally, the percentage of the population below the poverty level in Presque Isle and Mapleton is lower than that of the county and national levels.

Table 4-4: Demographic Profiles

Census Category	National Average	City of Presque Isle	Town of Mapleton	Aroostook County
Total Population	308,745,538	9,692	1,948	71,870
White Population	72.4%	94.5%	98.0%	95.7%
Minority Population	27.6%	5.5%	2.0%	4.3%
Population Under Age 5	6.5%	5.0%	5.6%	4.9%
Population Age 65 & Older	13.0%	16.2%	14.5%	19.0%
Individuals Below Poverty Level	12.4%*	9.2%*	6.2%*	14.3%*
Median Household Income	$57,652**	$37,036**	$51,250**	$39,021**

*Sources: U.S. Census Factfinder, 2010 Census; *US Census Factfinder, 2000 Census; **US Census Factfinder, 2013-2017 American Community Survey 5-year Estimates.*

The MEDEP does not have published environmental justice maps, however, based on the information above, Airport development is not likely to result in disproportionately high adverse human health or environmental effects to children, elderly, minority, or low-income populations.

4.15.3. Children's Environmental Health and Safety Risks

Pursuant to EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, federal agencies are directed to make identification and assessment of environmental health and safety risks that may disproportionately affect children a high priority. Federal agencies are encouraged to ensure that their policies, programs, and activities address any disproportionate risks children may incur from environmental health and safety risks. These risks are generally attributable to products or substances that a child is likely to come in contact with or ingest, such as air, food, drinking water, recreational waters, soil, or products they might use or to which they may be exposed. Proposed projects will be assessed for the potential to impair the ability of

neighborhood children to access clean breathable air, healthy food, potable water, and appropriate recreation sites.

4.16. CUMULATIVE IMPACTS

The Federal Council of Environmental quality regulations contained in 40 CFR 1508.7 defines cumulative impact as the impact on the environment which results from incremental impact of the action(s) when added to other past, present, and reasonably foreseeable future actions. This takes into account recent airport projects, and any past, present, and reasonably foreseeable future projects located in the project vicinity. In general, this means evaluating the cumulative impacts from completed airport projects of the past five years in addition to proposed or potential projects within the next three years.

As the Airport proposes improvements and upgrades to its facilities and equipment, additional development in the vicinity of the airport may occur. The potential for cumulative impacts will be further evaluated in subsequent NEPA documents.

PRESQUE ISLE
INTERNATIONAL AIRPORT
AÉROPORT INTERNATIONAL DE PRESQUE ISLE

Chapter 5

Facility Requirements

McFarland Johnson

Stantec

5. Facility Requirements

This chapter presents the airside and landside facility requirements necessary to accommodate existing and forecasted demand at Presque Isle International Airport (PQI or the Airport) in accordance with Federal Aviation Administration (FAA) design criteria and safety standards. The facility requirements are based upon several sources, including the aviation demand forecasts presented in Chapter 3, *Aviation Forecasts;* FAA Advisory Circular (AC) 150/5300-13A, *Airport Design;* and 14 Code of Federal Regulations (CFR) Part 77, *Safe, Efficient Use, and Preservation of the Navigable Airspace.* The findings of this chapter serve as the basis for the formulation of airport alternatives and development recommendations. The major components of this chapter are listed below:

- Airfield Capacity Analysis
- Airside Facility Requirements
- Passenger Terminal Facility Requirements
- Parking and Roadway Access Facility Requirements
- General Aviation and Landside Facility Requirements
- Military
- Support Facilities and Utilities
- Facility Requirements Summary

PQI has Essential Air Service (EAS) for the residents of northern Maine. "The Essential Air Service (EAS) program was put into place to guarantee that small communities that were served by certificated air carriers before airline deregulation maintain a minimal level of scheduled air service. The United States Department of Transportation […] is mandated to provide eligible EAS communities with access to the National Air Transportation System. This is generally accomplished by subsidizing up to two round trips a day with 30- to 50-seat aircraft, or additional frequencies with aircraft with 9-seat or fewer, usually to a large- or medium-hub airport."[1] At PQI, there are presently up to twelve flights per week on a 50-seat aircraft. Due to the limited schedule, it is imperative that airline service be reliable. With the Airport's annual snowfall reaching 109 inches, having the right facilities and equipment is critical to maintain the operation of the Airport.

5.1. AIRFIELD CAPACITY ANALYSIS

Airfield capacity refers to the ability of an airport to safely accommodate a given level of aviation activity. The FAA has prepared a number of publications and computer programs to assist in the calculation of capacity. This report will use the methodologies described in AC 150/5060-5, *Airport Capacity and Delay*.

Capacity is described through three terms: annual service volume (ASV), visual flight rules (VFR) hourly capacity, and instrument flight rules (IFR) hourly capacity. The ASV is a reasonable estimate of the annual capacity, or the maximum annual level of aircraft operations that can be

[1]https://www.transportation.gov/policy/aviation-policy/small-community-rural-air-service/essential-air-service

accommodated, at an airfield. It should be noted that airports could, and often do, exceed their stated ASV. However, delays and diversions begin to increase rapidly once the ASV is exceeded or hourly capacities are approached.

Based on AC 150/5060-5, the Airport's capacity was calculated on a high-level, long-range evaluation and can be seen in **Table 5-1**. Airfield capacity at PQI does not appear to be constrained at the present, and future capacity is also anticipated to be adequate. FAA guidance recommends that planning for capacity enhancement should begin when capacity reaches the 60 percent level.

Table 5-1: Annual Operations Forecast

Year	Demand		Capacity			Percent Peak Hour		Percent ASV
	Annual	Peak Hour	ASV	Hourly VFR	Hourly IFR	VFR	IFR	
2019	5,750	3	200,000	77	57	3.9%	5.3%	2.9%
2023	6,051	3	200,000	77	57	3.9%	5.3%	3.0%
2028	6,368	3	200,000	77	57	3.9%	5.3%	3.2%
2038	7,052	4	200,000	77	57	5.2%	7.0%	3.5%

Source: McFarland Johnson Analysis, 2020.

Recommendation: Should PQI capacity reach approximately 40 percent of ASV (80,000 operations), a more detailed capacity analysis should be conducted.

5.2. AIRSIDE FACILITY REQUIREMENTS

Airside facility requirements address the items that are directly related to the arrival and departure of aircraft, primarily runways and taxiways and their associated safety areas. To assure that all runway and taxiway systems are correctly designed, the FAA has established criteria for use in planning and design of airfield facilities. The selection of appropriate FAA design standards for the development of airfield facilities is based on the characteristics of the most demanding aircraft expected to use an airport or that particular facility at an airport on a regular basis (500 operations per year). Correctly identifying the future aircraft types that will use an airport is particularly important. The design standards selected will establish the physical dimensions of facilities and the separation distances between facilities that will impact airport development for years to come. Use of appropriate standards will ensure that facilities can safely accommodate aircraft using the Airport today, as well as aircraft that are projected to use the Airport in the future.

Airfield facility requirements are covered in this section as follows:

- Critical Design Aircraft
- Runway Length
- Runway Width
- Runway Strength
- Runway Orientation
- Runway Safety Areas
- Runway Object Free Areas
- Runway Protection Zones
- Runway Visibility Zones
- Runway Pavement Markings

- Taxiways
- Potential Hot Spots and Geometry Requirements
- Airfield Lighting and Signage
- Visual Approach Aids
- Instrument Approaches
- Airside Facility Requirements Summary

5.2.1. Critical Design Aircraft

Airport design standards are described in AC 150-5300-13A, *Airport Design.* This document provides criteria for grouping of aircraft into an aircraft approach category (AAC) which is based on approach speed and a number representing an airplane design group (ADG) which is based on tail height and/or wingspan. These groupings are presented in **Table 5-2**.

Table 5-2: AAC and ADG Characteristics

Aircraft Approach Category (AAC)	
Category	**Approach Speed**
A	Approach speed less than 91 knots
B	Approach speed 91 knots or more but less than 121 knots
C	Approach speed 121 knots or more but less than 141 knots
D	Approach speed 141 knots or more but less than 166 knots
E	Approach speed 166 knots or more

Airplane Design Group (ADG)	
Group	**Tail Height (and/or) Wingspan**
I	< 20′ // < 49′
II	20′ - < 30′ // 49′ - < 79′
III	30′ - < 45′ // 79′ - < 118′
IV	45′ - < 60′ // 118′ - < 171′
V	60′ - < 66′ // 171′ - < 214′
VI	66′ - < 80′ // 214′ - < 262′

Source: FAA AC 150/5300-13A, Airport Design.

The existing and future design aircraft for PQI is the Embraer 145 (ERJ-145), which is a C-II aircraft, for Runway 1-19. While the regular use aircraft for Runway 10-28 is the Cessna 208 Caravan, which is a A-II aircraft, Runway 10-28 serves as a secondary runway and should maintain C-II standards for maximum operational flexibility for the current and future EAS operations.

Runway 10-28 serves as a secondary runway because:

- Runway 28 provides approach visibility minimums better than those available on Runway 19.
- Reliability of EAS is critical and Runway 10-28 is utilized by the EAS provider when conditions warrant.

- Should Runway 1-19 be closed during maintenance, rehabilitation, reconstruction, an accident (as occurred in March 2019), etc., Runway 10-28 is needed to accommodate all operations, especially EAS operations.
- It is 14 CFR Part 139 certified.
- The current terminal has passed its useful life and may need to be relocated, which could result in increased use of Runway 10-28 by more demanding aircraft. Should 45 percent of EAS operations shift to Runway 10-28, there would be over 500 C-II operations.

Regular Use – Runway 1-19

FAA AC 150/5000-17, *Critical Aircraft and Regular Use Determination*, states that "Regular use is 500 annual operations, including both itinerant and local operations but excluding touch-and-go operations. An operation is either a takeoff or landing."

There were over 1,000 ERJ-145 C-II operations on Runway 1-19 in 2019. It is anticipated that Runway 1-19 will remain a C-II runway through the planning period.

Regular Use – Runway 10-28

According to the 2019 operations data, automatic dependent surveillance broadcast (ADS-B) captured 609 operations on Runway 10-28. The general audio recording device (GARD) captured another 4,871 operations of aircraft that did not have ADS-B equipment installed. Based on the ADS-B operations, it was determined that approximately:

- 5 percent of all airport operations are ADG I on Runway 10-28 plus one percent to account for a higher percentage of non-ADS-B operations compared to other, larger operations
- 6 percent of all airport operations are ADG II on Runway 10-28

As shown in Table 5-3, Runway 10-28 meets the regular use criteria for A/B-I and A/B-II thresholds.

Table 5-3: 2019 Operations by AAC-ADG

AAC-ADG	A/B-I	A/B-II
ADS-B	207	294
GARD (estimated)	299	280
Total	**506**	**574**

Sources: 2019 ADS-B data, 2019 GARD data, and McFarland Johnson analysis.

Of the 574 A/B-II operations, approximately 145 (25 percent) were conducted by the Cessna 208, which is why it was chosen to be the representative existing Runway 10-28 critical aircraft. It is anticipated that the critical aircraft will be evaluated prior to the next major reconstruction.

Additionally, there were 18 ERJ-145 operations when crosswind conditions exceeded 10 knots. As previously noted, depending on the runway condition, the ERJ-145 can have a maximum crosswind component down to 10 knots.

PQI's Role in Emergency and Disaster Preparedness

Per H.R.302 -FAA Reauthorization Act of 2018, Section 47106 of title 49 of the United States Code, "When evaluating the master plan of an airport […], the Secretary shall take into account (1) the role an airport plays with respect to medical emergencies and evacuations; and (2) the role the airport plays in emergency or disaster preparedness in the community served by the airport."[2]

PQI is a Federal Emergency Management Agency (FEMA) designated emergency airport. Therefore, the PQI master plan must consider the needs and requirements of emergency type aircraft commonly used by FEMA that could serve the airport in emergency or disaster situations. These aircraft are typically Boeing 737/Airbus A320 type operations (both of which are C-III aircraft) or equivalent military aircraft. Therefore, PQI should protect for C-III standards throughout the Airport Master Plan Update (MPU).

Recommendation: The Runway 1-19 existing and proposed critical aircraft is the ERJ-145 (C-II). Runway 10-28 existing critical aircraft is the Cessna 208 (A-II) and proposed critical aircraft is the ERJ-145 (C-II).

5.2.2. Runway Length

A wide variety of aircraft use PQI daily. These aircraft, both large and small, have different runway length requirements. In some cases, smaller or older aircraft may require more runway length than larger or more efficient aircraft. A significant number of factors go into determining the runway performance of an aircraft such as airport elevation, aircraft weight, temperature, flap settings, payload, or runway condition (wet/dry), which then dictate the runway requirements that must be met for an aircraft to utilize that runway.

The FAA has published AC 150/5325-4B, *Runway Length Requirements for Airport Design*, to assist in the determination of the required runway length for both the primary and crosswind runways. The requirements for both the primary and crosswind runways are based on the performance of a specific aircraft or a family of similar aircraft.

Existing and Future Aircraft Runway Length

Existing services and operations at the Airport operate safely and efficiently from both Runways 1-19 (7,439 feet long) and 10-28 (6,001 feet long). Runway length numbers discussed below are shown in **Appendix F.**

Embraer 145/Bombardier CRJ-200 – The ERJ-145/CRJ-200 are regional jets that are currently being used or are anticipated to be used for EAS operations. The current provider uses the ERJ-145 LR and XR variants, which were used for this runway length calculation. As shown in **Table 5-4**, additional runway length would increase reliability in the summer months. In the winter, runway contamination may increase the take-off and landing needs as shown in the following section. Based on the runway length analyses and conversations with the current operator, 8,000 feet of

[2] https://www.congress.gov/115/plaws/publ254/PLAW-115publ254.pdf

runway length would minimize weight penalties and cancellations or delays due to winter conditions.

Table 5-4: Runway Length Comparison

	ERJ-145	CRJ-200
Takeoff Distance (unadjusted)	5,900' – 7,900'	5,300'
Runway Elevation Difference Adjustment	790'	790'
Takeoff Distance (adjusted)	**6,690' – 8,690'**	**6,090'**
Landing Distance (unadjusted)	4,550' – 4,850'	5,000'
Wet/Contaminated Runway	15%	15%
Landing Distance (adjusted)	**5,233' – 5,578'**	**5,750'**

Source: CRJ-200 Airport Planning Manual, 2016; Embraer 145 Airport Planning Manual, 1997; and McFarland Johnson analysis, 2020.

Cessna 208 Caravan – The Caravan has a maximum takeoff weight of less than 12,500 pounds[3], 79-knot approach speed, and can seat ten to 14 passengers. Runway 10-28 has adequate length to accommodate the Cessna 208 Caravan operations. This group of aircraft needs approximately 4,000 feet of runway length according to FAA AC 150/5325-4B, *Runway Length Requirements for Airport Design*.

Due to the presence of EAS at the Airport, it is necessary to keep Runway 10-28 at its current length to accommodate the ERJ-145/CRJ-200 aircraft used for EAS. Additionally, most jet operators need a minimum of 5,000 feet of runway length including some of the jets that frequent Runway 10-28 such as the Gulfstream IV, which needs a takeoff length of approximately 5,450 feet[4]. Most commercial service operators need a minimum of 6,000 feet of runway length, similar to the PQI critical aircraft as seen in **Table 5-4**.

Should Runway 10-28 be reduced in length, PQI could lose approximately 5% of EAS operations due to cancellations. This could also trigger non-standard geometry.

In addition to the regular runway length calculations, PQI is the only airport north of Bangor (160 miles south) that can accommodate larger aircraft. In case of an emergency, PQI needs to protect its runway length to be able to allow evacuation efforts to take place. As such, PQI should be able to accommodate a C-III aircraft such as a Boeing 737 or Airbus A320 for emergency evacuation purposes. A Boeing 737 at maximum takeoff weight (MTOW) requires a takeoff distance of between 6,990 feet and 8,990 feet and a landing length of between 6,670 feet and 7,705 feet while an Airbus A320 at MTOW can require a takeoff distance between 5,790 feet and 8,290 feet and landing distance of 5,465 feet and 5,865 feet.

[3] Cessna 208 Caravan, <https://cessna.txtav.com/en/turboprop/caravan>, accessed Feb. 27, 2020.
[4] https://www.jetcraft.com/jetstream/2015/01/gulfstream-giv-sp-overview-1992-2002/

Take Off and Landing Performance Assessment (TALPA)

Runways contaminated with water, snow, slush, or ice use the TALPA method to report runway conditions. The runway condition assessment matrix (RCAM) consists of a runway condition description and a runway condition code (RwyCC). The RwyCC description is either dry, wet, or contaminated and ranges from six to zero, with six representing a dry runway, and zero representing nil braking conditions due to contamination. The RCAM can be found in FAA Safety Alert for Operators (SAFO) 16009.

TALPA requirements were implemented on October 1, 2016, and before TALPA, the Airport was closed an average of five hours annually. Between Oct. 25th and Dec. 31st, 2018, PQI was closed over 10 hours. In 2019, the Airport was closed over 25.5 hours. And between January 1 and March 11, 2020, the Airport was closed over 26 hours. To improve aircraft braking action, the Airport applies FAA approved liquid deice chemical; however, even after applying liquid deice chemical, it is difficult to keep up with the TALPA requirements as the applied liquid deice does not allow blowing snow to drift across the runway, but instead sticks to the runway, contributing to runway contamination and increasing braking distances.

Based on the RwyCC, aircraft have varying minimum takeoff and landing distance performance criteria to accommodate for contaminated runways. Based on conversations with different aircraft operators, aircraft weight restrictions come into play in RwyCC 1-2 for landing and RwyCC 5 for take-off. According to FAA SAFO 19001, there are multipliers to the unfactored certificated airplane flight manual (AFM) landing distances. Distinction is made between grooved and smooth runways at RwyCC 5. Grooved runways have a lower multiplier and therefore have a credit when determining landing distances. This means, the critical aircraft is weight restricted when 1/8 inch or less of water or slush is on the runway or ¼ inch or less of wet snow is on the runway. Depending on the destination (the current route has been changing between Newark Liberty International Airport (EWR) and Dulles International Airport (IAD)), additional weight penalties/restrictions impact operations. Due to the limited airline schedule, it is imperative that the air carrier service be as reliable as possible.

Recommendation: Review Runway 1-19 for an increase in length up to approximately 8,000 feet. Consider grooving Runway 1-19. Maintain existing Runway 10-28 runway length.

5.2.3. Runway Width

Runway 1-19 is 150 feet wide, which exceeds the standards for a C-II runway of 100 feet and meets FAA standards for a C-III runway (for aircraft with MTOW greater than 150,000 pounds). Runway 10-28 is 100 feet wide, which exceeds existing A/B-II FAA standards of 75 feet wide and meets FAA standards for a future C-II runway. Due to the volume of snow – on average 109 inches per year – runway width should be protected for snow removal. Additionally, PQI is a commercial service airport, which means that it is imperative to maximize the air carrier operations that can take place. The more minimal a schedule, the more reliable service needs to be. This is amplified with EAS. By having 150 feet of runway width on Runway 1-19, the Airport saves 10 to 15 minutes on the clearing time for each pass on the runway. The current operator has expressed that at a minimum, 80 feet of runway width need to be cleared to use the runway. Should Runway 10-28 be reduced in width, it would render the runway useless for EAS, which would be detrimental to

the schedule reliability. Additionally, Runway 1-19 should maintain its 150-foot width to protect for C-III aircraft in the case of an emergency and to maximize snow removal and associated EAS reliability.

Recommendation: No changes are recommended for Runways 1-19 and 10-28.

5.2.4. Runway Strength

Pavement strength requirements are related to three primary factors: 1) the weight of aircraft anticipated to use an airport, 2) the landing gear type and geometry, and 3) the volume of aircraft operations. Airport pavement design, however, is not predicated on a particular weight that is not to be exceeded. The current methodology used in FAA's FAARFIELD airfield pavement design program analyzes the damage to the pavement for each airplane and determines a final thickness for the total cumulative damage per AC 150/5320-6E, *Airfield Pavement Design and Evaluations*.

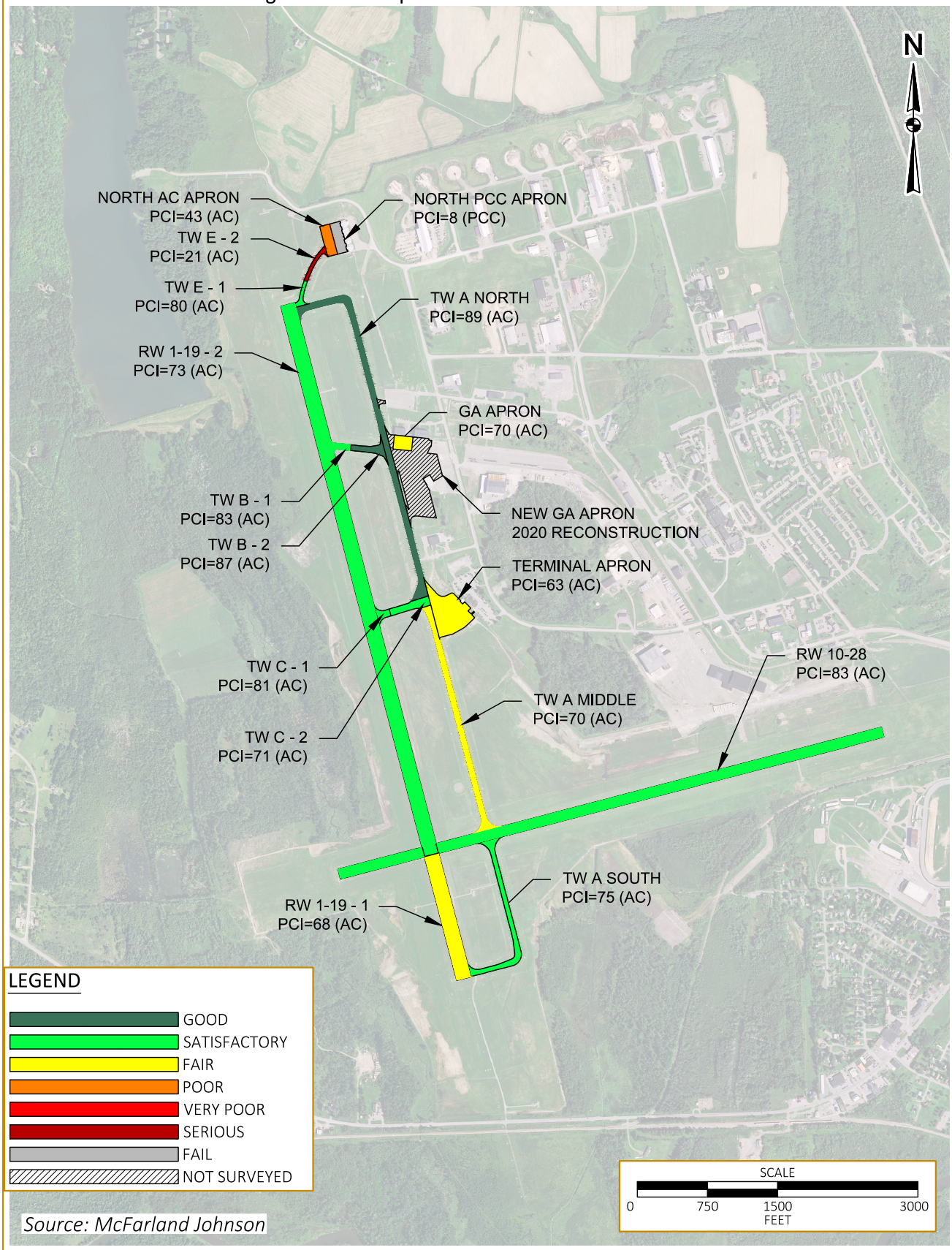
Design is based on the mix of aircraft that are expected to use the runway over the anticipated life of the pavement (usually 20 years). The methodology used to develop the runway pavement design considers the number of operations by both large and small aircraft, and reduces this data to a number of "equivalent annual operations" by a design aircraft, which is the most demanding in terms of pavement loading expected to use an airport. This may or may not be the design aircraft for planning purposes and its selection considers the type of landing gear and tire pressure in addition to weight. The outcome of the design process is a recommended pavement section that will accommodate operations by the forecast fleet mix and withstand weather stresses without premature failure of the pavement.

The current pavement at the Airport is rated for 100,000 pounds single-wheel, 150,000 pounds dual wheel, and 240,000 pounds dual tandem for Runway 1-19 and 100,000 single-wheel, 150,000 pounds dual wheel, and 240,000 pounds dual tandem for Runway 10-28 according to the Airport's FAA 5010 Form, *Airport Master Record*. The critical aircraft ERJ-145 has a maximum takeoff weights of approximately 44,000 pounds. For emergency evacuation purposes, a C-III aircraft, such as the Boeing 737 should be reviewed. The Boeing 737 has a maximum takeoff weight ranging from 110,000 pounds to 187,700 pounds for the larger variants. Both runways meet the pavement strength needed for the ERJ-145. Depending on the emergency aircraft, Runway 1-19 may meet the pavement strength needs.

The pavement management plan (PMP) conducted as part of this MPU showed Runway 1-19 at a Pavement Condition Index (PCI) of 68-73 and Runway 10-28 at a PCI of 83. The PCI scale indicates that pavement with a PCI of 71-100 should receive preventative maintenance, PCIs of 55-70 should receive major rehabilitation, and PCIs less than 55 are eligible for reconstruction. The PMP is included in **Appendix A**. Airfield PCI can be seen in **Figure 5-1**.

Recommendation: Runway 1-19 is anticipated to need rehabilitation in the short term. Runway 10-28 is anticipated to receive preventative maintenance in the short term and rehabilitation within the planning period.

Figure 5-1: Presque Isle Pavement Condition Index



Source: McFarland Johnson

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5.2.5. Runway Orientation

A significant factor in evaluating a runway's orientation is the direction and velocity of the prevailing winds. Ideally, all aircraft take off and land in the direction of the wind. A runway alignment that does not allow an aircraft to go directly into the wind creates what is known as a crosswind component (i.e. winds at an angle to the runway in use), which makes it more difficult for a pilot to guide the airplane down the intended path. The commonly used measure of degree to which a runway is aligned with the prevailing wind conditions is the wind coverage percentage, which is the percent of time crosswind components are below acceptable velocities. Essentially, this measure indicates the percentage of time aircraft within a particular design group will be able to safely use the runway. Current FAA standards as identified in FAA AC 150/5000-17, *Critical Aircraft and Regular Use Determination*, for a crosswind runway requires meeting both:

- Wind coverage requirements as specified in AC 150/5300-13A, which states that if the primary runway orientation provides less than 95 percent coverage, a crosswind runway may be required. Runway 1-19 at PQI provides 94.04 percent coverage (see **Table 5-5**) during 10.5-knot crosswind conditions. Therefore, PQI meets this criterion for an eligible crosswind runway.
- Regular use requirement for the aircraft that would use the crosswind runway. PQI meets this criterion as Runway 10-28 had over 500 A/B-I and ADG II operations in 2019.

Table 5-5: Runway Wind Coverage Analysis

	All Weather Wind Coverage[1]		
	10.5 Knot	13 Knot	16 Knot
Runway 1-19	**94.04%**	96.69%	99.04%
Runway 1	59.34%	61.36%	63.11%
Runway 19	57.38%	58.02%	58.65%
Runway 10-28	**88.98%**	**93.55%**	98.26%
Runway 10	48.51%	50.14%	51.97%
Runway 28	63.16%	66.11%	69.01%
Both	99.38%	99.89%	99.99%

	IFR Wind Coverage[2]		
	10.5 Knot	13 Knot	16 Knot
Runway 1-19	96.80%	98.21%	99.29%
Runway 1	55.58%	56.74%	57.61%
Runway 19	66.10%	66.37%	66.57%
Runway 10-28	**88.21%**	**92.92%**	97.74%
Runway 10	68.53%	71.56%	75.04%
Runway 28	43.87%	45.50%	47.37%
Both	99.48%	99.91%	99.99%

	VFR Wind Coverage[3]		
	10.5 Knot	13 Knot	16 Knot
Runway 1-19	**93.64%**	96.47%	99.01%
Runway 1	59.52%	61.66%	63.53%
Runway 19	56.04%	56.75%	57.43%
Runway 10-28	**89.15%**	**93.75%**	98.40%
Runway 10	45.30%	46.75%	48.35%
Runway 28	65.76%	68.92%	71.99%
Both	99.39%	99.90%	99.99%

[1] All Weather Conditions: all ceiling and visibility conditions
[2] IFR Weather Conditions: ceiling less than 1,000 feet and/or visibility below three statue miles (SM) but greater than or equal to a ceiling of 200 feet and visibility of one SM
[3] VFR Weather Conditions: ceiling at least 1,000 feet and visibility at least three SM
Source: National Climatic Data Center – Presque Isle International Airport 2010-2019 (272130).

Crosswind Component

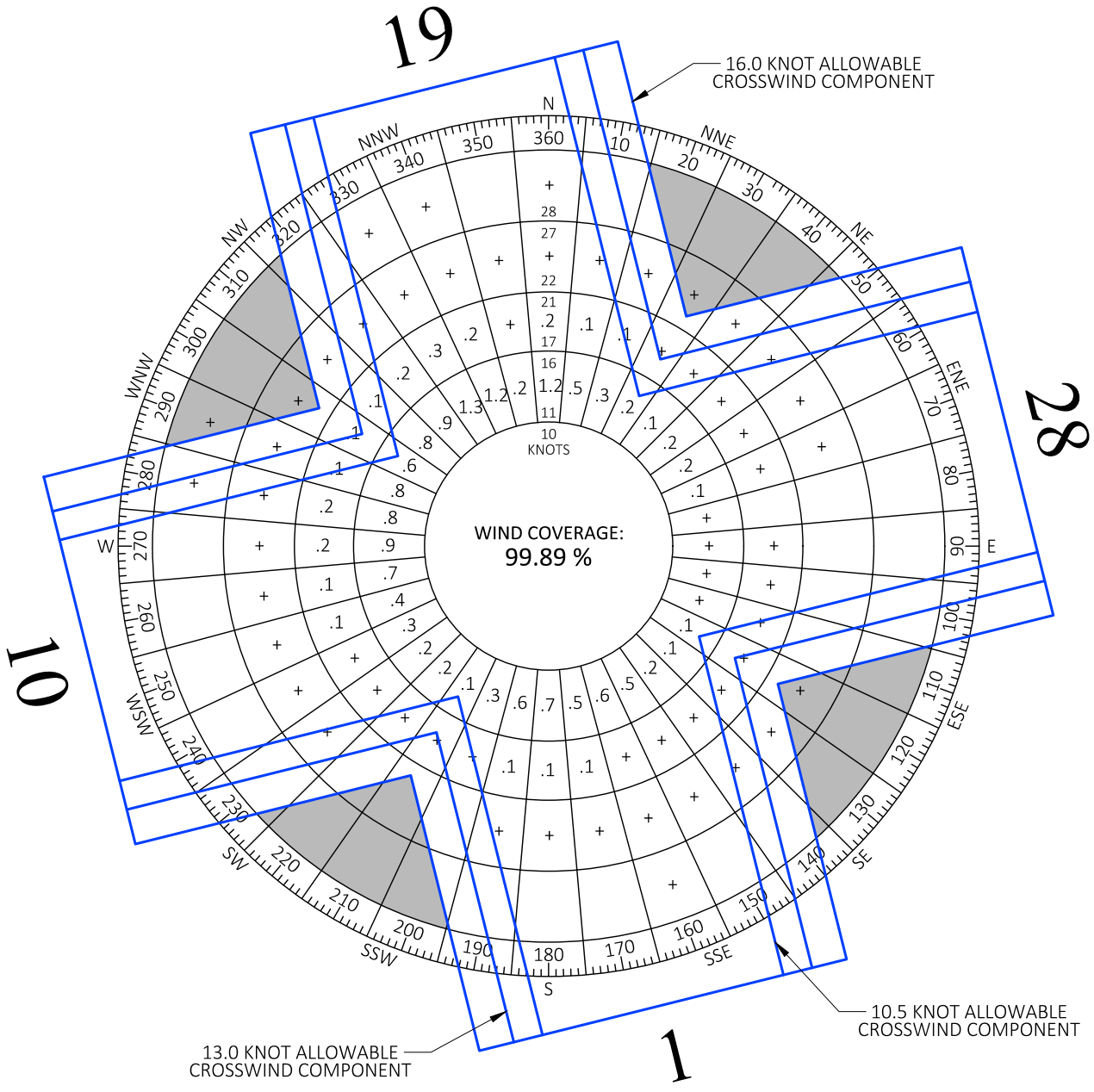
Wind data for the Airport was obtained from the National Climatic Data Center (NCDC). The wind data was collected for a 10-year period from 2010 through 2019 at PQI, and was compiled into All Weather, IFR, and VFR wind roses presented in **Figure 5-2**, **Figure 5-3**, and **Figure 5-4**, respectively. The wind roses show the percentage of time winds at the Airport originated from different directions at various velocities. These percentages were then analyzed based on runway orientation and can be seen in **Table 5-5**. Ideally, the primary instrument runway at an airport should be the runway that has the highest percentage of wind coverage under IFR conditions, during which an approach procedure is needed.

According to the runway wind analysis, the current runway alignment at the Airport provides the recommended 95 percent coverage. The AAC-ADG of C-II coverage is shown by the 16-knot coverage percentages as smaller aircraft cannot withstand as strong crosswinds. The 16-knot crosswind coverage allows operations at the Airport approximately 100 percent of the time. Crosswind coverage of 20 knots was not shown, as it does not apply at the Airport. Coverage for A/B-II aircraft is based on 13-knot crosswind maximums and is provided almost 100 percent of the time. Runway 10-28 is justified as Runway 1-19 does not provide the 95 percent wind coverage during All Weather conditions for A-I and B-I aircraft, where coverage is based on 10.5 knots. During these conditions, Runway 1-19 provides coverage 94.04 percent of the time.

It should be noted that in recent years, weather has been changing at Presque Isle. The 10-year data shows that in All Weather and VFR conditions, the 10.5-knot wind coverage drops below 95 percent, and as such, an AAC-ADG A-I/B-I crosswind runway is justified.

Over the past ten years, there have been 5,544 instances of high wind conditions which represents approximately three percent of the 195,536 observations. During strong wind events, Runway 10-28 has been used by the ERJ-145. This aircraft has a crosswind limit of 10-30 knots of wind speed, depending on the runway condition. Due to the lower approach visibility minimums on Runway 28 than Runway 19, the ERJ-145 sometimes uses Runway 28 even if winds favor Runway 19. The

Figure 5-2: All Weather Wind Rose



ALL WEATHER			
	10.5 KNOT	13.0 KNOT	16.0 KNOT
RUNWAY 1-19	94.04%	96.69%	99.04%
RUNWAY 10-28	88.98%	93.55%	98.26%
COMBINED	99.38%	99.89%	99.99%

Source: Presque Isle International Airport 2010-2019 (727130)

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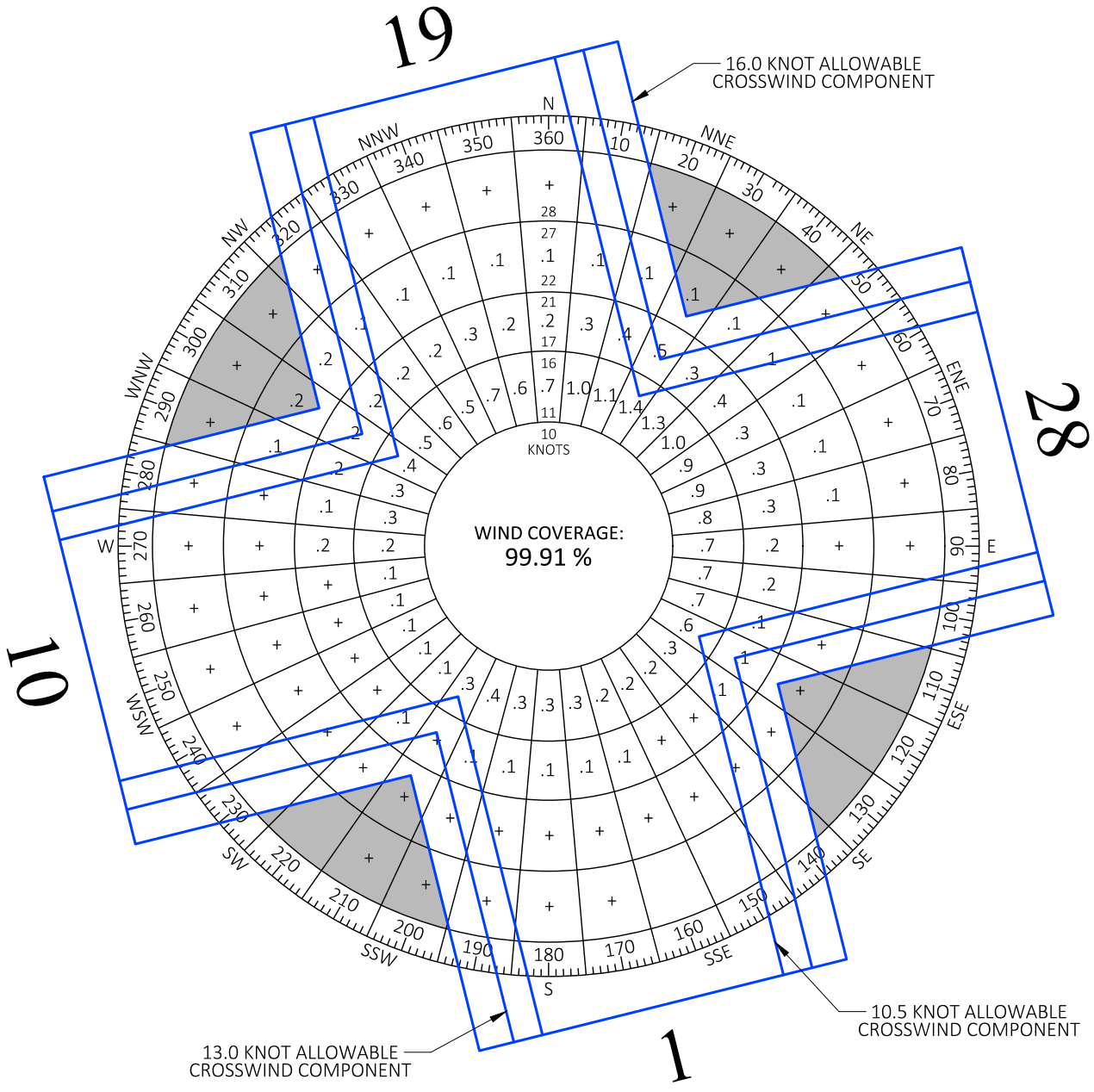
Figure 5-3: IFR Wind Rose



IFR			
	10.5 KNOT	13.0 KNOT	16.0 KNOT
RUNWAY 1-19	96.80%	98.21%	99.29%
RUNWAY 10-28	88.21%	92.92%	97.74%
COMBINED	99.48%	99.91%	99.99%

Source: Presque Isle International Airport 2010-2019 (727130)

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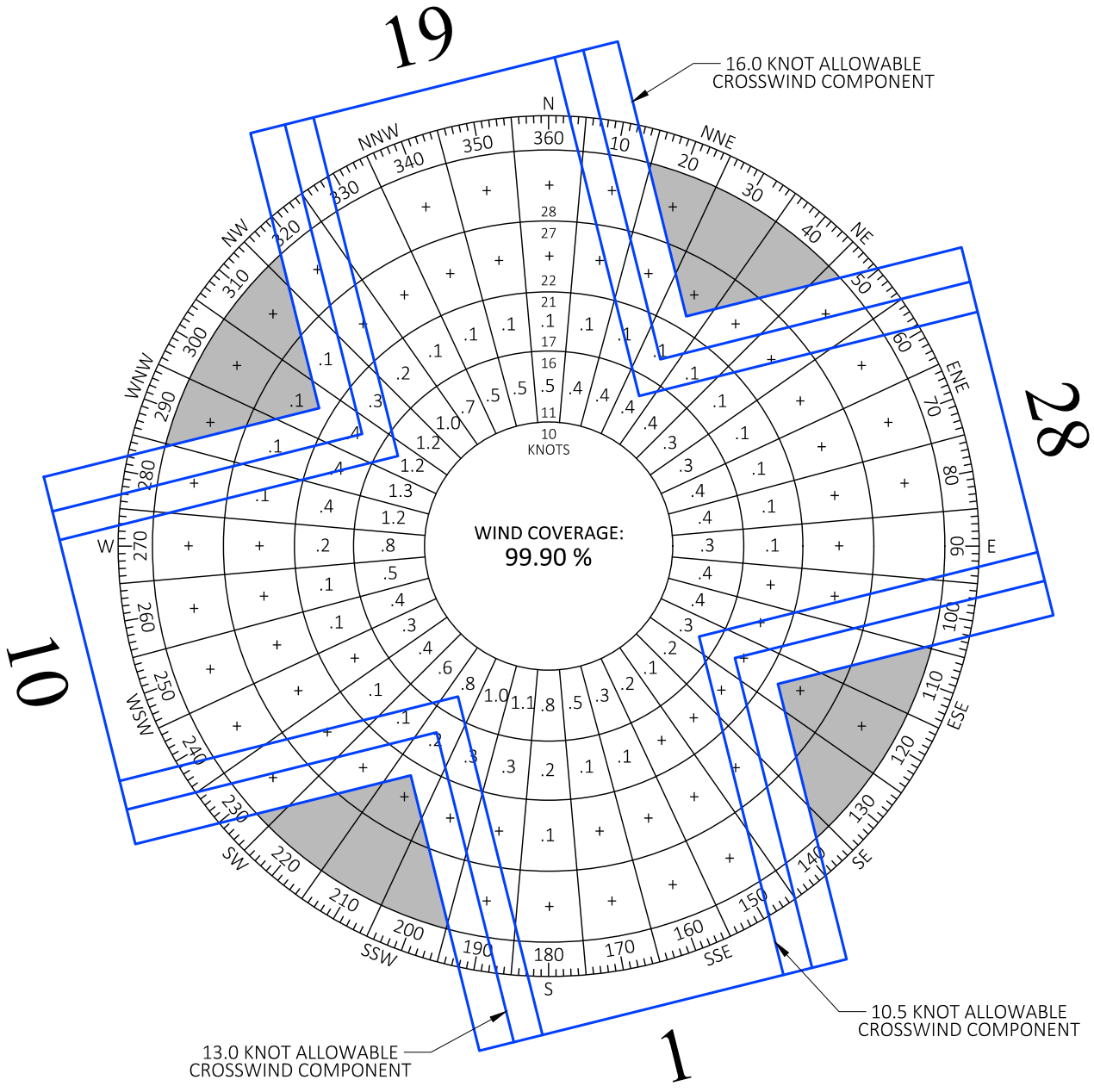
Figure 5-4: VFR Wind Rose



VFR			
	10.5 KNOT	13.0 KNOT	16.0 KNOT
RUNWAY 1-19	93.64%	96.47%	99.01%
RUNWAY 10-28	89.15%	93.75%	98.40%
COMBINED	99.39%	99.90%	99.99%

Source: Presque Isle International Airport 2010-2019 (727130)

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ERJ-145 can be seen utilizing Runway 10-28 in **Figure 5-5**. The regular use criterion for the crosswind runway has been met as shown in Section 5.2.1.

Figure 5-5: ERJ-145 Back-Taxiing on Runway 10-28

Source: McFarland Johnson, Oct. 16, 2018.

Recommendation: Runway 10-28 is an eligible and justified crosswind runway. There is no recommendation for change.

5.2.6. Runway Safety Areas

Runway safety areas (RSAs) are defined by the FAA as surfaces surrounding a runway that are prepared or suitable for reducing the risk of damage to airplanes in the event of an undershoot, overshoot, or excursion from the runway. RSAs consist of a relatively flat graded area free of objects and vegetation that could damage aircraft. According to FAA guidance, the RSA should be capable, under dry conditions, of supporting aircraft rescue and firefighting equipment, and the occasional passage of aircraft without causing structural damage to the aircraft.

The FAA design standards for RSAs surrounding runways serving C-II and C-III aircraft (Runway 1-19 and future Runway 10-28) is a width of 500 feet, a length that extends 600 feet prior to the landing threshold, and a length that extends 1,000 feet beyond the runway end.

RSAs for runways serving A/B-II aircraft (existing Runway 10-28) standards include a width of 150 feet and 300 feet beyond the departure end and prior to the threshold. Full RSAs are currently available on airport property as shown in **Figure 5-6**. Runway 10-28 should maintain C-II RSAs, which are currently clear.

Preliminary analysis shows potential non-standard grading in portions of the RSA may be present. Grade compliance should be confirmed through more precise survey methods during design of the next runway reconstruction.

Recommendation: No changes are recommended for the RSAs. Lateral grade compliance should be confirmed during design of the next runway reconstruction.

5.2.7. Runway Object Free Areas

In addition to the RSA, a runway object free area (ROFA) is also defined around runways to enhance the safety of aircraft operations. The FAA defines ROFAs as an area cleared of all objects except those that are related to navigational aids and aircraft ground maneuvering. However, unlike the RSA, there is no physical component to the ROFA. Thus, there is no requirement to support an aircraft or emergency response vehicles.

FAA design standards for ROFAs surrounding runways serving AAC-ADG C-II and C-III (Runway 1-19 and in the future for Runway 10-28) aircraft are a width of 800 feet, a length that extends 600 feet prior to the landing threshold, and a length that extends 1,000 feet beyond the runway end. However, Utah Street enters the northeast corner of the Runway 19 ROFA. Currently, the control box for the Runway 19 precision approach path indicator (PAPI) is located inside the ROFA. The ROFA should be clear of all penetrations.

Runways serving AAC-ADG A/B-II aircraft (existing Runway 10-28) have a width of 500 feet and protect 300 feet beyond the runway end and prior to the threshold. All ROFAs are on airport property. Runway 10-28 has clear ROFAs meeting A/B-II standards. Runway 10-28 future C-II ROFA has the following non-standard conditions:

- PAPI control box is located 250 feet from the Runway 10-28 centerline near the Runway 28 end. For the PAPI control box to be located outside of the ROFA, it would need to be located next to the perimeter fence. This should be evaluated as part of the next PAPI replacement project.
- The perimeter fence and railroad tracks clip the corner of the Runway 28 ROFA on the south side.

Recommendation: Remove/relocate non-standard ROFA conditions including: Runway 19 Utah Street and PAPI control box; Runway 28 fence/railroad tracks and review the location of the PAPI control box during the next PAPI replacement project.

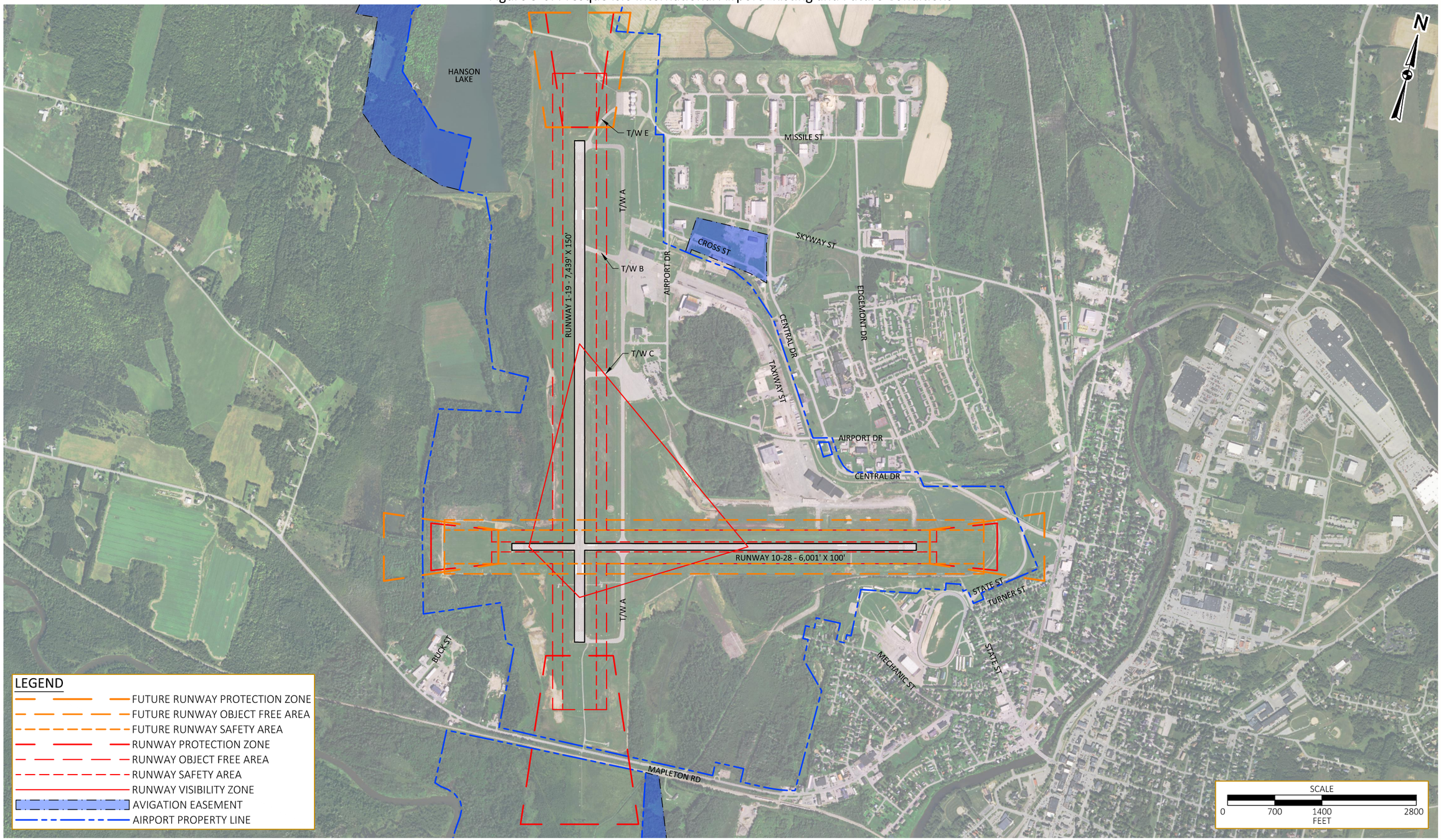
5.2.8. Runway Protection Zones

Runway protection zones (RPZs) are large trapezoidal areas on the ground off each runway end that are within aircraft approach and departure paths. The RPZ begins 200 feet beyond the end of the runway. The dimensions of the RPZ for each runway end are dependent on the type of aircraft and the approach visibility minimums associated with operations on that runway.

The RPZ is intended to enhance the protection of people and property on the ground. Many land uses (i.e. residential, places of public assembly, fuel storage) are considered incompatible by FAA guidelines within these areas; however, these limitations are only enforceable if the RPZ is owned or controlled by the Airport sponsor. Airport control of these areas is strongly recommended and is primarily achieved through Airport property acquisition but can also occur through easements or zoning to control development and land use activities.

According to recently published guidance by the FAA, public roads are not considered compatible land uses within RPZs and are not recommended. The current FAA guidance does not require

Figure 5-6: Presque Isle International Airport Existing and Future Conditions



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relocation of existing roadways within RPZs unless a change in geometry of the runway or the roadway occurs.

The dimensions of the RPZ for each runway end are a function of the type of aircraft and the approach visibility minimums associated with operations on that runway. The RPZ begins 200 feet beyond the end of the area usable for takeoff and landing for all runways. The existing approach visibility minimums are shown in **Table 5-6**.

Table 5-6: RPZ Dimensions Per Runway End

Runway	Visibility Minimums	Length	Inner Width	Outer Width	Acreage
Exis. and Fut. Runway 1	½ mile	2,500'	1,000'	1,750'	78.914
Exis. Runway 19	1.5 miles	1,700'	500'	1,010'	29.465
Fut. Runway 19	¾ mile	1,700'	1,000'	1,510'	48.978
Exis. Runway 10	Visual	1,000'	500'	700'	13.770
Exis. Runway 28	1 mile	1,000'	500'	700'	13.770
Fut. Runway 10	Visual	1,700'	500'	1,010'	29.465
Fut. Runway 28	1 mile	1,700'	500'	1,010'	29.465

Source: FAA AC 150/5300-13A.

The Airport currently owns land in fee off all runway ends to control portions of the Airport's RPZs as well as to prevent the construction of obstructions to the 14 CFR Part 77 approach surfaces, except for the Runway 1 RPZ. It is recommended that the Airport acquire interest for all areas within RPZs that are not currently under Airport control. This includes the southern portion of the Runway 1 RPZ. Mapleton Road runs through the Runway 1 RPZ and Utah Street runs through the Runway 19 RPZ, which are considered non-compatible for an RPZ.

The Airport should consider adding a lower approach to Runway 19. If the Airport lowers the approach visibility minimum to no lower than ¾ mile, the RPZ would increase as shown in **Table 5-6**. The Airport would then need to acquire property within the expanded RPZ in fee simple or avigation easement.

The future Runway 10-28 RPZ shows State Street, Central Drive, and a small corner of Turner Street within the RPZ as well as approximately five residential properties. The triggers for a larger RPZ are: visibility minimums lower than one mile and/or upgrading the runway designation to a C-I or larger. This RPZ is shown as the existing RPZ on the 2017 ALP.

Recommendation: Should any changes to runway geometry occur, alternatives related to relocation of the identified roadways should be developed for consideration. Should the Airport lower the approach visibility minimum for Runway 19, it is recommended the Airport expand the RPZ and acquire the land within the expanded RPZ in fee simple or avigation easement.

5.2.9. Runway Visibility Zone

Standards have been developed for pilot visibility along runways, and between intersecting runways, which are known as the runway visibility zone (RVZ). The RVZ is an area formed by

imaginary lines connecting the two runway's visibility points, which are located half of the length between each runway end and the runway intersection. The current standard for intersecting runways recommends a clear line of sight between the ends of intersecting runways. According to FAA AC 150/5300-13A, terrain needs to be graded and permanent objects need to be designed or sited so that there will be an unobstructed line of sight from any point five feet above one runway centerline to any point five feet above an intersecting centerline, within the RVZ.

Currently, the Airport perimeter fence enters the RVZ in two locations: on the west side of Runway 1-19 near the intersection with Runway 10-28 and on the east side of the airfield, north of Runway 10-28. According to airport management, the fence does not pose any visibility issues.

Recommendation: There are no RVZ recommendations.

5.2.10. Runway Pavement Markings

Both ends of Runway 1-19 have precision instrument approach runway markings, and both ends of Runway 10-28 have non-precision instrument runway markings. There are no plans for the establishment of a precision instrument approach to either end of Runway 10-28 and none are recommended.

Based on an analysis of the runway orientation of true and magnetic bearing, both Runways 1-19 and 10-28 will need to be renumbered at the next runway rehabilitation. Runway 1-19 is more appropriately aligned as Runway 18-36 and Runway 10-28 as 9-27. Runway alignment calculations are shown in **Table 5-7**.

Table 5-7: Runway Alignment

	Runway 1	Runway 19	Runway 10	Runway 28
Current True Bearing	345.69	165.68	75.67	255.69
Existing Magnetic Declination	16.53	16.53	16.53	16.53
Existing Magnetic Bearing	362.22	182.21	92.21	272.22
Change	8 min. E/year	8 min. E/year	8 min. E/year	8 min. E/year
20-Year Magnetic Declination	13.86	13.86	13.86	13.86
20-Year Magnetic Bearing	359.55	179.54	89.54	269.55

Sources: AVN Datasheet, 2020; NOAA, 2020; McFarland Johnson analysis, 2020.

Recommendation: At the next runway rehabilitation, it is recommended that Runway 1-19 is renumbered as Runway 18-36 and that Runway 10-28 is renumbered as Runway 9-27. No further changes to runway markings are recommended.

5.2.11. Taxiways

There are currently four taxiways at the Airport. Runway 1-19 is served by a full-length parallel taxiway and Runway 10-28 is not served by a parallel taxiway. Planning standards for taxiways include taxiway width, taxiway safety areas, taxiway object free areas, taxiway shoulders, taxiway gradient, and for parallel taxiways, the distance between the runway and taxiway centerlines. The dimensions of each standard vary based on the identified ADG and taxiway design group (TDG) for each taxiway. The ADG is based on the wingspan and tail height of an aircraft, while the TDG is based on the distance between an aircraft's cockpit to main gear, as well as the width of the main

gear. There are six ADG groups, and seven TDG groups. Details regarding the various dimensions follow in Table 5-8 and Table 5-9.

As taxiways are constructed or rehabilitated, design should carefully consider the guidance for taxiway design as published in FAA AC 150/5300-13A. The requirements, updated in 2012, include the design of taxiways for cockpit over centerline taxiing as opposed to judgmental oversteering. This change particularly impacts curves and intersections, which will require changes to accommodate the cockpit over centerline taxiing. The dimensions of intersection fillets and taxiway curves are based on the associated TDG for each taxiway.

Table 5-8: Taxiway Requirements – Airplane Design Group

Design Standard	ADG I	ADG II	ADG III	ADG IV	ADG V	ADG VI
Taxiway Safety Area	49	79	118	171	214	262
Taxiway Object Free Area	89	131	186	259	320	386
Runway/Taxiway Separation	225 – 400*	240 – 400*	400	400	400	500*

Source: FAA AC 150/5300-13A.
** Runway/taxiway separation vary based on approach visibility minimums*

Table 5-9: Taxiway Requirements – Taxiway Design Group

Design Standard	TDG 1	TDG 2	TDG 3	TDG 4	TDG 5	TDG 6	TDG 7
Taxiway Width	25	35	50	50	75	75	82
Taxiway Shoulder Width	10	15	20	20	30	30	40

Source: FAA AC 150/5300-13A.

The existing and future critical aircraft (ERJ-145) for Runway 1-19 is TDG 2 aircraft. For prudent planning purposes, certain routes should protect for TDG 3 standards for emergency and disaster response.

Taxiway A is a full-length parallel taxiway to Runway 1-19. The taxiway width ranges from 50 to 60 feet and therefore meets TDG 3 standards. The runway centerline to taxiway centerline distance between Taxiway A and Runway 1-19 is 640 feet, which exceeds the standard separation distance of 400 feet for AAC-ADG C-II and C-III for runways with approach minimums lower than ¾ mile according to FAA AC 150/5300-13A. The PCI of Taxiway A ranges from fair to good condition. Taxiway A has a PCI of 89 on the northern portion, 70 on the middle portion, and 75 on the southern portion.

Taxiway B provides a connection from Taxiway A to Runway 1-19 near the corporate hangars. A no-taxi island prevents direct access. The taxiway is 60 feet wide, which exceeds TDG 3 standards. This taxiway intersects with Runway 1-19 at an acute angle. The PCI of Taxiway B ranges from satisfactory to good. Taxiway B has a PCI of 83 on the western portion and 87 on the eastern portion. Taxiway B provides an exit location for Weight Class A and B aircraft that cannot exit on Taxiway C when landing on Runway 1 (approximately 40 percent of Weight Class B aircraft) therefore minimizing the runway occupancy time at an untowered airport with commercial

service. Taxiway B also accommodates approximately 35 percent of Weight Class C aircraft in wet and 82 in dry conditions when landing on Runway 1.

Taxiway C provides direct access from the terminal apron area to Runway 1-19. The taxiway is 75 feet wide, which exceeds TDG 3 standards and meets the standards for TDG 4. The intersection of Taxiways A and C has a wide expanse of pavement. The PCI of Taxiway C indicates satisfactory to good condition. Taxiway C has a PCI of 81 on the western portion and 71 on the eastern portion. Most Weight Class A aircraft and approximately 60 percent of Weight Class B aircraft can exit on Taxiway C landing on either Runways 1 or 19.

Taxiway E provides direct access from the Alert Hangar Complex to the Runway 19 threshold. The taxiway is 35 feet wide, which meets TDG 2 standards. Taxiway E has a non-standard longitudinal grade (slope) of 3.13 percent. Maximum grade for AAC A/B is three percent, but an ideal maximum grade is two percent. Taxiway has a PCI of 80 on the southern portion, indicating satisfactory condition, and 21 on the northern portion, indicating serious condition.

There are no taxiways associated with Runway 10-28 at the Airport. Aircraft utilizing Runway 10-28 must back-taxi down the runway and turn around at the end prior to takeoff.

If any changes to the taxiways occur, Engineering Brief No. 89, *Taxiway Nomenclature Convention*, dated March 29, 2012 should be used to ensure clear taxiway nomenclature.

Recommendations: Taxiway E should be reviewed to mitigate the non-standard slope. A partial parallel taxiway or turnaround taxiway that clears aircraft out of the RSA should be added to Runway 28 to avoid the need to back-taxi down the runway.

Any pavement condition in failed, serious, very poor, and poor condition should be rehabilitated in the short-term. Pavement assessed as fair should be rehabilitated within the planning period.

If any changes to the taxiways occur, Engineering Brief No. 89, *Taxiway Nomenclature Convention*, dated March 29, 2012 should be used to ensure clear taxiway nomenclature.

5.2.12. Potential Hot Spots and Geometry Requirements

A hot spot is defined as "a location on an airport movement area with a history of potential risk of collision or runway incursion, and where heightened attention by pilots and drivers is necessary."[5] There are no published hot spots at the Airport.

Between 1990 and 2019 there were four accidents at the Airport., including one on March 4, 2019. There have been two runway incursions at the Airport since 1991.[6] At one incursion, an aircraft landed on the runway that was occupied by a snowplow. On the second incursion, an aircraft landed on a closed runway.

[5] Runway Safety – Hot Spot List, accessed Sep. 20, 2016 <http://www.faa.gov/airports/runway_safety/hotspots/hotspots_list/>.
[6] FAA Aviation Safety Reporting System, accessed Feb. 27, 2019 <http://www.asias.faa.gov/:>.

Geometry Requirements

FAA AC 150/5300-13A has multiple criteria in the design of taxiways. These geometry criteria are as follows:

- Three-Node Concept: The three-node concept means that any taxiway intersection has no more than three choices – ideally left, straight, and right. Any more decision points make it potentially confusing to a pilot and does not allow for the proper placement of airfield markings, signage, and lighting. The three-node concept helps pilots maintain situational awareness.

- Taxiway Intersection Angles: Taxiway intersections are preferred to be 90-degrees whenever possible. Standard angles including 30, 45, 60, 90, 120, 135, and 150 degrees are preferred over other, non-standard, angles.

- Wide Expanse of Pavement: Wide pavements require placement of signs far from the pilot's eye which can be missed during low visibility conditions and should be avoided. This is especially critical at runway entrance points.

- Limit Runway Crossings: Limiting runway crossings reduces the opportunity for human error and reduces air traffic controller workload.

- Avoid "High Energy" Intersections: These intersections are located in the middle third of runways. This portion is where the pilot can least maneuver to avoid a collision.

- Runway Intersection Angles/Increase Visibility: Right (perpendicular) intersection angles between taxiways and taxiways and taxiways and runways provide the best visibility to the left and right for a pilot. A right angle at the end of a parallel taxiway is a clear indication of approaching a runway. Acute angle runway exits (high-speed taxiways) provide for greater efficiency in runway usage but should not be used as a runway entrance or crossover point.

- Avoid "Dual Purpose" Pavement: Runways used as taxiways and taxiways used as runways can lead to confusion. A runway should always be clearly identified as a runway and only a runway.

- Indirect Access: Taxiways leading directly from an apron to a runway without requiring a turn can lead to confusion when a pilot typically expects to encounter a parallel taxiway but instead accidentally enters a runway.

- Multiple Taxiway Crossings Near Runway: A taxiway crossing a high-speed taxiway or multiple taxiways crossing each other between the hold line and the runway could cause confusion, additional time on the runway, and wrong turns/loss of pilot situational awareness.

- Taxiway Intersecting Multiple Runways: Taxiways must never coincide with the intersection of two runways. This creates a large expanse of pavement making it difficult to provide proper signage, marking and lighting. These could lead to pilot disorientation and potential wrong runway use.

- Aligned/Inline Taxiway: An aligned taxiway is one whose centerline coincides with a runway centerline. This places taxiing aircraft in direct line with aircraft landing or taking off therefore closing the runway for other traffic and potentially causing loss of situational awareness. Existing aligned taxiways should be removed as soon as practicable.

- "Y" Shaped Taxiway Crossing/Exiting a Runway: Any runway crossing or runway exit that requires a pilot to make a decision prior to exiting the runway may cause a delay in the aircraft existing the runway and loss of situational awareness.

- Multiple Runway Thresholds in Close Proximity to One Another: If possible, safety areas of runway ends should not overlap, since work in the overlapping area would affect both runways. Configurations where runway thresholds are closer together should be avoided, as they can be confusing to pilots, resulting in wrong-runway takeoffs. The angle between extended runway centerlines should not be less than 30 degrees to minimize confusion.

- Short Taxi Distance: A short distance between the terminal and the runway requires flight crews to complete the same number of checklist items in a shorter timeframe and requires more heads-down time during taxi. Many of the event reports mentioned that the flight crew members were rushing to complete their checklists or to expedite their departures.

- Taxiway Stubs: Short taxiway stubs including overlapping holdlines or holdlines too close together to accommodate the length of an aircraft can create confusion and may cause runway incursions or accidents.

- Unexpected Holdlines: Holdlines located on a parallel taxiway or other unexpected location are more likely to be overlooked and cause a runway incursion or accident and should be avoided.

- Intersection Departures: Airports with a single runway layout were not immune to airplanes taking off on the wrong runway, especially when intersection departures were made. In these events, the flight crew taxied onto the runway and turned in the wrong direction, taking off 180 degrees from the intended direction.

The following elements or contributing factors are historically associated with wrong runway uses and should have the highest priority in resolving: [7,8]

[7] Wrong Runway Departures, Aviation Safety Information Analysis and Sharing, July 2007.
[8] Wrong Runway Departures, FAA Runway Safety, September 2009, accessed Feb. 3, 2016 <https://www.faa.gov/airports/runway_safety/publications/media/wrong%20runway%20FINAL%20draft%20sept09.pdf>.

- Multiple runway thresholds located in close proximity to one another.
- A short distance between the airport terminal and the runway.
- A complex airport design.
- The use of a runway as a taxiway.
- A single runway that uses intersection departures.
- A single taxiway leading to multiple runways.
- More than two taxiways intersecting in one area.
- A short runway (less than 5,000 feet).
- Joint use of a runway as a taxiway.

Table 5-10 shows geometry issues at PQI by geometry requirement.

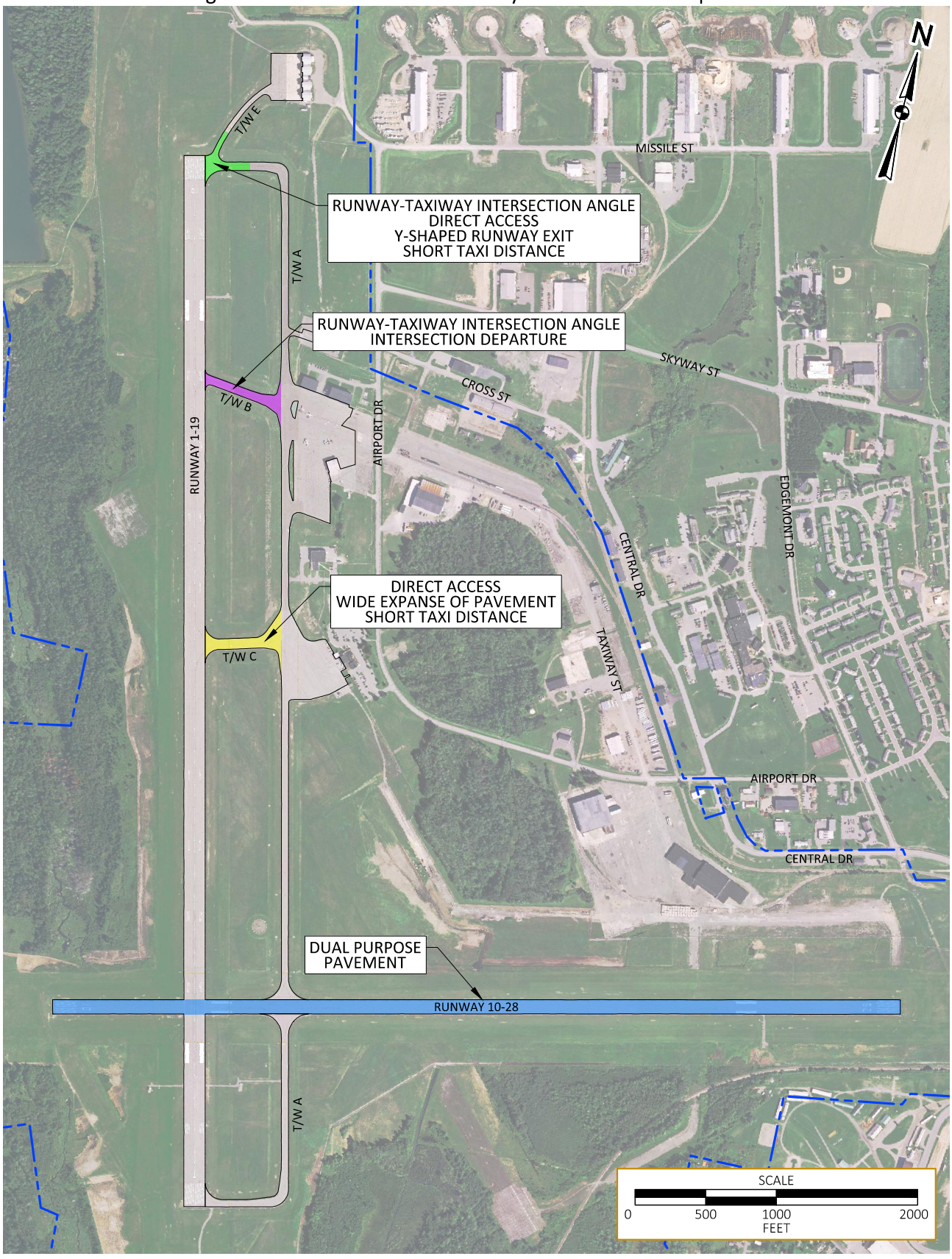
Recommendation: Geometry issues should be resolved to the extent practicable. Priority should be set to resolve the following geometry requirements in **Table 5-10**: Direct access and Y-shaped runway crossing/exit. These non-standard geometry conditions can also be seen in **Figure 5-7**.

Table 5-10: Non-Standard Geometry Conditions at Presque Isle

Geometry Requirement	Taxiway/Taxiway Int.	Runway/Taxiway Int.
Three-node concept	None	None
Wide expanse of pavement	TWYs A and C	None
Runway crossings	N/A	RWY 1-19: 0 RWY 10-28: 1
High energy intersections	N/A	None
Runway intersection angles	TWYs A and B – 70-degree angle TWYs A and E – 63-degree angle	RWY 1-19 & TWY B – 110-degree angle RWY 19 & TWY E – 126-degree angle
Dual purpose pavement	None	None
Direct access	N/A	RWY 19 via TWY E RWY 1-19 via TWY C
Multiple taxiways crossing	N/A	None
Taxiway intersecting multiple runways	N/A	None
Aligned taxiway	N/A	None
Y-Shaped Runway Crossing/ Exit	RWY 19 and TWYs A and E	N/A
Multiple Runway Thresholds in Close Proximity	N/A	None
Short Taxi Distance	TWYs C and E	N/A
Taxiway Stubs	None	N/A
Unexpected Holdline	None	None
Intersection Departure	N/A	Taxiway B for Runway 19

N/A – not applicable; RWY – runway; TWY – taxiway
Source: McFarland Johnson Analysis, 2019.

Figure 5-7: Non-Standard Geometry Conditions at Presque Isle



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5.2.13. Airfield Lighting and Signage

Approach Lighting

The existing precision approach to Runway 1 is equipped with 2,400-foot medium intensity approach lighting systems with runway alignment indicator lights (MALSR). Presently, no approach lighting systems are available for Runways 10, 19, and 28.

Recommendation: There are no approach lighting recommendations.

Runway and Taxiway Lighting

High intensity runway edge lights (HIRLs) are provided on Runway 1-19 and medium intensity runway edge lights (MIRLs) on Runway 10-28. All lighted taxiways are currently equipped with medium intensity taxiway edge lights (MITLs). Based on standards for instrument approach procedures, Runway 1-19 should have HIRLs/MIRLs and Runway 10-28 should have MIRLs/low intensity runway lights (LIRLs). Therefore, the current runway lights meet or exceed the standard.

Recommendation: There are no recommendations for runway and taxiway lighting.

Airfield Signage

There have been no complaints about missing or confusing airfield signage. Should any non-standard conditions be identified, they should be addressed.

Recommendation: Airport management noted all signage was to standard. There are no recommendations for airfield signage. If any recommendations come up as part of the Airport's Part 139 inspection, the Airport will address that.

5.2.14. Visual Approach Aids

As of October 2021, Runways 19 and 28 have a four-box PAPI system on the left side of each end. The Runway 19 PAPI has a non-standard 3.7-degree glide path and the Runway 28 PAPI has a standard 3-degree glide path. There are obstructions to the Runway 19 PAPI causing the non-standard angle; the obstruction clearance surface (OCS) at three degrees has terrain penetrations of approximately 30 feet. The Airport removed multiple tree obstructions in September 2020 and received an FAA 7460 determination to lower/remove an obstruction light, which would reduce the PAPI angle from 3.7 to 3.5 degrees. Ongoing conversations are discussing if the removal of the obstruction light would increase minimums for the Runway 19 instrument approach procedure. Based on obstructions, additional easement and/or fee acquisitions should be considered. The Runway 1 end and the Runway 10 end have no visual approach aids. It is not anticipated that Runway 10 will require visual approach aids due to its low use. However, the Airport should consider adding a four-box PAPI to the Runway 1 end.

Recommendation: Improve the Runway 19 PAPI angle. Consider adding a four-box PAPI to the Runway 1 end. Additional easement/fee acquisition should be considered for obstruction removal.

5.2.15. Instrument Approaches

Presently, Runway 1 is equipped with an instrument landing system (ILS). This category (CAT) I approach is imperative during winter operations. However, due to the extreme winter weather that occurs in Northern Maine, improving the Runway 19 approach is critical to the reliability of EAS operations.

The current approach lighting system for Runway 1 meets the standards for ILS CAT I approaches. Ten years of wind history during IFR conditions show that wind coverage is greater on Runway 19 (66 percent versus 57 percent for Runway 1). Looking at the 5-year history, both Runways 1 and 19 provide approximately 58 percent wind coverage during IFR conditions at 13 knots, therefore there should be consideration for a lower GPS approach to Runway 19 to a visibility minimum no lower than ¾ mile. This includes acquiring properties to remove obstructions if/when those properties become available for purchase.

Recommendation: It is recommended that improvements are made to the Runway 19 approach by reducing visibility minimums. Acquire properties in easement/fee simple interest for removal of obstructions if/when properties become available for purchase.

5.2.16. Airside Facility Requirements Summary

This section summarizes all airfield facility requirements for PQI as shown in **Table 5-11**.

Table 5-11: Airside Facility Requirements Summary

Item/Facility	Existing Facility or Capacity	Ultimate Requirement	Deficit
Runway Length	Runway 1-19: 7,439' Runway 10-28: 6,001'	Runway 1-19: 8,000' Runway 10-28: 6,001'	Consider runway extension
Runway Width	Runway 1-19: 150' Runway 10-28: 100'	Runway 1-19: 150' Runway 10-28: 100'	None
Runway Safety Areas	Non-standard grades	Provide standard RSA on all runways	Confirm lateral grade compliance during design of the next runway reconstruction
Runway Object Free Area	All ROFAs are standard sizes; Utah Street enters the Runway 19 ROFA	Provide standard ROFA on all runways; All ROFAs clear of objects	Runway 19: Move Utah Street and PAPI control box out of ROFA Runway 28: Move fence/railroad tracks and review the location of the PAPI control box during the next PAPI replacement project.
Runway Protection Zone	All existing RPZs are under Airport control	All RPZs under Airport control through	Should any changes to RPZs occur, clear RPZ

Item/Facility	Existing Facility or Capacity	Ultimate Requirement	Deficit
	through ownership and avigation easements; Runway 1 and 19 RPZs include public roads	ownership or avigation easement; All RPZs clear of non-compatible land uses	of non-compatible land uses and acquire land in fee simple or easement
Runway Pavement Markings	Runway 1-19: Precision instrument Runway 10-28: Non-precision instrument	Runway 18-36 (existing 1-19): Precision instrument Runway 9-27 (existing 10-28): Non-precision instrument	Renumber runways to match magnetic declination
Runway Lighting	Runway 1-19: HIRLs Runway 10-28: MIRLs	Runway 1-19: HIRLs Runway 10-28: MIRLs	None
Runway Visual Aids	Runway 1: None Runway 19: 4-box PAPI (3.7 degrees) Runway 10: None Runway 28: 4-box PAPI (3 degrees)	Runway 1: 4-box PAPI Runway 19: 4-box PAPI Runway 10: None Runway 28: 4-box PAPI	Runway 19: Reduce PAPI angle Runway 1: Add 4-box PAPI
Instrument Approaches	Runway 1: ILS (CAT I) Runway 19: GPS (RNAV), VOR Runway 10: GPS (RNAV) Runway 28: GPS (RNAV)	Runway 1: ILS (CAT I) Runway 19: GPS down to ¾ mile Runway 10: GPS (RNAV) Runway 28: GPS (RNAV)	Reduce the Runway 19 GPS approach visibility minimums
Taxiways	Runway 1-19: Full parallel Runway 10-28: None	Runway 1-19: Full parallel Runway 10-28: Partial parallel or turnaround	Address airfield geometry concerns and meet FAA standards
Taxiway Width	Taxiway A: 50’ – 60’ Taxiway B: 60’ Taxiway C: 75’ Taxiway E: 35’	Taxiways A, B, C: 50’ Taxiway E: 35’	None
Taxiway Lighting	MITLs	MITLs	None

Sources: FAA Form 5010-1; McFarland Johnson analysis, 2020.

5.3. PASSENGER TERMINAL FACILITY REQUIREMENTS

This section summarizes the methodology, assumptions, and general planning-level factors used to analyze facility requirements for key functional areas of the PQI passenger terminal. Requirements were analyzed based on a multitude of factors. The primary tool for the analysis was ACRP Report 25, *Airport Passenger Terminal Planning and Design, Volume 2: Spreadsheet*

Models and User's Guide. Additionally, guidelines published in the following publications were included:

- International Air Transport Association's (IATA) *Airport Development Reference Manual* (ADRM, 10th Edition);
- FAA AC 150/5360-13A, *Airport Terminal Planning*; and
- FAA AC 150/5300-13A, *Airport Design*.

The combination of these resources is referred to as the Model.

5.3.1. Existing Passenger Terminal

As described in Chapter 2, *Inventory*, within the terminal building there is a concession area, an outbound passenger holdroom, a main lobby, areas for the Transportation Security Administration (TSA) to perform security functions and support areas, areas for airlines, including support areas, offices for Airport management, offices for the Presque Isle Industrial Council, and an attic.

The existing passenger terminal building comprises approximately 10,500 square feet (SF). Of that 10,500 SF, only approximately 8,400 SF is dedicated to serving commercial aviation passengers. Approximately 2,100 SF houses the offices of the Presque Isle Industrial Council, an aviation museum, and counters for rental cars and related offices. While providing space for rental car companies within the terminal building is an important function for the travelling public, particularly in a remote area such as Presque Isle, the rental car counters and space will be omitted from the calculation of necessary space for supporting commercial flight operations. The existing passenger terminal building, including the breakdown of interior space can be seen in Figure 5-8.

5.3.2. Methodology

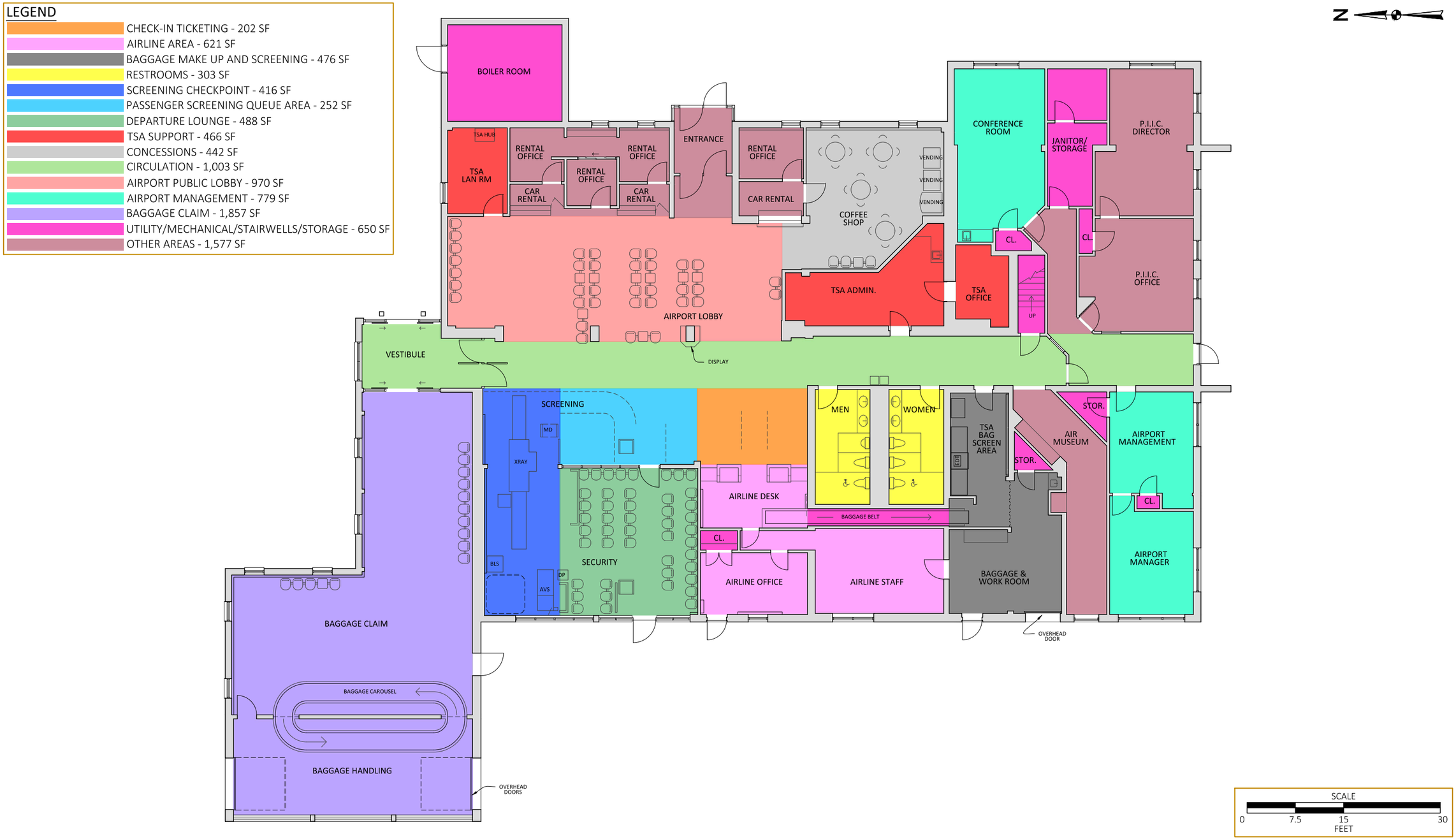
Utilizing the Model and FAA and industry standards guidance listed above, the following passenger processing functions were examined:

- Terminal Curb Length
- Passenger Check-In and Ticketing
- Outbound Baggage Screening and Make-Up
- Passenger Security Screening Checkpoint
- Passenger Holdrooms
- Concessions
- Inbound Baggage Handling and Baggage Claim
- Other Terminal Support Functions

Analyzing the terminal throughput on a peak month or peak day basis does not accurately capture the demands of a facility that experiences peak demand during a single flight operation. To best inform potential future needs, the terminal building analysis was performed under three scenarios:

- 50 Peak Hour Passengers
- 100 Peak Hour Passengers
- 150 Peak Hour Passengers

Figure 5-8: Terminal Building Functional Areas



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Application of the Model under these scenarios is presented in the following sections.

5.3.3. Assumptions

This section summarizes the assumptions utilized for the assessment of the existing passenger terminal. Facility requirements at PQI were determined using the three planning activity levels of 50, 100, and 150 peak hour passengers.

Percentage of Originated Passengers

For purposes of analyzing passenger terminal space requirements, it is assumed that 100 percent of enplaned passengers are originating at PQI. The originating passenger percentage is used to determine the number of passengers to be processed through check-in/ticketing and security screening, along with associated demands on outbound baggage functions, holdroom usage, and gate/boarding area egress.

Vehicle Demand at Terminal Curb

Vehicle demand is measured based on the range of vehicle types used by passengers as ground transport for departing flights. These include everything from private automobiles typically carrying one to three passengers to tour buses carrying large groups of passengers. While some hotel shuttles and busses may drop off and pick up passengers, they are infrequent in nature and also not overly common at other similar sized airports, therefore the focus is placed on the use and operation of personal vehicles and/or those that share the size and characteristics of such.

The estimated passenger breakdown by landside mode is as follows:

- Parking lots: 70 percent
- Pick-up/drop-off: 10 percent
- Taxi's and transportation network companies (TNCs): 10 percent
- Rental cars: 10 percent

In addition to this breakdown, the analysis also assumes an average party size of 1.25 people for parked vehicles and those involved in personal pick-ups and drop offs. Rental cars, taxis and TNCs (Uber, Lift, etc.) all assume one passenger per transaction. With the introduction of more leisure-oriented service, the average party size may increase, however the lower party size is a more conservative estimate in facility planning (meaning the requirement will be greater) and facility needs should be reevaluated with a focus on party size should the service offering at the airport change to more of a leisure mix.

The estimated curb requirements for the terminal curb are in linear feet (LF). The existing curb length is approximately 150 LF along the terminal curb front.

Table 5-12 illustrates the assumed breakdown of existing peak vehicle demand at the curb, dwell time assumptions, and passenger per vehicle assumptions, all of which are integral to the calculation of terminal curb requirements. It is assumed that 50 percent of the peak hour demand will occur during the peak 20 minutes, representative of the peak conditions that occur before or after a flight. Curb front and landside elements should be planned for the peak 20-minute period.

Not all landside passengers will utilize the curb, such as parked vehicles and rental cars, however the total peak 20-minute numbers can also be used when planning traffic and roadway improvements associated with the terminal operation.

As seen in **Table 5-12**, the long-term peak 20-minute need for the length of a vehicle curb at PQI is up to 54 feet compared to the existing useful curb length of 150 feet.

Recommendation: There are no recommendations for expanding the terminal curb.

Table 5-12: Peak Hour Vehicle Assumptions

	50 Peak Hour Passengers		100 Peak Hour Passengers		150 Peak Hour Passengers	
	Cars	Curb (LF)	Cars	Curb (LF)	Cars	Curb (LF)
Parking Lot						
Parking Lot	28		56		84	
Parking Lot Peak 20 min.	14		28		42	
Curb Length						
Pick-up/ Drop-off Peak Hour	4	16	8	32	12	48
Pick-up/ Drop-off Peak 20 min.	2	8	4	16	6	24
Taxi/TNC's Peak Hour	5	20	10	40	15	60
Taxi/TNC's Peak 20 min.	3	10	5	20	8	30
Rental Car Peak Hour	5		10		15	
Rental Car Peak 20 min.	3		5		8	
Total Curb Peak Hour	9	36	18	72	27	108
Total Curb Peak 20 min.	**5**	**18**	**9**	**36**	**14**	**54**

Source: McFarland Johnson analysis, 2020.

Passenger Check-in /Ticketing

Passenger check-in/ticketing includes the functions of full-service staffed airline counter positions, self-serve kiosks, active check-in area, passenger queue area, airline ticket office areas, circulation area, and public restrooms accessible from the ticketing lobby. Assumptions for these areas include the following:

- 60 percent of peak hour passengers could be experienced in the peak 30-minute period.
- 75 percent of passengers use check-in and ticketing facilities.

- 50 percent will use self-service check-in and 50 percent will use staffed positions
- Average passenger processing time at the counter or kiosk is three minutes.

Industry trends favor an increase in self-service check-in practices. While there is presently no self-tagging/checked baggage drop at PQI, this is a provision that should be planned for in the future. Staffed check-in positions in the traditional form are likely to be minimal by the end of the planning period and replaced with more kiosks or mobile supporting technology that occurs away from the traditional ticket counters.

Outbound Baggage Make-Up and Screening

Outbound baggage screening and make-up functions includes operations by TSA to screen checked baggage and airline staff to collect and disperse bags to carts and the appropriate aircraft prior to departure. Assumptions for these areas include the following:

- 65 percent of passengers will check a bag
- Average of one bag per passenger checking a bag
- TSA surge factor of 50 percent for peak processing
- 20 percent alarm rate (Level 2 on-screen resolution (OSR))
    - 95 percent clear rate
    - five percent requiring Level 3, explosives trace detection (ETD)

In terms of the explosive detection system (EDS), OSR, and ETD equipment requirements, the analysis assumed a Level 1 EDS screening rate of 220 bags per hour, with an alarm rate of 20 percent. Level 2 OSR processing ration was set at 60 bags per hour. For Level 3 ETD screening, the TSA suggests 24 bags per hour per operator.

Baggage screening space requirements contained in the Model were utilized here, and are as follows:

- Level 1 Area: 500 square feet per EDS unit
- Level 2 Area: 40 square feet per OSR station
- Level 3 Area: 100 square feet per ETD station

The calculated space requirements further incorporate an increase of 35 percent of space for circulation area and a supplemental 15 percent increase to allow for future equipment changes and any required reconfiguration or renovations.

Passenger Security Screening Checkpoint

PQI utilizes a single lane screening module. This section discusses the assumptions utilized to analyze the future demand for security screening of departing passengers. The assumed processing rate for the analysis is 120 persons per hour for a single lane screening module and 175 persons per hour for a two-lane screening module configuration.

TSA recommends 2,800 SF of space for a two-lane screening module, and PQI currently accommodates a single lane within roughly 400 SF. The amount of space for the screening checkpoint will need to be increased to meet future demand.

The percentage of assumed non-passenger traffic, such as employees and crew, represents ten percent of the throughput, which was added to the design peak hour passenger screening demand and is based on recent experience at other airports.

As with other functional areas, allowances were also included for future equipment changes or configurations (ten percent) and TSA support space (12 percent).

Passenger Lounges/Holdrooms (Secure)

Holdroom space typically accounts for seating a certain percentage of passengers, with the remaining passengers either not in the holdroom area or standing. The analysis assumed 15 square feet per seated passenger and ten square feet per standing passenger. The Model also includes some flexibility to account for amenities (e.g., children's play area, telephones, work areas, charging stations, etc.), and high utilization and holdroom sharing, when the holdroom is utilized for passengers waiting for more than one flight or is shared between gates. Other assumptions include:

- 80 percent of passengers are seated
- 20 percent of passengers are standing
- No sharing of holdroom space with adjacent gates (there is only one hold room under existing conditions)

Allowances for amenities, circulation, and restrooms are assumed to be five percent, 35 percent, and 15 percent, respectively.

Inbound Baggage Handling & Baggage Claim

Inbound baggage handling includes the unloading of baggage from aircraft and transferring them to the baggage claim unit for circulation to the baggage claim hall. The Model calculates baggage claim requirements assuming that a certain percentage of passengers will deplane in a peak 30-minute period. As previously noted, it is also assumed that 65 percent of passengers will check one bag. Additionally, the following assumptions are made:

- An additional ten percent is applied to the number of passengers checking bags to account for meters and greeters
- 1.3 LF of claim is required for each person in the claim lobby
- The baggage claim area is increased by 15 percent to provide for a baggage services office
- The baggage claim area is increased by 15 percent to provide for meet and greet area
- The baggage claim area is increased by 20 percent to provide for circulation space
- The baggage claim area is increased by ten percent to provide for restroom facilities

To account for the inbound baggage handling area, the following assumptions are made:

- Take off belts require 850 SF of space each
- Baggage train circulation requires 1,275 SF of per take off belt
- 255 SF per take off belt is provided to account for conveyor belts equipment and other miscellaneous equipment

Some of these areas supporting the inbound baggage delivery do not necessarily need to be within the enclosed building envelope.

Concessions

Terminal concessions include both non-secure and secure area retail establishments to service departing and arriving passengers. For this assessment, it is assumed that 10 percent of peak hour passengers will utilize pre-secure concessions, and 90 percent of peak hour passengers will patronize post-secure area concessions. The Model makes the following assumptions to calculate spatial requirements:

- Food and beverage-based concessions require seven SF per peak hour passenger
- Retail based concessions requires 3.5 SF per peak hour passenger
- Service based concessions require 0.5 SF per peak hour passenger
- A multiplier of 20-30 percent is used to account for support space for food, beverage, and retail concessions
- Internal circulation area allowance of 15 percent is also included for terminal building concession areas

While the primary concession at PQI is currently vending, the output of this analysis should be used to inform the terminal development alternatives so that more traditional concessions can be accommodated as passenger activity increases.

Other Terminal Support Facilities

The final consideration of passenger terminal functional areas includes allowances for the various support areas.

A provision of five percent of the total departure/arrival areas is provided for the following:

- Airline operations
- Ground handling services
- Airport operations and maintenance
- Facilities support and services

A provision of ten percent of the total departure/arrival areas is provided for the following:

- Building structure
- Vertical circulation
- Mechanical/electrical/utility
- Allowance for other tenants/configurations

Concourse Gates and Terminal Apron

To determine the required number of concourse gates and terminal apron requirements, the Model employs a passengers per gate approach and a departure per gate approach. The resulting average of these two approaches is a total of one gate, which likely would be a ground boarding

gate. It is recommended that a covered walkway be provided to protect passengers from the elements of northern Maine.

5.3.4. Results of Analysis

The results of the terminal capacity assessment are summarized in **Table 5-13**.

Table 5-13: Terminal Requirements Summary

Terminal Functional Area	Existing Provision (SF)	50 Peak Hour Passengers (SF)	100 Peak Hour Passengers (SF)	150 Peak Hour Passengers (SF)
Check-In /Ticketing	202	1,106	2,212	3,318
Outbound Baggage Screening & Makeup	476	3,613	5,557	5,557
Passenger Security Screening Checkpoint	868	2,523	2,908	3,293
Secure Holdrooms	488	4,373	6,536	8,700
Baggage Claim and Inbound Baggage Handling	1,857	4,694	5,845	6,996
Concessions	442	493	759	1,139
Other Functions/Tenants	6,369	5,665	7,770	9,922
Total	10,502	22,468	31,588	38,924
Passenger Terminal Requirement Range		**20,000 – 25,000**	**30,000 – 35,000**	**35,000 – 40,000**

Source: ACRP Model and McFarland Johnson analysis, 2020.

Recommendation: It is recommended the Airport consider the construction of a terminal building of at least 20,000 SF to meet existing demand and up to 40,000 SF to meet demand at 150 peak-hour passengers. The existing terminal building could be expanded, or a new facility could be built elsewhere on the Airport.

5.3.5. Passenger Terminal Apron

The commercial terminal apron at PQI is constructed of bituminous asphalt. There are signs of fatigue and wear in the pavement as some of the binder material has degraded. Also, there are numerous transverse and longitudinal cracks. The cracks have been repaired well by filling with crack seal material. The PMP indicates that the terminal apron is in fair condition with a PCI of 63.

At approximately 12,000 square yards (SYs), the terminal apron appears to be adequate to service up to two aircraft at a time, and up to an ADG III aircraft size.

Recommendation: It is recommended the terminal apron be reconstructed during the planning period. Concrete hardstands suitable for the aircraft expected to utilize the terminal building should be installed.

5.4. PARKING AND ROADWAY ACCESS FACILITY REQUIREMENTS

This section reviews terminal area automobile parking and Airport access.

5.4.1. Terminal Area Parking

As presented in Chapter 2, *Inventory*, PQI maintains three parking lots: public, employee, and rental car parking. Public parking has 79 marked spaces, employee parking has 49 marked spaces, and rental car parking has 30 marked spaces. On average, the public parking lot is 32 percent full on any given day. During peak times, the public parking lot can be up to 64 percent full. Should capacity be reached, the Airport utilizes three gravel parking lots. One lot is located adjacent to the paved parking lot and two are located across Airport Road. These lots comprise of approximately 56,000 SF.

There is currently no parking capacity issue at the Airport.

Recommendation: Should the public parking lot reach 80 percent capacity during peak times, the Airport should consider paving the gravel parking lots to accommodate parking demand.

5.4.2. Airport Access

The Airport is located approximately one-mile northwest of downtown Presque Isle. Major access to the Airport is provided by Route 1 to State Street, to Central Drive, and then to Airport Drive. Airport Drive can also be accessed from the north side of the near the property via State Road to Skyway Street to Airport Road. Access to the Airport is direct with only two ways to reach the Airport from State Road/Parsons Street. The current airport access goes through residential and industrial districts.

Recommendation: There are no known Airport access issues, and as such, there are no airport access recommendations.

5.5. GENERAL AVIATION AND LANDSIDE FACILITY REQUIREMENTS

The existing general aviation (GA) areas are located on the north and northeast sides of the Airport. This section reviews:

- Aircraft Hangars
- Aircraft Parking Aprons
- General Aviation Automobile Parking
- Airport Administrative Offices

5.5.1. Aircraft Hangars

The amount of aircraft hangar storage space is calculated based on the size and quantity of aircraft based at the Airport. While each aircraft will vary in size, the following planning factors were used to calculate the approximate hangar space requirements for aircraft based at the Airport:

- 1,200 SF for Single Engine (SE) and Rotor Aircraft
- 1,600 SF for Multi-Engine Aircraft
- 3,200 SF for Jet Aircraft

The forecast for based aircraft reflects a one percent growth of total based aircraft based on the historical trends of the Airport. Existing hangar space is shown in **Table 5-14**, and the overall hangar requirements are displayed in **Table 5-15**.

Table 5-14: Existing Hangar Facilities

Hangar Name	Lessee/Owner	Individual Hangar Units	Conventional Hangar Space in SF (% Aircraft Storage)
Box Hangars (built in 2020)	Individual Lessees	5	None
Former Military Hangars (4)	Airport (3), MG Crop Duster (1)	None	4,500 each (100%)
GA Terminal Hangar	Airport	None	8,838 (80%)
Corporate Hangar	Airport	None	12,573 (100%)
Old GA Terminal/Hangar (demolished in 2020)	Airport	None	7,600 (0%)

Source: Presque Isle International Airport; McFarland Johnson, 2020.

Table 5-15: Aircraft Hangar Demand

Year	Facility Demand	Current Provision	Shortage
2018			
Individual Hangars	5	0	5
Conventional Hangars	27,600 SF	37,643 SF	None
2023			
Individual Hangars	5	5 (built in 2020)	None
Conventional Hangars	30,800 SF	37,643 SF	None
2028			
Individual Hangars	5	5	None
Conventional Hangars	45,600 SF	37,643 SF	7,957 SF
2038			
Individual Hangars	6	5	1
Conventional Hangars	50,600 SF	37,643 SF	12,957 SF

Source: McFarland Johnson, 2020.

Currently, 100 percent of based aircraft are housed in hangars due to the weather conditions in northern Maine (PQI sees snow September through May). Ideally, 100 percent of based aircraft would remain in hangars as the number of based aircraft growth throughout the planning period. For planning purposes, it is assumed that 25 percent of single engine aircraft will be stored in individual hangars and 75 percent will be stored in conventional hangars. Additionally, all multi-engine aircraft, jets, and rotorcraft will be stored in conventional hangars. As noted in **Table 5-14**, 100 percent of the box hangars, former military hangars, and the corporate hangar are used for aircraft storage while only 80 percent of the GA terminal hangar and none of the old GA terminal/hangar is used for aircraft storage.

All hangars at the Airport are owned by the Airport and leased out individually. Table 5-15 shows the breakdown of anticipated hangar usage. By the end of the planning period, it is anticipated that there will be a shortage of one individual unit hangar and approximately 3,000 SF of conventional hangar space.

The SE aircraft that is anticipated to be stored in an individual hangar could also be stored in a conventional hangar. The Airport has a need for a fixed base operator (FBO) or maintenance, repair, and overhaul (MRO) provider and it is anticipated that if one of these were to locate at the Airport, an additional 10,000 SF of conventional hangar space would be necessary. If single engine aircraft and an FBO or MRO located at the Airport, the conventional hangar storage shortage would be approximately 14,200 SF.

Recommendation: It is recommended that approximately 14,200 SF of additional conventional hangar space should be constructed during the planning period, either by the Airport or by private investment. In the interim, there is adequate space on the aircraft parking apron to accommodate based aircraft parking until new hangars are constructed should demand grow faster than anticipated.

5.5.2. Aircraft Parking Aprons

There are currently two aircraft parking aprons at the Airport: the North Apron and the GA Apron. The west side of the north apron has a PCI of 43 and is in poor condition. The east side of the North Apron has a PCI of 8 indicating it is in failed condition. The GA Apron is currently under construction. Therefore, the only pavement surveyed was the pavement in front of the corporate hangar and the GA terminal. This pavement had a PCI of 70 and is in fair condition.

There are three components that were used to determine the required apron area for GA uses. They are: 1) based-aircraft parking, 2) itinerant aircraft parking (transient apron), and 3) staging and maneuvering areas. The sum of these components determines the total area of apron required to meet the forecasted level of GA activity at the Airport.

Based Aircraft Parking

Since it is assumed that 100 percent of based aircraft will be parking in hangars, aircraft parking apron demand is determined only for GA transient operations.

Recommendations: There is no recommendation for additional based aircraft apron parking. Should additional tie-downs be needed, which is not anticipated, the Airport should reevaluate.

Transient Aircraft Parking

The major apron need for PQI is parking space for itinerant aircraft. FAA AC 150/5300-13A suggests one methodology for determining apron space requirements for transient aircraft. This methodology has been adjusted as outlined below to reflect current conditions at the Airport and is used to project future transient apron space requirements.

- Calculate the total design day operations for all itinerant GA and air taxi operations.

- Calculate itinerant arrivals on the design day assuming that half of the operations are arrivals.
- Assume that approximately 75 percent of these aircraft will require transient parking space during the course of the day. The other 25 percent of the itinerant arrivals are based aircraft that will return to their assigned spaces.
- Assume that up to 75 percent of these transient aircraft will be on the apron at the same time during peak events.
- Allow an area of 400 SY per transient airplane, due to the need for taxiing space and aircraft of different sizes.
- Provision for larger itinerant jets temporarily displacing up to four based aircraft.

Table 5-16 presents the results of these calculations. According the above methodology, approximately 3,600 SY of apron space, or nine tie-down space, is the current need for transient parking. By the end of the planning period, this need is forecasted to increase to approximately 4,000 SY or ten tie-down spaces. When accounting for the overnight factor, this forecasted demand increases to 3,200 SY or eight tie-down spaces in addition to the four SE aircraft provision.

There are 18 tie-down spaces located on the GA Apron. During the planning period, it is anticipated that the maximum number of aircraft parking spaces needed will be ten at any given time. Therefore, the current apron parking provision at the Airport is anticipated to exceed the demand.

2019 operations were higher than forecasted. Provisions for 10,000 and 15,000 annual operations were reviewed. The results showed that the Airport meets the facility requirements at those operating levels.

Table 5-16: Transient GA Aircraft Apron Parking Demand

Year	Design Day Itinerant GA Operations	Itinerant Arrivals per Design Day	Itinerant Aircraft on Apron	Peak Hour Transient Parking Demand	Displaced Aircraft Provision	Required Transient Apron Space (SY)
2018	13	7	6	5	4	3,600
2023	16	8	6	5	4	3,600
2028	17	9	7	6	4	4,000
2038	19	10	8	6	4	4,000

Source: McFarland Johnson analysis, 2020.

Recommendation: There is no recommendation for additional GA aircraft parking. The current provision meets the demand throughout the planning period.

Staging and Maneuvering Areas

Adequate space for the safe maneuvering of aircraft to and from aprons, hangars, and taxiways must also be included in any forecast of apron requirements. Staging and maneuvering is most closely associated with the provision of space in front of conventional hangars and between rows of box hangars. The GA Apron is designed for ADG II aircraft on the north side, meeting the 115-

foot clearance requirements for TDG 2, and ADG I aircraft on the south side, meeting the 79-foot TOFA clearance requirements for TDG 1. The North Apron is limited to ADG I aircraft. Table 5-17 shows the taxiway and taxilane object free area requirements (TOFA and TLOFA, respectively). Staging and maneuvering areas for the North and GA Aprons can be seen in Figure 5-9.

Table 5-17: Taxiway/Taxilane Object Free Area Requirements by ADG

ADG	I	II	III
Taxiway OFA	89’	131’	186’
Taxilane OFA	79’	115’	162’

Source: FAA AC 150/5300-13A.

Recommendations: There are no recommendations for staging and maneuvering.

5.5.3. General Aviation Automobile Parking

There are three hangar areas on the Airport which provide vehicular parking adjacent to the buildings for their users. These areas include the former military hangars, the GA terminal/corporate hangar, and the individual hangars completed in 2020.

The methodology used below is based on Airport Cooperative Research Program (ACRP) Report 113, *Guidebook on General Aviation Facility Planning*, and a previously completed Aircraft Owners and Pilots Association (AOPA) survey that found an average of 2.5 persons aboard the average GA operation and automobile parking requirements for GA operations are displayed in Table 5-18.

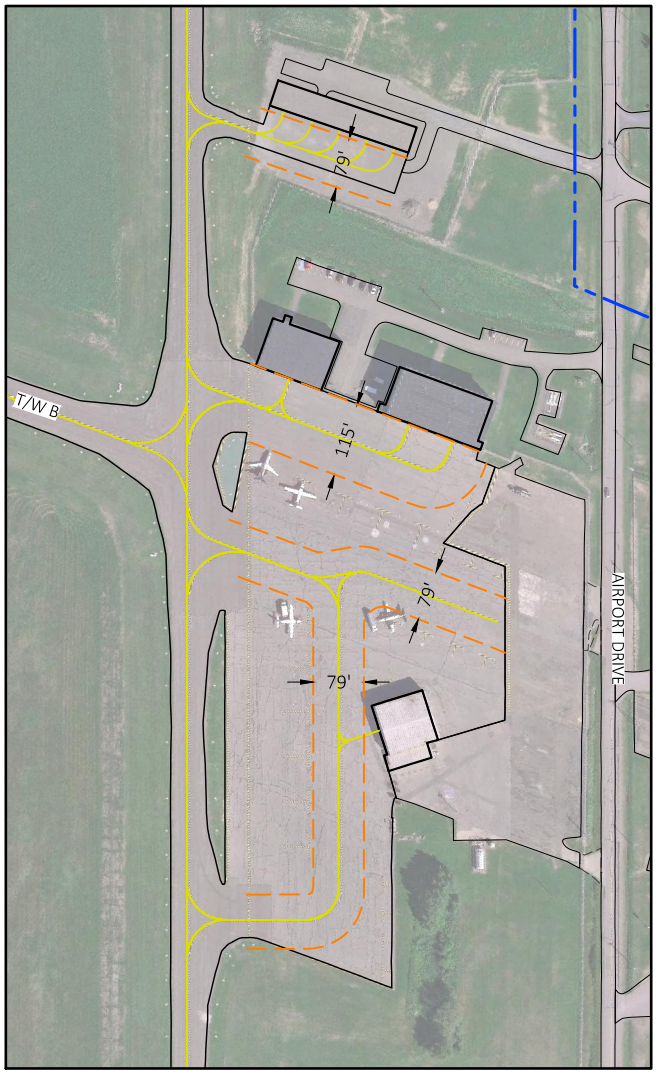
- Determine the number of parking spaces for individual unit hangars needed by dividing the number of units by 2
- Determine the number of parking spaces needed for conventional hangars are as follows:
  - One parking space per 1,000 SF of based aircraft storage
  - One parking space per 750 SF of maintenance
  - One parking space per 200 SF of office
- Determine the number of peak hour GA operations from Chapter 3, *Aviation Forecasts*, and multiply it by 2.5 to account for pilots and passengers
- Assume the number of parking spaces needed for GA terminal use is 5, the minimum number of parking spaces recommended by ACRP Report 113

There are currently three automobile parking locations for GA operations. Within these parking areas there are 33 marked parking spaces along with unmarked parking areas with space for at least 53 additional cars. Therefore, the current provision of approximately 86 parking spaces exceeds the demand of 74 throughout the planning period.

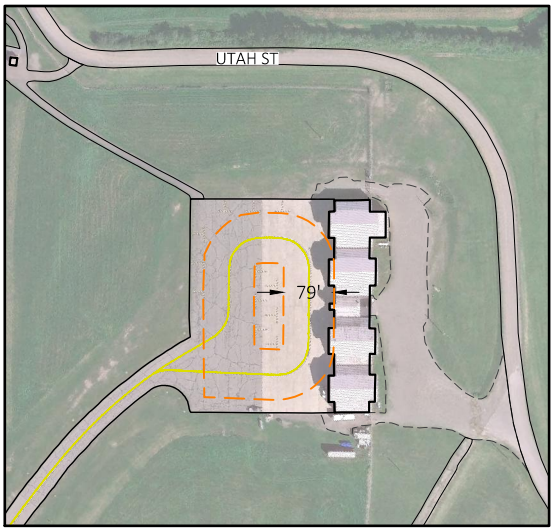
Recommendations: There are no GA parking recommendations. Should the unmarked parking spaces along the North Apron remain, it is recommended they be marked.

Figure 5-9: Staging and Maneuvering Areas

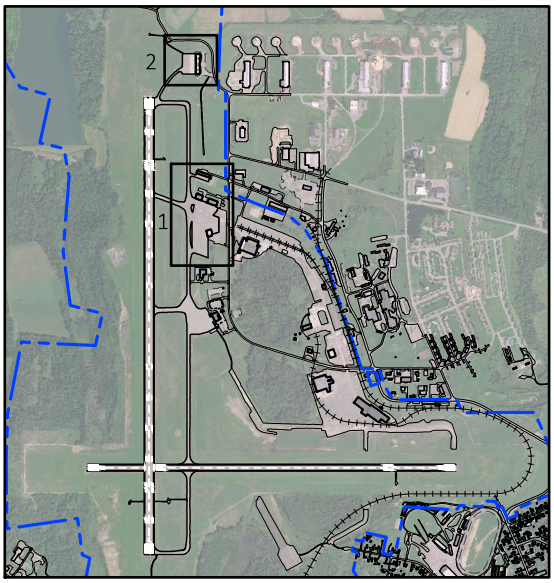
GA APRON (1)



NORTH APRON (2)



KEY MAP



NOT TO SCALE

LEGEND

TAXILANE OBJECT FREE AREA

AIRPORT PROPERTY BOUNDARY

SCALE

0 150 300 600

FEET

K:\Presque Isle\T-18423.00 Master Plan\Draw\Drawings\Figures\TSA.dwg

Table 5-18: GA Automobile Parking Requirements

Year	Individual Unit Hangar Parking Demand (Based)	Conventional Hangar Parking Demand	Transient Pilot and Passenger Parking Demand	GA Terminal Parking Demand	Total Parking Demand
2018	3	55	3	5	66
2023	3	55	5	5	68
2028	3	55	5	5	68
2038	3	58	5	5	71

Source: McFarland Johnson, 2020.

5.5.4. Airport Administration Offices

All Airport administration offices are in the passenger terminal building. The current administrative portion of the passenger terminal is approximately 380 SF. The conference room is approximately 350 SF of space.

There are currently three Airport staff members who utilize the administrative portion of the terminal building on a daily basis. Therefore, the current size of the office space meets the needs of the Airport administrative staff.

The Airport conference room is also frequently used by the Industrial Council as well as the airline for meetings and training purposes. When the conference room is in use, as many as 14 people utilize this space. The per person space requirement for a conference room is least 40 SF[9]. The total conference room space requirement at the Airport is a minimum of 560 SF compared to the 350 SF of existing space.

Recommendations: While administrative office space is sufficient, the Airport should consider expanding the conference room. Airport administration offices should remain in the passenger terminal building at this time.

5.6. MILITARY

As the only airport north of Bangor with a runway length of at least 6,000 feet, the Airport has the opportunity to accommodate military aircraft. Currently, there is a military readiness facility being constructed adjacent to the Airport near the Runway 10-28 end. Within the Airport property boundary, there is ample developable land that can accommodate infrastructure. It is anticipated that this potential aviation interface would require the ability to house Sikorsky UH-60 Black Hawk helicopters.

Recommendation: Consider constructing a military component to the airfield off the Runway 10-28 end that could accommodate four Black Hawk helicopters.

[9] https://www.meetings.com/Meeting-Room-Capacity-Calculator

5.7. SUPPORT FACILITIES AND UTILITIES

5.7.1. Aviation Fueling

As noted in Chapter 2, *Inventory*, PQI offers both Jet A and 100 LL Avgas fuel. There is a 15,000-gallon tank to hold Jet A and a 12,000-gallon tank for Avgas. The Airport also has 5,000-gallon Jet A and 2,100-gallon Avgas fueling trucks as well. On average, the Airport has a one-week supply of Jet A fuel at any given time. 10,000 gallons of Jet A fuel are currently delivered to the Airport every week and a half. The Avgas storage exceeds the current and forecasted monthly demand through the planning period. The average fuel consumption can be seen in **Table 5-19**.

Table 5-19: Average Fuel Consumption

Fuel	Jet A (gallons)	Avgas (100LL) (gallons)
Existing Storage Supply	15,000 tank + 5,000 truck	12,000 tank + 2,100 truck
Average Month 7-Day Demand	9,363	284
Peak Month 7-Day Demand	13,296	590
Peak Month 14-Day Demand	26,592	1,180

Sources: PQI and McFarland Johnson, 2020.

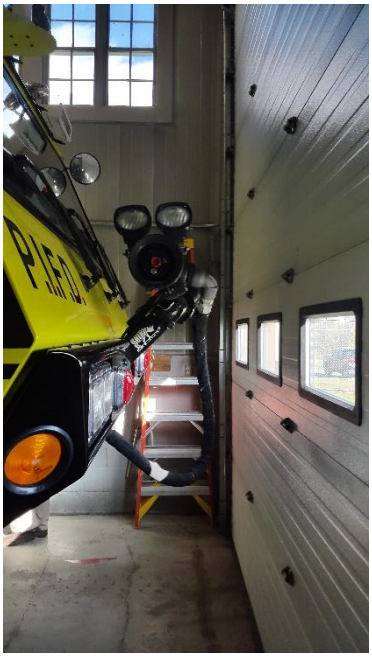
Recommendation: Consider adding a second, 5,000-gallon Jet A fuel tank or receiving more frequent deliveries of Jet A fuel during peak months.

5.7.2. Airport Traffic Control Tower

Presque Isle International Airport is an un-towered Airport. Pilots self-report on the Airport frequency with their intent and have the ability to file flight plans with Bangor Flight Service Station (FSS).

Recommendation: There is no recommendation to add an air traffic control tower within the planning period.

5.7.3. Aircraft Rescue and Fire Fighting (ARFF)



As discussed in Chapter 2, *Inventory*, the Airport is designated as an aircraft rescue and firefighting (ARFF) Index A under Federal Aviation Regulations (FAR) Part 139. The Airport's critical aircraft, the Embraer 145, is designated as an Index B aircraft. However, this aircraft only performs two flights per day and does not meet the frequency required to make PQI an Index B airport. Currently, PQI is equipped with an Index B ARFF truck, which should be maintained given that the Airport is currently served by an Index B aircraft and the location of the nearest off-airport fire station (over two miles).

ARFF equipment is housed in a 10,000 SF joint use facility with maintenance and snow removal equipment (SRE). The ARFF space occupies approximately 3,400 SF of the available 10,000 SF. Per FAA AC 150/5210-15A, *Aircraft Rescue and Firefighting Station Building Design*, there are minimum clearances of six feet between ARFF

vehicles and walls as well as a five-foot minimum clearance between the vehicle and bay stall door. The current ARFF bay is too small for the existing Index B truck as it only provides between 21 inches to 3 feet 4 inches on all sides. The trend in ARFF vehicle design is towards lower and wider vehicles, so minimum clearances should be provided to meet the AC.

Recommendation: The size of the ARFF bay should be increased to accommodate the existing ARFF Index B truck.

5.7.4. Airfield Maintenance Facility and Snow Removal Equipment (SRE)

The Airport operations staff performs the day-to-day responsibilities of maintaining and inspecting the airfield facilities, including the removal of snow during winter months which last from September through May.

As noted in Chapter 2, *Inventory*, the Airport has twenty-four vehicles and pieces of equipment used for maintenance and snow removal. Maintenance and SRE are stored in a joint use facility with ARFF equipment. Space is limited and there is not enough room in the building to accommodate all the Airport owned equipment. The remaining SRE that does not fit inside this facility is stored both outside and in other Airport owned facilities across Airport property, including in the former military hangars on the North Apron (cold storage). It is recommended this building be expanded, or another building be constructed to house all FAA eligible ARFF and SRE in order to keep all equipment in one consolidated, heated space, to properly maintain these vehicles, and to extend their useful life.

Under FAA AC 150/5220-18A, *Buildings for Storage and Maintenance of Airport Snow and Ice Control Equipment and Materials*, PQI falls into the large or very large airport category, based on eligible airfield pavement, when determining the appropriate maintenance/SRE building. The recommended size of the maintenance portion of this building, including sand, salt, and deicer storage, is 9,500 to 10,600 SF. According to FAA AC 150/5220-20, *Airport Snow and Ice Control Equipment*, and AC 150/5200-30, *Airport Winter Safety and Operations*, PQI is eligible for one rotary plow, two displacement plows, three sweepers, and three hopper spreaders. When considering the SRE the Airport is eligible for, the SRE portion of this building should be approximately 12,600 SF. Currently, maintenance and SRE only occupy approximately 6,600 SF of the 10,000 SF joint use facility with ARFF.

Recommendation: It is recommended the Airport expand the maintenance/SRE portion of the building to 22,100 to 23,200 SF to accommodate for storage of all maintenance equipment and SRE.

5.7.5. Perimeter Fence

The north side of the Airport has a six-foot tall perimeter fence that is set to be replaced in 2020 with fencing less frost susceptible. The remaining portion of the fence is eight feet tall with barbed wire on top and a dirt berm along the bottom of the fence. Frost has caused heaving of the ground which in turn has caused the fence to lift up during freezing conditions. The gaps in the fence due to the freezing can be points of entry for wildlife and potentially people.

Recommendation: At the end of its useful life, the perimeter fence should be replaced with materials that are less susceptible to frost.

5.7.6. Utilities

Based on information provided in Chapter 2, *Inventory* the Airport's utility services – electric, telephone, internet, and waste/recycling – are adequate to meet the existing needs of the facility.

There is currently no sewer line connected to the GA terminal, corporate hangar, or military hangars. A pump station has been built for both the GA terminal hangar and the corporate hangar. The current corporate hangar pump station is overwhelmed due to utilization by the airline.

In the event there are additional developments throughout the planning period, a review of the utilities and their respective capacities should be taken into account, including the potential development of hangar facilities related to the necessity of electricity, telephone, internet, sanitary sewer, and water lines.

Currently, there are no backup generators in the event of power outages.

Recommendation: It is recommended that the Airport add a backup generator to power the airfield and terminal building in the event of a power outage as well as build new pump stations.

5.8. FACILITY REQUIREMENTS SUMMARY

This section summarizes all facility requirements for PQI as shown in **Table 5-20**.

Table 5-20: Summary of Facility Requirements

Item/Facility	Existing Facility or Capacity	Ultimate Requirement	Deficit
Runway Length	Runway 1-19: 7,439' Runway 10-28: 6,001'	Runway 1-19: 8,000' Runway 10-28: 6,001'	Consider runway extension
Runway Width	Runway 1-19: 150' Runway 10-28: 100'	Runway 1-19: 150' Runway 10-28: 100'	None
Runway Safety Areas	Non-standard grades	Provide standard RSA on all runways	Confirm lateral grade compliance during design of the next runway reconstruction
Runway Object Free Area	All ROFAs are standard size; Utah Street enters the Runway 19 ROFA	Provide standard ROFA on all runways; All ROFAs clear of objects	Runway 19: Move Utah Street and PAPI control box out of ROFA Runway 28: Move fence/railroad tracks and review the location of the PAPI control box during the next PAPI replacement project.

Item/Facility	Existing Facility or Capacity	Ultimate Requirement	Deficit
Runway Protection Zone	All existing RPZs are under Airport control through ownership and avigation easements; Runway 1 and 19 RPZs include public roads	All RPZs under Airport control through ownership or avigation easement; All RPZs clear of non-compatible land uses	Should any changes to RPZs occur, clear RPZ of non-compatible land uses and acquire land in fee simple or easement
Runway Pavement Markings	Runway 1-19: Precision instrument Runway 10-28: Non-precision instrument	Runway 18-36 (existing 1-19): Precision instrument Runway 9-27 (existing 10-28): Non-precision instrument	Renumber runways to match magnetic declination
Runway Lighting	Runway 1-19: HIRLs Runway 10-28: MIRLs	Runway 1-19: HIRLs Runway 10-28: MIRLs	None
Runway Visual Aids	Runway 1: None Runway 19: 4-box PAPI (3.7 degrees) Runway 10: None Runway 28: 4-box PAPI (3 degrees)	Runway 1: None Runway 19: 4-box PAPI Runway 10: None Runway 28: 4-box PAPI	Runway 19: Reduce PAPI angle Runway 1: Add 4-box PAPI
Instrument Approaches	Runway 1: ILS (CAT I) Runway 19: GPS (RNAV), VOR Runway 10: GPS (RNAV) Runway 28: GPS (RNAV)	Runway 1: ILS (CAT I) Runway 19: GPS down to ¾ mile Runway 10: GPS (RNAV) Runway 28: GPS (RNAV)	Reduce the Runway 19 GPS approach visibility minimums
Taxiways	Runway 1-19: Full parallel Runway 10-28: None	Runway 1-19: Full parallel Runway 10-28: Partial parallel or turnaround	Address airfield geometry concerns and meet FAA standards
Taxiway Width	Taxiway A: 50’ – 60’ Taxiway B: 60’ Taxiway C: 75’ Taxiway E: 35’	Taxiways A, B, C: 50’ Taxiway E: 35’	None
Taxiway Lighting	MITLs	MITLs	None
Terminal Facility	10,500 SF	20,000 SF	9,500 SF
Passenger Terminal Apron	12,000 SY	12,000 SY	None

Item/Facility	Existing Facility or Capacity	Ultimate Requirement	Deficit
Terminal Area Parking	79 public parking spaces	64% full during peak times	Consider paving gravel lot if capacity reaches 80%
Hangars	5 individual units 37,643 SF conventional hangars	6 individual units 50,600 SF conventional hangars	1 individual unit 12,957 SF conventional hangars
GA Aprons	18 tie-downs	8 tie-downs	None
GA Auto Parking	86 spaces	74 spaces	None
Administration Offices	380 SF office 350 SF conference room	380 SF office 560 SF conference room	210 SF conference room
Military	None	Military component	Additional space as need arises.
Aviation Fueling	15,000 gallons Jet A 12,000 gallons Avgas	15,000-gallon and 5,000-gallon Jet A Fuel 12,000-gallon Avgas Fuel	Consider adding 5,000 gallons Jet A fuel storage (tank or truck)
Air Traffic Control Tower	None	None	None
ARFF	ARFF bay clearances range from 21" – 3'4"	ARFF bay to meet minimum clearances	Expand the ARFF truck bay to meet minimum clearances
Maintenance /SRE Building	6,600 SF	22,100 SF – 23,200 SF	15,500 SF – 16,600 SF
Perimeter Fence	8' tall fence	8' tall fence with frost resistant material	Construct frost resistant fencing
Utilities	Electric, telephone, internet, and waste/recycling, no sewer line to corporate hangar, GA terminal, or former military hangars	Pump stations at all new hangar complexes, back up generators	Add backup generators and pumps stations

Sources: FAA Form 5010-1; McFarland Johnson analysis, 2020.

PRESQUE ISLE
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Chapter 6

Alternatives

McFarland Johnson

Stantec

6. Alternatives

This Alternatives chapter documents a variety of proposed development scenarios to accomplish the recommended facility improvements identified in Chapter 5, *Facility Requirements*. It evaluates the scenarios against several evaluation factors to determine if the recommended improvements enhance the safety and efficiency of Presque Isle International Airport (PQI or the Airport) and meet existing and future demand. The evaluation factors used to compare development options were selected based on specific considerations associated with the Airport.

Airside alternatives will be considered first followed by an evaluation of terminal alternatives which will influence landside alternatives last. Each of these areas will include a no-build alternative, as well as other potential build alternatives for consideration. The preferred alternatives are selected based on assessed criteria, as well as their compatibility with one another and the overall airport environment. These individual alternatives combine to create an overall Preferred Airport Development Alternative.

The identification and evaluation of the Airport development alternatives are outlined as follows:

- Development Constraints
- Airside Alternatives
- Terminal and Parking/Roadway Alternatives
- Landside Alternatives
- Green Opportunities
- Preferred Airport Development Alternative

6.1. DEVELOPMENT CONSTRAINTS

The following development constraints surround the Airport:

- **Infrastructure:** The Airport is surrounded by public infrastructure on the north, east, and south sides. Mapleton Road is south of Runway 1, State Street and Central Drive are east of Runway 28, and Utah Street is north of Runway 19. Additionally, a railroad line runs south and east of Runway 28.

- **Environmental:** There are multiple areas where delineated wetlands and streams have been identified on Airport property as identified in Chapter 4, *Environmental Overview*.

- **Obstructions:** Terrain to the north (Dennett Hill) as well as other local or off-airport property obstructions influence runway end changes.

6.2. AIRSIDE ALTERNATIVES

Airside alternatives present potential solutions to geometry or airport design deficiencies as identified in Chapter 5. The alternatives presented are evaluated against each other, according to the criteria identified below, and a recommended airside alternative for the Airport is presented.

6.2.1. Summary of Airside Facility Requirements

In Chapter 5, *Facility Requirements*, airside improvements were identified that should be addressed within the 20-year planning period. These improvements include those shown in **Table 6-1**.

Table 6-1: Airside Facility Requirements

Item/Facility	Deficit
Runway Length	Consider runway extension up to 8,000 feet
Runway Safety Area (RSA)	Confirm lateral grade compliance during design of the next runway reconstruction
Runway Object Free Area (ROFA)	Runway 19: Move Utah Street and precision approach path indicator (PAPI) control box out of ROFA Runway 28: Move fence/railroad tracks and review the location of the PAPI control box during the next PAPI replacement project
Runway Protection Zone (RPZ)	Should any changes to RPZs occur, clear RPZ of non-compatible land uses and acquire land in fee simple (if the opportunity becomes available) or easement
Runway Pavement Markings	Renumber runways to match magnetic declination
Runway Visual Aids	Runway 19: Reduce PAPI angle Runway 1: Add 4-box PAPI
Instrument Approaches	Reduce the Runway 19 global positioning satellite (GPS) approach visibility minimums
Taxiways	Runway 10-28: back-taxi due to lack of taxiways Taxiway E and Runway 19: non-standard angle, non-standard grade, and direct access Taxiway C and Runway 1-19: direct access Taxiway B and Runway 1-19: non-standard intersection angle

Source: McFarland Johnson analysis, 2021.

6.2.2. Evaluation Criteria

A set of evaluation criteria has been developed to provide an equal and consistent assessment of each alternative. These criteria pose questions regarding how each of the alternatives address identified issues, such as: aviation user needs and operational efficiency (facility requirements), environmental impacts, Federal Aviation Administration (FAA) standards, costs, and long-term flexibility. These evaluation criteria are as follows:

- **Meets Facility Requirements:** Does the alternative meet the existing and future needs of the Airport and is the alternative feasible for implementation? What affect does this alternative have from an operational standpoint?

- **Relative Environmental Impact:** Qualitative assessment of the potential environmental consequences associated with implementation of the alternative. Important social, economic, and environmental effects of the alternative will be identified and described. Potential mitigation measures, as appropriate, will be identified. Chapter 4, *Environmental Overview*, provides a detailed review of environmental considerations for the Airport.

- **Meets FAA Standards:** Does the alternative meet the design standards of FAA Advisory Circular (AC) 150/5300-13A, *Airport Design*, and Code of Federal Regulations (CFR) Part 77 *Safe, Efficient Use, and Preservation of the Navigable Airspace* (Part 77) to the maximum extent feasible?

- **Relative Cost:** Does the alternative have reasonable development costs in comparison to other alternatives that achieve the same goal? Comparative cost estimating will be used to evaluate and score each alternative.

- **Relative Flexibility:** To what extent does this alternative leave flexibility for change and future surrounding development?

These evaluation factors have been given a scoring value, as follows:

Meets Facility Requirements:	None	(0)	Some	(1)	Most	(2)	All	(3)
Relative Environmental Impact:	High	(0)	Moderate	(1)	Minor	(2)	None	(3)
Meets FAA Standards:	None	(0)	Some	(1)	Most	(2)	All	(3)
Relative Cost	High	(0)	Medium	(1)	Low	(2)	None	(3)
Relative Flexibility:	Poor	(0)	Fair	(1)	Good	(2)	Excellent	(3)

Alternatives were compared using both a qualitative and quantitative comparison and given a value based on the alternative's ability to meet the requirements of the evaluation factors. Selection of a recommended alternative is based on the alternative meeting demand needs, enhancing operations and safety, minimizing environmental and community effects, minimize costs, and providing future flexibility.

6.2.3. Alternatives Considered and Dismissed

Based on a preliminary review, the following alternatives have been considered and dismissed:

- **Extend Runway 1-19 to the North:** The existing Runway 19 end is limited in its approach minimums due to existing obstacles. Extending the runway to the north would make these obstacles penetrate higher into the threshold siting (obstacle clearance surface or OCS) and CFR Part 77 approach surfaces, therefore making conditions worse. It would also introduce a new terrain obstruction with Dennett Hill.

- **Displaced Runway 19 Threshold Without Runway Extension:** The existing Runway 1-19 was determined to need a runway extension. Reducing the landing length, especially during

contaminated conditions, is not advisable. Based on conversations with the FAA, it was recommended that the focus should be on removing/reducing obstacles.

- Relocate the Railroad in Proposed ROFA for Runway 28: The existing Runway 10-28 ROFA is clear. The proposed ROFA is 98 percent clear. The southeastern corner is clipped by a fence and local railroad line. Approximately one-third of a mile of railroad would need to be relocated (at the current turning radius) to clear the railroad out of the proposed ROFA, which could cost approximately $500,000 to $1 Million using planning level, per mile railroad relocation costs. At the time that Runway 10-28 increases to the proposed ROFA, this may be reconsidered. For the purposes of this Master Plan, it is anticipated that a future Modification to Design Standards (MOS) would be sought.

6.2.4. No Build Alternative

The No Build Alternative recommends no changes to the existing runway and taxiway layout at PQI. The No Build Alternative was assessed against the five evaluation factors; the results are shown in comparison to the build alternatives in the next section.

6.2.5. Airside Build Alternatives

This section covers build alternatives to meet the following facility requirements identified in Table 6-1:

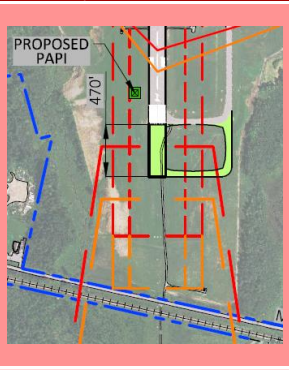
- Runway 1-19 length alternatives
- Taxiway C alternatives
- Runway 10-28 back-taxi alternatives
- Taxiway E alternatives
- Combined other build alternatives

Runway 1-19 Length Alternatives

Runway 1-19 was identified as needing a runway extension. As identified in Section 6.2.3, extending the runway to the north is not feasible. The maximum extent Runway 1 can be extended to the south is 470 feet while still maintaining clear RSA and ROFA on Airport property, which results in a total runway length of 7,909 feet. This alternative includes installing a PAPI and does not introduce any new OCS obstacles. Table 6-2 compares extending Runway 1 to the south with the No Build alternative.

Based on the results of Table 6-2, Runway 1 should be extended to the south by 470 feet. Extending Runway 1-19 would help reduce existing weight penalties, cancellations, delays, and diversions currently being experienced in inclement weather and/or runway contamination. Additionally, it increases the flexibility of Essential Air Service (EAS) operators to choose different aircraft fleets and/or different destination airports from historical destinations. This could increase the number of EAS applicants. Increased options of EAS providers, aircraft fleet, and destination airports is a net benefit to the Airport and the community.

Table 6-2: Runway 1-19 Length Alternative Comparison

Evaluation Criteria	No Build	Extend Runway 1 South 470’
Visual		
Description	No change to existing conditions.	Extend Runway 1 and Taxiway A south by 470 feet for a total runway length of 7,909 feet.
Meets Facility Requirements	**None (0)** – No improvements are suggested to meet the facility requirements above and beyond existing conditions.	**Most (2)** – While it does not meet the full 8,000-foot facility requirement length, this is the maximum length improvement within the infrastructure constraints around the Airport.
Relative Environmental Impact	**None (3)** – No construction means no environmental impacts above and beyond the existing conditions.	**Moderate (1) –** This runway extension is clear of known environmental constraints except for a small wetland impact near the parallel taxiway extension.
Meets FAA Standards	**Some (1)** – No improvements are suggested to meet the runway length standards above and beyond existing conditions. No improvements to non-standard ROFA conditions.	**All (3)** – Full RSA and ROFA are met, runway length gets improved, RPZ stays on Airport property, and no additional approach obstructions are introduced.
Relative Cost	**None (3)** – There are no development costs. Operational costs include the loss of cancelled commercial operations due to the lack of runway length.	**Medium (1)** – A runway extension to the facility requirement length would have been higher.
Relative Flexibility	**Poor (0)** – Existing operations have a history of cancellations and diversions due to the runway length in inclement weather. There’s no additional flexibility for increased stage lengths, existing operations, or increasing the fleet mix.	**Good (2)** – A full 8,000-foot runway length would be ideal, but this alternative improves flexibility for the existing commercial operator to reduce cancellations, allow changes in the stage length, and allows increases in the fleet mix.
Total	7	9

Source: McFarland Johnson analysis, 2021.

Taxiway C Alternatives

The direct access via Taxiway C from the terminal apron to Runway 1-19 is a geometry standard the FAA desires to eliminate. In an effort to eliminate direct access, the following taxiway alternatives were reviewed:

- Install runway guard lights
- Paint a no-taxi island
- Relocate Taxiway C

It is anticipated that each of these alternatives resolve any non-standard taxiway fillets to meet the most current standards in FAA AC 150/5300-13A. Table 6-3 compares the three build alternatives with the No Build Alternative. While runway guard lights are highly effective at reducing/eliminating runway incursions, the non-standard geometry condition remains. Relocating Taxiway C is an effective alternative but is associated with a high cost and moderate environmental impacts.

As shown in Table 6-3, painting a no-taxi island is the most feasible option that fully meets standards and facility requirements, while also having the lowest cost of the build alternatives and essentially no environmental impact. The painting of the no-taxi island is the recommended Taxiway C alternative.

Runway 10-28 Back Taxi

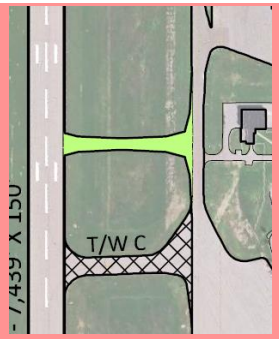
Runway 10-28 requires back-taxiing on the runway to be able to use it for takeoff or landing. While back-taxiing is an operational choice, this significantly reduces the capacity of the runway and increases the likelihood of runway incursions and accidents due to the increased runway occupancy time. Two build alternatives were reviewed to eliminate or reduce the back-taxi operations at this commercial service, untowered airport:

- Construct turn-around taxiway
- Construct partial parallel taxiway

Table 6-4 compares the No Build Alternative to the two Runway 10-28 build alternatives.

As shown in Table 6-4, constructing a parallel taxiway segment would eliminate most back-taxi operations on Runway 10-28 and increase the runway's capacity. In the short-term it may make sense to construct a turn-around taxiway to allow increased flexibility until such a time that the parallel taxiway need is triggered due to aeronautical development along Runway 10-28 or as a runway capacity project. The recommended plan will protect for a parallel taxiway.

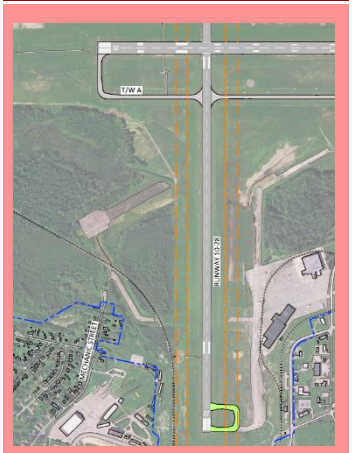
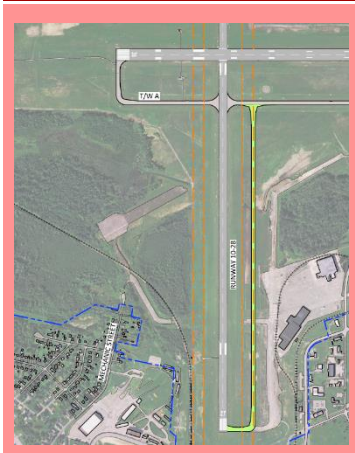
Table 6-3: Taxiway C Alternatives Comparison

Evaluation Criteria	No Build	Install Runway Guard Lights	Paint No-Taxi Island	Relocate Taxiway C
Visual				
Description	No change to existing conditions.	Remove pavement to meet fillet standards and install runway guard lights at Taxiway C.	Remove pavement to meet fillet standards and paint a no taxi island to resolve the direct access from the terminal apron to Runway 1-19.	Relocate Taxiway C approximately 525 feet north to resolve the direct access from the terminal apron to Runway 1-19.
Meets Facility Requirements	**None (0)** – This does not meet geometry standards (direct access remains).	**Most (2)** – Runway guard lights are effective at reducing/eliminating runway incursions. The inherent geometry (direct access) remains.	**All (3)** – Non-standard geometry (direct access) gets resolved.	**All (3)** – Non-standard geometry (direct access) gets resolved.
Relative Environmental Impact	**None (3)** – No construction means no environmental impacts above and beyond the existing conditions.	**Minor (2)** – Installation of runway guard lights has only minor environmental impacts to install electrical wires and lights. No new impervious surfaces are anticipated.	**None (3)** – This project involves painting existing pavement.	**Moderate (1)** – New impervious pavement construction should be comparable to removing existing Taxiway C.

Evaluation Criteria	No Build	Install Runway Guard Lights	Paint No-Taxi Island	Relocate Taxiway C
Meets FAA Standards	**None (0)** – This does not meet fillet standards.	**All (3)** – Fillet standards are met.	**All (3)** – Fillet standards are met.	**All (3)** – Fillet standards are met.
Relative Cost	**None (3)** – There are no development costs.	**Medium (1)** – The cost to install runway guard lights and remove pavement.	**Low (2)** – The cost to paint the no-taxi island and remove pavement.	**High (0) –** Building a new taxiway would be the highest cost.
Relative Flexibility	N/A (not applicable)	N/A	N/A	N/A
Total	6	8	11	7

Source: McFarland Johnson analysis, 2021.

Table 6-4: Runway 10-28 Back Taxi Alternatives Comparison

Evaluation Criteria	No Build	Construct Turn-Around Taxiway	Construct Partial Parallel Taxiway
Visual			
Description	No change to existing conditions.	Construct a turn-around taxiway at the proposed Runway 27 end similar to parallel access taxiways.	Construct a partial parallel taxiway from Taxiway A to the proposed Runway 27 end.
Meets Facility Requirements	**None (0)** – No improvements are suggested to meet geometry standards.	**Some (1) –** This improves conditions by allowing an aircraft to exit the runway environmental to turn around.	**Most (3)** – Most of Runway 10-28 back taxi operations would be eliminated.
Relative Environmental Impact	**None (3)** – No construction means no environmental impacts above and beyond the existing conditions.	**Minor (2)** – New impervious pavement is in an area without known environmentally sensitive areas with less new impervious surfaces than constructing a new partial parallel taxiway.	**Moderate (1)** – New impervious pavement is in an area without known environmentally sensitive areas.
Meets FAA Standards	**None (0)** – No improvements to runway capacity.	**Some (1)** – This alternative provides some capacity improvements and increases safety incrementally.	**All (3)** – Runway capacity increases significantly and increases safety.
Relative Cost	**None (3) –** There are no development costs.	**Low (2) –** This alternative scores low on relative cost compared to the partial parallel taxiway.	**High (0)** – The parallel taxiway would cost the most of these alternatives.

Evaluation Criteria	No Build	Construct Turn-Around Taxiway	Construct Partial Parallel Taxiway
Relative Flexibility	**Poor (0)** – Operational flexibility and runway capacity is impacted.	**Fair (1)** – This alternative allows aircraft to taxi outside of the runway environment, increasing operational flexibility.	**Excellent (3)** – A full-length parallel taxiway provides the most operational flexibility for this runway.
Total	6	7	10

Source: McFarland Johnson analysis, 2021.

Taxiway E Alternatives

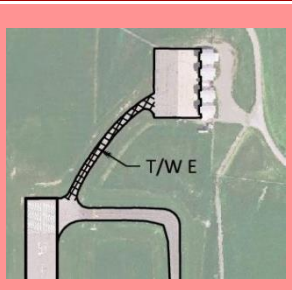
Taxiway E provides direct access to Runway 1-19 as well as having a non-standard runway-taxiway intersection angle and a non-standard lateral taxiway slope. Two build alternatives were reviewed to address all three non-standard conditions: Remove Taxiway E and reconstruct Taxiway E.

Ideally, the Airport would be able to continue Taxiway A parallel to Runway 1-19 directly to the north ramp. Due to significant terrain changes, this would result in non-standard lateral slopes of the taxiway. In early 2018 a review of different layouts of taxiways in that area were conducted and the alternative shown as "Reconstruct Taxiway E" was deemed the most feasible build alternative to meet taxiway lateral slope standards.

A planning-level cost estimate was completed to compare "Remove Taxiway E" and "Reconstruct Taxiway E" (shown in **Appendix G**). This shows that removing Taxiway E and replacing the four hangars in kind at a different location on the Airport had a higher cost than constructing the s-shaped Taxiway E, conducting maintenance projects on the hangars, and putting some costs into extending the use of the pavement. Additionally, constructing new hangars at the Airport's cost would increase the rents significantly, which could lead to existing tenants leaving the Airport.

Table 6-5 shows the comparison between the No Build and two build alternatives for Taxiway E and summarizes the evaluation comparison.

Table 6-5: Taxiway E Alternatives Comparison

Evaluation Criteria	No Build	Remove Taxiway E	Reconstruct Taxiway E
Visual			
Description	No change over existing conditions.	Remove Taxiway E and convert apron and hangars to non-aeronautical use.	Reconstruct Taxiway E to meet standard lateral grade.

Evaluation Criteria	No Build	Remove Taxiway E	Reconstruct Taxiway E
Meets Facility Requirements	**None (0)** – This alternative does nothing to meet geometry standards.	**All (3)** – This alternative meets geometry standards if replacement hangars are constructed.	**All (3)** – This alternative meets geometry standards.
Relative Environmental Impact	**None (3)** – There are no development costs.	**Moderate (1)** – While removing Taxiway E may remove impervious surfaces, this alternative requires constructing alternative hangar locations to make up for the four hangars that are no longer accessible.	**Low (2)** – Compared to building a new apron and hangar complex, this alternative has fewer relative environmental impacts.
Meets FAA Standards	**None (0)** – Taxiway E would maintain its non-standard slope and runway-taxiway intersection angle.	**All (3)** – The removal of Taxiway E removes the non-standard slope and runway-taxiway intersection angle.	**All (3)** – This alternative reconstructs Taxiway E to meet FAA standards.
Relative Cost	**Low (2)** – Crack sealing would need to be completed.	**High (0)** – Replacing four hangars, associated apron space, and a connector taxilane have the highest relative cost. Additionally, this may cause the Airport to lose existing tenants due to increased hangar rent.	**Medium (1)** – Taxiway E pavement reconstruction as well as recommended hangar and pavement updates cost less than replacing them in kind.
Relative Flexibility	**Excellent (3)** – This allows the use of the existing buildings as well as the flexibility of other areas on the Airport for aeronautical use.	**Good (2)** – This would convert existing aeronautical use to non-aeronautical use, which reduces the area available for aeronautical use but allows diversification of revenue streams. While aeronautical area is reduced, it still provides flexibility to the Airport.	**Excellent (3)** – This allows the use of the existing buildings as well as the flexibility of other areas on the Airport for aeronautical use.
Total	8	9	12

Sources: McFarland Johnson and Stantec analyses, 2021.

As shown in **Table 6-5**, reconstructing Taxiway E is the recommended alternative. It is anticipated that in the environmental review or design of the reconstructed Taxiway E, the following two items will be discussed with the FAA:

1. Consideration if FAA would participate in the funding of a new taxilane and/or apron areas of a new hangar layout (t-hangar or box hangar). According to the AIP Handbook, Appendix

H, H-2.e. "Public use taxilanes which serve multiple buildings are eligible using the same funding rules that apply to taxiways." This could reduce the price tag of replacing the hangars and reduce rent enough to encourage existing tenants to relocate to a different part of the Airport. This would have the added benefit of being able to repurpose the existing north hangars for non-aviation uses such as an air museum, venue hall, etc.

2. Feasibility of a MOS to reduce the pavement need and create a more "common" taxiway layout. The maximum lateral slope would be determined based on what slope aircraft in the hangars at the time could climb. Maintenance and snow removal potential should also be a considering factor during this design. This Master Plan will show an alternative that fully meets standards but based on FAA feedback there could be a consideration for a modification of design standards that would reduce pavement need which would be determined immediately prior to or during the design of this project.

Combined Other Build Alternatives

Based on Chapter 5, *Facility Requirements*, the following other build items should be shown as part of the combined airport build alternative to meet FAA design standards and FAA grant assurances:

- Renumber Runways: Based on a review of the magnetic declination at the Airport, Runway 1-19 should be renumbered as Runway 18-36 and Runway 10-28 as Runway 9-27. This will help pilots improve situational awareness as the runway alignment will more closely match the compass alignment in the cockpit. This will also differentiate PQI from Caribou Municipal Airport since as of December 2021, both airports have a Runway 1-19, both airports have the same UNICOM frequency of 122.8, neither airport is towered, and the two airports are only 11 nautical miles apart. This would reduce wrong airport incidents should Caribou's runway designations remain.

- Move PAPI Control Boxes Outside of ROFA: As part of the next PAPI replacement projects for the Runway 19 (proposed Runway 18) and Runway 28 (proposed Runway 27) PAPIs, it should be reviewed if the PAPI control boxes can be moved outside of the ROFA.

- Relocate Utah Street Outside of ROFA: Utah Street clips the corner of the Runway 19 ROFA. It is recommended that the next time Utah Street gets repaved, approximately 300 linear feet be relocated outside of the Runway 19 ROFA.

- Acquire Easement/Fee: To control RPZ areas and have the flexibility prevent or eliminate obstructions, the Airport should acquire in fee simple/easement areas that are within RPZs or where there are known obstructions. Existing parcel 043-155-087 (near the proposed Runway 27 end) is currently owned by the City of Presque Isle and is part of Peace Park. Until such a time that there is consideration for use of that property other than a park, it is not anticipated that this parcel will need to be acquired in easement/fee.

- Protect for Aeronautical Development: The Airport should plan to protect for areas that are useful for aeronautical development.

- **Straighten Taxiway B:** Taxiway B has a non-standard intersection angle with proposed Runway 18-36 which would be corrected at the next reconstruction.

6.2.6. Preferred Airside Alternative

The evaluation and selection of a Preferred Airside Alternative must satisfy the long-term aeronautical needs of the Airport, including such factors as satisfying future aeronautical needs, minimizing environmental impacts, meeting FAA standards, minimizing cost, and maximizing flexibility. As shown in Section 6.2.5, at no time was the No Build Alternative the preferred alternative. **Figure 6-1** shows the combined preferred airside alternative.

6.3. TERMINAL AND PARKING/ROADWAY ALTERNATIVES

The commercial passenger terminal is one of the primary focal points for most commercial service airports, representing the gateway to and from their communities. The terminal building was constructed in the 1960s. It is aging and undersized for existing and forecast future passenger enplanements. Some of the roadway access frontage/gateway access could be improved.

This section considers four alternatives to allow a terminal facility to meet passenger demand. These alternatives include the No Build Alternative, replacing the existing terminal building in its current terminal area, constructing a new terminal building on the north side of the Airport, and constructing a new terminal building on the east side of the Airport.

6.3.1. Summary of Facility Requirements

The existing terminal building is beyond its useful life and severely undersized for the current demand. As seen in **Table 6-6**, this is especially true for the secure holdroom, which does not provide enough seating for a full plane and does not have restrooms or vending past the Transportation Security Administration (TSA) checkpoint. Similarly, baggage areas (outbound and inbound), check-in/ticketing, passenger security screening, and the overall terminal size are all below 50 percent of their existing need. Should EAS aircraft increase in size, the terminal size would need to expand even further.

Table 6-6: Terminal Facility Requirements

Terminal Functional Area	Existing Provision (SF)	50 Peak Hour Passengers (SF)	Percent Existing vs Demand
Check-In /Ticketing	202	1,106	18.3%
Outbound Baggage Screening & Makeup	476	3,613	13.2%
Passenger Security Screening Checkpoint	868	2,523	34.4%
Secure Holdrooms	488	4,373	11.2%
Baggage Claim and Inbound Baggage Handling	1,857	4,694	39.6%
Concessions	442	493	89.7%
Other Functions/Tenants	6,369	5,665	112.4%

Terminal Functional Area	Existing Provision (SF)	50 Peak Hour Passengers (SF)	Percent Existing vs Demand
Total	10,502	22,468	46.7%
Passenger Terminal Requirement Range		**20,000 – 25,000**	

Source: McFarland Johnson analysis.

Additionally, alternatives should review ways to enclose the parking lot/install revenue control devices and consider if there is a roadway access that provides a more appropriate gateway to the Airport. Evaluation Criteria

A set of evaluation criteria was developed to provide an equal and consistent assessment of each alternative. These criteria pose questions regarding how each alternative meets potential for expansion, revenue generation capability, land use compatibility, operational efficiency, and development costs.

- **Potential for Expansion:** Does the alternative meet the existing and future needs of the Airport and is the alternative feasible for implementation? Is the alternative flexible and dynamic in the sense that it can accommodate both planned and unanticipated future changes in demand? This criterion recognizes the fact that location decisions made today will influence future airport development for many years to come. Planning should consider future development needs beyond the facility requirements of the current period.

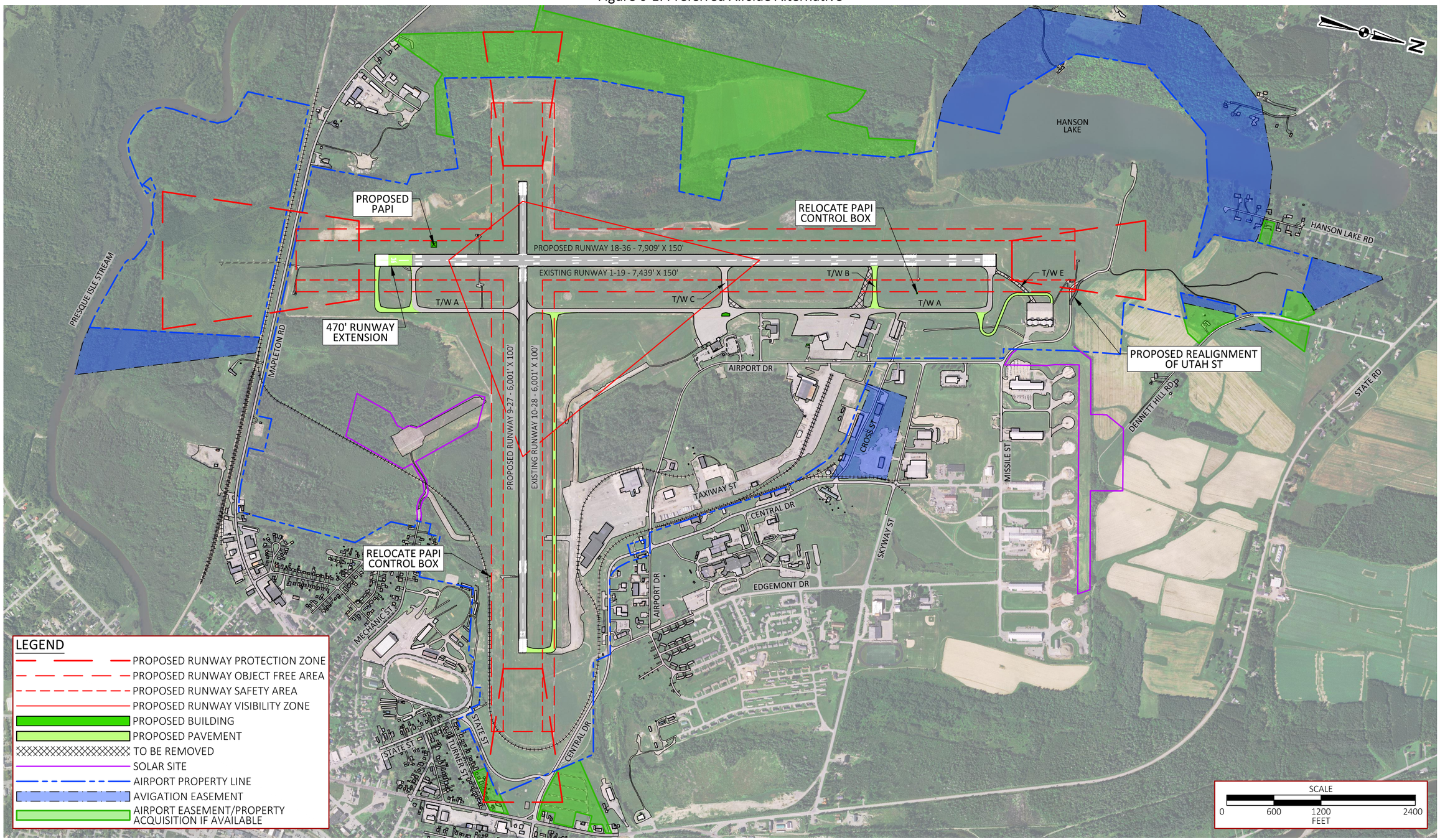
  Especially at an EAS airport, flexibility is paramount. The critical aircraft and peak hour passengers can change every few years with changing aircraft and airline operators.

- **Revenue Generation Capability:** Does the alternative take a strategic business and capital-based approach that allows or creates opportunities for airport management to increase revenue generation and/or diversify revenue sources thereby improving the overall competitiveness and cost effectiveness of the Airport?

  Revenue generation in the terminal area focuses on two key areas: parking revenue and concessions within the terminal. PQI does not currently have parking control measures in place. Cars parked overnight get an envelope placed on their windshield and someone comes by every night to record the number of nights cars that remain and parking fees are collected by mail or online after the passenger returns.

  Most passengers prefer to go through security/TSA screening as early as possible to prevent the stress and anxiety of long lines and potentially missing their plane. Therefore, most concessions revenue is produced post security, when people feel they have time to roam and stress/anxiety is lower. Currently, the secure holdroom (past security) is the most constrained area with no restrooms or concessions and not enough seating for a full plane. The existing secure holdroom is only approximately 11 percent of the recommended size.

Figure 6-1: Preferred Airside Alternative



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- **Land Use Compatibility:** Is the alternative compatible with on-airport and off-airport patterns of land use? This criterion will evaluate such things as access to the local road network and degree to which the alternative is compatible with activities occurring in surrounding on- and off-airport lands.

- **Operational Efficiency:** Will this alternative contribute to the development of a smoothly functioning airport with efficient movement of aircraft? Does the terminal meet TSA and other security requirements? Does the terminal maximize sustainability measures? This criterion will consider whether the alternative makes the best and most efficient use of Airport facilities and infrastructure.

- **Development Costs:** Does the alternative have reasonable development costs in comparison to other alternatives that achieve the same goal? Relative cost estimating will be used to evaluate and score each alternative.

These evaluation factors have been given a scoring value, as follows:

Potential for Expansion:	None	(0)	Low	(1)	Medium	(2)	High	(3)
Revenue Generation Capability:	Poor	(0)	Fair	(1)	Good	(2)	Excellent	(3)
Land Use Compatibility:	None	(0)	Some	(1)	Most	(2)	All	(3)
Operational Efficiency:	Poor	(0)	Fair	(1)	Good	(2)	Excellent	(3)
Development Costs	High	(0)	Medium	(1)	Low	(2)	None	(3)

Alternatives were compared using both a qualitative and quantitative comparison and given a value based on the alternative's ability to meet the requirements of the evaluation factors. Selection of a recommended alternative is based on the alternative having potential for expansion, providing revenue generation capability, being compatible with surrounding land uses, providing operational efficiency, and minimizing development costs.

6.3.2. Alternatives Considered and Dismissed

Based on a preliminary review, the following alternatives have been considered and dismissed:

- **Upgrading and Expanding the Existing Terminal:** The existing terminal building has far exceeded its useful life, is outdated, and does not meet current building codes. Construction in the existing building would cause a hassle for passengers and not be feasible from a construction phasing perspective. Additionally, per the 2021 Building Condition Survey, upgrading the existing terminal building would cost approximately $4 Million. To expand the existing building by approximately 13,500 square feet (SF) would bring the total cost up to approximately $17 Million (not including interior reconfiguration costs) compared to approximately $18 Million to build a brand new 20,000 SF terminal. Therefore, this alternative was dismissed.

- **Building a New Terminal Near the Runway 1 End:** Constructing a new terminal near the Runway 1 end was considered but dismissed for two reasons: 1. Due to the potential

impacts on the wetlands located in that area and 2. Due to the high cost of building completely new roadway, apron, terminal, and parking infrastructure.

6.3.3. Terminal Alternatives

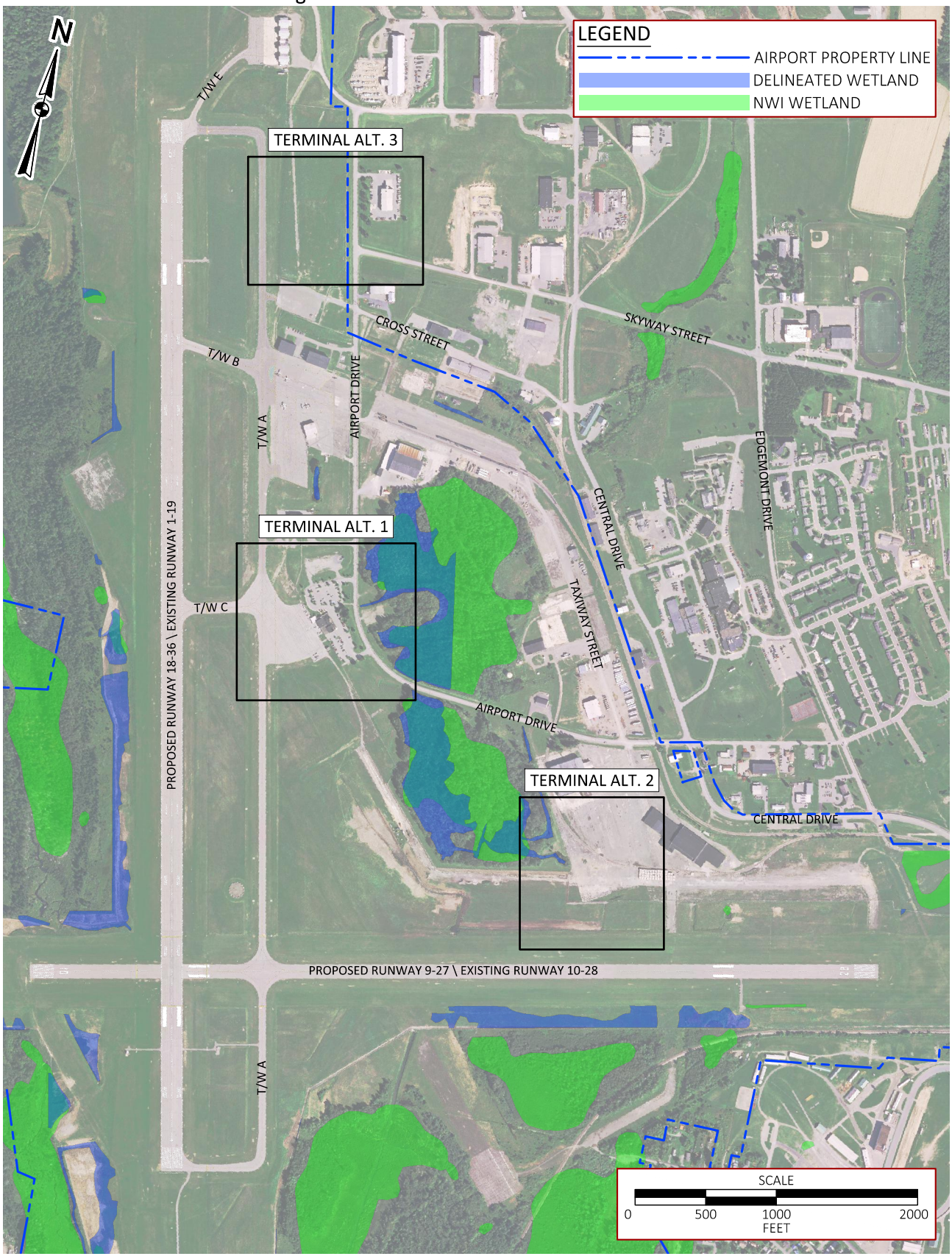
The following four terminal alternatives were reviewed. **Figure 6-2** shows the location of the three building alternatives. All alternatives have a portion of the drive through residential areas.

- **Terminal Alternative 1** would build a new terminal next to the existing terminal. This allows for the existing terminal building to be used until the new building is completed. This alternative allows adequate construction phasing as well as maximum use of the existing infrastructure. A new building would meet current building codes, provide adequate space for existing needs, provide flexibility for changing EAS fleet/operators, and maximize revenue generation. The existing terminal location meets land use compatibility (as shown in Chapter 2, *Inventory*, Figure 2-10) since the terminal is located next to industrial zoning; however, the situation is not currently ideal as the Airport does not have an appropriate gateway. This location provides optimal taxi access to both runways without incurring the non-standard geometry of short taxi distance. Pilots have enough time to go through their pre-flight checklist prior to the runway ends.

- **Terminal Alternative 2** would build a new terminal parallel to proposed Runway 9-27. This allows for the existing terminal building to be used until the new building is completed. This alternative allows adequate construction phasing. A new building would meet current building codes, provide adequate space for existing needs, provide flexibility for changing EAS fleet/operators, and maximize revenue generation. This location uses similar access as the existing terminal location and meets land use compatibility (as shown in Chapter 2, *Inventory*, Figure 2-10) since the terminal is located next to industrial zoning; however, the situation is not currently ideal as the Airport does not have an appropriate gateway. This alternative has a high relative cost due to the construction of all new facilities including the access road, automobile parking, terminal, apron, and taxiway to connect to Taxiway A and proposed Runway 9-27. However, the preferred Runway 10-28 Back Taxi Alternative, could be utilized in conjunction with this development. This location requires the longest taxi distance to the primary proposed Runway 18-36, which would increase exhaust/greenhouse gas emissions. This alternative also has the potential for wetland and/or wetland buffer impacts.

- **Terminal Alternative 3** would build a new terminal across from Skyway Street connecting to Taxiway A closer to the proposed Runway 18 end than the existing terminal. Like the other build alternatives, this allows for the existing terminal building to be used until the new building is completed. This alternative allows adequate construction phasing. A new building would meet current building codes, provide adequate space for existing needs, provide flexibility for changing EAS fleet/operators, and maximize revenue generation. This alternative would provide a direct drive through compatible land use areas and cost more than Terminal Alternative 1 but less than Terminal Alternative 2. This alternative has the longest taxi distance to the proposed Runway 9-27, which is used during strong crosswinds.

Figure 6-2: Terminal Alternatives Locations



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The new terminal location could be considered adding a new non-standard geometry of a short taxi distance[1].

As shown in **Table 6-7**, Terminal Alternative 1 has the highest rating. Based on the evaluation shown in **Table 6-7** and conversations with the Airport and FAA, Terminal Alternative 1 was chosen as the preferred alternative.

6.4. LANDSIDE ALTERNATIVES

As a result of the preferred airside and terminal alternatives, this section looks at potential areas on the airfield that could be used for future development of aeronautical activities. Three areas for aviation/aeronautical development were identified. These are shown in **Figure 6-3**, described below, and will be protected for aeronautical development as part of the Airport Layout Plan (ALP):

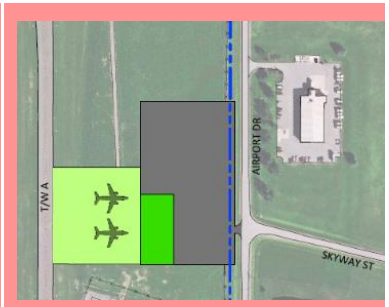
- **North Aeronautical Development Area** is located north of the 2019 t-hangar construction along Taxiway A. This area is the prime aeronautical development area and should be considered first for any aeronautical development. Buildings would be south facing, have road access, and are ideally located along Taxiway A and parallel to the primary proposed Runway 18-36.

- **Terminal Aeronautical Development Area** is located near the existing and proposed terminal building. Based on the recommended terminal alternative, it is recommended that this area be protected for any potential terminal area expansion need.

- **South Aeronautical Development Area** is located south of Airport Drive and Central Drive and parallel to proposed Runway 9-27. This area was previously developed and includes two former hangar buildings and a former parallel taxiway to existing Runway 10-28. This area borders wetlands, railroads, and public roads. This area would be ideal for special aeronautical uses (such as military, research facilities, test facilities, etc.). This area has a high upfront cost of needing a connector/parallel taxiway prior to being able to use this space and therefore will be considered in case the north aeronautical development area cannot meet the facility requirements demand.

[1] Problematic Taxiway Geometry Study Overview, DOT/FAA/TC-18/2 dated January 2018.

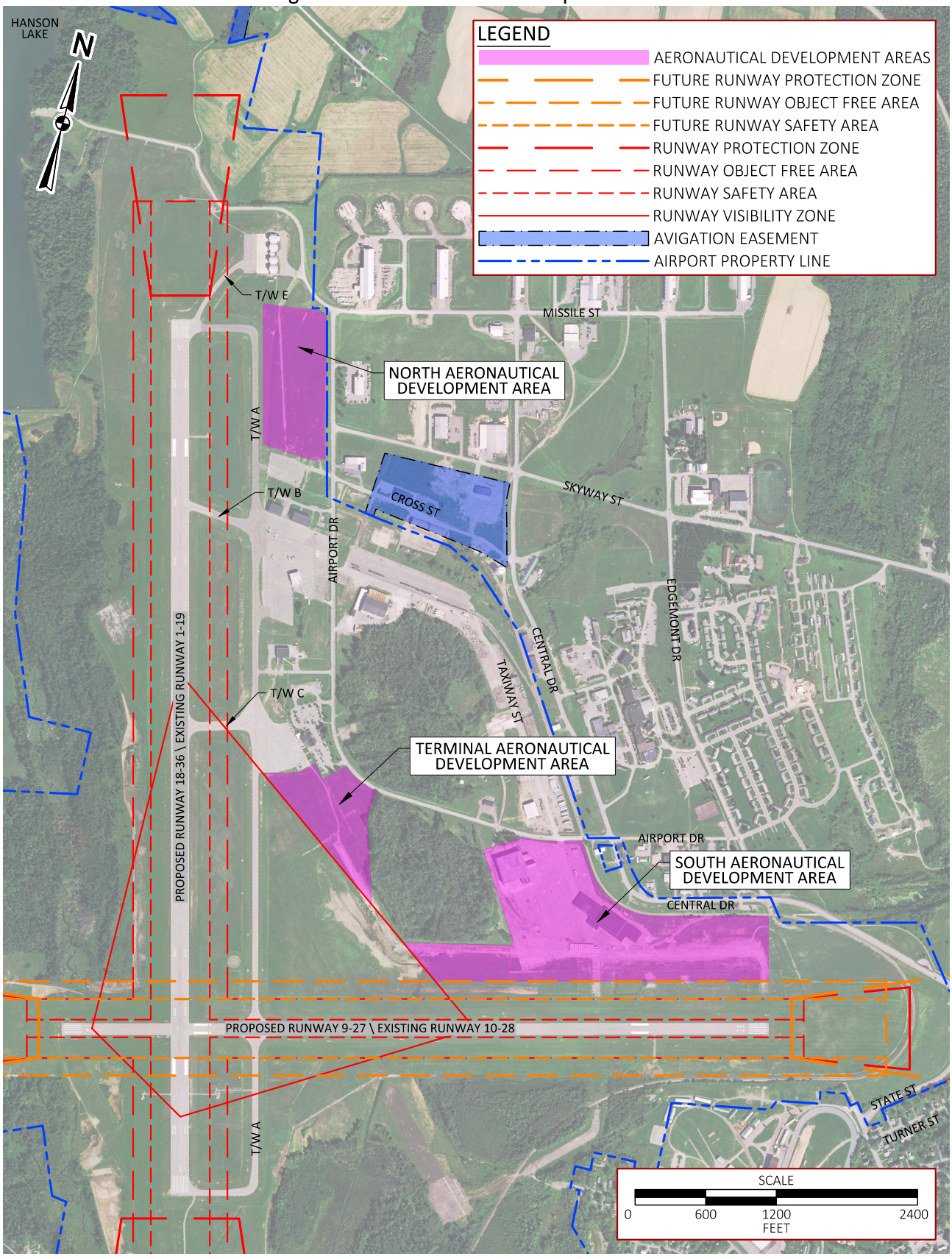
Table 6-7: Terminal Alternatives Comparison

Evaluation Criteria	No Build	Terminal Alt. 1	Terminal Alt. 2	Terminal Alt. 3
Visual				
Description	No change to existing conditions.	Build a new terminal spanning 20,000-25,000 SF next to the existing terminal building, expand parking (including the footprint of the existing terminal), and use the existing terminal infrastructure.	Build a new terminal spanning 20,000-25,000 SF parallel to proposed Runway 9-27. This alternative would trigger a partial parallel taxiway construction.	Build a new terminal spanning 20,000-25,000 SF parallel to Taxiway A with landside access from Skyway Drive.
Potential for Expansion	**None (0)** – Does not meet sizing needs.	**High (3)** – New/right-sized. Flexibility for expansion.	**High (3)** – New/right-sized. Flexibility for expansion.	**High (3)** – New/right-sized. Flexibility for expansion.
Revenue Generation Capability	**Poor (0)** – No revenue control measures; undersized terminal.	**Excellent (3) –** Parking revenue control measures installed; larger terminal.	**Excellent (3) –** Parking revenue control measures installed; larger terminal.	**Excellent (3) –** Parking revenue control measures installed; larger terminal.
Land Use Compatibility	**Most (2)** – Compatible; gateway access could be improved.	**Most (2)** – Compatible; gateway access could be improved.	**Most (2)** – Compatible; gateway access could be improved.	**All (3) –** Compatible; improved gateway access.
Operational Efficiency	**Poor (0)** – 1960s building with outdated equipment. Not	**Excellent (3)** – Would meet security requirements and maximize sustainability.	**Good (2)** – Would meet security requirements and maximize sustainability.	**Fair (1)** – Would meet security requirements and maximize sustainability.

Evaluation Criteria	No Build	Terminal Alt. 1	Terminal Alt. 2	Terminal Alt. 3
	enough seating and no restroom past TSA.	Terminal is close to both runways.	Long taxing to proposed Runway 18-36.	Potential for short taxi distance (non-standard geometry) to proposed Runway 18.
Development Costs	**None (3)** – There are no development costs.	**Low (2)** – Existing parking and apron infrastructures can be used/modified.	**High (0)** – New apron, terminal, parking, access road, taxiway, and potential wetland impacts.	**Medium (1)** – New apron, terminal, and parking.
Total	5	13	10	11

Source: McFarland Johnson analysis, 2021.

Figure 6-3: Aeronautical Development Areas



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6.4.1. Summary of Landside Facility Requirements

In Chapter 5, *Facility Requirements*, landside improvements were identified that should be addressed within the 20-year planning period. These improvements include those shown in **Table 6-8**.

Table 6-8: Landside Facility Requirements Summary

Item/Facility	Deficit
Hangars	1 individual unit 12,957 SF conventional hangars
ARFF	Expand the ARFF truck bay to meet minimum clearances
Maintenance/Snow Removal Equipment (SRE) Building	15,500 SF – 16,600 SF
Aviation Fueling	Consider adding 5,000 gallons Jet A fuel storage (tank or truck)
Perimeter Fence	Construct frost resistant fencing
Utilities	Add backup generators and pump stations

Source: McFarland Johnson analysis.

6.4.2. Evaluation Criteria

A set of evaluation criteria was developed to provide an equal and consistent assessment of each alternative. These criteria pose questions regarding how each alternative meets facility requirements, environmental and cultural effects, potential for expansion, operational efficiency, and revenue generating capability.

- **Meets Facility Requirements:** Does the alternative meet the existing and future needs of the Airport and is the alternative feasible for implementation? Is the alternative compatible with on- and off-airport patterns of land use? The criterion will evaluate such things as access to the airside movement areas, access to the local road network, and the degree to which the alternative is compatible with activities occurring in surrounding areas.

- **Environmental and Cultural Effects:** Important social, economic, and environmental effects of the alternative will be identified and described. Potential mitigation measures, as appropriate, will be identified. Federal and State regulatory requirements (e.g. permits, Department of Environmental Protection (DEP), National Environmental Policy Act (NEPA)) will be described. Possible environmental and airport sustainability benefits will also be identified.

- **Potential for Expansion:** Is the alternative flexible and dynamic in the sense that it has the ability to accommodate both planned and unanticipated future changes in demand? This criterion recognizes the fact that location decisions made today will influence future airport development for many years to come. Planning shall consider future development needs beyond the facility requirements of the current period.

- **Operational Efficiency:** Will this alternative contribute to the development of a smoothly functioning airport with efficient movement of aircraft? This criterion will consider whether the alternative makes the best and most efficient use of airport facilities and infrastructure.

- **Revenue Generation Capability:** Does the alternative take a strategic business and capital-based approach that allows or creates opportunities for airport management to increase revenue generation and/or diversify revenue sources thereby improving the overall competitiveness and cost effectiveness of the Airport?

These evaluation factors have been given a scoring value, as follows:

Meets Facility Requirements:	None	(0)	Some	(1)	Most	(2)	All	(3)
Environmental and Cultural Effects:	High	(0)	Medium	(1)	Minor	(2)	None	(3)
Potential for Expansion:	None	(0)	Low	(1)	Medium	(2)	High	(3)
Operational Efficiency:	Poor	(0)	Fair	(1)	Good	(2)	Excellent	(3)
Revenue Generation Capability:	Poor	(0)	Fair	(1)	Good	(2)	Excellent	(3)

6.4.3. Alternatives Considered and Dismissed

Since the preferred airside and terminal alternatives show the terminal staying in the same general area it is now, it was determined that the open space near the terminal should be protected for potential terminal expansion beyond the planning period. The North Aeronautical Development Area already has the parallel taxiway infrastructure in place to access the primary runway.

Therefore, it was determined that to meet the facility requirements, the North Aeronautical Development Area would be used first to meet 20-year demand identified. The South Aeronautical Development Area requires the construction of a parallel taxiway and would allow larger development. This area is protected for potential larger development and for longer-term aeronautical build-out. Therefore, landside alternatives for the 20-year planning period start reviewing the North Aeronautical Development Area first.

6.4.4. Landside Build Alternatives

This section covers build alternatives to meet the following facility requirements identified in **Table 6-8**:

- Hangar alternatives
- Other build alternative

Hangar Alternatives

A need for one individual unit hangar and approximately 13,000 SF of conventional hangar was identified within the planning period. **Table 6-9** compares different hangar layouts with the No Build alternative. Hangar Alternative 1 includes space for the one individual aircraft in its conventional hangar storage.

Table 6-9: Hangar Alternatives Comparison

Evaluation Criteria	No Build	Hangar Alt. 1	Hangar Alt. 2	Hangar Alt. 3
Visual				
Description	No changes to existing conditions.	Construct two 100-foot by 100-foot conventional hangars with associated apron, taxilane, and auto parking areas.	Construct two 100-foot by 100-foot conventional hangars and one 70-foot by 70-foot box hangar with associated apron, taxilane, and auto parking areas.	Construct two 100-foot by 100-foot conventional hangars and one 70-foot by 70-foot box hangar with associated apron, taxilane, and auto parking areas.
Meets Facility Requirements	**None (0)** – Does not meet facility requirements.	**All (3)** – Meets all hangar facility requirements.	**All (3)** – Meets all hangar facility requirements.	**All (3)** – Meets all hangar facility requirements.
Environmental and Cultural Effects	**None (3)** – No construction means no environmental effects.	**Minor (2) –** This construction of new impervious surfaces is clear of known environmental constraints.	**Minor (2) –** This construction of new impervious surfaces is clear of known environmental constraints.	**Minor (2) –** This construction of new impervious surfaces is clear of known environmental constraints.
Potential for Expansion	**None (0)** – No construction.	**Medium (2)** – Less flexibility than other alternatives.	**High (3)** – There is high potential for expansion.	**High (3)** – There is high potential for expansion.
Operational Efficiency	**Poor (0)** – No hangars.	**Fair (1)** – Hangars may have added winter challenges due	**Excellent (3)** – South facing hangars provide best	**Good (2)** – Hangars face southerly direction

Evaluation Criteria	No Build	Hangar Alt. 1	Hangar Alt. 2	Hangar Alt. 3
		to the doors facing westerly.	winter operational efficiency. Hangars match the same layout as other existing hangars.	providing good winter operational efficiency.
Revenue Generation Capability	**Poor (0)** – None.	**Good (2)** – Increased revenue over No Build.	**Excellent (3)** – Most revenue generation capability.	**Excellent (3)** – Most revenue generation capability.
Total	3	10	14	13

Source: McFarland Johnson analysis, 2021.

Based on the results of Table 6-9, Hangar Alternatives 2 and 3 are scored within one point of each other. After conversations with the Airport and FAA, Hangar Alternative 3 was chosen as the preferred alternative to remain consistent with existing and recently constructed hangar projects while still having the hangar doors face south for most winter sun exposure and reduced snow and ice build-up. During design, individual box hangars could be replaced with t-hangars.

Other Build Alternative

Based on Chapter 5, *Facility Requirements*, the following other build items should be shown as part of the combined airport build alternative to meet FAA design standards and FAA grant assurances:

- Maintenance/SRE/ARFF Building: Additional space for vehicle storage and personnel is needed. This building should be expanded to meet the facility requirement need sizing and provide standard FAA spacing between the ARFF vehicle and ARFF bay walls.

- Aviation Fuel: There may be a need for additional fuel storage. Since this is a business decision for the Airport, the ALP will show an additional Jet A fuel tank to protect for the flexibility for the Airport to be able to construct that at the time the need arrives. A truck could be purchased in lieu of constructing a tank at Airport management discretion.

- Perimeter Fence: Frost heaving has been experienced with some of the perimeter fence. As perimeter fence is replaced, it should be constructed to be frost resistant.

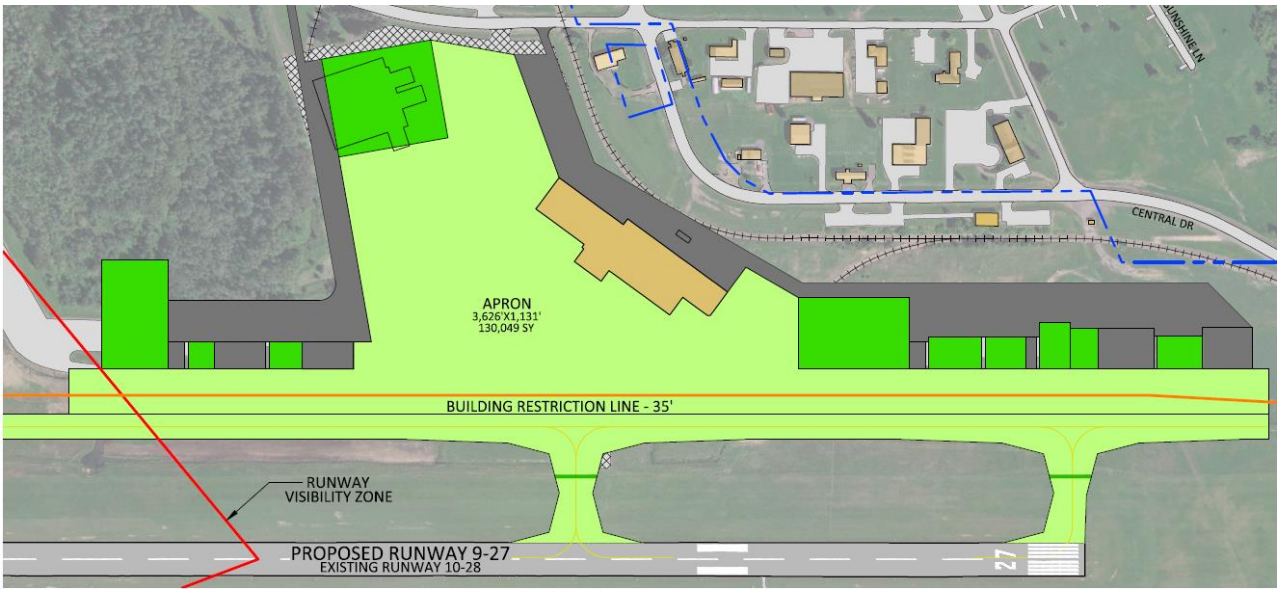
- Utilities: A backup generator for airfield and terminal should be constructed. Additionally, the Airport should investigate construction of new pump stations.

6.4.5. Special Aeronautical Use

Presque Isle is a desirable location for certain special aeronautical uses, such as aeronautical research, due to the low population density and less crowded airspace. The south aeronautical development area (as shown in Figure 6-3) located along proposed Runway 9-27 is especially desirable since hangars would be south facing and it would provide isolation between the GA community and any special aeronautical development.

The Airport was approached by an existing tenant who has requested the construction of two hangars in this area as the first step of an aerospace research flight test facility. Airport management is in the process (as of December 2021) of applying for an Economic Development Administration (EDA) grant for development in this area.

The Airport plans to acquire the former hangar on Airport property that is currently owned by the City and being used for cold storage. This building would be returned to aeronautical use and could be potentially used as a maintenance, repair, and overhaul (MRO) facility. Development, as proposed in the EDA grant, is shown on the next page to be protected for in this Master Plan.



6.4.6. Non-Aeronautical Land Use

A goal of the Airport, and the FAA, is financial self-sufficiency. The Airport is in an agreement with the Presque Isle Industrial Council (PIIC), which manages the non-aeronautical areas including the existing industrial park. A recent review of the benefits to both organizations as part of this mutual agreement was conducted. It is anticipated that non-aeronautical areas will continue to be managed by the PIIC in accordance with FAA standards.

6.5. GREEN OPPORTUNITIES

The Airport strives to be a good steward of the environment and continuously looks for opportunities to reduce its carbon footprint. The Airport is in talks with developers who are looking to install two solar arrays on/near the Airport property. The development proposed includes a five-megawatt solar energy facility located at two sites totaling approximately 25 acres.

Green opportunities for the Airport include:

- Installing electric aircraft charging stations
- Installing electric vehicle charging stations
- Installing solar panels on vehicle awnings and roof-mounted on hangars
- Modifying guidelines for construction to now include initiatives for green development

Electric aircraft opportunities continue to evolve. As the technology continues to advance, more details will be planned for in terms of electrical access and charging options for aircraft, including if charging will occur via truck or in-ground connectivity.

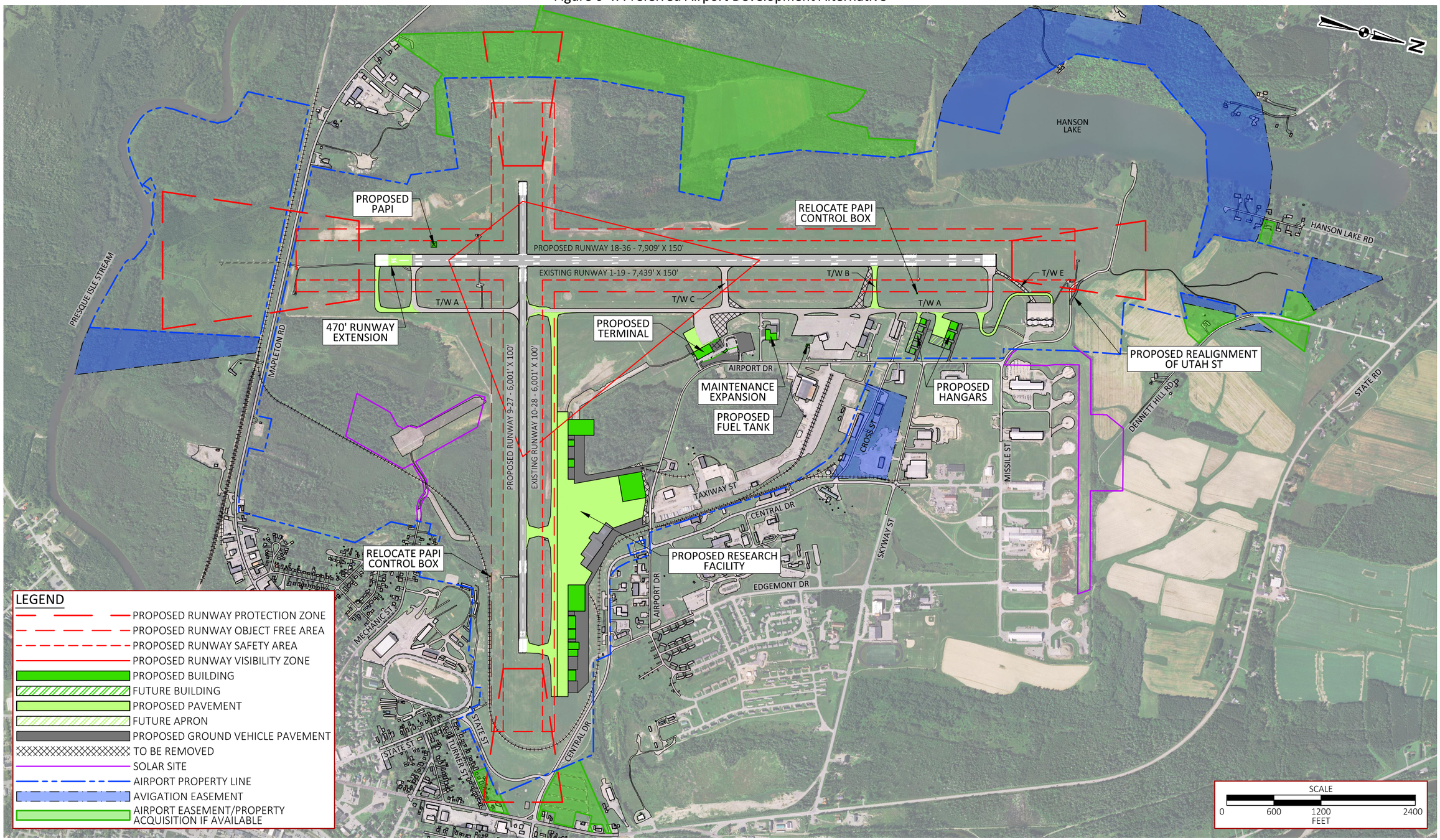
6.6. PREFERRED AIRPORT DEVELOPMENT ALTERNATIVE

The preferred alternative combines the recommended airside, terminal, and landside alternatives and is shown in Figure 6-4. The preferred alternative includes the following projects:

- Renumber existing Runway 1-19 to proposed Runway 18-36 and existing Runway 10-28 to proposed Runway 9-27

- Extend proposed Runway 36 by 470 feet to the south at its existing 150-foot width
- Realign approximately 370 linear feet of Utah Street outside of the proposed Runway 18-36 ROFA
- Review the location of the proposed Runways 18 and Runway 27 PAPI control boxes to see if they can feasibly move out of ROFA at the next PAPI replacement project
- Acquire 131 acres of runway protection zones (RPZs) and areas of existing or potential obstructions in easement or fee on a willing seller basis as properties become available
- Continue obstruction removal to reduce the proposed Runway 18 PAPI angle and to reduce proposed Runway 18 approach visibility minimums
- Construct a 4-box PAPI for proposed Runway 36
- Construct a parallel taxiway to proposed Runway 9-27 from Taxiway A to the proposed Runway 27 end (approximately 4,300 linear feet)
- Reconstruct Taxiway E to meet standards
- Remove 10,600 SF of pavement off Taxiway C to meet current fillet standards at the next reconstruction
- Straighten Taxiway B at next reconstruction
- Construct a new terminal building spanning approximately 25,000 SF and remove the existing terminal building, turning it into a parking lot
- Construct new terminal area parking spanning approximately 81,450 SF including installing revenue control units for long-term parking
- Reconfigure the terminal apron by removing approximately 63,500 SF of pavement and adding approximately 42,800 SF of new pavement
- Construct one box hangars (70 by 70 feet) and two conventional hangars (100 by 100 feet) and associated apron and taxilanes
- Expand the maintenance/SRE/ARFF building by approximately 16,600 SF
- Construct a new 5,000-gallon Jet A fuel tank near the existing fuel farm
- Replace existing perimeter fence with frost resistant fencing
- Construct backup generators and pump stations
- Construct proposed research facility or other aeronautical development

Figure 6-4: Preferred Airport Development Alternative



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PRESQUE ISLE
INTERNATIONAL AIRPORT
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Chapter 7

Implementation Plan and Financials

McFarland Johnson

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7. Implementation Plan and Financials

This chapter presents the Airport Layout Plan (ALP) Drawing Set, Project Phasing Plan, and the Airport's Capital Improvement Program (CIP) for the Presque Isle International Airport (PQI or the Airport), which comprise the final recommendations of the Master Plan for the Airport. It also details the public participation process that informed the planning of the Master Plan for the Airport.

The proposed development depicted on the ALP Drawing Set is derived from the Recommendation for the ALP presented in Chapter 6, *Alternatives*. The Project Phasing Plan presents a recommended phasing schedule for implementing the proposed improvements shown on the ALP over the 20-year planning period, and the CIP details the potential funding mechanisms and costs for implementing those projects. The ALP, Project Phasing Plan, and the Federal Aviation Administration (FAA) Airport Capital Improvement Plan (ACIP), which is typically the first five years of the CIP are all subject to review and comment by the FAA. After final review and approval, these documents will become the final recommendations of the Master Plan.

The major components of this chapter are listed below:

- Airport Layout Plan Drawing Set
- Project Phasing and Capital Improvement Plan
- Sources of Funding and Project Eligibility
- Airport Financial Analysis
- Public Participation Process

7.1. AIRPORT LAYOUT PLAN DRAWING SET

The ALP Drawing Set has been prepared in accordance with generally accepted planning practices and FAA guidance materials, including the following:

- FAA Advisory Circular 150/5070-6B, *Airport Master Plans*
- FAA Advisory Circular 150/5300-13A, *Airport Design*
- FAA Advisory Circular 150/5360-13A, *Planning and Design Guidelines for Airport Terminal Facilities*
- Code of Federal Regulations (CFR) Part 77, *Safe, Efficient Use, and Preservation of the Navigable Airspace*
- FAA Standard Operating Procedures (SOP) 2.0, Standard Procedure for FAA Review and Approval of Airport Layout Plans (ALPs)

The ALP Drawing Set for the Airport consists of a Title Sheet and 19 drawings as follows:

Sheet No.	Title
1	Existing Layout
2	Airport Layout Plan
3	Airport Data Tables

Sheet No.	Title
4	Terminal Area Plan
5	Airport Airspace Plan
6	Outer Airport Airspace Plan
7	Inner Approach Plan Existing Rwy 1
8	Inner Approach Plan Proposed Rwy 36
9	Inner Approach Plan Existing Rwy 19/Proposed Rwy 18
10	Inner Approach Plan Tables Existing Rwy 19/Proposed Rwy 18
11	Inner Approach Plan Existing Rwy 10/Proposed Rwy 9
12	Inner Approach Plan Existing Rwy 28/Proposed Rwy 27
13	Departure Surface Existing Rwy 1/Proposed Rwy 36
14	Departure Surfaces Tables Existing Rwy 1/Proposed Rwy 36
15	Departure Surface Existing Rwy 19/Proposed Rwy 18
16	Departure Surface Existing Rwy 10/Proposed Rwy 9
17	Departure Surface Existing Rwy 28/Proposed Rwy 27
18	Land Use Plan
19	Airport Environmental Inventory Map

The ALP Drawing Set is provided in **Appendix H**. Narrative descriptions of each of the drawings are provided below.

7.1.1. Title Sheet

The *Title Sheet* provides identifying information for the ALP Drawing Set. This information includes a drawing index listing each of the sheets within the set, as well as the specific FAA and consultant project numbers and information on the preparer of the document. Two maps are also placed on the title sheet to identify the location of the Airport within the context of the State of Maine (location map) and the area immediately adjacent to the Airport (vicinity map).

7.1.2. Existing Layout

The *Existing Layout* (Sheet 1) provides the current configuration and existing airport facilities at the Airport. Details shown include airport buildings, airport infrastructure, local roads and neighborhoods, property lines, and water bodies on or adjacent to the Airport. These details are based on aerial photography and photogrammetric mapping obtained in 2018.

This sheet serves as a base upon which development proposed within this Master Plan is placed. The current dimensions of the airside and landside facilities are depicted within the sheet, as well as the dimensions of applicable FAA safety and object free areas, protection zones, and other dimensions relevant to airport design. A title block and revisions table are also provided.

7.1.3. Airport Layout Plan

The *Airport Layout Plan* (Sheet 2) illustrates the recommended development at the Airport over the 20-year planning period. The ALP serves as the approved planning document for the Airport and is used by the FAA to allocate federal grant funding and to approve Passenger Facility Charge (PFC) collections for projects. As a result, this sheet is a key deliverable as part of the Master Plan.

Airside Improvements

The airside development presented on the ALP is derived from the recommended alternative selected in Chapter 6, *Alternatives*. The major airside alternatives address:

Runway Extension

The preferred alternative proposes a 470-foot runway extension to the Runway 1 (proposed Runway 36) end.

Runway Renumbering

To align with the magnetic declination of the Airport more accurately, both runways are proposed to be renumbered. Runway 1-19 will be renumbered as 18-36 and Runway 10-28 will be renumbered as 9-27.

Taxiway Modifications

The preferred alternative shows:

- An extension of Taxiway A to meet the standards of a full-length parallel taxiway to the extended proposed Runway 36 end.
- The removal of existing Taxiway E and the construction of a newly aligned Taxiway E.
- The straightening of Taxiway B.
- The removal of pavement to Taxiway C to meet standard fillets. It also shows the addition of a no-taxi island to prevent direct access from the existing Terminal Apron.
- The construction of a partial parallel taxiway to proposed Runway 27 from Taxiway A.

Land/Easement Acquisition

It is recommended that runway protection zones (RPZs) be under Airport control, preferably in fee simple interest acquisition. It is also recommended that any land with known obstructions is under Airport control via fee simple interest or avigation easement acquisition.

Terminal Improvements

In Chapter 5, *Facility Requirements*, an overall deficit of 10,000-15,000 square feet (SF) of terminal space was identified to meet 50 peak hour passenger requirements. The ALP depicts the construction of a new passenger terminal adjacent to the existing terminal building to accommodate the additional space as well as the need for updated facilities. This will also allow for the use of existing terminal building until the new terminal is built (for appropriate construction phasing) as well as to utilize some of the existing roadway and parking infrastructure.

General Aviation (GA) and Landside Improvements

Expansion of the ARFF/SRE/Maintenance Facility

In Chapter 5, *Facility Requirements*, the multipurpose building was shown to not meet minimum ARFF truck clearances as well as an overall SRE/maintenance space deficit of 15,500-16,600 SF.

Therefore, the multipurpose building is shown to be expanded on the ALP.

Research Park

The ALP shows a proposed research park off the proposed partial parallel taxiway to proposed Runway 9-27. This area is designated aviation use and is to be protected for aeronautical development.

Box Hangars

The ALP shows two sets of proposed box hangars of various sizes on the north side of the Airport. There are five smaller box hangars and three larger box hangars, all aligned with the existing individual unit hangars constructed by the Airport. Any hangar development will be constructed as need arises and the sizes may change, based on the need.

7.1.4. Airport Data Tables

The *Airport Data Tables* (Sheet 3) includes several tables that provide relevant information about the Airport as required by the FAA. These include wind coverage, airport data, runway data, modification to design standards (MOS), declared distances, and runway safety area determination tables. Data for both existing and proposed conditions are depicted in the airport data, runway data, declared distances, and runway safety area determination tables.

7.1.5. Terminal Area Plan

A *Terminal Area Plan* (Sheet 4) has been included at a scale to clearly illustrate all the changes that have been proposed within the terminal vicinity. Sheet 4 depicts an expanded view of the terminal area and provides a more detailed layout of the terminal development being proposed for this Master Plan. This includes the construction of a new passenger terminal, expansion of the terminal apron, expansion of the vehicle parking lot, expansion of the ARFF/SRE/maintenance facility, a fuel farm expansion, pavement removal, and the realignment of Taxiway B.

7.1.6. Airport Airspace Plans

Title 14 of the CFR, Part 77 (CFR Part 77), *Safe, Efficient Use, and Preservation of the Navigable Airspace*, regulates the airspace surrounding airports through the establishment of "Imaginary Surfaces," which include the primary, approach, transitional, horizontal, and conical surfaces.

The *Airport Airspace Plan* (Sheet 5) depicts the CFR Part 77 Imaginary Surfaces for the Airport directly adjacent to and above the Airport. The *Outer Airport Airspace Plan* (Sheet 6) shows the outer areas of the precision approach surface to existing Runway 1/proposed Runway 36, which extend out 50,200 feet from the end of the runway (50,000 feet from the end of the primary surface). The intent of the airport airspace plans is to identify obstructions to the outer portions of the CFR Part 77 surfaces.

The CFR Part 77 surfaces are shown over a United States Geological Survey (USGS) Topographic Map to orient the surfaces over the Airport and surrounding community. Additionally, an isometric view of the CFR Part 77 surfaces is shown to provide an understanding of what is being depicted in a three-dimensional view.

Based on the analysis of the CFR Part 77 surfaces identified on these sheets, ground, pole, tower, or tree penetration areas were identified within the conical, horizontal, proposed Runways 27 and 36 approach surfaces, and proposed Runway 36 outer approach surface. Potential obstructions to the inner approach surfaces are shown on the Inner Approach Surface Plans.

7.1.7. Inner Approach Plans

Multiple sheets were created to depict close-in obstructions to the existing and future 14 CFR Part 77 primary, approach, and transitional surfaces, as well as obstructions to the appropriate surfaces identified in FAA's Airport Design approach/departure standards (Engineering Brief 99A, *Changes to Tables 3-2 and 3-4 of Advisory Circular 150/5300-13A, Airport Design*). These surfaces are referred to on the sheets as Airport Design Approach Surfaces (ADAS). The sheets include both plan and profile views of the runway, the RPZs, and the various surfaces. A composite view of obstructions in the profile view illustrates the height of obstructions relative to the runway elevations. Obstructions to the various imaginary surfaces are identified with a symbol and a numeric identifier. These sheets do not show a comprehensive obstruction review but instead are filtered based on the scale of the sheets.

All runway ends are proposed to be renamed to more accurately reflect each runway's magnetic declination. The only runway end that is proposed to change is existing Runway1/proposed Runway 36. Sheet 7 shows the existing Runway 1 surfaces and Sheet 8 shows the proposed Runway 36 surfaces. Both sheets include tables of the shown obstructions. Sheet 9 shows the existing Runway 19/proposed Runway 18 surfaces and Sheet 10 provides the obstruction tables for the existing Runway 19/proposed Runway 18 surfaces. Sheet 11 shows the existing Runway 10/proposed Runway 9 surfaces while Sheet 12 shows the existing Runway 28/proposed Runway 27 surfaces. Both sheets include tables of the shown obstructions.

The obstruction tables referenced list the obstructions, elevation of the surface and object, and the how many feet of penetration (or near penetration indicated in negative numbers). A recommended action is also presented for each obstruction.

Analysis of the existing ADAS (threshold siting surfaces (TSS)) indicates that there are no obstructions to existing Runway 1 or proposed Runway 36 surfaces. There are also no ADAS obstructions to proposed Runways 9 or 27. There are ground obstructions to proposed Runway 18. There are trees within the proposed Runway 9 and Runway 18 TSS that should be monitored should they become a future obstruction (within ten feet of the surface).

CFR Part 77 surfaces are reporting surfaces and are not as critical as ADAS/TSS. The obstruction tables listed on Sheets 9 and 10 indicate that most existing CFR Part 77 obstructions for proposed Runway 36 are ground or tree obstructions. The obstruction tables on Sheets 11 and 12 indicate that most existing CFR Part 77 obstructions for proposed Runways 9 and 27 are trees. Vegetative obstructions should be removed where feasible. In instances where removal of vegetation obstructions may not be feasible, as well as for ground, poles, buildings, fences, railroad, and other identified obstructions, the installation of obstruction lights should be considered.

7.1.8. Departure Surface Plans

The development of plan sheets assessing ADAS #9 (departure surface) is considered optional and depicts departure surfaces associated with instrument departures. Sheet 13 depicts the close-in obstructions to the existing Runway 1 departure surface. Sheet 14 provides tables listing the obstructions to existing Runway 1. Sheets 15 through 17 depict close-in obstructions to the departure surface for both the existing Runway 19, 10, and 28 respectively. Obstructions identified within the departure surfaces affect departure minimums. Objects within the surface should be removed, if possible, to maintain the lowest possible departure minimums and to remove potential hazards to pilots departing the airport. Existing departure procedures take into considering the existing obstructions.

Obstructions to the departure surface can be addressed in two ways at the Airport per FAA guidelines. If an obstacle cannot be removed, non-standard climb rates and/or non-standard departure minimums can be established to mitigate the potential hazard these obstacles pose to aircraft. All obstacles to the departure surfaces for each runway end are identified within the tables on the plan, including the type of obstruction, the elevation of the object, the elevation of the surface, the level of penetration, and the proposed action. There were no obstructions identified to existing Runway 19 departure. Obstructions identified to the existing departure surface to Runway 10-28 are primarily trees, with additional penetrations of a powerline, building, fence, and railroad tracks. Obstructions identified to the existing and proposed departure surface to Runway 1 are primarily ground/terrain and trees, with additional penetrations in the forms of roads, fences, powerlines, buildings, and poles. There have been ongoing efforts by the Airport to remove obstructions to all runway ends.

7.1.9. Land Use Plan

The *Land Use Plan* (Sheet 18) provides general guidance for future land development on and adjacent to Airport property. Existing land uses, such as residential, commercial, and industrial uses are shown.

Since aircraft noise is a major factor influencing land use compatibility, FAA's Aviation Environmental Design Tool (AEDT) was used to anticipate noise levels in the year 2038 based upon the forecasted activity of 7,052 annual operations.

The AEDT estimates aircraft noise levels (in decibels – dB) at ground level. Noise levels were quantified according to the A-weighted scale (which approximates the range of human hearing) using the Day-Night Average Noise Level (DNL). A DNL of 65 dB is considered by the FAA to be the threshold of impact for noise sensitive areas. The AEDT output includes noise contours, which are lines of equal loudness, with higher levels centered on the runway and quieter levels expanding outward.

As shown on Sheet 18, the proposed 65 dB noise contours do not extend off airport property. None of the 65 dB noise contours encroach upon land uses that would be identified as noise sensitive and non-compatible by the FAA, such as residences, places of worship, schools, and parks.

In addition to land use, this sheet also identifies properties within the existing and future RPZs. Both proposed Runways 18 and 36 RPZs are contained within Airport property. Proposed Runways 9 and 27 RPZs include portions of parcels that extend beyond the current boundary of the Airport. There are currently no easements in place for portions of the RPZs off the proposed Runway 9 and 27 ends. While some land uses within the RPZs are compatible, there are also non-compatible land uses, primarily in the form of residential properties. Guidance included within FAA Memorandum *Interim Guidance on Land Uses Within a Runway Protection Zone* notes that residential land uses are not considered compatible within an RPZ. It is recommended that the airport pursue the voluntary easement or fee simple acquisition of these properties, on a willing seller basis. A table is included listing the parcels to be acquired as part of an RPZ control plan and the single parcel where no action is required.

7.1.10. Airport Environmental Inventory Map

The *Airport Environmental Inventory Map* (Sheet 19) identifies the current environmental considerations on the Airport which includes, but is not limited to, wetlands, aquifers, and flood hazard zones. More details of environmental considerations can be found in Chapter 4, *Environmental Overview*.

7.2. PROJECT PHASING AND CAPITAL IMPROVEMENT PLAN

The phasing plan presents a phased implementation of 20-year planning projects identified on the ALP as well as other major projects, such as design, pavement maintenance projects, and environmental projects. Because funding for Fiscal Year (FY) 2022 has already been allocated, the projects shown in the CIP begin with FY 2023 projects. The Phasing Plan has been divided into three phases as follows:

- Phase I covers the short-term airport growth (2023 to 2027)
- Phase II covers the medium-term airport growth (2028 to 2032)
- Phase III covers the long-term airport growth (2033 to 2042)

CIP Phase I projects include:

- **Runway 1-19 Rehabilitation**: Runway 1-19 4" pavement removal and new pavement (rehabilitation), groove, renumber to Runway 18-36, and replace all signs and hold sign markings
- **Environmental Assessment**: EA for terminal development and land acquisition
- **Terminal Area Development**: New terminal building, apron, and vehicle parking construction including Taxiway C fillet removal
- **Maintenance/SRE/ARFF Building Expansion:** To meet the deficit of 15,500-16,600 SF
- **Parcel Acquisition:** Parcels in fee simple acquisition or easements
- **Partial Parallel Taxiway**: Construction of an approximately 2,321-foot partial parallel taxiway with a connector taxiway to proposed Runway 10-28
- **Crack Sealing and Pavement Markings**: Annual maintenance of crack sealing and new pavement markings to both runways and ramps
- **GA Apron Mill and Inlay:** Mill and inlay of an approximately 30,000 SF portion of the GA apron located in front of the existing corporate hangars on the northwest corner of the apron

CIP Phase II projects include:

- **New Taxiway E Construction**: New Taxiway E construction (removal and reconstruction)
- **Runway 36 Extension**: Runway 36 and Taxiway A extension and Runway 36 precision approach path indicator (PAPI) relocation
- **Parcel Acquisition**: Parcels in fee simple acquisition or easements
- **Crack Sealing and Pavement Markings**: Annual maintenance of crack sealing and new pavement markings to both runways and ramps
- **Taxiway A Reclaim Pt. 1**: Taxiway A (middle section) reclaim
- **Runway 10-28 Reclaim**: Runway 10-28 reclaim, renumber to Runway 9-27, and replace all signs and hold sign markings
- **Taxiway C Reconstruction**: Taxiway C (east section) reconstruction
- **Taxiway A Reclaim Pt. 2**: Taxiway A (south section) reclaim

CIP Phase III projects include:

- **Runway 18-36 Rehabilitation/Reconstruction**
- **Utah Street**: Realign Utah Street (or MOS)
- **Parcel Acquisition**: Parcels in fee simple
- **Crack Sealing and Pavement Markings**: Annual maintenance of crack sealing and new pavement markings to both runways and ramps
- **Runway 9-27 Reclaim**
- **Taxiway A Reclaim Pt. 3**: Taxiway A (north section) reclaim
- **Taxiway B Reclaim**: Taxiway B reclaim and straightening (or MOS)
- **New GA Apron Mill and Inlay/Reconstruction**: Mill and inlay/reconstruction of the approximately 290,000 SF portion of the GA apron that was constructed in 2020
- **Taxiway C Reclaim:** Taxiway C (west section) reclaim

Table 7-1 presents the proposed phasing of projects of the 20-year planning period. Projects were phased to prioritize addressing immediate needs in Phase I. The phasing plan may change if forecasted demand changes. If aviation demand is less than forecasted, then demand-based projects may be deferred to a later date. However, should demand increase, these projects would be moved to an earlier timeframe. The phasing plan may also be altered if federal, State, or local funds are not available.

Table 7-1: PQI Capital Improvement Plan

Project	Total	Federal	State	Local
Phase I Projects				
Runway 1-19 Rehabilitation	$14,400,000	$13,680,000	$360,000	$360,000
Environmental Assessment	$1,000,000	$950,000	$25,000	$25,000
Terminal Area Development[1]	$17,500,000	$9,975,000	$262,500	$7,262,500
Maintenance/SRE/ARFF Building Expansion	$4,900,000	$4,655,000	$122,500	$122,500
Parcel Acquisition	$591,155	$561,927	$14,779	$14,779
Partial Parallel Taxiway	$5,600,000	$5,320,000	$140,000	$140,000

Project	Total	Federal	State	Local
Crack Sealing and Pavement Markings[2]	$1,500,000	$1,425,000	$37,500	$37,500
GA Apron Mill and Inlay	$270,000	$256,500	$6,750	$6,750
Phase I Project Costs	**$45,761,155**	**$36,823,097**	**$969,029**	**$7,969,029**
Phase II Projects				
New Taxiway E Construction	$9,300,000	$8,835,000	$232,500	$232,500
Runway 36 Extension	$3,700,000	$3,515,000	$92,500	$92,500
Parcel Acquisition	$154,500	$146,775	$3,863	$3,862
Crack Sealing and Pavement Markings[2]	$1,500,000	$1,425,000	$37,500	$37,500
Taxiway A Reclaim Pt. 1	$2,200,000	$2,090,000	$55,000	$55,000
Runway 10-28 Reclaim	$8,100,000	$7,695,000	$202,500	$202,500
Taxiway C Reconstruction	$1,100,000	$1,045,000	$27,500	$27,500
Taxiway A Reclaim Pt. 2	$1,700,000	$1,615,000	$42,500	$42,500
Phase II Project Costs	**$27,754,500**	**$26,366,775**	**$693,863**	**$693,862**
Phase III Projects				
Runway 18-36 Rehabilitation/Reconstruction	$14,400,000	$13,680,000	$360,000	$360,000
Utah Street[3]	$435,000	$413,250	$10,875	$10,875
Parcel Acquisition	$972,000	$923,400	$24,300	$24,300
Crack Sealing and Pavement Markings[2]	$3,000,000	$2,850,000	$75,000	$75,000
Runway 9-27 Reclaim	$8,100,000	$7,695,000	$202,500	$202,500
Taxiway A Reclaim Pt. 3	$3,700,000	$3,515,000	$92,500	$92,500
Taxiway B Reclaim	$1,500,000	$1,425,000	$37,500	$37,500
New GA Apron Mill and Inlay/Reconstruction	$2,600,000	$2,470,000	$65,000	$65,000
Taxiway C Reclaim	$300,000	$285,000	$7,500	$7,500
Phase III Project Costs	**$34,572,000**	**$32,843,400**	**$864,300**	**$864,300**

[1] Federal funding for this project was provided through the Bipartisan Infrastructure Law (BIL)
[2] Includes $300,000 for each year.
[3] If it is determined that Utah Street will not be relocated, an MOS will be sought.
Sources: PQI Airport Management, 2022 and Stantec analysis, 2022.

Obstruction removal was not included in cost estimates. However, obstruction removal, which will take place in each phase, is needed for Runway 19 (proposed Runway 18) approach improvements. The following next steps should be taken:

- Coordinate with landowners (if easement/off airport property),
- Remove obstructions (trees and Dennett Hill),
- Confirm obstruction removal through survey,

- Update the obstruction data in the FAA Airport Data and Information Portal (ADIP) system,
- Complete 18B survey, if necessary, and
- Coordinate with FAA to re-certify the approach, if necessary, and update publications.

Table 7-2 identifies projects not identified on the CIP that could be added should demand warrant.

Table 7-2: As Demand Warrants Projects

Project	Total Cost
Build Northside Hangars	$1,300,000
Extend Partial Parallel Taxiway to Runway 27 End	$6,100,000
Build Full Research Facility Apron	$20,600,000
Build Additional Research Facility Hangars/Buildings	Privately Funded
Relocate Runway 18 PAPI Control Box	TBD
Relocate Runway 27 PAPI Control Box	TBD

Sources: PQI Airport Management, 2022 and Stantec analysis, 2022.

Phase I, II, and III projects (except for pavement maintenance and obstruction removal) are shown in **Figure 7-1**, **Figure 7-2**, and **Figure 7-3**, respectively. As demand warrants projects can be seen on all three phasing figures.

7.3. SOURCES OF FUNDING AND PROJECT ELIGIBILITY

To cover project costs as well as the local share, the Airport has several ways to fund projects. These methods include FAA grant funding, MaineDOT grant funding, local funding, and other funding options. These funding channels are summarized in the following sections.

7.3.1. FAA Grant Funding

For public-use facilities like PQI, the FAA Airport Improvement Program (AIP) provides up to 95 percent of the funding for public, non-revenue generating elements of airports such as runways, taxiways, aprons, and lighting, as well as necessary planning and environmental studies. The remaining five percent is typically split between the Sponsor and MaineDOT. FAA funding available for the Airport's CIP is comprised of:

- **Entitlement Funds:** The Airport receives entitlement funding from the FAA based on the number of passengers that are enplaned at the Airport annually but maintains a floor of $150,000. Entitlement funding is applied to projects eligible for federal funding and is dedicated towards the highest priority project on the Airport's CIP, as determined by the FAA's National Priority Ranking (NPR) for AIP projects.

- **Discretionary Funds:** Funding above the entitlement amount is then obtained from the FAA through discretionary funding. It should be noted that discretionary funding is competitive and HYA competes for these funds nationally as well as with regional airports.

- **Other Funds:** Other funding sources may be available on a one-off basis. These have most recently included CARES (Coronavirus Aid, Relief, and Economic Security) Act, CRRSAA

Figure 7-1: PQI Phase I Projects

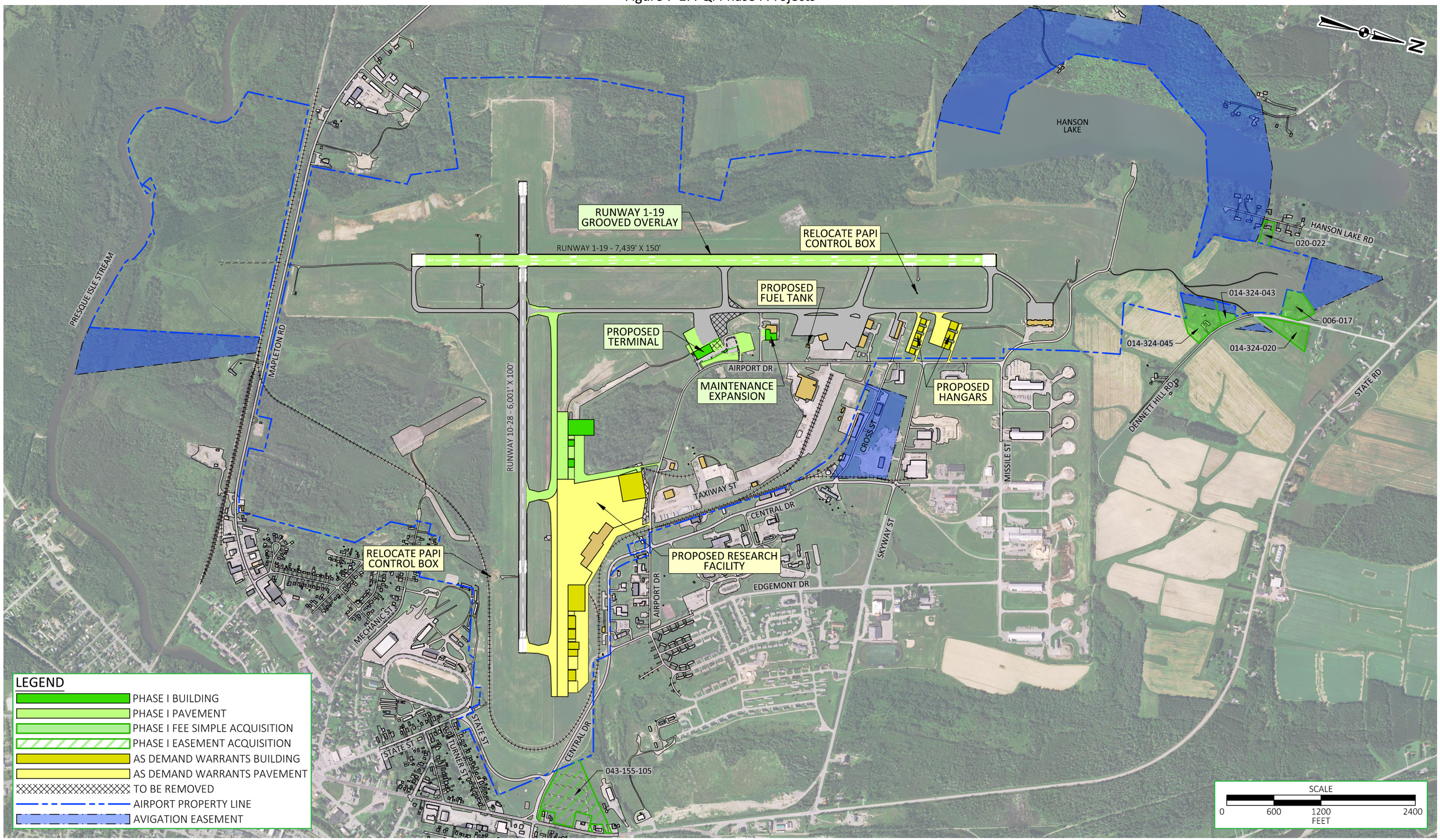

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Figure 7-2: PQI Phase II Projects

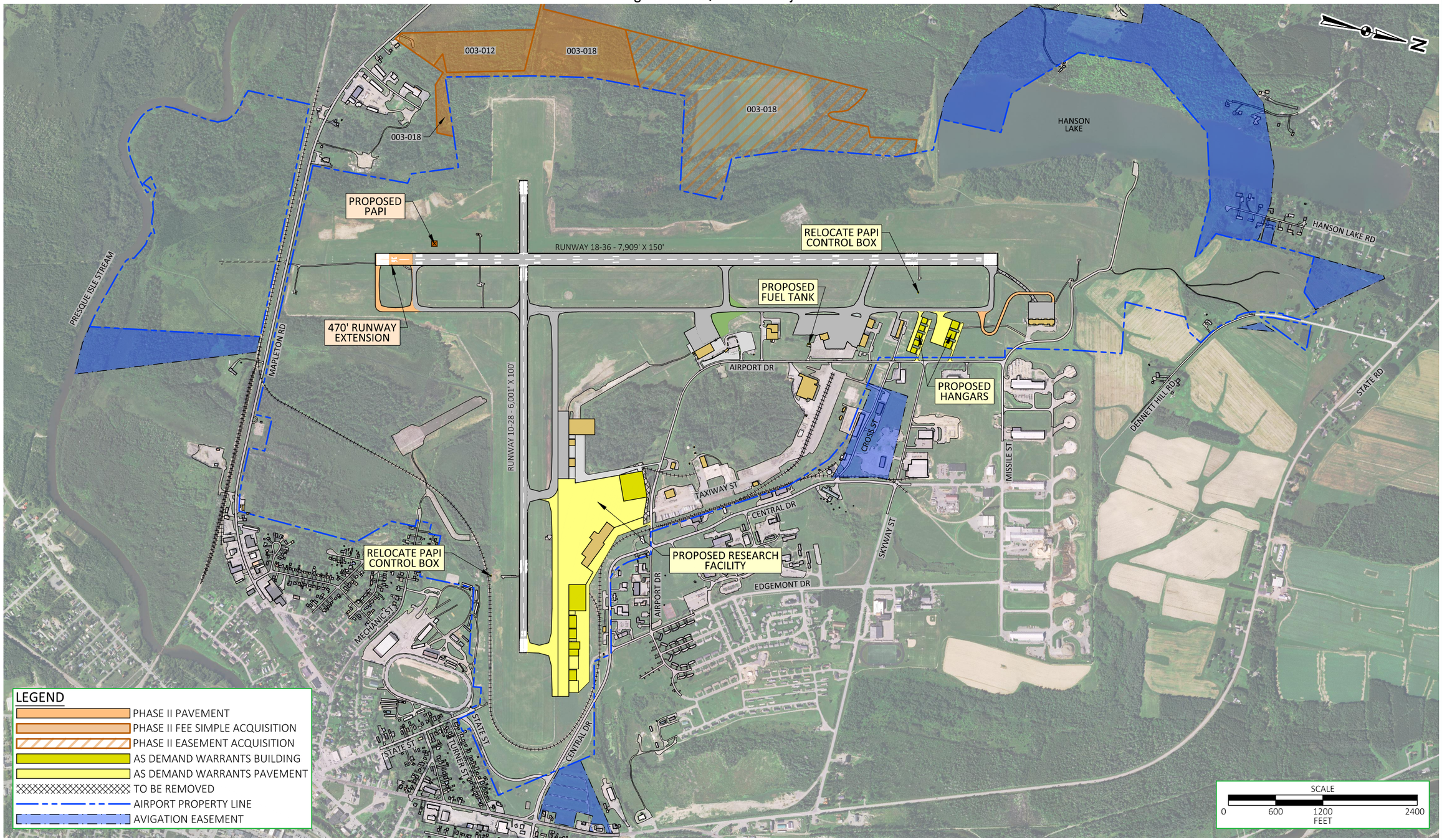

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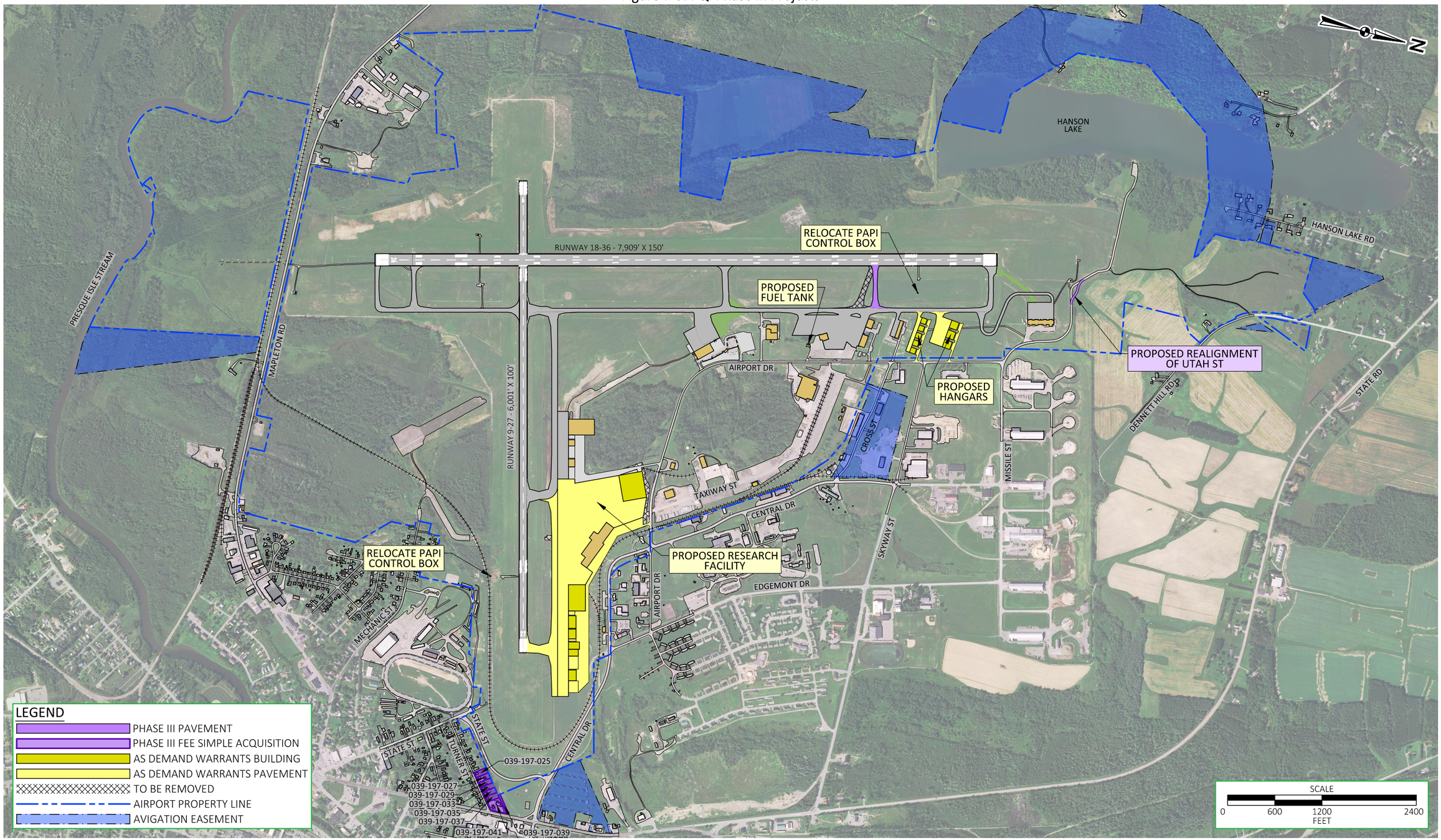
Figure 7-3: PQI Phase III Projects



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(Coronavirus Response and Relief Supplemental Appropriations Act), and Bipartisan Infrastructure Law (BIL) funding. Since these are inconsistent, they were not included in the analysis.

7.3.2. MaineDOT Grant Funding

As stated above, MaineDOT typically funds half (2.5 percent) of the sponsor's local share of AIP funded projects. In addition, MaineDOT will fund non-AIP eligible projects on a case-by-case basis.

7.3.3. Local Funding Options

The local share for federally funded projects at the Airport is 2.5 percent. The Airport has several options to fund its local share, which are summarized in this section.

Passenger Facility Charges (PFCs)

With oversight from the FAA, the Airport has the authority to impose PFCs up to the nationwide maximum of $4.50 for each passenger enplaning at the Airport. PFCs are collected by the air carriers on behalf of the Airport and are remitted monthly. The Airport has been utilizing PFCs since 2004, with a current program in place through August 1, 2029, at the current FAA-approved level of $4.50 per enplanement. Approved collections for all approved PFC applications at the Airport total $1,053,437. PFC collections for 2018 through 2021 are shown in **Table 7-3**.

Table 7-3: PQI PFC Collections

Year	Collections
2018[1]	$20,840.39
2019[1]	$49,836.37
2020[2]	$21,025.88
2021	$49,612.77

[1] No PFCs were collected from June 2018 through January 2019.
[2] PQI saw decreases in PFC collections in 2020 in the wake of COVID-19.
Source: PQI Airport Management, 2022.

PFCs can be utilized on projects that are considered AIP eligible, as well as for additional improvements to the passenger terminal. A summary of eligible uses of PFC revenues include:

- All or part of the allowable cost of an FAA approved project,
- Debt service and financing costs associated with bond issuance, and
- Combined with AIP and Aviation Capital Grants on eligible projects as the local match to reach 100 percent funding.

To be considered eligible for PFC funding, projects must meet certain criteria and address one or more of the following:

- Preserve or enhance safety, security, or capacity of the national air transportation system;
- Reduce noise or mitigate noise impacts resulting from an airport; and/or
- Present opportunities to enhance competition between or among air carriers.

Use of PFC collections is restricted to projects identified in the PFC application and approved by the FAA. To fund new projects added to the Airport's CIP from this Master Plan, the existing PFC program at the Airport can be amended or extended by following the FAA PFC program procedures.

Airport Operating Revenues

The Airport has the option to utilize any surplus operating income or general fund or other City sources to fund airport improvements. Typically, operating cash is first used for the sponsor share of AIP-eligible projects. However, a balanced approach of utilizing cash and financing might help bridge project funding gaps where federal, State, and/or PFC revenue may not be eligible.

Private Funding

There are several projects identified in the section labeled "As Demand Warrants" of the Airport's CIP that are most appropriately funded by private interests, such as GA hangar development. These types of projects are most appropriate for private funding because airports are not often positioned to spend limited public resources on speculative projects.

However, in some instances project funding can be mobilized more quickly by partnering with private interests to advocate for state tax incentives or job creation tax credits if the projects are of a substantial scale and scope. In this way, the Airport can partner with private interests to broker development deals that will benefit the Airport over the long term by increasing operations, utilization of other on-airport maintenance and service providers, and fuel sales.

Public Financing Programs or Bonds

For large projects that are not eligible for federal or State funding, but may have widespread local public impact and interest, airports frequently utilize federal financing programs or capital market bonds to finance long-term construction projects.

The Transportation Infrastructure Finance and Innovation Act (TIFIA) program provides credit assistance for up to 33 percent of the eligible cost of qualified projects of regional or national significance. This funding source can be used if private funding for projects is not available. There are three types of credit assistance offered through the program:

- Secured (Direct) Loan: Offers flexible repayment terms for a maximum term of 35 years following project completion.
- Loan Guarantee: Provides federally backed guarantees of a borrower's repayments to a non-federal lender.
- Standby Line of Credit: Represents a contingent federal loan as a secondary source of funding during the first ten years of project operations after the project completion.

There are four basic types of municipal bonds available to the Airport: general obligation (GO) bonds, general airport revenue bonds (GARB), PFC-backed bonds, and special facility bonds. A summary of these bonds is as follows:

- **GO Bonds:** Supported by the overall tax base of the issuing entity (the airport sponsor), GO bonds often carry the lowest interest rate.

- **GARB:** Repaid by the revenues generated by the airport, or other revenues as defined in the bond indenture, GARBs are the most common form of airport debt.

- **PFC-Backed Bonds:** Either stand-alone or "double-barrel", PFC-backed bonds are backed solely by PFC revenues or by PFC revenues and other airport revenues generated by rentals, fees, and charges. General airport revenues can be pledged as a backup ("double-barrel") if enplanement activity decreases, and PFC revenues do not meet the obligation.

- **Special Facility Bonds:** Special facility bonds are used to construct a terminal or facility for a named airline and are backed by lease payments which are structured to cover debt service to the bonds.

7.3.4. Other Funding Options

Additional funding options that could be considered include (but are not limited to):

- **U.S. Economic Development Administration (EDA)**: EDA grants are continuously changing. For the most current information on grant availability, measurements and evaluations, and application details, see: Latest EDA Grants | U.S. Economic Development Administration.

- **Maine Department of Economic and Community Development (DECD)**: Similar to EDA grants, DECD grants continuously evolve. For the most current information, visit: Maine Economic Recovery Grants | Department of Economic and Community Development.

- **Northern Borders Regional Commission (NBRC)**: NBRC can invest in economic and infrastructure projects in Northern Maine, depending on level of economic and demographic distress in each county and projects can be eligible for up to an 80 percent matching grant. Details can be found here: Northern Border Regional Commission (nbrc.gov).

- **U.S. Department of Agriculture (USDA)**: Various USDA grants and loans are available for development within rural communities. For the most current information, visit: https://www.usda.gov/topics/farming/grants-and-loans.

7.4. AIRPORT FINANCIAL ANALYSIS

This section describes and summarizes information and analysis related to the financial performance of the Airport and is presented in the following sections:

- Airport governance and business policies
- Historical operating revenues and expenses
- Forecast of baseline airport operating financial performance
- Summary financial analysis

7.4.1. Airport Governance and Business Policies

Presque Isle International Airport is owned and operated by the City of Presque Isle.

Presque Isle Industrial Council Agreement

The City of Presque Isle, the owner of the Airport, has a working, informal agreement with the Presque Isle Industrial Council (PIIC). The informal agreement between the City and the PIIC is for the PIIC to serve as the property manager and provide maintenance for certain Airport premises for the City. In return, the PIIC collects a prorated portion of the rents owed through land and building leases. The City and PIIC are in the process of formalizing this agreement.

Airline Agreements

As of April 2022, the Airport only has one airline; United Airlines operated by Commute Air. United operates under an essential air service (EAS) agreement. They are the sole user of the ticket counter, baggage screening area, and secure holdroom.

7.4.2. Historical Operating Revenues and Expenses

Historical revenue and expense statements for the Airport was provided by Airport management for the 2018-2021 FY period. This information gives some indication of trends that can be useful for forecasting future financial performance. **Table 7-4** shows the historical operating revenues and expenses from 2018 to 2021.

Table 7-4: PQI Historical Operating Revenues and Expenses

Category	2018	2019	2020[1]	2021[1]	CAGR[2]
Operating Revenues					
Terminal Rentals	$104,925	$119,472	$127,832	$140,778	10.3%
Landing Fees	$506,692	$571,233	$755,600	$915,745	21.8%
Concessionaire Fee	$32,950	$45,928	$28,447	$37,138	4.1%
Hangar Rentals	$21,242	$61,358	$23,503	$42,426	25.9%
Airport Parking Fees	$47,767	$65,410	$23,883	$33,208	-11.4%
Vending/Phone	$479	$296	$66	$9	-73.4%
Miscellaneous Fees	$27,800	$26,747	$25,007	$30,423	3.1%
General Aviation	$1,493,219	$1,709,546	$1,030,715	$1,963,540	9.6%
Total Operating Revenues	**$2,235,074**	**$2,599,989**	**$2,015,052**	**$3,163,267**	**12.3%**
Operating Expenses					
Wages	$467,630	$522,949	$607,132	$646,715	11.4%
Employee Benefits	$232,263	$256,226	$189,251	$200,145	-4.8%
Employee Costs	$18,605	$21,007	$15,017	$18,383	-0.4%
Departmental Expenses	$12,406	$15,167	$9,959	$18,633	14.5%
Utilities	$139,066	$136,372	$126,992	$124,749	-3.6%
Supplies/Equipment	$1,228,453	$1,467,278	$840,812	$1,700,198	11.4%
Repairs/Maintenance	$148,357	$317,114	$345,929	$303,542	27.0%

Category	2018	2019	2020[1]	2021[1]	CAGR[2]
Contracted Services	$ (2,482)	$(83)	$20,749	$36,552	N/A[3]
Insurance	$29,466	$39,917	$34,502	$38,053	8.9%
Debt Service	$0	$6,579	$15,789	$15,789	N/A[3]
Admin Expense to the City	$30,000	$33,000	$34,650	$36,383	6.6%
Legal	$0	$0	$0	$0	0%
Total Operating Expenses	**$2,303,764**	**$2,815,524**	**$2,240,781**	**$3,139,143**	10.9%
Net Operating Income/(Loss)	**$(68,690)**	**$(215,535)**	**$(225,728)**	**$24,124**	N/A[3]
Total Net Operating Income/(Loss) 2018-2021				**$(485,830)**	

[1] COVID-19 Relief Funding is not included
[2] CAGR – Compound Annual Growth Rate
[3] N/A – Not Applicable; CAGR cannot be calculated.
Source: PQI Airport Management, 2022.

As shown in **Table 7-4**, the Airport had a net operating deficit each year except for 2021, which showed a positive net operating income of $24,124. Cumulative net operating income from 2018-2021 showed a loss of $485,830 for the 4-year period.

7.4.3. Forecast of Baseline Airport Operating Financial Performance

When developing the baseline forecast of Airport operating financial performance, historical performance as well as anticipated recovery from the effects of the COVID-19 pandemic and inflation rates were taken into consideration.

The baseline forecast assumes that the financial performance of the Airport continues similar to the previous 4-year (2018-2021) period, where revenue growth outpaced expenses by an average annual rate of 1.5 percent. To be conservative, the baseline forecast incorporates similar growth rates for both revenues and expenses around 5.4 percent annually, which keeps the overall net income similar to that budgeted for 2022. The Airport's 2022 budget shows a modest decline from 2021; however, expenses are being controlled such that the anticipated dip in revenues has less of an impact. Continued monitoring of operating expenses and revenue generation strategies can have a positive impact on the financial performance for the near and mid-term period.

Table 7-5 presents a baseline forecast of revenues and expenses for the 5-year period 2023-2027.

Table 7-5: Forecast of Baseline Operating Revenues and Expenses

Category	2023	2024	2025	2026	2027
Operating Revenues					
Terminal Rentals	$152,214	$158,303	$164,635	$171,220	$178,069
Landing Fees	$1,004,451	$1,049,651	$1,096,885	$1,146,245	$1,197,826
Concessionaire Fees	$48,569	$51,483	$54,572	$57,847	$61,317
Hangar Rentals	$42,954	$44,887	$46,906	$49,017	$51,223
Airport Parking Fees	$53,000	$56,180	$59,551	$63,124	$66,911

Category	2023	2024	2025	2026	2027
Vending/Phone	$300	$300	$300	$300	$300
Miscellaneous Fees	$30,750	$31,519	$32,307	$33,114	$33,942
General Aviation	$1,812,119	$1,920,846	$2,036,097	$2,158,262	$2,287,758
Total Operating Revenues	**$3,144,357**	**$3,313,169**	**$3,491,254**	**$3,679,130**	**$3,877,348**
Operating Expenses					
Wages	$822,230	$867,453	$915,162	$965,496	$1,018,599
Employee Benefits	$262,229	$275,341	$289,108	$303,563	$318,741
Employee Costs	$20,433	$21,352	$22,313	$23,317	$24,367
Departmental Expenses	$12,524	$13,338	$14,205	$15,129	$16,112
Utilities	$129,088	$132,960	$136,949	$141,058	$145,290
Supplies/Equipment	$1,403,940	$1,481,157	$1,562,621	$1,648,565	$1,739,236
Repairs/Maintenance	$308,534	$328,588	$349,946	$372,693	$396,918
Contracted Services	$33,475	$34,479	$35,514	$36,579	$37,676
Insurance	$39,750	$42,135	$44,663	$47,343	$50,183
Debt Services	$16,263	$16,751	$17,253	$17,771	$18,304
Admin Expense to the City	$40,112	$42,118	$44,224	$46,435	$48,757
Legal	$200	$200	$200	$200	$200
Total Operating Expenses	**$3,088,778**	**$3,255,872**	**$3,432,159**	**$3,618,148**	**$3,814,382**
Net Operating Income/(Loss)	**$55,579**	**$57,297**	**$59,095**	**$60,982**	**$62,966**

Source: McFarland Johnson analysis, 2022.

As indicated, the baseline forecast anticipates modest annual net income over the coming 5-year period, ranging from about $55,000 to nearly $63,000 and producing a cumulative positive revenue of nearly $296,000.

7.4.4. Summary Financial Analysis

The purpose of the financial analysis is to determine the Airport's ability to fund the local share of projects in the short-term. Cost estimates were gathered for each project and broken up based on the anticipated share of the project between FAA (including BIL), State, and local funds. A summary of CIP costs is shown in **Table 7-6**.

Table 7-6: Summary of CIP and Local Share Costs

Period	Funding Sources			
	Total	FAA	State	Local
Total Phase I	$45,761,155	$36,823,097	$969,029	$7,969,029
Total Phase II	$27,754,500	$26,366,775	$693,863	$693,862
Total Phase III	$35,007,000	$33,256,650	$875,175	$875,175
Total 20-Year Costs	$108,522,655	$96,446,522	$2,538,067	$9,538,066

Source: McFarland Johnson analysis, 2022.

As shown, the funding required to implement the CIP over the next 20 years is approximately $109 million. When divided between FAA (including BIL), State, and local funding, the local share for the 20-year period is about $9.5 million, including about $8.0 million coming in Phase I (next five years).

Considering the Airport's recent financial performance summarized in **Table 7-4** (cumulative net deficit of about $486,000 for the 2018-2022 period) funding the local share of the ACIP will require additional cash, funding partners, or financing. **Table 7-7** presents a summary of the baseline forecast, which does anticipate a positive net income for 2023 to 2027 period of about $296,000.

Table 7-7: Short-Term Financial Performance Forecast

Category	2023	2024	2025	2026	2027
Operating Revenues	$3,144,357	$3,313,169	$3,491,254	$3,679,130	$3,877,348
Operating Expenses	$3,088,778	$3,255,872	$3,432,159	$3,618,148	$3,814,382
Net Operating Income/(Loss)	$55,579	$57,297	$59,095	$60,982	$62,966
				Net Operating Income 2023-2027	$295,918

Source: McFarland Johnson analysis, 2022.

This net income will help with the short-term projects, however continued implementation into Phase II will require additional funding. As shown in **Table 7-6**, the total Phase I and Phase II local funding need is about $8.7 million.

To begin implementation of Phase I projects and prepare for continuation into Phase II, the Airport will need to identify additional funding sources. **Table 7-8** presents the average annual funding need to implement Phase I projects beginning in 2027 along with additional funding required in reserve to meet Phase II project needs to begin Phase II in 2028.

Table 7-8: Short-Term Average Annual Local Share Funding Needs

Category	2023	2024	2025	2026	2027
Short-Term Funding Need	$1,593,806	$1,593,806	$1,593,806	$1,593,806	$1,593,806
Annual Reserve for Mid-Term	$138,773	$138,773	$138,773	$138,773	$138,773
Total Annual Need	$1,732,579	$1,732,579	$1,732,579	$1,732,579	$1,732,579

Source: McFarland Johnson analysis, 2022.

As shown, an average of approximately $1.7 million per year is required to meet annual local share funding needs to implement the CIP and reserve funds for the 2023-2032 period.

As described, baseline net direct operating income is anticipated to add up to about $296,000 for the 2023-2027 period. The local funding needs to implement the CIP is about $8.0 million for the short-term and about $8.7 million for the short- and mid-term combined local share. This indicates that a funding gap exists of about $7.7 million in the short-term and about $8.4 million including the mid-term/Phase II projects.

7.5. PUBLIC PARTICIPATION PROCESS

The ALP Drawing Set, Project Phasing Plan, and CIP are the culmination of a planning process that was designed to permit comment from interested parties. The planning process included Technical Advisory Committee (TAC) and public meetings held at key stages in the planning process. A series of interim reports, documenting the various stages of the planning process, were presented to the TAC for their review/comment. Public meeting details were advertised to the public through Facebook as well as a press release issued by the local newspapers. However, there were no attendees.

Copies of the presentations provided at each of the meetings, along with copies of the sign-in/attendance sheets, are provided in Appendix I.

The meetings were held on the following dates:

- TAC Meeting No. 1 December 4, 2019
- TAC Meeting No. 2 November 3, 2020
- Public Meeting November 3, 2020
- Final TAC Meeting February 16, 2022

PRESQUE ISLE
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Appendix A

Pavement Management Plan

McFarland Johnson

Stantec

A. Pavement Management Plan

A.1. INTRODUCTION

A.1.1. Project Description and Scope of Work

McFarland-Johnson, Inc. (Subconsultant) was retained by the **City of Presque Isle, Maine,** and the **Presque Isle International Airport (PQI or Airport)** to provide planning and engineering services and to complete pavement inspection and the Pavement Management Plan (PMP).

The PMP will aid the Airport in project planning and securing grants and funding for the overall maintenance and rehabilitation (M&R) of its airfield pavement. A list of abbreviations is provided in **Table A-1.**

All work performed as part of this PMP has been performed in accordance with:

- Federal Aviation Administration (FAA) Advisory Circular 150/5380-7B, *Airport Pavement Management Program*
- FAA Advisory Circular 150/5380-6C, *Guidelines and Procedures for Maintenance of Airport Pavements*
- *American Society for Testing and Materials (ASTM) D5340-12 Standard Test Method for Airport Pavement Condition Index Surveys*
- *ASTM D6690-15 Standard Specification for Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt Pavements*

Table A-1: List of Acronyms

List of Acronyms			
AC	Asphalt Concrete	N	North
AIP	Airport Improvement Program	PCC	Portland Cement Concrete
APMS	Airfield Pavement Management Study	PCI	Pavement Condition Index
ASR	Alkali Silica Reaction	PCN	Pavement Classification Number
ASTM	American Society for Testing and Materials	PDF	Portable Document Format
CIP	Capital Improvement Program	PFC	Passenger Facility Charge
DOT	Department of Transportation	PMP	Pavement Management Plan
FAA	Federal Aviation Administration	PQI	Presque Isle International Airport
GA	General Aviation	RW	Runway
GPS	Global Positioning System	SF	Square Feet
M&R	Maintenance and Rehabilitation	TW	Taxiway
MSL	Minimum Service Level		

Source: McFarland Johnson, 2020.

To complete the PMP, the following services were performed by the Subconsultant:

- Reviewed existing record plans to develop pavement histories
- Defined the pavement network and calculated sample units based on project history and record documents
- Conducted an airfield pavement condition survey to visually assess the condition of all airfield pavement and document pavement distress types, severities, and quantities
- Evaluated the results of the visual assessment and documented distresses to assign a Pavement Condition Index (PCI) value for each section and branch of pavement using PAVER software
- Performed analyses of distress data and deterioration rates to develop a maintenance plan, 5-year near-term Capital Improvement Program (CIP), and a 20-year long-term CIP including estimated project costs

A.1.2. Deliverables

The following deliverables are included in the project scope:

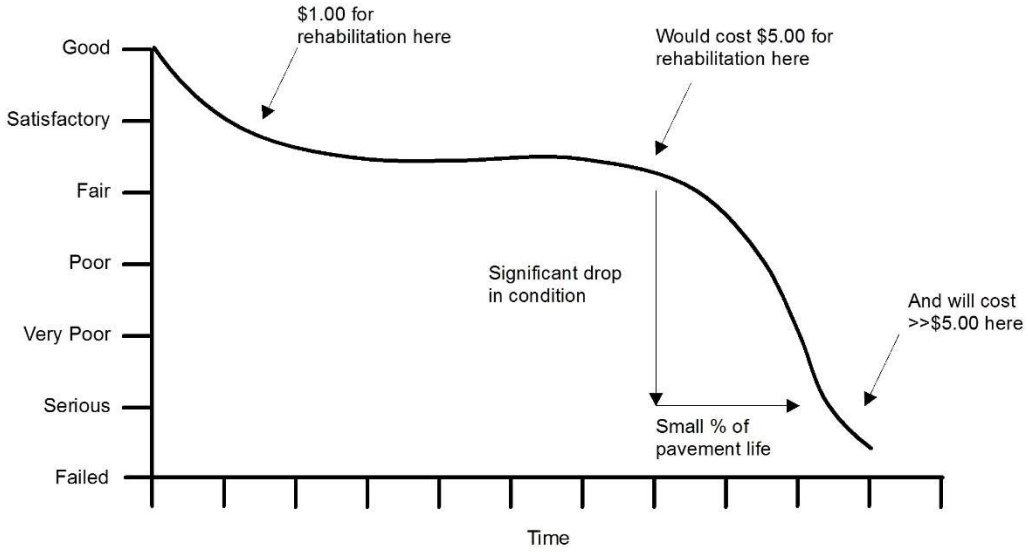
- Color-coded PCI map of all airfield pavements
- Basic reference plan of airfield pavement showing branch, section, and sample unit boundaries including inspected sample units
- Electronic base mapping for PQI showing pavement locations and boundaries used in the PMP, which includes the PCI calculations and analysis, deterioration rate and its effect on the PCI, and basic M&R techniques
- 5-year near-term CIP
- 20-year long-term CIP
- Pavement Classification Numbers (PCNs)
- Technical report which summarizes the above data and includes PCI maps along with inspection photographs, descriptions of pavement distresses, and definitions of repair methods and strategies

A.1.3. Purpose

The FAA requires federally obligated airports whose projects are funded through federal grant monies from the Airport Improvement Program (AIP) or with revenue from the Passenger Facility Charges (PFC) program to implement a PMP. A detailed inspection of airfield pavements is also required at least once a year. The exception to the annual detailed inspection is when a PCI survey is performed and, in this case, the frequency of detailed inspections may be extended to three years.

By implementing a PMP, an airport owner can evaluate the condition of its pavements, prioritize preventative M&R, quickly identify the most economical time to perform M&R, and implement the best M&R practice for a given section of pavement. The importance of this is identified in Figure A-1. Preserving pavements by performing M&R within the first 75 percent of the pavement life can eliminate or delay rehabilitation or reconstruction expenses that may be six to ten times the cost of preventative maintenance measures.

Figure A-1: Typical Pavement Condition Life Cycle



Source: FAA Advisory Circular 150/5380-7B Airport Pavement Management Program.

A.1.4. Software

PAVER Version 7.1 developed by Colorado State University were used to develop the PMP.

PAVER Version 7.1 software was developed for the sole purpose of managing pavements and allows the user to inventory pavements, calculate PCI values from field inspections, predict pavement deterioration, and prepare pavement M&R programs.

A.2. PAVEMENT INVENTORY

A.2.1. Overview

This section of the PMP describes the steps taken to define the pavement network and establish the various pavement branch and section boundaries at the Airport. An accurate pavement network allows for a comprehensive PCI survey to be conducted.

A.2.2. Definitions

To provide an accurate assessment of the PCI, each Airfield Pavement Management Study (APMS) is divided into a pavement network with branches, sections, and sample units within those sections. These terms, common to all APMSs, are used as a baseline for the organization of pavements to be inspected. FAA Advisory Circular 150/5380-7B, *Airport Pavement Management Program,* and ASTM D5340-12, *Standard Test Method for Airport Pavement Condition Index Surveys*, defines these terms as follows:

- Pavement Network: The highest level of an APMS. For example, a network can include all the airfield pavements at a single airport or all the airfield pavements in a state airport system. For this project, the PQI airfield pavements are defined as the pavement network.

- Pavement Branch: A readily identifiable part of the pavement network with a distinct function. For example, pavement branches in an airport setting consist of each individual runway, taxiway, or apron and together make up the pavement network.

- Pavement Section: Individual components of a pavement branch. Each branch consists of at least one section but may consist of more if pavement characteristics vary throughout the branch. Factors that affect the division of branches into sections include, but are not limited to: pavement structure, type, age, and condition; traffic composition and frequency (current and future); construction history; pavement function; and drainage facilities and shoulders.

- Pavement Sample Unit: The final level of an APMS. Sample units for Portland Cement Concrete (PCC) airfield pavement section are 20 contiguous slabs (the number of slabs in each sample unit within the pavement section may vary by up to 8 slabs if the total number of slabs in the pavement section being evaluated is not evenly divided by 20, or to accommodate specific field condition). Sample units for Asphalt Concrete (AC) airfield pavement and porous friction surface section are approximately 5,000 contiguous square feet (SF) (the area of each sample unit may vary by up to 2,000 SF if the sample units in the pavement section being evaluated is not evenly divided by 5,000, or to accommodate specific field conditions). A statistically significant number of sample units are inspected within a pavement section to determine the PCI.

In addition to the above, other terms related to M&R efforts are commonly used throughout APMSs. Some of these include:

- Preventative Maintenance: Cost-effective efforts applied to an existing pavement network that slow future deterioration, preserve the network, and maintain or improve the condition of the system. Preventative maintenance does not significantly increase the structural capacity of the pavement section. Examples include slurry seals, crack sealing/filling, or patching for AC pavements and joint or slab repair for PCC pavements.

- Pavement Rehabilitation: Structural improvements to an existing pavement section that increase its load carrying capacity and extends its service life. Examples of pavement rehabilitation include mill and overlay of existing AC pavements, as well as reclamation through pulverization and AC or PCC overlay for PCC pavements.

- Pavement Reconstruction: Replacement of the entire pavement section with an equivalent or increased section dependent upon the aircraft fleet mix.

A.2.3. Records Review and Pavement History

The Subconsultant performed a thorough review of past project records at PQI to determine construction history and the pavement structures for the existing airfield pavements. Record plans were provided by Airport staff in Portable Document Format (PDF).

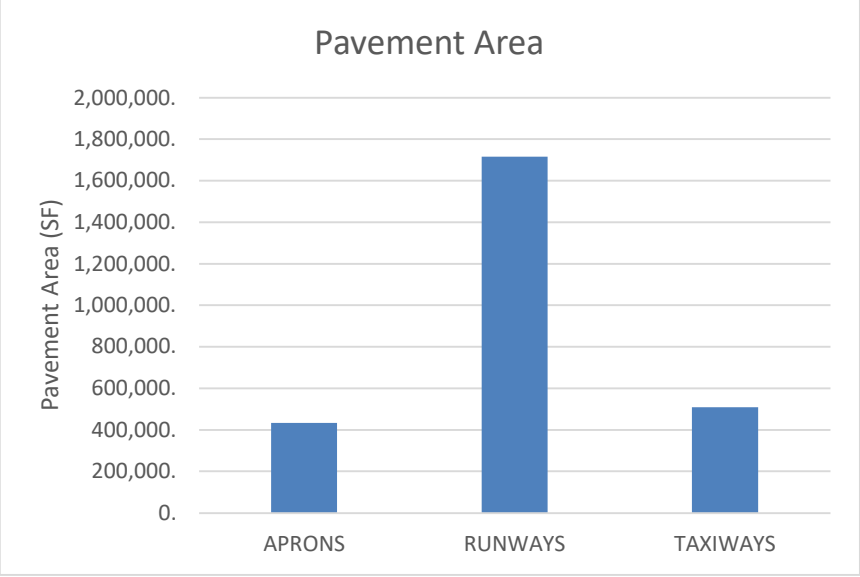
A.2.4. Pavement Ownership

The Airport owns and is responsible for the maintenance of all the airfield pavement. All pavement sections are identified in **Attachment A1** and discussed in **A.2.5 Pavement Inventory Results** below and in **Table A-4** in **A.3.3 Pavement Condition Index (PCI) Results Summary**.

A.2.5. Pavement Inventory Results

The total existing airfield pavement area at PQI is 2,657,125 SF. The General Aviation (GA) Apron was reconstructed in fall 2020. The new proposed apron has sections of AC and PCC. The proposed apron pavement is included in the total pavement area. A detailed breakdown of the pavement areas categorized by type (branch use) is shown in **Figure A-2**. The final pavement inventory is displayed in **Attachment A1** showing the established branches, sections and sample units.

Figure A-2: Areas by Pavement Type



Source: PAVER, McFarland-Johnson Analysis, 2020.

A.3. PAVEMENT CONDITION EVALUATION

A.3.1. Field Inspection and Procedure

Pavement conditions for PQI were evaluated using the PCI procedure, as documented in the FAA Advisory Circular 150/5380-6C, *Guidelines and Procedures for Maintenance of Airport Pavements,* and ASTM D5340-12, *Standard Test Method for Airport Pavement Condition Index Surveys*. The PCI procedure is the aviation industry standard for visually assessing pavement condition. It involves inspecting sample units within a particular section, identifying the type and severity of pavement distresses within that sample unit, and measuring the quantity of distress.

The PCI represents the overall condition of the pavement ranging from 0 to 100. A pavement section in excellent condition receives a PCI of 100, with a failed pavement section receiving a PCI score of 0. **Figure A-3** shows visual representations of several PCI values at PQI.

Figure A-3: Visual Representation of PCI Values at PQI

Pavement Surface	PCI
	94
	65
	33

Source: McFarland Johnson, 2020

The PCI field inspection of PQI pavements took place over the course of four days – June 8-11, 2020. The inspection was performed by a two-person crew, and measurements and photographs were taken of the various distresses found in the pavement sample units identified in **Attachment A1.**

A.3.2. Distress Types

To better understand the cause of pavement deterioration, it is necessary to look at the distress types associated with each PCI. Each distress type has been classified into three groups based on cause—load, climate/durability, or other. Load-related distresses such as alligator cracking in asphalt pavements, or corner breaks in PCC pavements, indicate that the structural integrity of the pavement has been compromised. Climate-related distresses indicate that the pavement has aged due to seasonal environmental effects. Distresses that cannot be attributed solely to either load or climate, are classified as other. **Table A-*2*** presents the AC and PCC distress types in the PCI procedure, the cause classification, and identifies which distresses were the most common distresses at PQI during the pavement inspection.

Table A-2: PCI Distress Types

AC Distresses	Cause Classification	PCC Distresses	Cause Classification
Alligator Cracking*	Load	Blowup	Climate
Bleeding	Other	Corner Break	Load
Block Cracking	Climate	Linear Cracking*	Load
Corrugation	Other	Durability Cracking	Climate
Depression	Other	Joint Seal Damage	Climate
Jet Blast	Other	Small Patch*	Other
Joint Reflection Cracking	Climate	Large Patch*	Other
Long. & Transv. Cracking*	Climate	Popouts	Other
Oil Spillage	Other	Pumping	Other
Patching	Other	Scaling/crazing*	Other
Polished Aggregate	Other	Faulting	Other
Raveling	Climate	Shattered Slab	Load
Rutting	Load	Shrinkage Cracking	Other
Shoving	Other	Joint Spalling*	Other
Slippage Cracking	Other	Corner Spalling*	Other
Swelling	Other	Alkali Silica Reaction	Climate
Weathering*	Climate		

*Indicates most common distresses found at PQI
Source: McFarland Johnson, 2020

For the AC pavements at PQI, the most common distress types found were the following:

- Alligator Cracking: Resulting from fatigue failure of the AC pavement under repeated traffic loading. The cracking initiates at the bottom of the AC pavement surface where the tensile stress is highest under a wheel load. This type of cracking is considered a major structural distress.

- Longitudinal and Transverse Cracking: Resulting from shrinkage or contraction of the AC pavement. Shrinkage of the surface material is caused by oxidation and age hardening of the asphalt material. Contractions are caused by thermal fluctuations induced by temperature changes and freeze-thaw cycles. This type of cracking is not load associated.

- Weathering: The wearing away of the asphalt binder and fine aggregate matrix from the pavement surface. The asphalt surface begins to show signs of aging which may be accelerated by climatic conditions.

For the PCC pavements at PQI, the most common distress types found were the following:

- Linear Cracks: A combination of repeated loads and shrinkage stresses usually causes this type of distress. It is characterized by cracks that divide the slab into two or three pieces

that may indicate poor construction techniques, underlying pavement layers that are structurally inadequate for the applied load, or pavement overloads.

- Small and Large Patching: Where the original pavement has been removed and replaced by a filler material. Patching is divided into two types: small (less than five SF) and large (over five SF).

- Scaling/Crazing: Delamination or disintegration of paste on the slab surface to the depth of the defect resulting from construction defects, material defects, and environmental factors.

- Joint and Corner Spalling: The breakdown of the slab edges within two feet of the side of the joint or corner of the slab. Joint and corner spalls usually do not extend vertically through the slab but intersect the joint at an angle. Joint and corner spalling often result from excessive stresses at the joint, corner or crack caused by infiltration of incompressible materials or weak concrete at the joint combined with traffic loads.

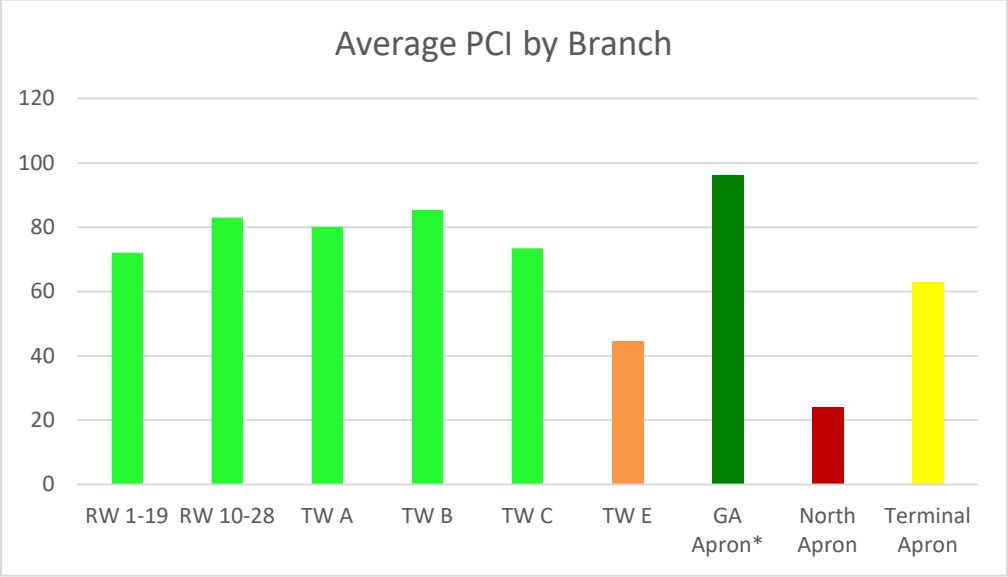
PQI inspection photographs of these distresses can be found in Attachment A3.

A.3.3. Pavement Condition Index (PCI) Results Summary

As documented in the Pavement Inventory portion of this report, the entirety of PQI's airside pavement was included in this PCI study, except for the pavement sections associated with the GA Apron project. The pavement being reconstructed within the limits of the GA Apron project were included in the PCI study with a PCI rating of 100. The total area of airfield pavement included in this study is 2,657,125 SF. Of this total, the inspectors surveyed approximately 554,675 SF.

Figure A-4 below depicts the results of the PCI survey in graph format for each branch type.

Figure A-4: PCI Results by Pavement Use



**The portions of the GA Apron under construction at the time of inspection (June 2020) are included in the average PCI shown with an assumed 100 PCI rating.*

Source: PAVER, McFarland-Johnson Analysis, 2020.

The values shown in **Figure A-4** above were calculated using an area weighted average PCI value for each pavement branch at PQI.

Table A-3 provides a general description of the PCI rating categories and the corresponding pavement areas at PQI which fall under these categories.

Table A-3: Distribution of PCI Ratings for PQI

Simplified PCI Rating	PCI Range	Definition	Pavement Area (SF)	Pavement Area (%)
Good	86-100	GOOD: Pavement has minor or no distresses and requires only routine maintenance	424,700	16%
	71-85	SATISFACTORY: Pavement has scattered low-severity distresses that need only routine maintenance	1,668,450	63%
Fair	56-70	FAIR: Pavement has a combination of generally low and medium-severity distresses. M&R needs are routine to major in the near future	479,000	18%
Poor	41-55	POOR: Pavement has low, medium, and high-severity distresses that probably cause some operational problems. Near-term maintenance and repair needs may range from routine up to a requirement for reconstruction	33,000	1%
	26-40	VERY POOR: Pavement has predominantly medium and high-severity distresses that cause considerable maintenance and operational problems. Near-term maintenance and repair needs will be intensive in nature	0	0%
Poor	11-25	SERIOUS: Pavement has mainly high-severity distresses that cause operational restrictions; immediate repairs are needed	14,175	1%
	0-10	FAILED: Pavement deterioration has progressed to the point that safe operations are no longer possible; complete reconstruction is required	37,800	1%

Source: PAVER, McFarland-Johnson Analysis, 2020.

Using the distress measurements taken by the inspectors, a PCI was determined for each pavement sample unit within a given pavement section. PCI calculations were completed using the PAVER software to determine a PCI value for each section, with a weighted PCI then calculated for each branch. These results are shown in **Table A-4** and a visual representation of these results is shown on the PCI Map in **Attachment A2**.

Table A-4: PCI Results for PQI

Branch ID	Branch PCI	Surface	Section	PCI
N AC Apron	43	AC	N AC Apron	43
N PCC Apron	8	PCC	N PCC Apron	8
GA Apron	70	AC	GA Apron	70
New GA Apron*	100	AC	Asphalt	100
		PCC	PCC Sect	100
		PCC	Fuel Pad	100
RW 10-28	83	AC	RW 10-28	83
RW 1-19	72	AC	RW 1-19 - 1	68
		AC	RW 1-19 - 2	73
Terminal Apron	63	AC	Terminal Apron	63
TW A Middle	70	AC	TW A Middle	70
TW A North	89	AC	TW A North	89
TW A South	75	AC	TW A South	75
TW B	85	AC	TW B - 1	83
		AC	TW B - 2	87
TW C	74	AC	TW C - 1	81
		AC	TW C - 2	71
TW E	45	AC	TW E - 1	80
		AC	TW E - 2	21

**The portions of the GA Apron under construction at the time of inspection (June 2020) are shown with an assumed 100 PCI rating.*
Source: PAVER, McFarland-Johnson Analysis, 2020.

Abbreviations used in **Table A-4** above are defined in **Table A-1**.

A.3.4. Projected PCI

Included in the APMS is an analysis of the projected airfield pavement deterioration rates at PQI. **Table A-5** shows the results of PAVER's Condition Performance Analysis. The analysis shows projected deterioration of the various pavement branches at the Airport over a 5-year period. Colors shown equate to the previously described PCI rating scale. It should be noted that this deterioration rate table does not account for any preventative maintenance implemented at the Airport, nor any rehabilitation or reconstruction projects that may take place over this 5-year period.

Table A-5: Projected Pavement Deterioration at PQI

Branch ID	2020	2021	2022	2023	2024	2025
(All)	74	74	72	70	68	67
N AC APRON	43	36	27	15	6	0
N PCC APRON	8	0	0	0	0	0
GA APRON	70	69	67	66	64	62
NEW GA APRON	*	93	86	81	78	76
RW 10-28	83	79	76	75	74	73
RW 1-19	72	71	70	69	68	67
TERMINAL APRON	63	61	59	58	56	55
TW A MIDDLE	70	68	67	66	64	63
TW A NORTH	89	86	83	80	78	76
TW A SOUTH	75	73	71	70	68	67
TW B	85	83	80	78	76	74
TW C	74	72	70	68	67	66
TW E	45	41	37	34	30	28

**No data provided due to ongoing construction in 2020.*

Abbreviations used in **Table A-5** above are defined in **Table A-*1***.

Source: PAVER Condition Performance Analysis (Area Weighted Average), McFarland-Johnson Analysis, 2020.

A.3.5. Pavement Classification Number (PCN)

Based on the available subgrade strength data, the existing type of pavement and sections, and the air traffic mix data available, the PCNs were calculated for the airport pavement sections and are shown in **Attachment A4**.

A.4. MAINTENANCE AND REHABILITATION (M&R) PROGRAM

A.4.1. Introduction

The results of the PCI survey can be correlated with an appropriate M&R work type. This is illustrated in **Table A-6**. Pavements with a PCI of 71 and above will benefit from preventative maintenance such as crack sealing and surface treatments. Pavements with a PCI between 56 and 70 likely will require major rehabilitation. Pavement with a PCI of 55 or below has damage and often times only full reconstruction will correct the problems exhibited. The M&R program for this PMP was developed using the criteria shown in **Table A-6.**

Table A-6: PCI Compared to Repair Type

PCI		Rating	Repair
86-100		Good	Preventative Maintenance
71-85		Satisfactory	
56-70		Fair	Major Rehabilitation
41-55		Poor	Reconstruction
26-40		Very Poor	
11-25		Serious	
0-10		Failed	

Source: Maine Department of Transportation Pavement Summary Report, Airport Pavement Management System, 2019

A.4.2. Inspection Schedule

Airport Sponsors are required by the FAA to meet certain requirements for their PMP. One of these requirements is the frequency of inspections. Airports must perform a detailed inspection of airfield pavements at least once a year. The only exception is if a PCI survey, such as that included in this project, is performed, whereupon the frequency of the detailed inspections may be extended to three years. Airports should also incorporate less detailed daily, weekly, and monthly inspections of their pavements.

A.4.3. Best Practices for Rehabilitation and Repair

Different types and severity levels of distresses require varying degrees and frequency of maintenance to be effective. Table A-7 and Table A-8 contain recommended localized pavement maintenance based on distress type and severity level for AC and PCC pavement types, respectively. Attachment A5 provides further detail of M&R work descriptions.

Table A-7: Recommended Maintenance Method - AC

Distress Type	Probable Cause of Distress	Recommended Maintenance Method
Alligator Cracking	Fatigue failure of the AC surface under repeated traffic loading.	If localized, partial- or full-depth asphalt patch. If extensive, major rehabilitation needed.
Block Cracking	Shrinkage of the AC and daily temperature cycling; it is not load associated.	At low severity levels, crack seal and/or surface treatment. At higher severities, consider overlay options.
Bleeding	Excessive amounts of asphalt cement or tars in the mix and/or low air void content.	Spread heated sand, roll, and sweep. Another option is to plane excess asphalt, or, remove and replace.
Corrugation	Traffic action combines with and unstable pavement layer.	If localized, mill. If extensive, remove and replace.
Depression	Settlement of the foundation soil.	Patch.
Jet Blast	Bituminous binder has been burned or carbonized.	Patch.
Joint Reflection Cracking	Movement of the concrete slab beneath the asphalt the AC surface due to thermal and moisture changes.	At low- and medium-severities, crack seal. At higher severities, especially if extensive, consider overlay.
Longitudinal and Transverse Cracking	Cracks may be caused by 1) poorly constructed paving lane joint, 2) shrinkage of the AC surface due to low temperatures or hardening of the asphalt, or 3) reflective crack caused by cracks in an underlying AC layer.	At low- and medium-severity levels, crack seal. At higher severities, especially if extensive, consider overlay options.
Oil Spillage	Deterioration or softening of the pavement surface caused by the spilling of oil, fuel, or other solvents.	Patch.
Patching	N/A	Replace patch if deteriorated.
Polished Aggregate	Repeated traffic applications.	Aggregate seal coat is one option. Could also groove or mill. Overlay is another option.
Rutting	Usually caused by consolidation or lateral movement of the materials due to traffic loads.	Patch medium- and high-severity levels if localized. If extensive, consider major rehabilitation.
Shoving	Where PCC pavements adjoin flexible pavements, PCC " growth" may shove the asphalt pavement.	Mill and patch as needed.
Slippage Cracking	Low strength surface mix or poor bond between the surface and next layer of pavement structure.	Partial- or full-depth patch.
Swelling	Usually caused by frost action or by swelling soil.	Patch if localized. Major rehabilitation if extensive.
Raveling	Asphalt binder may have hardened significantly, causing coarse aggregate pieces to dislodge.	Patch if isolated. At higher severity levels, consider major rehabilitation if extensive.
Weathering	Asphalt binder and/or fine aggregate may wear away as the pavement ages and hardens.	Patch if isolated. Consider a surface treatment if extensive.

Source: McFarland Johnson, 2020

Table A-8: Recommended Maintenance Method - PCC

Distress Type	Probable Cause of Distress	Recommended Maintenance Method
Alkali Silica Reaction (ASR)	Chemical reaction of alkalis in the Portland cement with certain reactive silica minerals. ASR may be accelerated by the use of chemical pavement deicers.	At medium- and high-severity levels, slab replacement is recommended.
Blow-Up	Incompressibles in joints.	Partial- or full-depth patch. Slab replacement.
Corner Break	Load repetition combined with loss of support and curling stresses.	Seal cracks at low-severity. Full-depth patch.
Cracks	Combination of load repetition, curling stresses, and shrinkage stresses.	Seal cracks. At high-severity, may need full-depth patch or slab replacement.
Durability Cracking	Concrete' s inability to withstand environmental factors such as freeze-thaw cycles.	Full-depth patch if present on small amount of slab. At higher severity levels, once it has appeared on most of slab, slab replacement.
Joint Seal Damage Cracking	Stripping of joint sealant, extrusion of joint sealant, weed growth, hardening of the filler (oxidation), loss of bond to the slab edges, or absence of sealant in joint.	Replace joint seal.
Patching (Small and Large)	N/A	Replace patches if deteriorated.
Popouts	Freeze-thaw action in combination with expansive aggregates.	Monitor.
Pumping	Poor drainage, poor joint sealant.	Seal cracks and joints. Underseal is an option if voids have developed. Establish good drainage.
Scaling	Overfinishing of concrete, deicing salts, improper construction, freeze-thaw cycles, and poor aggregate.	At low-severity levels, do nothing. At medium- and high-severity levels, partial-depth patches or slab replacement.
Settlement	Upheaval or consolidation.	At higher severity levels, leveling patch or grind to restore smooth ride.
Shattered Slab	Load repetition.	Replace slab.
Shrinkage	Setting and curing of the concrete.	Monitor.
Spalling (Joint and Corner)	Excessive stresses at the joint caused by infiltration of incompressible materials or traffic loads; weak concrete at joint combined with traffic loads.	Partial-depth patch.

Source: McFarland Johnson, 2020

A.4.4. Pavement Repair Materials

Pavement repair materials are frequently improved and new products are being introduced to the market on a regular basis. The following materials listed in this section are the recommended materials available to Airport maintenance staff.

Joint and Crack Sealer

Hot-poured, pressure-injected, polymeric rubberized asphalt sealant meeting the requirements of ASTM D6690, *Standard Specification for Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt Pavements,* is the FAA required standard for joint and crack sealant material. The advantage to this material is its low cost, durable, and it is suitable for both flexible (AC) and rigid (PCC) pavements.

Flexible Pavement Patch

Long-term patches should be made with high-quality plant mixed hot-mix asphalt having a ¾-inch maximum aggregate size and meeting FAA P-401 specifications. P-401 is a specialty asphalt mix and as such is not always available from local suppliers, especially in the small quantities required for asphalt patching. Should this be the case, high quality state highway asphalt mixes may be used in lieu of P-401. For short-term repairs, high performance plant mixed cold patching products may be used. Low-quality asphalt patch materials available at local hardware stores should be avoided.

Rigid Pavement Patch

Permanent patches in rigid pavement should be made with air-entrained concrete that has a one inch maximum coarse aggregate size. Consideration should be given to whether the area being repaired needs to be opened to traffic quickly. If that is the case, consideration should be given to adding an accelerator admixture to the concrete or using Type III (High Early Strength) Portland Cement. The concrete patch material should either have low slump or zero slump. As with flexible pavement patches, low-quality packaged materials should be avoided.

A.4.5. Pavement Repair Equipment

As with pavement repair materials, the equipment used in pavement repairs shall be regularly upgraded and refined. Specialty equipment is available to speed up the process of, and produce long lasting, pavement repairs. The following are the most commonly used and effective pieces of equipment in pavement repair operations:

Air Compressor

Air compressors are used to remove non-compressible sand, debris, and other detritus from cracks and joints. A sustained capacity of 120 cubic feet per minute with a nozzle velocity of 100 pounds per square inch is the most effective unit. An air compressor meeting these requirements is typically a towed unit or trailer-mounted.

Concrete Saw

Concrete saws must have the ability to make a minimum three-inch deep cut in both asphalt and concrete pavements. To perform this type of work, gasoline-powered, 5 to 20-horsepower walk-behind saws are typically used.

Router

Routing pavement cracks before sealant is installed will extend pavement life significantly. Adequate depth is provided after routing to allow the sealant to handle the seasonal expansion and contraction. Typical crack routers have a 25-horsepower motor and are available from a variety of manufacturers.

Heating Kettle

The heating kettle is a critical item in a successful and productive crack sealing program. A heating kettle with minimum material capacity of 100 gallons and a melt rate of at least 1,000 pounds per hour is recommended for large sealing operations. These variables dictate the rate at which a crew progresses. Heating kettles should also contain a double boiler tank with continuous recirculation. Sealant material has the potential to be overheated by the heating kettle and temperatures should be monitored as sealing operations are ongoing. “Burning” the sealant will age harden the material and reduce its effectiveness.

Vibratory Roller or Plate Compactor

Both pieces of equipment are required to compact plant mixed hot-mix asphalt material. Vibratory rollers are typically used for larger patches and plate compactors are used for smaller patches.

Milling Machine or Cold Planer

These machines use a large rotating drum to remove and grind the pavement surface. They should be used to check that an adequate area and depth of pavement is removed prior to patching and/or repairing joints.

Other Equipment

General use equipment such as dump trucks, water trucks, power sweeping units, and front-end loaders are commonly used in pavement repair operations and can be helpful in a maintenance program.

A.4.6. Recommended Maintenance Actions

The airfield pavements at PQI needing the most repair or reconstruction are in the taxiway network and apron network including Taxiway E, the North Apron, the Terminal Apron, TW C Section 2, and the TW A Middle section. The sections that fall in the reconstruction category are Section 2 of Taxiway E (PCI of 21), North Apron asphalt section (PCI of 43), and North Apron concrete section (PCI of 8). Since TW E and the North Apron were not included in the maintenance and rehabilitation plan as the non-standard geometry is anticipated to result in a new taxiway

configuration or closure. TW C Section 2 (PCI of 71) and TW A Middle Section (PCI of 70) are part of the commercial aircraft route and should be considered for major rehabilitation before pavement sections that are used less frequently.

Using the results of the PCI survey, the most common distress types encountered, and the projected deterioration shown in Table A-5, it is recommended that the Airport implement a comprehensive crack sealing program on AC surfaces and joint seal replacement on PCC surfaces. All the pavements at the Airport would benefit and have increased longevity from these maintenance actions. Localized AC pavement patching is recommended in areas where longitudinal and transverse cracking widths have increased to the point where sealant is no longer effective. Partial-depth patching of PCC pavement is recommended where spalling has become excessive. It should be noted that PCI surveys are conservative estimates as to the current condition of the pavements. Detailed engineering analysis conducted during the design phase of a project may result in a different conclusion as to the extent of repair required. Technically, Airport Improvement Program (AIP) funding can be used for routine maintenance which includes, cleaning, filling, and/or sealing of longitudinal and transverse cracks, grading pavement edges, and pavement patching. However, due to funding constraints, the FAA has been reluctant to fund these types of projects. Therefore, State, Passenger Facility Charge (PFC), and/or City funds would be needed to fund preventive maintenance activities at the airport.

A.5. CAPITAL IMPROVEMENT PROGRAM (CIP)

A.5.1. Objective

One of the primary objectives of the PQI PMP is to identify and determine the airfield pavement M&R needs of the Airport by comparing the PCI values to a standardized benchmark called the Minimum Service Level (MSL). The MSL is defined as the minimum pavement condition acceptable for airside operations at the Airport. *The Maine DOT Pavement Summary Report, Airport Pavement Management System 2019* used MSL values of 70 for all airfield pavements, as shown in Table A-9 below. Once the MSLs are established, the MSLs are the basis of the CIP.

Table A-9: Minimum Service Levels

Branch Use	MSL Value
Runway	70
Taxiway	70
Apron	70

Source: Maine Department of Transportation Pavement Summary Report, Airport Pavement Management System, 2019

A.5.2. Analysis Approach

By establishing benchmark MSLs, a CIP can be developed using project data inputs into PAVER software to develop projects and costs. It should be noted that the CIP is based on 1) visual evaluation of pavements to establish a condition baseline, 2) applying recommended deterioration rates for pavements to predict when a particular pavement section attains the MSL, and 3) utilizing historic unit cost data based on type of pavement and PCI to estimate project costs of maintaining, rehabilitating, or replacing pavements. Since more rigorous engineering analysis

would be necessary to establish overall project costs, the CIP should only be used as a guide in developing the costs associated with only pavement work in any project funding requests. It is advisable to employ a more detailed analysis to identify and estimate overall project scopes and costs that are intended to be used in any grant funding requests.

This section of the report defines and identifies future CIP projects, along with their respective estimated costs based on acceptable PCI service levels, project type, and year of proposed construction. The M&R plan and CIP development utilized analysis of existing record plan information, the visual inspection of the pavement surfaces, and in accordance with the methods described in FAA Advisory Circular 150/5380-7B and ASTM D5340-12. Based on discussions with PQI staff the following funding scenario was utilized in development of the CIP's:

- Stopgap/Preventive Maintenance – Starting Budget of $27,000 in 2021, increased to $30,000 in 2022 and $32,500 in 2026. Any subsequent years were increased by $500 per year based on discussions with PQI staff to account for inflation.
- Major Rehabilitation – Unlimited Budget, but no major rehabilitation until 2021 due to ongoing projects being funded. An unlimited budget is used to allow the PAVER software to recommend major projects based on PCIs. These projects can then be scheduled to take place in a later year when necessary funding becomes available.

Before presenting the analysis results, it is important to explain how the PAVER software develops such a program. Within the PAVER software, pavement repair is categorized as follows:

- Major Rehabilitation such as an overlay, mill and pave, or reconstruction.
- Localized Stopgap/Preventive Maintenance is a maintenance action that is applied only to a distressed area, such as crack sealing or patching. It is called Stopgap Maintenance when the PCI is less than the MSL and Preventive Maintenance when the PCI is greater than the MSL.

For each year of the analysis, the PAVER software applies the performance models and estimates the future condition of the pavement sections. If a section falls below the MSL's shown in Table A-9, major rehabilitation is recommended during that year. Stopgap maintenance is used if a major rehabilitation project cannot be completed in the year the PCI falls below the MSL. If the section is above the critical PCI, localized preventive maintenance may be recommended for that year. After the treatment is selected for the pavement section based on its predicted PCI value and the criteria listed above, its cost is calculated using the unit cost figures store in PAVER. The CIPs produced by PAVER shown in Attachment A6 represent ideal circumstances where major rehabilitation is scheduled to occur in the first year that the PCI falls below the MSL. Funding may not be available to execute those plans as they appear in the tables, therefore major projects may need to be moved to a later year.

Using an MSL of 70 to trigger major rehabilitation results in an unrealistic amount of proposed major projects based on available funding. A lower MSL of 60 was input into PAVER to produce a separate model representing more realistic 5-year and 20-year CIPs. The full CIPs for both MSLs of 70 and 60 are shown in Attachment A6. The two models can be compared to determine the best approach for both near-term and long-term CIPs.

A.5.3. 5-Year Near-Term CIP

A 5-Year Near-Term CIP was developed to provide PQI with a list of short-term pavement capital projects for the 2021 through 2025 timeframe, the full 5-year plan is shown in **Attachment A6**. As noted earlier, the CIPs were developed in PAVER using an MSL value that triggers the program to recommend major rehabilitation when the PCI for a pavement sections falls below that value. PQI may adjust the timing of CIP projects due to fiscal and operational constraints. For example, the Terminal Apron value would trigger reconstruction in 2022 (as shown in **Table A-*10***), whereas PQI is planning for actual reconstruction of the Terminal Apron in 2025. Separate CIPs were developed, one using the MaineDOT standard MSL of 70 and one using an MSL of 60. An MSL of 60 was used as a more realistic value to trigger major rehabilitation projects based on available funding. Taxiway E and the North Apron were included in the APMS. Since Taxiway E has a non-standard geometry, it is anticipated to result in a new taxiway configuration or closure and therefore was not included in the maintenance and rehabilitation plan. The full 5-Year CIP showing treatment and PCI for each branch/section of Airport pavement is shown in **Attachment A6**.

Table A-10: 5-Year Capital Improvement Plan Costs

Year	Stopgap/Preventive	Major Rehabilitation Cost (Inflation Adjusted)	Major Rehabilitation Location
2021	$27,000	$0	None
2022	$30,000	$3,090,000	Terminal Apron
2023	$30,000	$0	None
2024	$30,000	$0	None
2025	$30,000	$0	None

Sources: McFarland Johnson, 2020. PAVER, McFarland-Johnson Analysis, 2020.

A.5.4. 20 Year Long-Term CIP

A 20-year long-term CIP was developed to provide PQI with a list of long-term pavement capital projects for the 2021 through 2040. The 20-year long-term CIP is an extension of the 5-year plan and was developed in the same manner including CIP inflation adjustment costs, as shown in **Table A-11**. The full 20-year long-term CIP showing treatment and PCI for each branch/section of Airport pavement is shown in **Attachment A6**.

It should be noted that the dollar amounts in **Table A-10** and **Table A-11** above are estimated values based a planning-level estimate intended to represent the need for a major rehabilitation project. Funding should be based on a more comprehensive construction estimate when the scope of the project is known. It should also be noted that in using the developed CIP to plan future funding requirements, PQI may determine that it is necessary to adjust the timing of CIP projects due to fiscal and operational constraints. For example, a runway pavement may be divided into multiple sections that each reach the MSL during different years. However, in an operational sense, it may be deemed not feasible to stage the rehabilitation of the runway over the course of multiple years. Instead, the rehabilitation may be programmed to minimize the runway closure time, while simultaneously maximizing the remaining service life. Conversely, it also may become necessary to break a large CIP project into multiple phases due to constraints based on available grant funding.

Table A-11: 20-Year Capital Improvement Plan Costs

Year	Stopgap/Preventive	Rehabilitation Location	Type of Rehabilitation	Pavement Only Cost	CIP Cost (2021 $)	CIP Cost (Inflation Adjusted)
2021	$27,000	None	-	-	-	-
2022	$30,000	Terminal Apron	Full-Depth Reconstruction	$2,000,000	$3,000,000	$3,090,000
2023	$30,000	None	-	-	-	-
2024	$30,000	None	-	-	-	-
2025	$30,000	None	-	-	-	-
2026	$32,500	Runway 1-19 – 1	Partial Depth Reconstruction with Reclaimed Asphalt (Reclaim)	$1,750,000	$3,100,000	$3,594,000
2027	$33,000	GA Apron	Mill and Inlay	$160,000	$270,000	$323,000
2028	$33,500	Taxiway A – Middle	Reclaim	$1,100,000	$2,200,000	$2,706, 000
2029	$34,000	Taxiway C – 2	Full-Depth Reconstruction	$600,000	$1,100,000	$1,394,000
2030	$34,500	Runway 1-19 – 2 (including grooving)	Reclaim	$7,750,000	$11,300,000	$14,744,000
2031	$35,000	Taxiway A – South	Reclaim	$800,000	$1,700,000	$2,285,000
2032	$35,500	None	-	-	-	-
2033	$36,000	None	-	-	-	-
2034	$36,500	None	-	-	-	-
2035	$37,000	None	-	-	-	-
2036	$37,500	Runway 10-28 Taxiway B – 1 Taxiway C – 1	Reclaim Reclaim Reclaim	$5,100,000 $150,000 $100,000	$8,100,000 $260,000 $300,000	$12,620,000 $405,000 $468,000
2037	$38,000	Taxiway A – North	Reclaim	$1,750,000	$3,700,000	$5,938,000
2038	$38,500	New GA Apron (Asphalt Section)	Mill and Inlay	$1,000,000	$1,400,000	$2,314,000
2039	$39,000	Taxiway B – 2	Reclaim	$200,000	$370,000	$630,000
2040	$39,500	New GA Apron (PCC Section) Terminal Apron	Full-Depth Reconstruction Mill and Inlay	$850,000 $750,000	$1,200,000 $950,000	$2,105,000 $1,666,000

Sources: PAVER; McFarland-Johnson Analysis, 2021.

Assumptions:

- Taxiways B1, C1, and the portion of Taxiway A – North within the Runway 1 RSA is included in the Runway 1-19 Phase 2 project.
- The portion of Taxiway A – South within the Runway 19 RSA is included in the Runway 1-19 Phase 1 project.
- Estimates are based on pavement design of aircraft weighing less than 100,000 pounds.
- 3% annual inflation.

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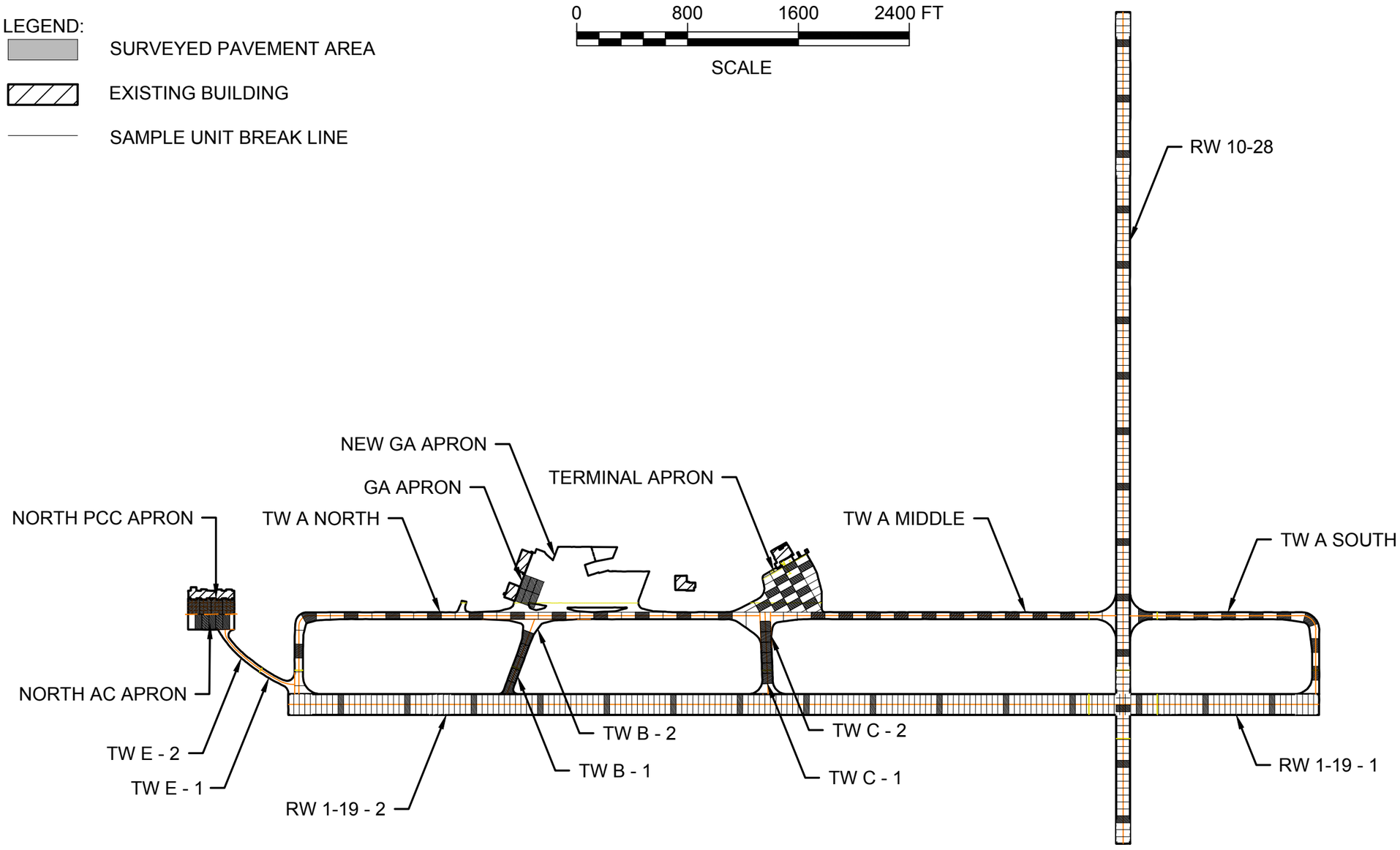
Attachment A1:

Pavement Study Inspection Samples

Attachment A1 : Pavement Study Inspection Samples



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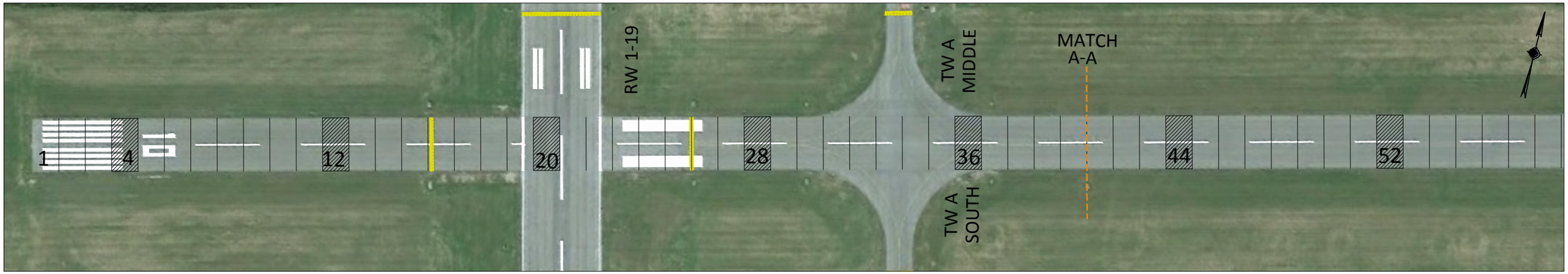

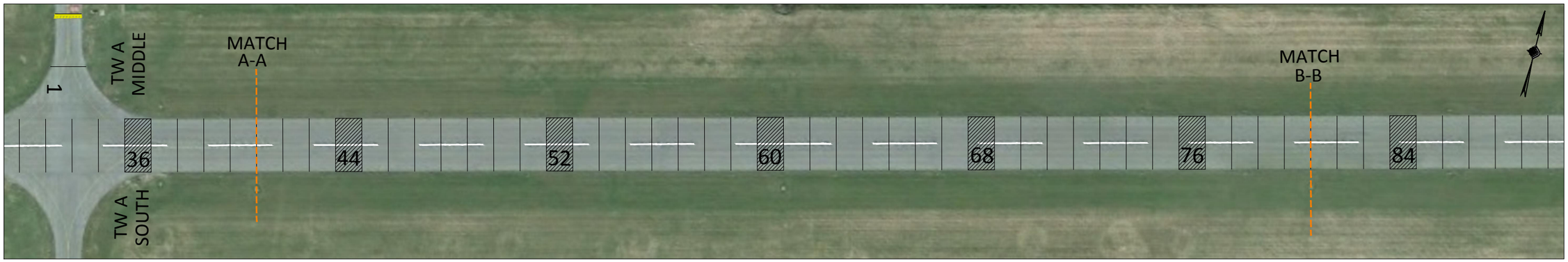

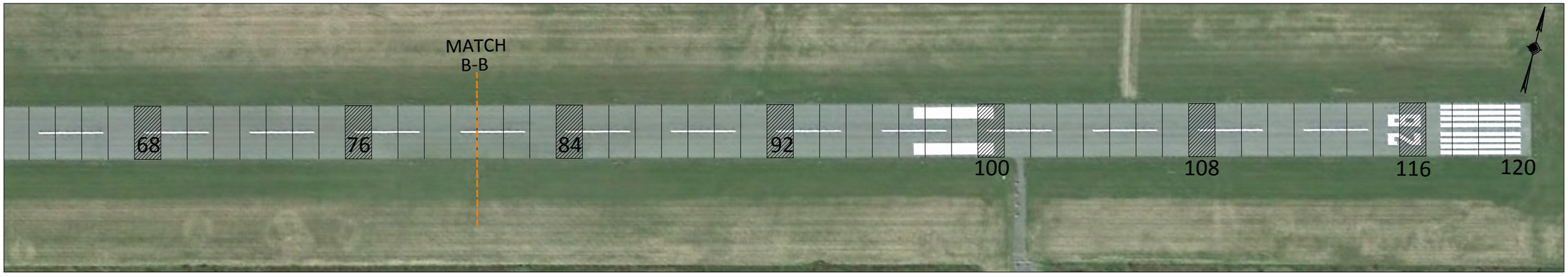

LEGEND:

SURVEYED PAVEMENT AREA

SAMPLE UNIT BREAK LINE

NOTES:

1. SAMPLE AREA: APPROX. 50'x100'=5,000 SF

0 200 400 600 FT

SCALE

PRESQUE ISLE INTERNATIONAL AIRPORT
PRESQUE ISLE, MAINE

PAVEMENT STUDY
BRANCH: RW 10-28

SCALE:	DATE:	FIGURE:
1" = 200'	JULY 2020	2

McFarland Johnson

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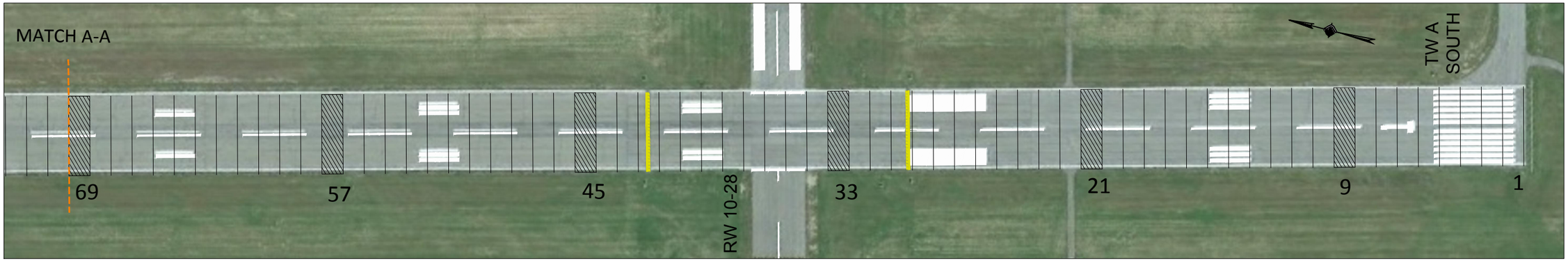

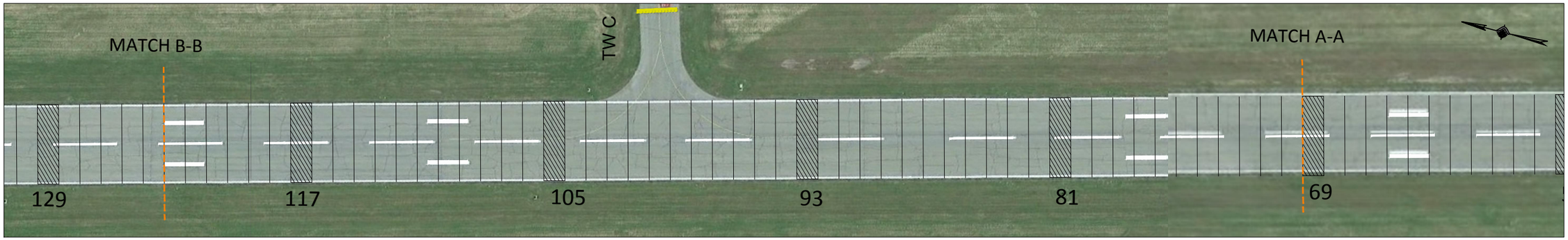

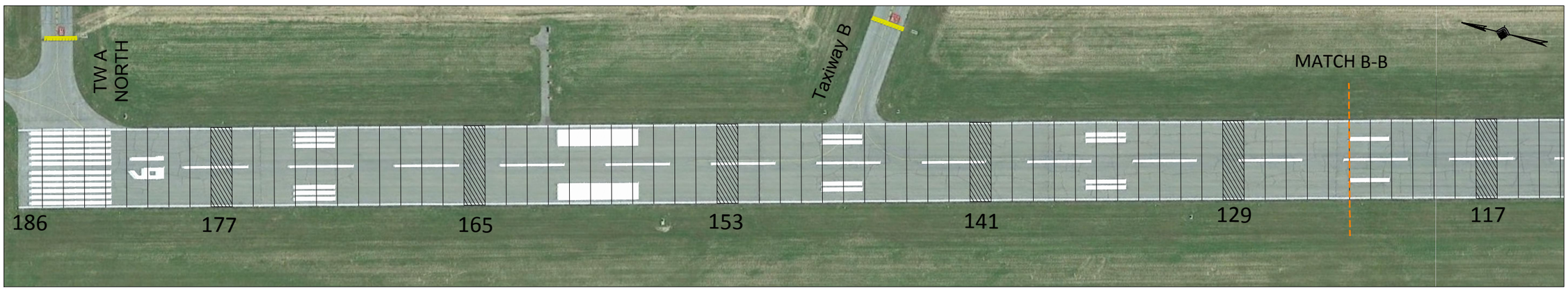

LEGEND:

SURVEYED PAVEMENT AREA

SAMPLE UNIT BREAK LINE

NOTES:

1. SAMPLE AREA: APPROX. 40'x150'=6,000 SF

0 200 400 600 FT

SCALE

PRESQUE ISLE INTERNATIONAL AIRPORT
PRESQUE ISLE, MAINE

PAVEMENT STUDY
BRANCH: RW 1-19

SCALE:	DATE:	FIGURE:
1" = 200'	JULY 2020	3

McFarland Johnson

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LEGEND:

SURVEYED PAVEMENT AREA

SAMPLE UNIT BREAK LINE

NOTES:

1. SAMPLE AREA: APPROX. 100'x50'=5,000 SF

0 100 200 300 FT

SCALE

PRESQUE ISLE INTERNATIONAL AIRPORT
PRESQUE ISLE, MAINE

PAVEMENT STUDY
BRANCH: A SOUTH

SCALE:	DATE:	FIGURE:
1" = 100'	JULY 2020	4

McFarland Johnson

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LEGEND:

SURVEYED PAVEMENT AREA

SAMPLE UNIT BREAK LINE

NOTES:

1. SAMPLE AREA: APPROX. 100'x50'=5,000 SF

0 200 400 600 FT

SCALE

PRESQUE ISLE INTERNATIONAL AIRPORT
PRESQUE ISLE, MAINE

PAVEMENT STUDY
BRANCH: A MIDDLE

SCALE:	DATE:	FIGURE:
1" = 200'	JULY 2020	5

McFarland Johnson

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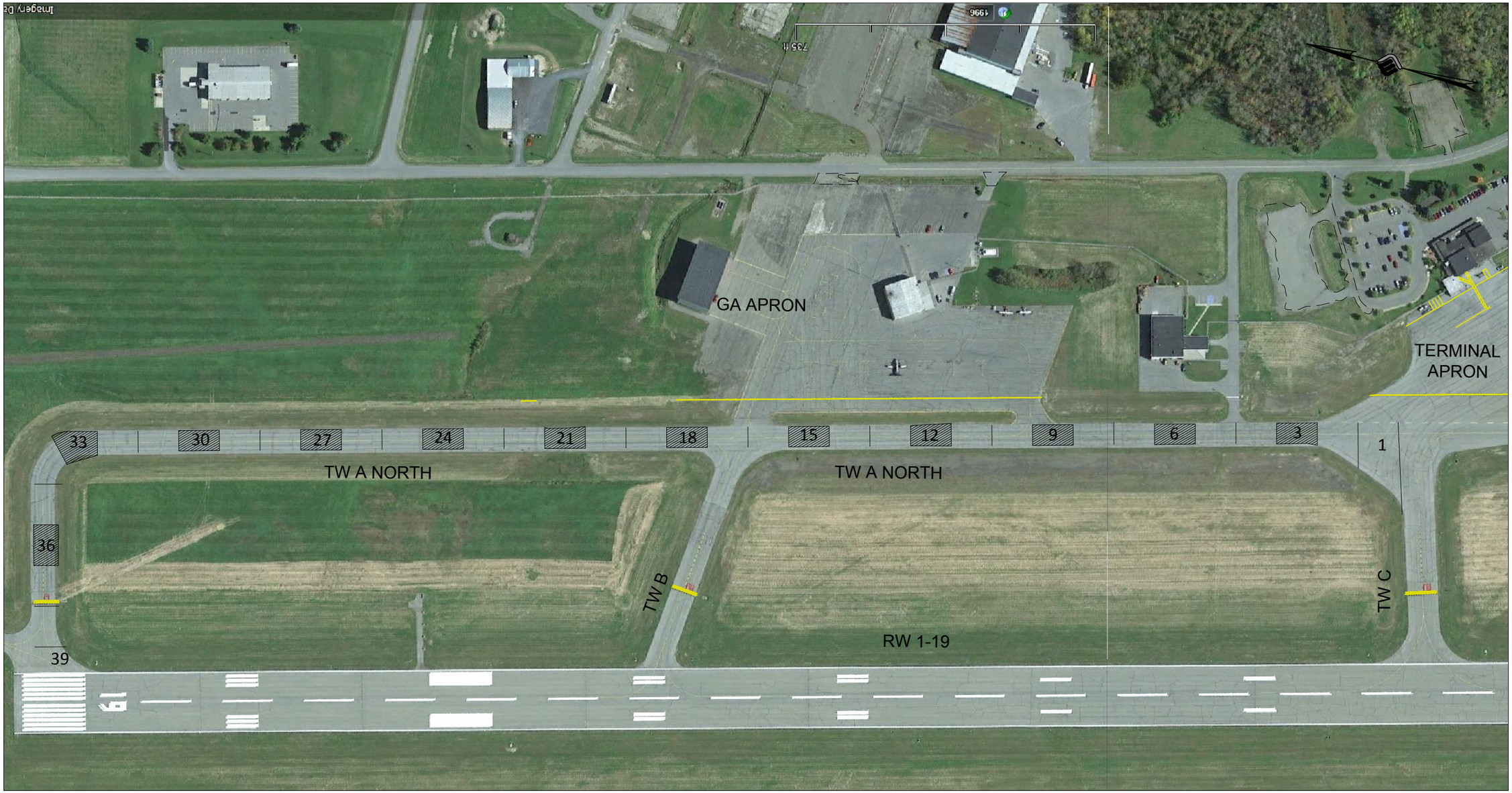

LEGEND:

SURVEYED PAVEMENT AREA

SAMPLE UNIT BREAK LINE

NOTES:

1. SAMPLE AREA: APPROX. 100'x50'=5,000 SF

0 250 500 750 FT

SCALE

PRESQUE ISLE INTERNATIONAL AIRPORT
PRESQUE ISLE, MAINE

PAVEMENT STUDY
BRANCH: A NORTH

SCALE:	DATE:	FIGURE:
1" = 250'	JULY 2020	6

McFarland Johnson

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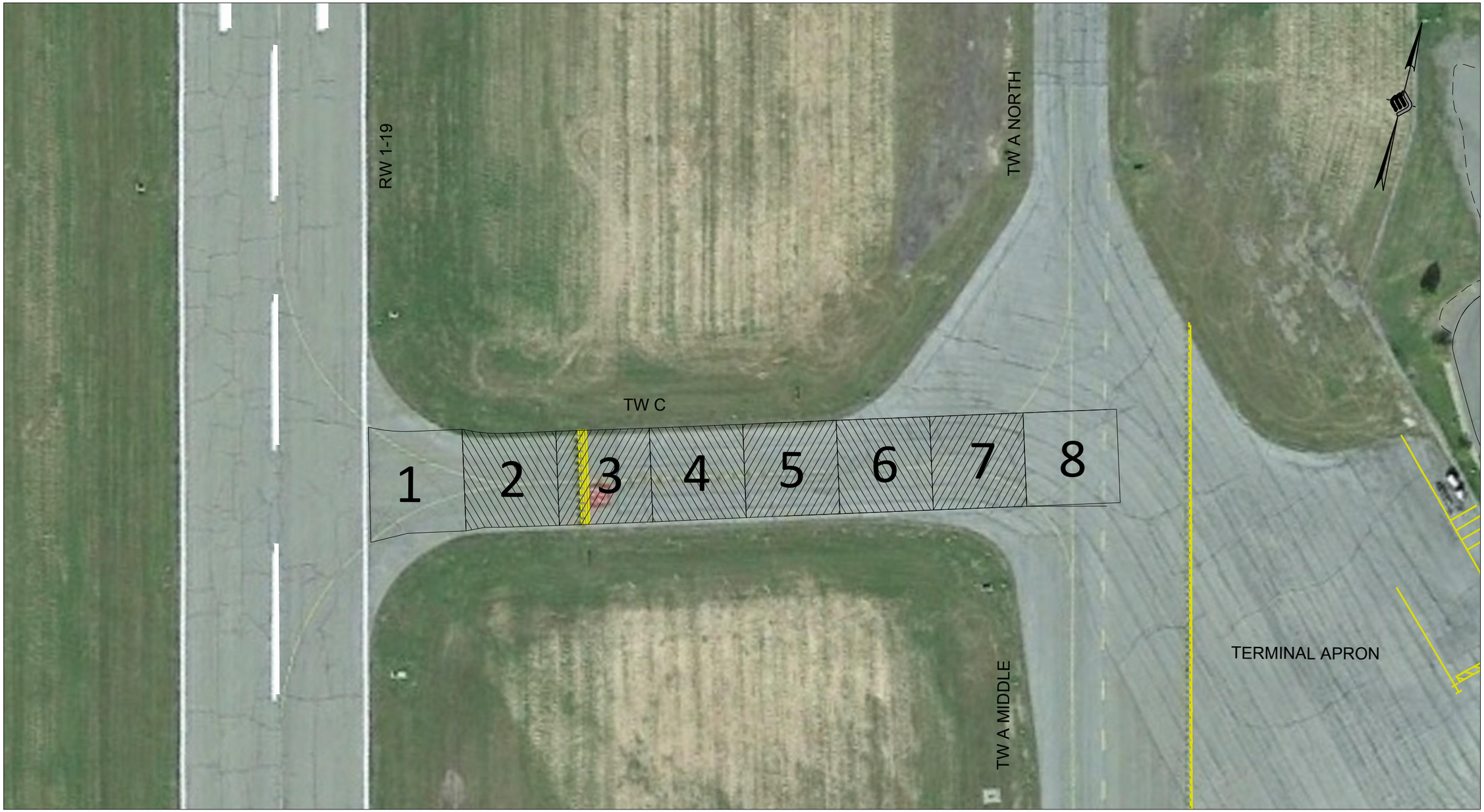

LEGEND:

SURVEYED PAVEMENT AREA

SAMPLE UNIT BREAK LINE

NOTES:

1. SAMPLE AREA: APPROX. 75'x75'=5,625 SF

0 80 160 240 FT

SCALE

PRESQUE ISLE INTERNATIONAL AIRPORT
PRESQUE ISLE, MAINE

PAVEMENT STUDY
BRANCH: TW C

SCALE:	DATE:	FIGURE:
1" = 80'	JULY 2020	7

McFarland Johnson

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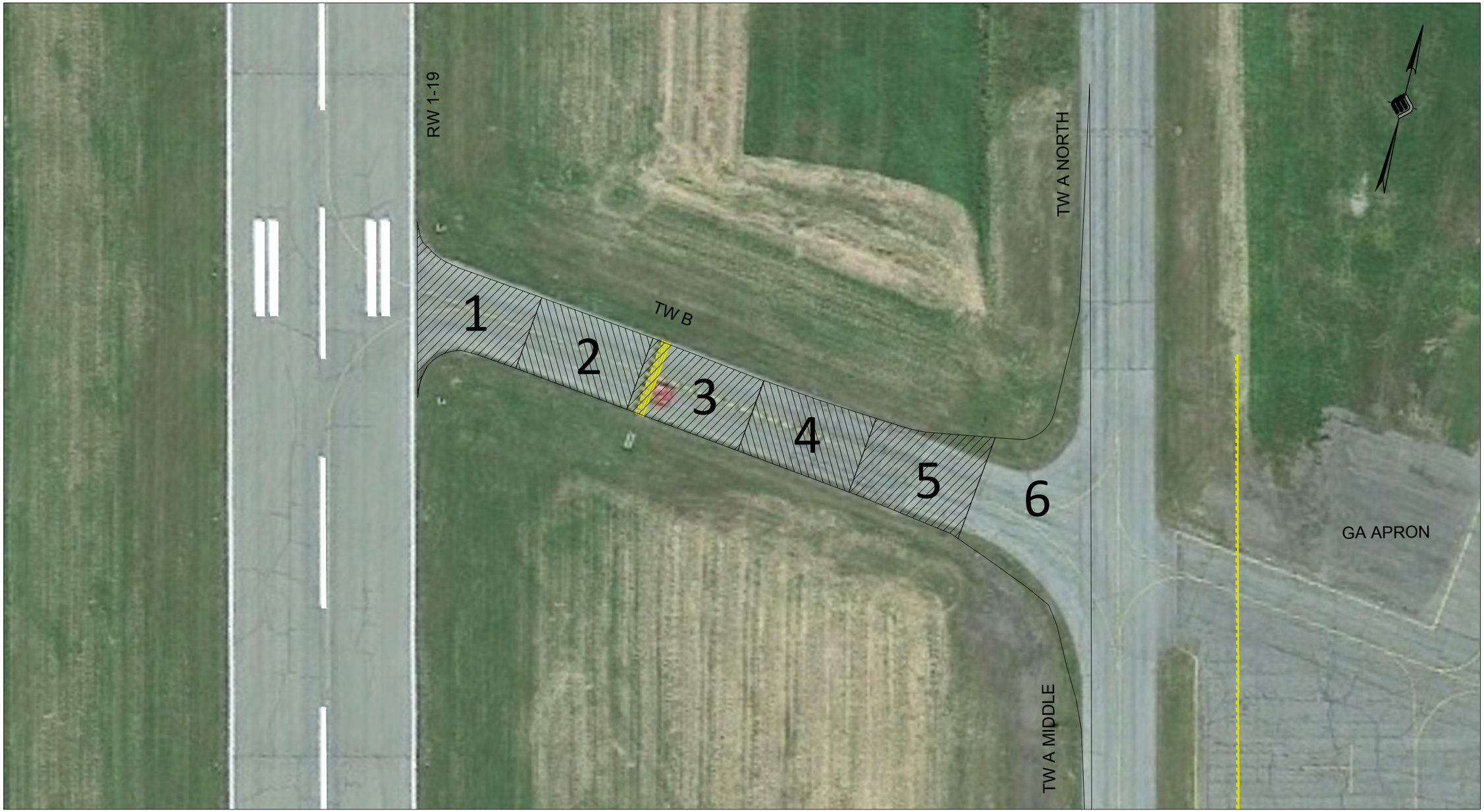

LEGEND:

SURVEYED PAVEMENT AREA

SAMPLE UNIT BREAK LINE

NOTES:

1. SAMPLE AREA: APPROX. 95'x60'=5,700 SF

0 80 160 240 FT

SCALE

PRESQUE ISLE INTERNATIONAL AIRPORT
PRESQUE ISLE, MAINE

PAVEMENT STUDY
BRANCH: TW B

SCALE:	DATE:	FIGURE:
1" = 80'	JULY 2020	8

McFarland Johnson

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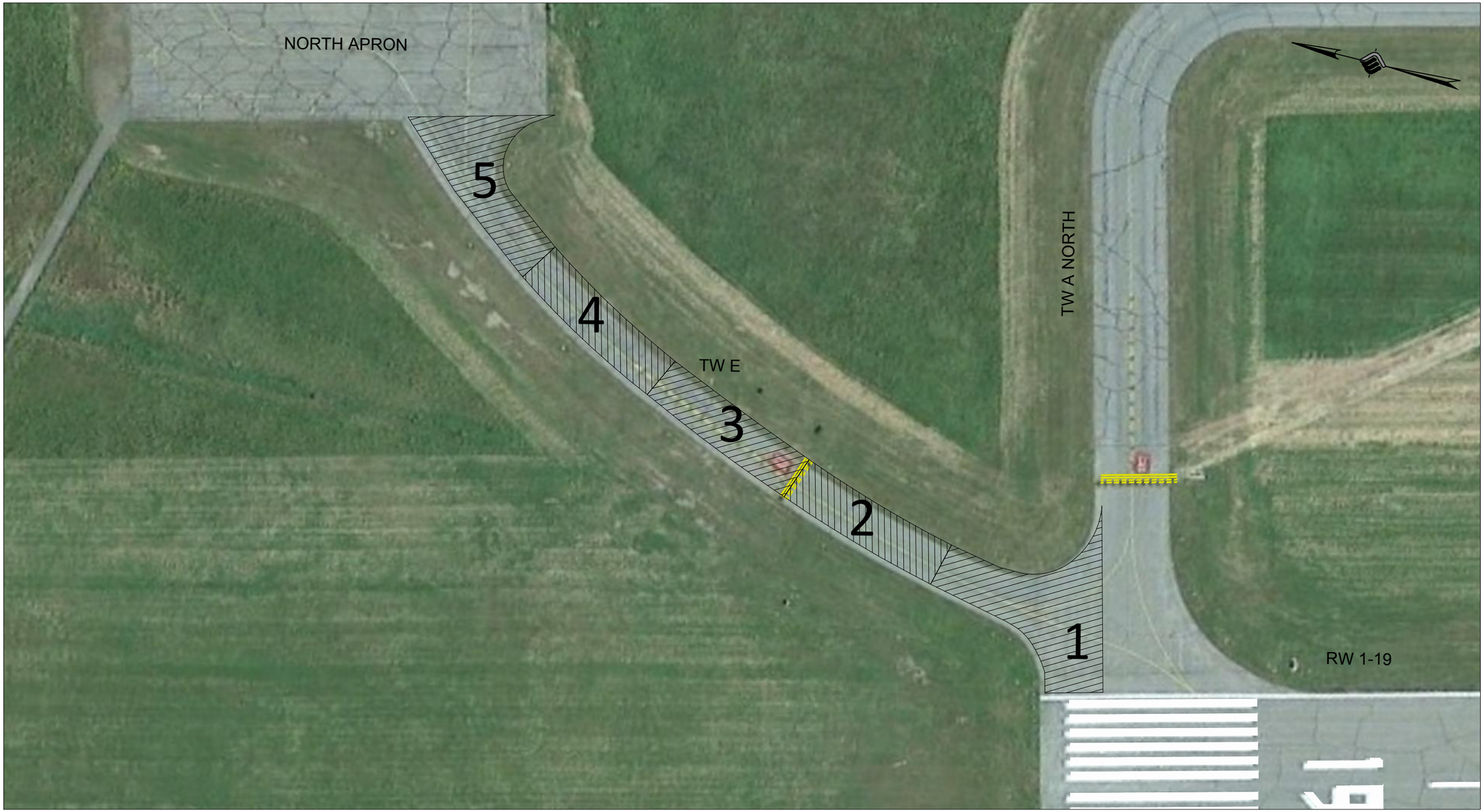

LEGEND:

SURVEYED PAVEMENT AREA

SAMPLE UNIT BREAK LINE

NOTES:

1. SAMPLE AREA: APPROX. 35'x135'=4,725 SF

0 80 160 240 FT

SCALE

PRESQUE ISLE INTERNATIONAL AIRPORT
PRESQUE ISLE, MAINE

PAVEMENT STUDY
BRANCH: TW E

SCALE:	DATE:	FIGURE:
1" = 80'	JULY 2020	9

McFarland Johnson

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LEGEND:

SURVEYED PAVEMENT AREA

SAMPLE UNIT BREAK LINE

NOTES:

1. SAMPLE AREA: APPROX. 50'x100'=5,000 SF

0 100 200 300 FT

SCALE

PRESQUE ISLE INTERNATIONAL AIRPORT
PRESQUE ISLE, MAINE

PAVEMENT STUDY
BRANCH: TERM APRON

SCALE:	DATE:	FIGURE:
1" = 100'	JULY 2020	10

McFarland Johnson

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LEGEND:

SURVEYED PAVEMENT AREA

SAMPLE UNIT BREAK LINE

NOTES:

1. SAMPLE AREA: APPROX. 50'x100'=5,000 SF

0 100 200 300 FT

SCALE

PRESQUE ISLE INTERNATIONAL AIRPORT
PRESQUE ISLE, MAINE

PAVEMENT STUDY
BRANCH: GA APRON

SCALE:	DATE:	FIGURE:
1" = 100'	JULY 2020	11

McFarland Johnson

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LEGEND:

SURVEYED PAVEMENT AREA

SAMPLE UNIT BREAK LINE

NOTES:

1. NORTH PCC APRON SAMPLE AREA: 27 SLABS (24'x12.5')=8,100 SF
2. NORTH AC APRON SAMPLE AREA: APPROX. 50'x110'=5,500 SF

0 50 100 150 FT

SCALE

PRESQUE ISLE INTERNATIONAL AIRPORT
PRESQUE ISLE, MAINE

PAVEMENT STUDY
BRANCH: NORTH APRON

SCALE:	DATE:	FIGURE:
1" = 50'	JULY 2020	12

McFarland Johnson

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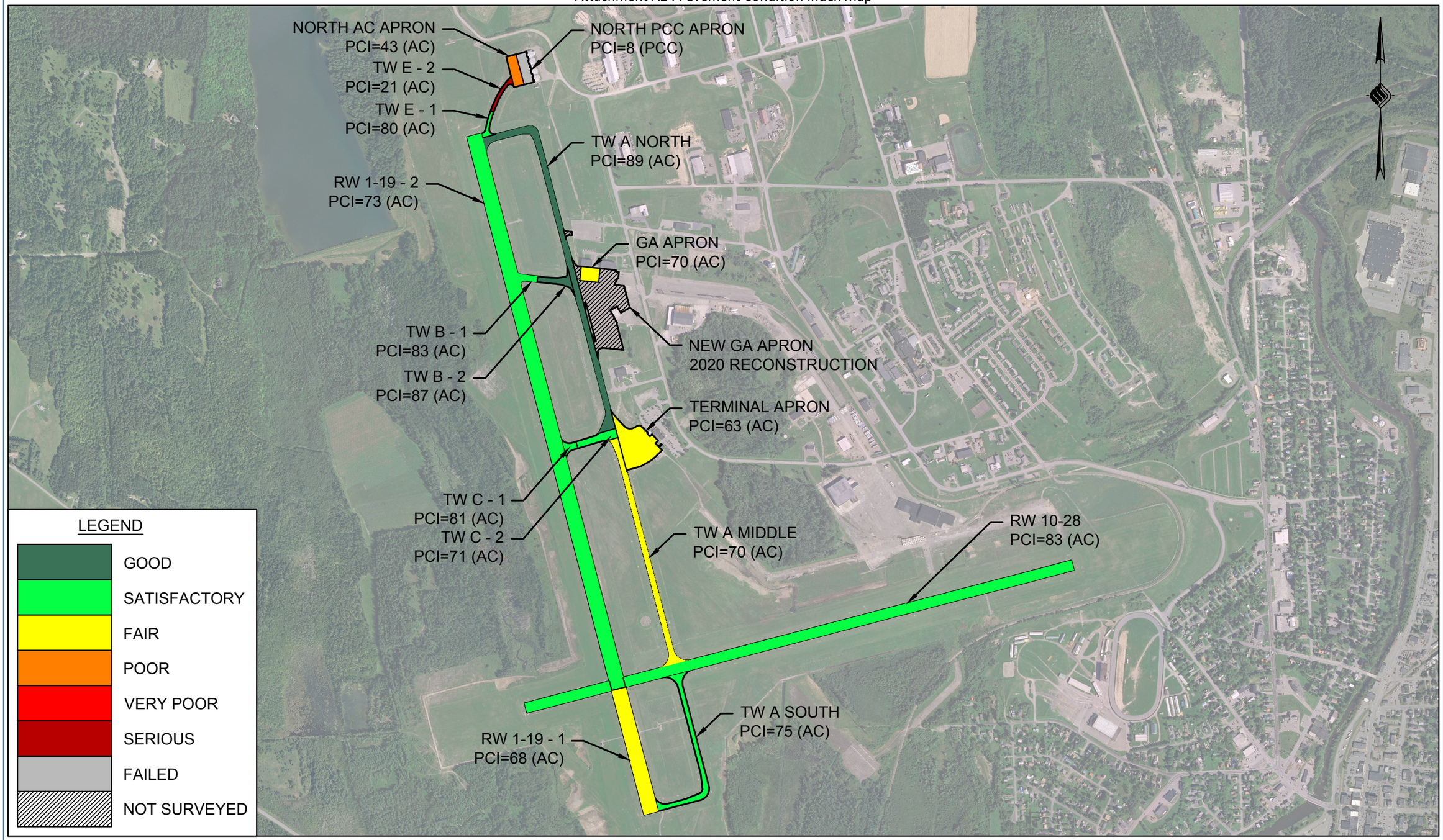
Attachment A2:

Pavement Condition Index Map

Attachment A2 : Pavement Condition Index Map



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Attachment A3:

Inspection Photographs

A3. Inspection Photographs

Overall Runway 1-19

Runway 1-19 Low Weathering

Runway 1-19 Medium Weathering

Runway 1-19 High Weathering

Runway 1-19 Low Longitudinal/Transverse Cracking

Runway 1-19 Medium Longitudinal/Transverse Cracking

Runway 1-19 Low Alligator Cracking

Runway 1-19 Oil Spill

Overall Runway 10-28

Runway 10-28 Low Weathering

Runway 10-28 Medium Weathering

Runway 10-28 Low Longitudinal/Transverse Cracking

Runway 10-28 Low Patching

Runway 10-28 Polished Aggregate

Runway 10-28 Oil Spillage

Overall Taxiway A North

Taxiway A North Low Weathering

Taxiway A North Low Longitudinal/Transverse Cracking

Taxiway A North Low Patching

Overall Taxiway A Middle

Taxiway A Middle Low Weathering

Taxiway A Middle Medium Weathering

Taxiway A Middle Low Longitudinal/Transverse Cracking

Taxiway A Middle Low Alligator Cracking

Taxiway A Middle Polished Aggregate

Overall Taxiway A South

Taxiway A South Low Weathering

Taxiway A South Medium Weathering

Taxiway A South Low Longitudinal/Transverse Cracking

Taxiway A South Low Alligator Cracking

Taxiway A South Slippage Cracking

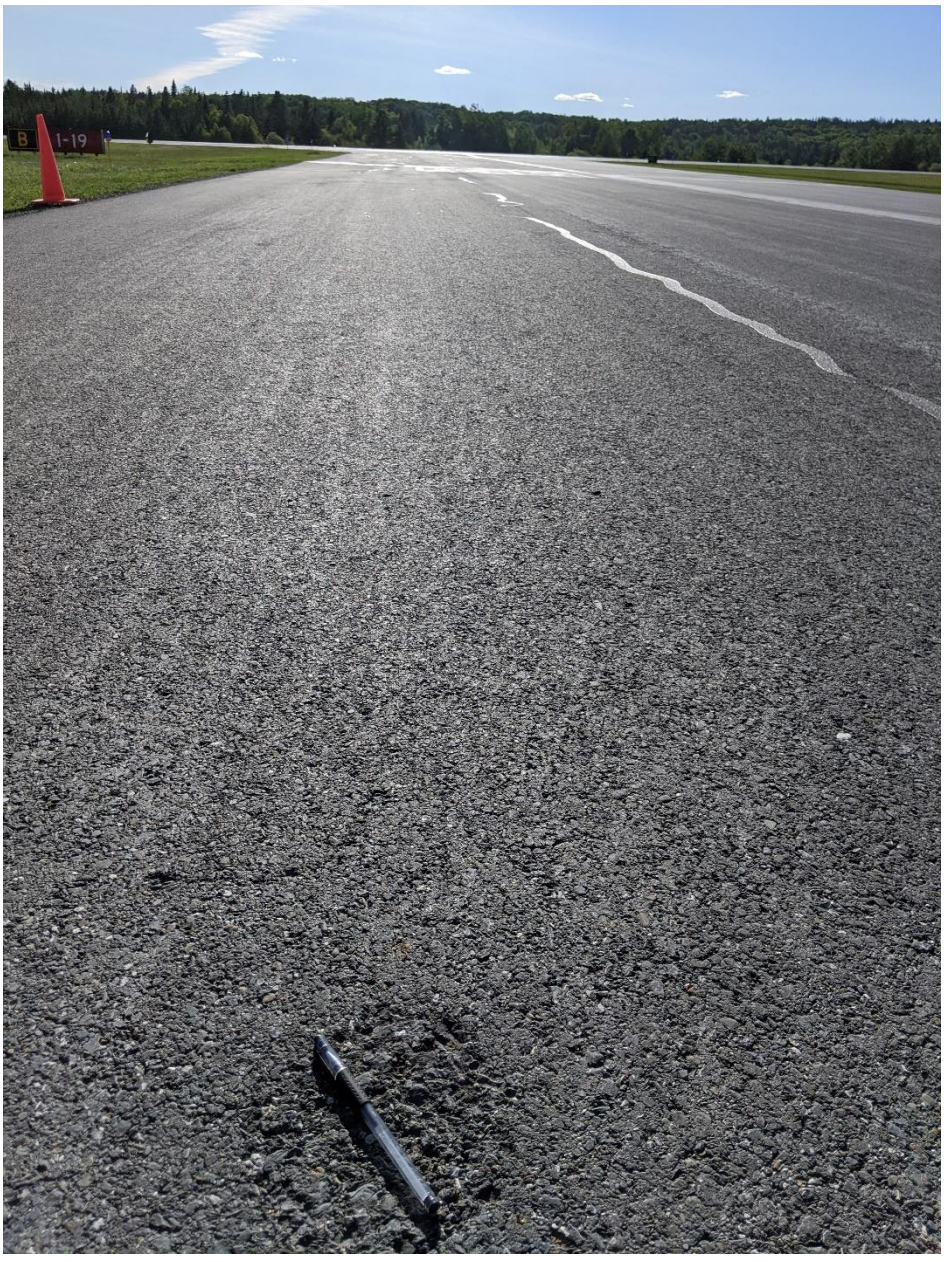
Taxiway A South Polished Aggregate

Overall Taxiway B

Taxiway B Low Weathering

Taxiway B Low Longitudinal/Transverse Cracking

Taxiway B Low Patching



Overall Taxiway C

Taxiway C Low Weathering

Taxiway C Low Longitudinal/Transverse Cracking

Overall Taxiway E

Taxiway E Low Weathering

Taxiway E Low Longitudinal/Transverse Cracking

Taxiway E High Longitudinal/Transverse Cracking

Taxiway E Medium Alligator Cracking

Taxiway E High Alligator Cracking

Taxiway E Medium Block Cracking

Taxiway E High Patching

Overall GA Apron

GA Apron Low Weathering

GA Apron Low Longitudinal/Transverse Cracking

GA Apron Low Patching

GA Apron Polished Aggregate

GA Apron Oil Spillage

Overall Terminal Apron

Terminal Apron Low Weathering

Terminal Apron Medium Weathering

Terminal Apron Low Longitudinal/Transverse Cracking

Terminal Apron Medium Alligator Cracking

Terminal Apron Medium Patching

Overall North AC Apron

North AC Apron Low Weathering

North AC Apron Low Longitudinal/Transverse Cracking

North AC Apron Medium Longitudinal/Transverse Cracking

North AC Apron Medium Alligator Cracking

North AC Apron Medium Patching

Overall North PCC Apron

North PCC Apron Low Longitudinal/Transverse/Diagonal Cracking

North PCC Apron Medium Longitudinal/Transverse/Diagonal Cracking

North PCC Apron High Longitudinal/Transverse/Diagonal Cracking

North PCC Apron Low Patching

North PCC Apron Medium Patching

North PCC Apron High Patching

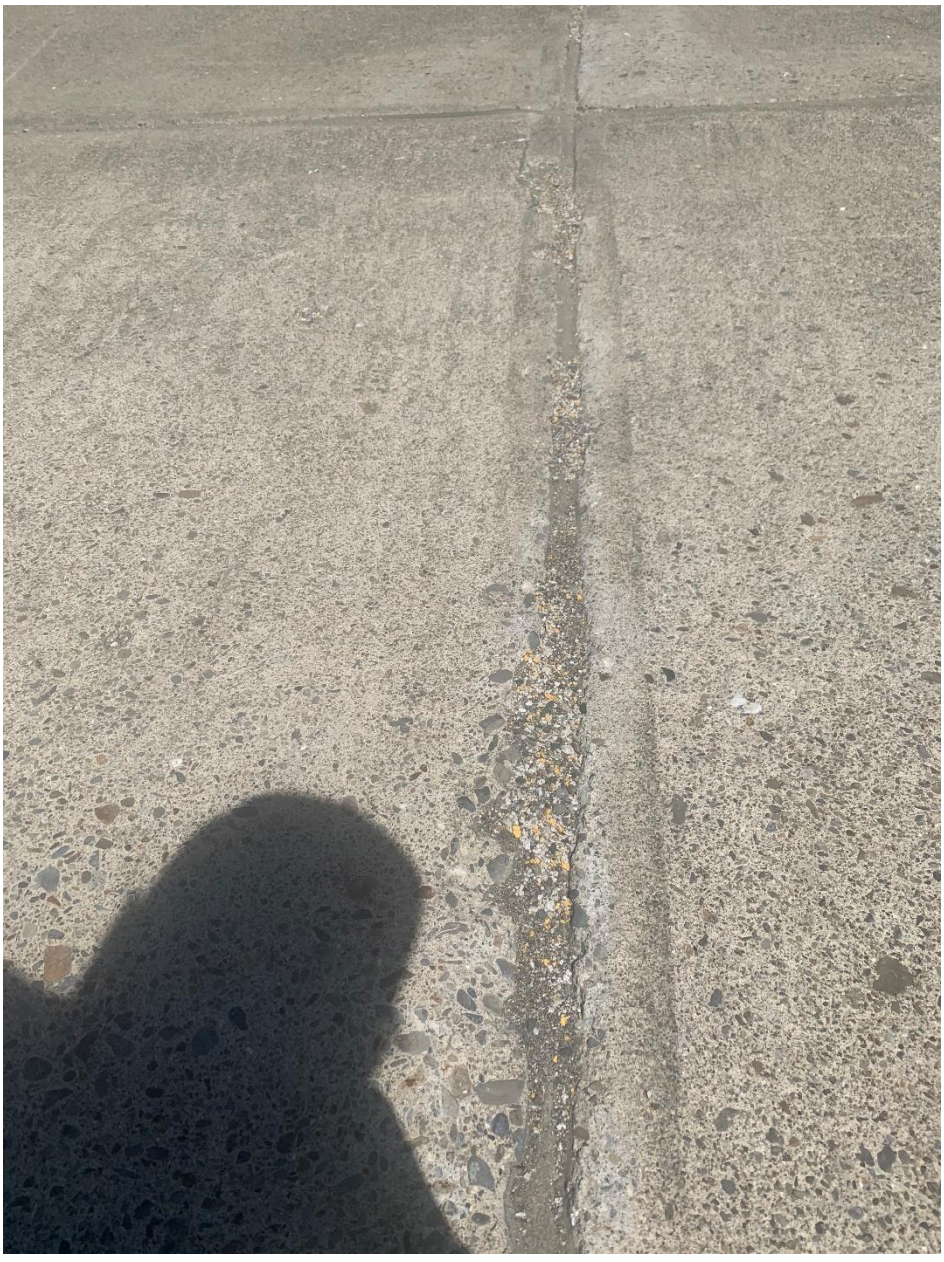
North PCC Apron Low Scaling

North PCC Apron Medium Scaling

North PCC Apron High Scaling

North PCC High Settlement

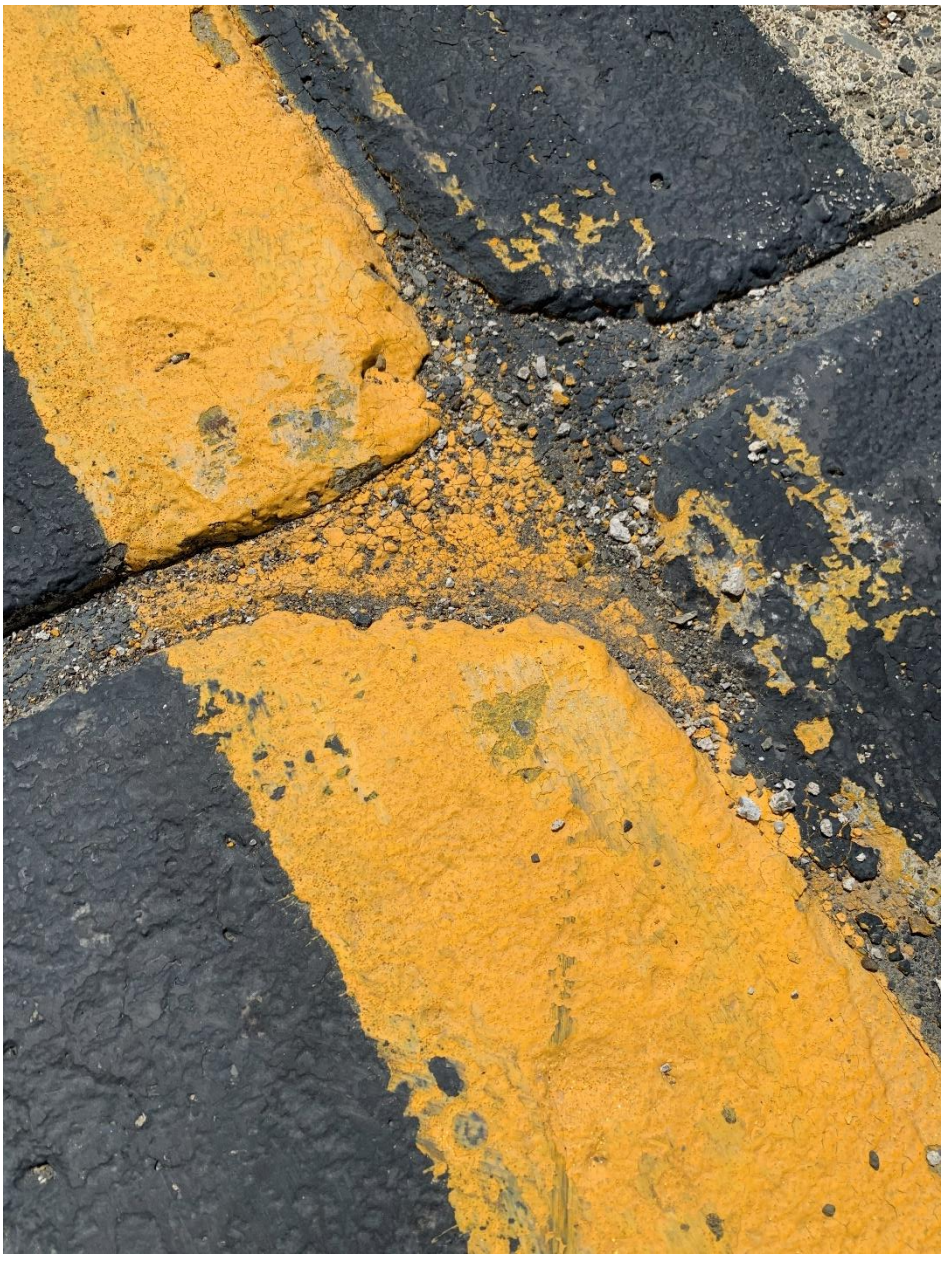
North PCC Apron Low Joint Spalling



North PCC Apron Medium Joint Spalling

North PCC Apron High Joint Spalling

North PCC Apron Medium Corner Spalling



North PCC Apron High Corner Spalling

Attachment A4:

Pavement Classification Number (PCN)

Attachment A4									
PQI Pavement Sections - PCN Results									
Network	Name	Branch	Section	PCN	Flexible or Rigid[1]	Category[2]	Tire Pressure[3]	Method Used[4]	Notes
PQI	GA Apron	GA Apron	GA Apron	21	F	C	Y	T	Fleet Mix #4
	North AC Apron	N AC Apron	N AC Apron						
	North PCC Apron	N PCC Apron	N PCC Apron						
	Newly Constructed GA Apron	New GA Apron	PCC Section	42	R	B	X	T	Fleet Mix #3
			Heavy Duty Asphalt	40	F	C	X	T	Fleet Mix #3
			Light Duty Asphalt	21	F	C	Y	T	Fleet Mix #4
	Runway 10-28	RW 10-28	RW 10-28	24	F	B	Y	T	Fleet Mix #2
	Runway 1-19	RW 1-19	RW 1-19 - 1	76	F	B	Y	T	Fleet Mix #1
			RW 1-19 - 2	81	F	B	Y	T	Fleet Mix #1
	Terminal Apron	Term Apron	Term Apron	27	F	B	Y	T	Fleet Mix #1
	Taxiway A - North	TW A North	TW A North	27	F	B	Y	T	Fleet Mix #1
	Taxiway A - Middle	TW A Mid	TW A Mid	27	F	B	Y	T	Fleet Mix #1
	Taxiway A - South	TW A South	TW A South	27	F	B	Y	T	Fleet Mix #1
	Taxiway B	TW B	TW B	27	F	B	Y	T	Fleet Mix #1
	Taxiway C	TW C	TW C	20	F	B	Y	T	Fleet Mix #1
	Taxiway E	TW E	TW E						

[1]F=Flexible; R=Rigid

[2]Subgrade Category: B=Rigid (k 295 pci) Felxible (CBR 10); C=Flexible (CBR 6)

[3]X=254 psi; Y=145 psi

[4]T=Technical

No PCN as these sections are planned to be decommissioned

ATTACHMENT A4

Fleet Mix #1		
Aircraft Name	**Annual Departures**	**Weight (lbs)**
Cirrus SR22	1,423	2,358
Piper PA-46T	30	6,000
Cessna 208 Caravan	930	8,000
Beechcraft Model 99	821	11,300
Cessna 525A Citation CJ2	190	10,800
Douglas DC-3	16	25,199
Embraer ERJ-145XR	539	53,131
Embraer EMB 110	59	13,010
Beechcraft Super King Air 200	58	12,500
Learjet 75	7	21,500
Embraer E190	2	105,359
Gulfstream IV	2	75,000

Fleet Mix #2		
Aircraft Name	**Annual Departures**	**Weight (lbs)**
Cirrus SR22	219	2,358
Cessna 208 Caravan	134	8,000
Learjet 45	7	21,500
Cessna 525A Citation CJ2	44	10,800
Douglas DC-3	2	25,199
Embraer ERJ-145XR	36	53,131
Gulfstream IV	2	75,000
Beechcraft Model 99	100	11,300

Fleet Mix #3		
Aircraft Name	**Annual Departures**	**Weight (lbs)**
Gulfstream II	297	66,000
Beechcraft Super King Air 300	364	16,600
Cessna 208B Grand Caravan	1667	8,750
Rans S-20 Raven	305	13,010
Saab 340B	1935	29,000
Airbus A320-100	42	150,796
Lockheed C-130 Hercules	51	155,000

Fleet Mix #4		
Aircraft Name	**Annual Departures**	**Weight (lbs)**
Gulfstream II	297	66,000
Beechcraft Super King Air 300	364	16,600
Cessna 208B Grand Caravan	1,667	8,750
Rans S-20 Raven	305	13,010
Saab 340B	1,935	29,000

Attachment A5:

M&R Work Descriptions

A5. M&R Work Descriptions

FLEXIBLE PAVEMENT (AC) WORK DESCRIPTIONS

Reconstruction

Reconstruction is recommended when pavements have deteriorated to the point where preventative maintenance techniques and pavement rehabilitation are no longer viable. The unit price assumes excavation of the existing pavement section down to subgrade, installation of a geotextile fabric membrane, 18-inches of P-209 base course material, and 11-inches of P-401 AC material.

Resurfacing

A form of pavement rehabilitation that eliminates minor distresses in asphalt pavement and extends pavement life. The unit price in this PMP assumes a nominal 2-inch mill, pavement repairs, and 2-inch inlay.

Overlay

Overlays are used to address load related distresses and increase pavement load bearing/structural capacity. The overlay unit prices in this PMP include a nominal 2-inch mill of existing pavement, pavement repairs, and overlays at various depths depending on the needs of the pavement section.

Patching

Patches may be either partial depth or full depth. They are used to eliminate distresses that have FOD potential. Temporary cold patching material may be used for short term repairs but should be replaced with FAA P-401 hot mix asphalt or an equivalent DOT product.

Crack Repair/Sealing

The most common type of preventative maintenance, crack repair/sealing, is highly effective at extending pavement life by preventing moisture from seeping into the pavement section. Cracks of a more severe nature should be routed before sealing operations take place.

Surface Treatment/Rejuvenation

Application of a high quality, penetrating sealer to the surface of asphalt pavement. Patching and/or crack sealing may take place before the placement of sealer.

RIGID PAVEMENT (PCC) WORK DESCRIPTIONS

Reconstruction

Reconstruction is recommended when pavements have deteriorated to the point where preventative maintenance techniques and pavement rehabilitation are no longer viable. The unit price assumes excavation of the existing pavement section down to subgrade, installation of a geotextile fabric membrane, 18-inches of P-209 base course material, and 17-inches of P-501 PCC material.

Surface Reconstruction

Surface reconstruction consists of the demolition of the top layer of concrete through rubbilization or a crack and seat process. Through this process, reflective crack is minimized and the pavement section retains its compacted state. A new surface layer of PCC is placed.

Slab Replacement/Full Depth Patching

Shattered slabs, scaling, and high-severity blowups usually necessitate this repair method. The unit price in this PMP includes sawcutting of the existing concrete, removal of the slab and subbase to subgrade, installation of 18-inches of new P-209 base material, and placement of new concrete at a depth of 17-inches.

Partial Depth Patching

Partial depth patching of existing PCC is an effective method to treat a variety of distresses most notably joint spalling and corner spalling. Unit price assumes removal and replacement of concrete to a depth of 2-inches.

Joint Seal Repair/Replacement

The most common type of preventative maintenance, crack repair/sealing, is highly effective at extending pavement life by preventing moisture from seeping into the pavement section. Cracks of a more severe nature should be routed before sealing operations take place.

Attachment A6:

5-Year Short-Term and 20-Year Long Term Capital Improvement Plans

ATTACHMENT A6 - 5-YEAR MAINTENANCE AND REHABILITATION PLAN (MSL=70)						
Branch	**Section**	**2021**	**2022**	**2023**	**2024**	**2025**
GA APRON	GA APRON	Major Below Critical Before:68.61 After:100	Do Nothing Before:91.15 After:91.15	Do Nothing Before:84.8 After:84.8	Do Nothing Before:80.37 After:80.37	Preventive Before:77.39 After:78.18
NEW GA APRON	ASPHALT SECTION	Do Nothing Before:92.44 After:92.44	Preventive Before:85.71 After:87.54	Preventive Before:82.27 After:83.69	Preventive Before:79.61 After:80.7	Do Nothing Before:77.6 After:77.6
	FUEL PAD	Do Nothing Before:92.46 After:92.46	Preventive Before:85.73 After:87.55	Preventive Before:82.28 After:83.7	Preventive Before:79.62 After:80.71	Preventive Before:77.61 After:78.43
	PCC SECTION	Do Nothing Before:92.46 After:92.46	Preventive Before:85.73 After:87.55	Preventive Before:82.28 After:83.7	Preventive Before:79.62 After:80.71	Do Nothing Before:77.61 After:77.61
RW 10-28	RW 10-28	Preventive Before:78.72 After:79.69	Preventive Before:76.93 After:77.66	Preventive Before:75.59 After:76.14	Preventive Before:74.58 After:74.99	Preventive Before:73.81 After:74.13
RW 1-19	RW 1-19 - 1	Major Below Critical Before:66.24 After:100	Do Nothing Before:91.15 After:91.15	Preventive Before:84.8 After:86.52	Preventive Before:81.55 After:82.88	Preventive Before:79.07 After:80.09
	RW 1-19 - 2	Do Nothing Before:72.17 After:72.17	Do Nothing Before:71.39 After:71.39	Do Nothing Before:70.48 After:70.48	Major Below Critical Before:69.37 After:100	Do Nothing Before:91.15 After:91.15
TERMINAL APRON	TERMINAL APRON	Major Below Critical Before:60.88 After:100	Do Nothing Before:91.15 After:91.15	Preventive Before:84.8 After:86.52	Do Nothing Before:81.56 After:81.56	Do Nothing Before:78.18 After:78.18
TW A	TW A - MIDDLE	Major Below Critical Before:68.26 After:100	Do Nothing Before:96.02 After:96.02	Do Nothing Before:92.38 After:92.38	Preventive Before:89.02 After:90.1	Preventive Before:86.95 After:87.96
	TW A - NORTH	Preventive Before:85.52 After:86.49	Preventive Before:83.65 After:84.56	Preventive Before:81.88 After:82.75	Preventive Before:80.22 After:81.03	Do Nothing Before:78.65 After:78.65
	TW A - SOUTH	Preventive Before:72.86 After:73.46	Preventive Before:71.7 After:72.27	Preventive Before:70.6 After:71.14	Major Below Critical Before:69.54 After:100	Do Nothing Before:96.02 After:96.02
TW B	TW B - 1	Preventive Before:80.11 After:80.91	Preventive Before:78.55 After:79.31	Preventive Before:77.08 After:77.8	Preventive Before:75.69 After:76.37	Preventive Before:74.38 After:75.02
	TW B - 2	Preventive Before:83.71 After:84.63	Preventive Before:81.95 After:82.81	Preventive Before:80.28 After:81.1	Preventive Before:78.71 After:79.47	Preventive Before:77.23 After:77.95
TW C	TW C - 1	Preventive Before:78.31 After:79.06	Preventive Before:76.85 After:77.56	Preventive Before:75.48 After:76.15	Preventive Before:74.18 After:74.81	Preventive Before:72.95 After:73.55
	TW C - 2	Major Below Critical Before:69.2 After:100	Do Nothing Before:96.02 After:96.02	Do Nothing Before:92.38 After:92.38	Preventive Before:89.02 After:90.1	Preventive Before:86.95 After:87.96

ATTACHMENT A6 - 20-YEAR MAINTENANCE AND REHABILITATION PLAN (MSL=70)

Branch	Section	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
GA APRON	GA APRON	Major Below Critical Before:68.61 After:100	Do Nothing Before:91.15 After:91.15	Do Nothing Before:84.8 After:84.8	Do Nothing Before:80.37 After:80.37	Preventive Before:77.39 After:78.18	Do Nothing Before:75.93 After:75.93	Do Nothing Before:74.45 After:74.45	Do Nothing Before:73.43 After:73.43	Do Nothing Before:72.64 After:72.64	Do Nothing Before:71.9 After:71.9	Do Nothing Before:71.08 After:71.08	Preventive Before:70.1 After:70.42	Major Below Critical Before:69.3 After:100	Do Nothing Before:91.15 After:91.15	Preventive Before:84.8 After:86.52	Preventive Before:81.56 After:82.88	Do Nothing Before:79.08 After:79.08	Do Nothing Before:76.53 After:76.53	Do Nothing Before:74.85 After:74.85	Do Nothing Before:73.71 After:73.71
NEW GA APRON	ASPHALT SECTION	Do Nothing Before:92.44 After:92.44	Preventive Before:85.71 After:87.54	Preventive Before:82.27 After:83.69	Preventive Before:79.61 After:80.7	Do Nothing Before:77.6 After:77.6	Do Nothing Before:75.55 After:75.55	Do Nothing Before:74.19 After:74.19	Do Nothing Before:73.24 After:73.24	Do Nothing Before:72.48 After:72.48	Preventive Before:71.73 After:71.97	Preventive Before:71.16 After:71.42	Do Nothing Before:70.51 After:70.51	Major Below Critical Before:69.41 After:100	Do Nothing Before:91.15 After:91.15	Preventive Before:84.8 After:86.52	Preventive Before:81.56 After:82.88	Preventive Before:79.08 After:80.09	Do Nothing Before:77.2 After:77.2	Do Nothing Before:75.29 After:75.29	Do Nothing Before:74.02 After:74.02
	FUEL PAD	Do Nothing Before:92.46 After:92.46	Preventive Before:85.73 After:87.55	Preventive Before:82.28 After:83.7	Preventive Before:79.62 After:80.71	Preventive Before:77.61 After:78.43	Preventive Before:76.1 After:76.71	Preventive Before:74.97 After:75.43	Preventive Before:74.11 After:74.46	Preventive Before:73.44 After:73.72	Preventive Before:72.88 After:73.12	Preventive Before:72.37 After:72.59	Do Nothing Before:71.85 After:71.85	Preventive Before:71.03 After:71.29	Do Nothing Before:70.36 After:70.67	Major Below Critical Before:69.6 After:100	Do Nothing Before:91.13 After:91.13	Preventive Before:84.79 After:86.5	Preventive Before:81.56 After:82.88	Preventive Before:79.08 After:80.09	Preventive Before:77.19 After:77.96
	PCC SECTION	Do Nothing Before:92.46 After:92.46	Preventive Before:85.73 After:87.55	Preventive Before:82.28 After:83.7	Preventive Before:79.62 After:80.71	Do Nothing Before:77.61 After:77.61	Do Nothing Before:75.56 After:75.56	Do Nothing Before:74.2 After:74.2	Do Nothing Before:73.25 After:73.25	Do Nothing Before:72.49 After:72.49	Do Nothing Before:71.74 After:71.74	Preventive Before:70.9 After:71.17	Do Nothing Before:70.21 After:70.21	Major Below Critical Before:69.05 After:100	Do Nothing Before:91.15 After:91.15	Preventive Before:84.8 After:86.52	Preventive Before:81.56 After:82.88	Do Nothing Before:79.08 After:79.08	Do Nothing Before:76.53 After:76.53	Do Nothing Before:74.85 After:74.85	Do Nothing Before:73.71 After:73.71
RW 10-28	RW 10-28	Preventive Before:78.72 After:79.69	Preventive Before:76.93 After:77.66	Preventive Before:75.59 After:76.14	Preventive Before:74.58 After:74.99	Preventive Before:73.81 After:74.13	Preventive Before:73.2 After:73.46	Preventive Before:72.67 After:72.9	Preventive Before:72.16 After:72.38	Preventive Before:71.63 After:71.87	Do Nothing Before:71.04 After:71.04	Do Nothing Before:70.05 After:70.05	Major Below Critical Before:68.98 After:100	Do Nothing Before:91.15 After:91.15	Preventive Before:84.8 After:86.52	Preventive Before:81.57 After:82.9	Preventive Before:79.07 After:80.09	Preventive Before:77.2 After:77.96	Preventive Before:75.79 After:76.36	Preventive Before:74.74 After:75.17	Preventive Before:73.93 After:74.26
RW 1-19	RW 1-19 - 1	Major Below Critical Before:66.24 After:100	Do Nothing Before:91.15 After:91.15	Preventive Before:84.8 After:86.52	Preventive Before:81.55 After:82.88	Preventive Before:79.07 After:80.09	Preventive Before:77.2 After:77.96	Preventive Before:75.79 After:75.79	Preventive Before:74.35 After:74.35	Preventive Before:73.36 After:73.36	Preventive Before:72.58 After:72.81	Preventive Before:72.08 After:72.3	Preventive Before:71.54 After:71.78	Preventive Before:70.94 After:71.22	Preventive Before:70.26 After:70.58	Major Below Critical Before:69.49 After:100	Do Nothing Before:91.13 After:91.13	Preventive Before:84.79 After:86.5	Preventive Before:81.55 After:82.88	Preventive Before:79.07 After:80.09	Preventive Before:77.19 After:77.96
	RW 1-19 - 2	Do Nothing Before:72.17 After:72.17	Do Nothing Before:71.39 After:71.39	Do Nothing Before:70.48 After:70.48	Major Below Critical Before:69.37 After:100	Do Nothing Before:91.15 After:91.15	Do Nothing Before:84.8 After:84.8	Do Nothing Before:80.38 After:80.38	Do Nothing Before:77.38 After:77.38	Do Nothing Before:75.41 After:75.41	Do Nothing Before:74.1 After:74.1	Do Nothing Before:73.18 After:73.18	Do Nothing Before:72.42 After:72.42	Do Nothing Before:71.67 After:71.67	Do Nothing Before:70.81 After:70.81	Major Below Critical Before:69.78 After:100	Do Nothing Before:91.13 After:91.13	Preventive Before:84.79 After:86.5	Preventive Before:81.55 After:82.88	Do Nothing Before:79.07 After:79.07	Do Nothing Before:76.52 After:76.52
TERMINAL APRON	TERMINAL APRON	Major Below Critical Before:60.88 After:100	Do Nothing Before:91.15 After:91.15	Preventive Before:84.8 After:86.52	Do Nothing Before:81.56 After:81.56	Do Nothing Before:78.18 After:78.18	Do Nothing Before:75.93 After:75.93	Do Nothing Before:74.45 After:74.45	Do Nothing Before:73.43 After:73.43	Do Nothing Before:72.64 After:72.64	Preventive Before:71.9 After:72.13	Do Nothing Before:71.35 After:71.35	Preventive Before:70.43 After:70.73	Major Below Critical Before:69.68 After:100	Preventive Before:91.15 After:91.15	Preventive Before:84.8 After:86.52	Preventive Before:81.56 After:82.88	Preventive Before:79.08 After:79.08	Do Nothing Before:76.53 After:76.53	Do Nothing Before:74.85 After:74.85	Do Nothing Before:73.71 After:73.71
TW A	TW A - MIDDLE	Major Below Critical Before:58.26 After:100	Do Nothing Before:96.02 After:96.02	Do Nothing Before:92.38 After:92.38	Preventive Before:89.02 After:90.1	Do Nothing Before:86.95 After:87.96	Do Nothing Before:84.99 After:84.99	Preventive Before:82.28 After:83.15	Do Nothing Before:80.59 After:80.59	Do Nothing Before:78.25 After:78.25	Preventive Before:76.11 After:76.8	Preventive Before:74.78 After:75.43	Preventive Before:73.52 After:74.13	Preventive Before:72.33 After:72.91	Preventive Before:71.19 After:71.75	Preventive Before:70.11 After:70.64	Major Below Critical Before:69.07 After:100	Do Nothing Before:96.02 After:96.02	Do Nothing Before:92.38 After:92.38	Do Nothing Before:89.03 After:90.11	Preventive Before:86.95 After:87.96
	TW A - NORTH	Preventive Before:85.52 After:86.49	Preventive Before:83.65 After:84.56	Preventive Before:81.88 After:82.75	Preventive Before:80.22 After:81.03	Do Nothing Before:78.65 After:78.65	Do Nothing Before:76.48 After:76.48	Do Nothing Before:74.49 After:74.49	Do Nothing Before:72.65 After:72.65	Do Nothing Before:70.95 After:70.95	Major Below Critical Before:69.37 After:100	Do Nothing Before:96.02 After:96.02	Do Nothing Before:92.37 After:92.37	Preventive Before:89.02 After:90.1	Preventive Before:86.95 After:87.96	Preventive Before:84.99 After:85.95	Preventive Before:83.14 After:84.04	Preventive Before:81.41 After:82.25	Do Nothing Before:79.78 After:79.78	Preventive Before:77.51 After:78.24	Do Nothing Before:76.09 After:76.09
	TW A - SOUTH	Preventive Before:72.86 After:73.46	Preventive Before:71.7 After:72.27	Preventive Before:70.6 After:71.14	Major Below Critical Before:69.54 After:100	Do Nothing Before:96.02 After:96.02	Do Nothing Before:92.38 After:92.38	Preventive Before:89.03 After:90.11	Preventive Before:86.95 After:87.96	Do Nothing Before:84.99 After:84.99	Preventive Before:82.28 After:83.15	Preventive Before:80.59 After:81.41	Preventive Before:79 After:79.78	Preventive Before:77.51 After:78.24	Preventive Before:76.1 After:76.79	Preventive Before:74.77 After:75.42	Preventive Before:73.5 After:74.12	Preventive Before:72.31 After:72.9	Do Nothing Before:71.18 After:71.18	Major Below Critical Before:69.58 After:100	Do Nothing Before:96.01 After:96.01
TW B	TW B - 1	Preventive Before:80.11 After:80.91	Preventive Before:78.55 After:79.31	Preventive Before:77.08 After:77.8	Preventive Before:75.69 After:76.37	Preventive Before:74.38 After:75.02	Do Nothing Before:73.14 After:73.14	Preventive Before:71.41 After:71.97	Preventive Before:70.32 After:70.85	Major Below Critical Before:69.27 After:100	Do Nothing Before:96.02 After:96.02	Do Nothing Before:92.38 After:92.38	Preventive Before:89.02 After:90.1	Preventive Before:86.95 After:87.96	Preventive Before:84.99 After:85.95	Preventive Before:83.15 After:84.05	Preventive Before:81.41 After:82.25	Preventive Before:79.78 After:80.57	Preventive Before:78.24 After:78.99	Preventive Before:76.79 After:77.5	Preventive Before:75.41 After:76.08
	TW B - 2	Preventive Before:83.71 After:84.63	Preventive Before:81.95 After:82.81	Preventive Before:80.28 After:81.1	Preventive Before:78.71 After:79.47	Preventive Before:77.23 After:77.95	Do Nothing Before:75.84 After:75.84	Preventive Before:73.9 After:74.52	Preventive Before:72.68 After:73.27	Preventive Before:71.53 After:72.09	Preventive Before:70.43 After:70.97	Major Below Critical Before:69.39 After:100	Do Nothing Before:96.01 After:96.01	Do Nothing Before:92.37 After:92.37	Preventive Before:89.02 After:90.1	Preventive Before:86.95 After:87.96	Preventive Before:84.98 After:85.94	Preventive Before:83.14 After:84.04	Preventive Before:81.41 After:82.25	Preventive Before:79.78 After:80.57	Preventive Before:78.23 After:78.98
TW C	TW C - 1	Preventive Before:78.31 After:79.06	Preventive Before:76.85 After:77.56	Preventive Before:75.48 After:76.15	Preventive Before:74.18 After:74.81	Preventive Before:72.95 After:73.55	Do Nothing Before:71.79 After:71.79	Preventive Before:70.15 After:70.68	Major Below Critical Before:69.11 After:100	Do Nothing Before:96.02 After:96.02	Do Nothing Before:92.38 After:92.38	Preventive Before:89.03 After:90.11	Preventive Before:86.95 After:87.96	Do Nothing Before:84.99 After:85.95	Preventive Before:83.15 After:84.05	Preventive Before:81.42 After:82.26	Preventive Before:79.78 After:80.57	Preventive Before:78.24 After:78.99	Preventive Before:76.79 After:77.5	Preventive Before:75.42 After:76.09	Preventive Before:74.12 After:74.75
	TW C - 2	Major Below Critical Before:69.2 After:100	Do Nothing Before:96.02 After:96.02	Do Nothing Before:92.38 After:92.38	Preventive Before:89.02 After:90.1	Preventive Before:86.95 After:87.96	Preventive Before:84.99 After:85.95	Preventive Before:83.15 After:84.05	Preventive Before:81.41 After:82.25	Preventive Before:79.78 After:79.78	Preventive Before:77.51 After:78.24	Preventive Before:76.1 After:76.79	Preventive Before:74.76 After:75.41	Preventive Before:73.5 After:74.12	Preventive Before:72.31 After:72.9	Preventive Before:71.18 After:71.73	Preventive Before:70.1 After:70.62	Major Below Critical Before:69.06 After:100	Do Nothing Before:96.02 After:96.02	Do Nothing Before:92.38 After:92.38	Preventive Before:89.02 After:90.1

ATTACHMENT A6 - 5-YEAR MAINTENANCE AND REHABILITATION PLAN (MSL=60)						
Branch	**Section**	**2021**	**2022**	**2023**	**2024**	**2025**
GA APRON	GA APRON	Do Nothing Before:68.61 After:68.61	Do Nothing Before:67.17 After:67.17	Do Nothing Before:65.54 After:65.54	Do Nothing Before:63.77 After:63.77	Do Nothing Before:61.92 After:61.92
NEW GA APRON	ASPHALT SECTION	Do Nothing Before:92.44 After:92.44	Do Nothing Before:85.72 After:85.72	Do Nothing Before:81.01 After:81.01	Do Nothing Before:77.81 After:77.81	Do Nothing Before:75.69 After:75.69
	FUEL PAD	Do Nothing Before:92.46 After:92.46	Preventive Before:85.73 After:86.9	Preventive Before:81.83 After:82.7	Do Nothing Before:78.94 After:78.94	Preventive Before:76.44 After:76.86
	PCC SECTION	Do Nothing Before:92.46 After:92.46	Preventive Before:85.73 After:86.9	Do Nothing Before:81.83 After:81.83	Do Nothing Before:78.36 After:78.36	Preventive Before:76.05 After:76.44
RW 10-28	RW 10-28	Preventive Before:78.72 After:79.34	Do Nothing Before:76.7 After:76.7	Do Nothing Before:74.96 After:74.96	Do Nothing Before:73.79 After:73.79	Do Nothing Before:72.94 After:72.94
RW 1-19	RW 1-19 - 1	Preventive Before:66.24 After:66.56	Preventive Before:64.87 After:65.22	Preventive Before:63.44 After:63.8	Preventive Before:61.95 After:62.32	Preventive Before:60.46 After:60.83
	RW 1-19 - 2	Do Nothing Before:72.17 After:72.17	Do Nothing Before:71.39 After:71.39	Do Nothing Before:70.48 After:70.48	Do Nothing Before:69.37 After:69.37	Do Nothing Before:68.05 After:68.05
TERMINAL APRON	TERMINAL ARON	Do Nothing Before:60.88 After:60.88	Major Below Critical Before:59.06 After:100	Do Nothing Before:91.15 After:91.15	Do Nothing Before:84.79 After:84.79	Do Nothing Before:80.37 After:80.37
TW A	TW A - MIDDLE	Do Nothing Before:68.26 After:68.26	Preventive Before:66.83 After:67.11	Preventive Before:65.72 After:65.99	Do Nothing Before:64.64 After:64.64	Do Nothing Before:63.31 After:63.31
	TW A - NORTH	Preventive Before:85.52 After:86.1	Do Nothing Before:83.29 After:83.29	Do Nothing Before:80.72 After:80.72	Do Nothing Before:78.37 After:78.37	Do Nothing Before:76.22 After:76.22
	TW A - SOUTH	Do Nothing Before:72.86 After:72.86	Do Nothing Before:71.15 After:71.15	Do Nothing Before:69.55 After:69.55	Preventive Before:68.05 After:68.34	Do Nothing Before:66.91 After:66.91
TW B	TW B - 1	Preventive Before:80.11 After:80.59	Preventive Before:78.25 After:78.7	Preventive Before:76.53 After:76.95	Do Nothing Before:74.91 After:74.91	Preventive Before:73.04 After:73.4
	TW B - 2	Preventive Before:83.71 After:84.26	Preventive Before:81.61 After:82.12	Preventive Before:79.66 After:80.13	Preventive Before:77.83 After:78.27	Preventive Before:76.13 After:76.54
TW C	TW C - 1	Preventive Before:78.31 After:78.76	Preventive Before:76.58 After:77	Preventive Before:74.96 After:75.36	Preventive Before:73.45 After:73.81	Preventive Before:72.03 After:72.38
	TW C - 2	Preventive Before:69.2 After:69.5	Preventive Before:68.01 After:68.3	Do Nothing Before:66.86 After:66.86	Preventive Before:65.48 After:65.75	Preventive Before:64.4 After:64.67

ATTACHMENT A6 - 20-YEAR MAINTENANCE AND REHABILITATION PLAN (MSL=60)

Branch	Section	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
GA APRON	GA APRON	Do Nothing Before:68.61 After:68.61	Do Nothing Before:67.17 After:67.17	Do Nothing Before:65.54 After:65.54	Do Nothing Before:63.77 After:63.77	Do Nothing Before:61.92 After:61.92	Do Nothing Before:60.07 After:60.07	Major Below Critical Before:58.28 After:100	Do Nothing Before:91.13 After:91.13	Preventive Before:84.79 After:85.89	Do Nothing Before:81.13 After:81.13	Preventive Before:77.89 After:78.44	Preventive Before:76.1 After:76.49	Do Nothing Before:74.82 After:74.82	Do Nothing Before:73.7 After:73.7	Do Nothing Before:72.87 After:72.87	Preventive Before:72.13 After:72.27	Preventive Before:71.51 After:71.67	Preventive Before:70.81 After:71	Preventive Before:70 After:70.21	Do Nothing Before:69.05 After:69.05
NEW GA APRON	ASPHALT SECTION	Do Nothing Before:92.44 After:92.44	Do Nothing Before:85.72 After:85.72	Do Nothing Before:81.01 After:81.01	Do Nothing Before:77.81 After:77.81	Do Nothing Before:75.69 After:75.69	Do Nothing Before:74.29 After:74.29	Do Nothing Before:73.32 After:73.32	Do Nothing Before:72.55 After:72.55	Do Nothing Before:71.81 After:71.81	Do Nothing Before:70.98 After:70.98	Do Nothing Before:69.98 After:69.98	Preventive Before:68.77 After:69.03	Do Nothing Before:67.65 After:67.65	Do Nothing Before:66.08 After:66.08	Do Nothing Before:64.35 After:64.35	Do Nothing Before:62.52 After:62.52	Do Nothing Before:60.66 After:60.66	Major Below Critical Before:58.85 After:100	Do Nothing Before:91.15 After:91.15	Preventive Before:84.79 After:85.89
	FUEL PAD	Do Nothing Before:92.46 After:92.46	Preventive Before:85.73 After:86.9	Preventive Before:81.83 After:82.7	Do Nothing Before:78.94 After:78.94	Preventive Before:76.44 After:76.86	Preventive Before:75.06 After:75.36	Do Nothing Before:74.07 After:74.29	Preventive Before:73.31 After:73.49	Preventive Before:72.69 After:72.84	Preventive Before:72.1 After:72.25	Preventive Before:71.48 After:71.64	Preventive Before:70.78 After:70.96	Preventive Before:69.96 After:70.18	Do Nothing Before:69.01 After:69.01	Preventive Before:67.63 After:67.92	Preventive Before:66.38 After:66.7	Preventive Before:65.02 After:65.37	Preventive Before:63.59 After:63.95	Preventive Before:62.11 After:62.48	Preventive Before:60.62 After:60.99
	PCC SECTION	Do Nothing Before:92.46 After:92.46	Preventive Before:85.73 After:86.9	Do Nothing Before:81.83 After:81.83	Do Nothing Before:78.36 After:78.36	Preventive Before:76.05 After:76.44	Do Nothing Before:74.79 After:74.79	Do Nothing Before:73.67 After:73.67	Preventive Before:72.84 After:73	Preventive Before:72.25 After:72.4	Do Nothing Before:71.65 After:71.65	Preventive Before:70.79 After:70.97	Do Nothing Before:69.97 After:69.97	Preventive Before:68.76 After:69.01	Do Nothing Before:67.63 After:67.63	Preventive Before:66.06 After:66.39	Preventive Before:64.68 After:65.03	Preventive Before:63.23 After:63.6	Preventive Before:61.75 After:62.12	Do Nothing Before:60.26 After:60.26	Major Below Critical Before:58.46 After:100
RW 10-28	RW 10-28	Preventive Before:78.72 After:79.34	Do Nothing Before:76.7 After:76.7	Do Nothing Before:76.53 After:74.96	Do Nothing Before:73.79 After:73.79	Do Nothing Before:72.94 After:72.94	Preventive Before:72.2 After:72.34	Preventive Before:71.59 After:71.75	Do Nothing Before:70.9 After:70.9	Do Nothing Before:69.88 After:69.88	Do Nothing Before:68.65 After:68.65	Do Nothing Before:67.21 After:67.21	Do Nothing Before:65.58 After:65.58	Do Nothing Before:63.81 After:63.81	Do Nothing Before:61.96 After:61.96	Do Nothing Before:60.11 After:60.11	Major Below Critical Before:58.31 After:100	Do Nothing Before:91.15 After:91.15	Preventive Before:84.8 After:85.9	Preventive Before:81.14 After:81.95	Preventive Before:78.44 After:79.03
RW 1-19	RW 1-19 - 1	Preventive Before:66.24 After:66.56	Preventive Before:64.87 After:65.22	Preventive Before:63.44 After:63.8	Preventive Before:61.95 After:62.32	Preventive Before:60.46 After:60.83	Major Below Critical Before:59.01 After:100	Do Nothing Before:91.15 After:91.15	Do Nothing Before:84.79 After:85.88	Do Nothing Before:81.13 After:81.94	Preventive Before:78.44 After:79.03	Preventive Before:76.5 After:76.92	Preventive Before:75.1 After:75.41	Preventive Before:74.1 After:74.32	Preventive Before:73.34 After:73.51	Preventive Before:72.71 After:72.86	Preventive Before:72.12 After:72.27	Preventive Before:71.51 After:71.67	Preventive Before:70.81 After:70.99	Preventive Before:69.99 After:70.21	Preventive Before:69.04 After:69.29
	RW 1-19 - 2	Do Nothing Before:72.17 After:72.17	Do Nothing Before:71.39 After:71.39	Do Nothing Before:70.48 After:70.48	Do Nothing Before:69.37 After:69.37	Do Nothing Before:68.05 After:68.05	Do Nothing Before:66.53 After:66.53	Do Nothing Before:64.84 After:64.84	Do Nothing Before:63.03 After:63.03	Do Nothing Before:61.17 After:61.17	Major Below Critical Before:59.34 After:100	Do Nothing Before:91.15 After:91.15	Do Nothing Before:84.79 After:85.88	Preventive Before:81.13 After:81.94	Preventive Before:78.44 After:79.03	Do Nothing Before:76.5 After:76.5	Do Nothing Before:74.82 After:74.82	Do Nothing Before:73.7 After:73.7	Do Nothing Before:72.87 After:72.87	Do Nothing Before:72.13 After:72.13	Do Nothing Before:71.35 After:71.35
TERMINAL APRON	TERMINAL APRON	Do Nothing Before:60.88 After:60.88	Major Below Critical Before:59.06 After:100	Do Nothing Before:91.15 After:91.15	Do Nothing Before:84.79 After:84.79	Do Nothing Before:80.37 After:80.37	Do Nothing Before:77.38 After:77.38	Do Nothing Before:75.41 After:75.41	Do Nothing Before:74.1 After:74.1	Do Nothing Before:73.18 After:73.18	Do Nothing Before:72.42 After:72.42	Preventive Before:71.67 After:71.67	Do Nothing Before:70.81 After:70.81	Do Nothing Before:69.77 After:69.77	Do Nothing Before:68.52 After:68.52	Preventive Before:67.07 After:67.37	Do Nothing Before:65.76 After:65.76	Do Nothing Before:64.01 After:64.01	Do Nothing Before:62.17 After:62.17	Do Nothing Before:60.31 After:60.31	Major Below Critical Before:58.51 After:100
TW A	TW A - MIDDLE	Do Nothing Before:68.26 After:68.26	Preventive Before:66.83 After:67.11	Preventive Before:65.72 After:65.99	Do Nothing Before:64.64 After:64.64	Do Nothing Before:63.31 After:63.31	Do Nothing Before:61.98 After:61.98	Do Nothing Before:60.63 After:60.63	Major Below Critical Before:59.22 After:100	Do Nothing Before:96.02 After:96.02	Do Nothing Before:92.38 After:92.38	Preventive Before:89.03 After:89.68	Preventive Before:86.55 After:87.15	Preventive Before:84.25 After:84.81	Do Nothing Before:82.11 After:82.11	Preventive Before:79.65 After:80.12	Preventive Before:77.82 After:78.26	Preventive Before:76.12 After:76.53	Preventive Before:74.54 After:74.92	Preventive Before:73.05 After:73.41	Do Nothing Before:71.66 After:71.66
	TW A - NORTH	Preventive Before:85.52 After:86.1	Do Nothing Before:83.29 After:83.29	Do Nothing Before:80.72 After:80.72	Do Nothing Before:78.37 After:78.37	Do Nothing Before:76.22 After:76.22	Do Nothing Before:74.25 After:74.25	Do Nothing Before:72.43 After:72.43	Preventive Before:70.75 After:71.07	Preventive Before:69.48 After:69.79	Preventive Before:68.28 After:68.57	Preventive Before:67.12 After:67.41	Do Nothing Before:66.01 After:66.01	Do Nothing Before:64.66 After:64.66	Do Nothing Before:63.33 After:63.33	Do Nothing Before:62 After:62	Do Nothing Before:60.64 After:60.64	Major Below Critical Before:59.25 After:100	Do Nothing Before:96.02 After:96.02	Do Nothing Before:92.38 After:92.38	Preventive Before:89.02 After:89.67
	TW A - SOUTH	Do Nothing Before:72.86 After:72.86	Do Nothing Before:71.15 After:71.15	Do Nothing Before:69.55 After:69.55	Preventive Before:68.05 After:68.34	Do Nothing Before:66.91 After:66.91	Do Nothing Before:65.53 After:65.53	Do Nothing Before:64.19 After:64.19	Do Nothing Before:62.85 After:63.12	Preventive Before:61.79 After:62.05	Preventive Before:60.7 After:60.98	Major Below Critical Before:59.59 After:100	Do Nothing Before:96.01 After:96.01	Do Nothing Before:92.37 After:92.37	Preventive Before:89.02 After:89.67	Preventive Before:86.55 After:87.15	Preventive Before:84.25 After:84.8	Preventive Before:82.11 After:82.63	Preventive Before:80.12 After:80.6	Preventive Before:78.26 After:78.71	Preventive Before:76.53 After:76.95
TW B	TW B - 1	Preventive Before:80.11 After:80.59	Preventive Before:78.25 After:78.7	Preventive Before:76.53 After:76.95	Do Nothing Before:74.91 After:74.91	Preventive Before:73.04 After:73.4	Preventive Before:71.65 After:71.99	Do Nothing Before:70.34 After:70.34	Preventive Before:68.79 After:69.09	Preventive Before:67.61 After:67.9	Preventive Before:66.49 After:66.76	Preventive Before:65.39 After:65.66	Preventive Before:64.31 After:64.58	Preventive Before:63.25 After:63.51	Preventive Before:62.18 After:62.45	Preventive Before:61.11 After:61.38	Major Below Critical Before:60 After:100	Do Nothing Before:96.02 After:96.02	Do Nothing Before:92.38 After:92.38	Preventive Before:89.03 After:89.68	Preventive Before:86.55 After:87.15
	TW B - 2	Preventive Before:83.71 After:84.26	Preventive Before:81.61 After:82.12	Preventive Before:79.66 After:80.13	Preventive Before:77.83 After:78.27	Preventive Before:76.13 After:76.54	Preventive Before:74.54 After:74.93	Preventive Before:73.06 After:73.06	Preventive Before:71.33 After:71.66	Preventive Before:70.03 After:70.35	Preventive Before:68.8 After:69.11	Preventive Before:67.63 After:67.92	Preventive Before:66.5 After:66.78	Preventive Before:65.4 After:65.67	Preventive Before:64.32 After:64.59	Preventive Before:63.26 After:63.53	Preventive Before:62.19 After:62.46	Preventive Before:61.12 After:61.39	Preventive Before:60.02 After:60.3	Major Below Critical Before:58.89 After:100	Do Nothing Before:96.01 After:96.01
TW C	TW C - 1	Preventive Before:78.31 After:78.76	Preventive Before:76.58 After:77	Preventive Before:74.96 After:75.36	Preventive Before:73.45 After:73.81	Preventive Before:72.03 After:72.38	Preventive Before:70.7 After:71.02	Preventive Before:69.44 After:69.74	Preventive Before:68.23 After:68.53	Preventive Before:67.08 After:67.36	Preventive Before:65.97 After:66.24	Preventive Before:64.88 After:65.15	Preventive Before:63.81 After:64.08	Preventive Before:62.75 After:63.01	Preventive Before:61.68 After:61.95	Preventive Before:60.59 After:60.87	Major Below Critical Before:59.48 After:100	Do Nothing Before:96.02 After:96.02	Do Nothing Before:92.38 After:92.38	Preventive Before:89.03 After:89.68	Preventive Before:86.55 After:87.15
	TW C - 2	Preventive Before:69.2 After:69.5	Preventive Before:68.01 After:68.3	Do Nothing Before:66.86 After:66.86	Preventive Before:65.48 After:65.75	Preventive Before:64.4 After:64.67	Do Nothing Before:63.34 After:63.34	Preventive Before:62.01 After:62.01	Preventive Before:60.65 After:60.93	Major Below Critical Before:59.54 After:100	Do Nothing Before:96.02 After:96.02	Do Nothing Before:92.38 After:92.38	Preventive Before:89.02 After:89.67	Preventive Before:86.55 After:87.15	Preventive Before:84.25 After:84.81	Preventive Before:82.11 After:82.63	Preventive Before:80.12 After:80.6	Preventive Before:78.26 After:78.71	Preventive Before:76.53 After:76.95	Preventive Before:74.92 After:75.32	Preventive Before:73.41 After:73.78

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Appendix B

Waste Management Plan

McFarland Johnson

Stantec

B. Waste Management Plan

The Federal Aviation Administration (FAA) Modernization and Reform Act of 2012 requires airports to address recycling and waste management in airport master planning documents. On September 30, 2014, the FAA released a memorandum that provides guidance on how to meet those requirements. The intention is to develop a recycling plan and reduce the creation of solid airport waste. Moving forward, airport master plans and Airport Improvement Plan (AIP) funded projects must address issues associated with solid waste recycling at the airports.

The key steps to addressing waste management and recycling at Presque Isle International Airport (PQI or the Airport) include:

- **Conduct Waste Audit:** This includes collection of available baseline information on the Airport's waste management program, such as service contracts, costs, and data related waste and recycling materials produced, collected, and hauled. This was conducted on October 16, 2018 and a follow-up review conducted on November 3, 2020 after Presque Isle Landfill and Tri-Community Landfill merged on January 1, 2019.

- **Assess Existing Waste Management Program:** Drawing on available data and conversations with key Airport staff, this assessment documents waste collection practices at the Airport.

- **Assess Opportunities for Expansion of Recycling Program:** The result of reviewing existing waste collection practices at the Airport highlights opportunities for improvement and/or expansion.

- **Develop Recommendations:** Recommendations for improvement and/or expansion of waste management and recycling practices and/or programs at the Airport focuses on the pursuit of specific and measurable performance targets.

- **Measure Performance:** Continuous monitoring of waste and recyclable materials generation at the Airport.

The main objective of recycling is to reduce the amount of waste being disposed at the landfill through reuse, waste reduction, or recycling materials.

This Appendix meets the FAA requirement by elaborating on the solid waste and recycling practices at the Airport in the following sections:

- Overview of Types of Solid Waste Generated at Airports
- Facility Description and Background
- Existing Waste Management and Recycling
- Opportunities and Recommendations for Waste Management and Recycling Plan

B.1. OVERVIEW OF TYPES OF SOLID WASTE GENERATED AT AIRPORTS

The following are the four types of waste generated at an airport:

- **Municipal Solid Waste (MSW):** Everyday items that are used and then discarded that could be recycled, such as glass and plastic bottles and containers, aluminum, steel, and paper products.

- **Construction and Demolition (C&D) Debris:** Non-hazardous waste produced by land clearing, excavation, repairs, renovation, demolition, or construction projects. C&D debris comprises of such materials as wood, soil, metal, concrete, asphalt, gravel, brick, drywall, carpet, pipe, and roofing material.

- **Compostables:** Waste categorized as food or green waste. Food waste is defined as food that was not consumed or waste generated during food preparation. Green waste is defined as debris generated from landscaping activities, such as grass clippings, tree or shrub branches, leaves, and weeds.

- **Deplaned Waste:** Waste that is produced by a passenger aircraft, such as bottles, cans, newspapers, magazines, plastic cups and utensils, paper towels, and food waste.

B.2. FACILITY DESCRIPTION AND BACKGROUND

As described in detail in Chapter 2, *Inventory*, the Airport is located one-mile northwest of downtown Presque Isle. The Airport property is in the City of Presque Isle and the Town of Mapleton. The Airport is classified as an international commercial airport. The Airport contains four taxiways, two runways, one terminal building, two corporate hangars, one five-unit box hangar, and four former military hangars.

B.3. EXISTING WASTE MANAGEMENT AND RECYCLING

To identify options for improving waste management and recycling at PQI, a review of the Airport's existing waste management and recycling program was performed. This review relied predominantly upon data available from the Airport and the private company currently contracted to collect and haul waste and recyclables from PQI. Data collected is limited to quantitative information from existing contract documents and invoices pertaining to services provided, as well interviews with Airport leadership and the contractor.

The primary sources of waste and recyclable materials at PQI are understood as follows:

- **Terminal Public Area:** Materials generated in the terminal building by passengers.

- **Terminal Operations and Tenants:** Materials generated in the terminal building by staff of PQI, Presque Isle Industrial Council, airlines, rental car agencies, FAA, Transportation Security Administration (TSA), and Customs and Border Protection (CBP).

- **Aircraft:** Materials generated by passengers and crew on arriving aircraft. This is referred to as "deplaned waste."

- **Other Airport Businesses:** Materials generated by other businesses located on the Airport, such as the Fixed Base Operator, aircraft maintenance shop, and charter operator.
- **Airport Contractors:** Materials generated by contractors performing work on the Airport. These materials are commonly referred to as C&D waste.

Conversations with Airport management staff indicate the following practices related to waste and recycling:

- **PQI Staff Practices:** There are trash and recycling receptacles in the terminal and employee spaces. Airport staff keeps records of the estimated volume and weight of trash and cardboard materials collected.
- **Airport Businesses not in the Terminal Building:** There is a dumpster located behind the general aviation (GA) terminal hangar that is utilized by the GA terminal hangar and the corporate hangar tenants.
- **Deplaned Waste and Recyclable Practices:** Deplaned waste and recycling is handled by the aircraft carrier.
- **Airport Contractor Practices:** Star City Sanitation collects waste from the Airport and brings it to the city landfill.

The Presque Isle Landfill is the closest landfill to the Airport and is located at 202 Lathrop Road, Presque Isle, ME, and this is a disposal facility for trash and C&D debris. The facility accepts scrap metal, tires, wood waste, hot loads, special waste, and compostable waste. Special waste is defined as any solid waste generated by sources other than domestic and typical commercial establishments and includes but is not limited to:

- Oil, coal, wood and multi-fuel boiler and incinerator ash
- Industrial and industrial process waste
- Wastewater treatment plant sludge, paper mill sludge, and other sludge waste
- Debris and residuals from non-hazardous chemical spills and cleanup of those spills
- Contaminated soils and dredge spoils
- Asbestos and asbestos-containing waste
- Sand blast grit and non-liquid paint waste
- High and low pH waste
- Spent filter media residue
- Shredder residue
- Other waste designated by the Board of Environmental Protection, by rule

The landfill does not accept the following:

- Hazardous waste
- Any hot waste not in accordance with the designated requisites
- Unusual quantities of material as determined by the Director of the landfill
- Large and bulky materials requiring special preparation or handling, carrion

- Sludge or septage material
- All potatoes, potato waste, or potato by-products
- Inert debris, land clearing debris, or solid waste generated outside city boundaries or contacted communities

Hazardous materials must be disposed of at a licensed Hazardous Waste Treatment Storage and Disposal Facility (TSDF). According to correspondence with Maine Department of Environmental Protection (MEDEP) staff, the only TSDF currently active in the state of Maine is Enpro Services of Maine, Inc. located at 106 Main Street, South Portland, ME.

According to the City of Presque Isle Solid Waste Ordinance, recyclable materials include paper, metal, glass, and plastic materials as designated by the Solid Waste Department.

The Airport has trash cans and on recycling bin located throughout the terminal. The location of trash cans and recycling bins within the terminal building public areas can be seen in Table B-1.

On December 31, 2018, the Presque Isle Recycling Center at 655 Missile Street, Presque Isle, ME closed. The recycling programs served by the Presque Isle Landfill and Tri-Community Landfill merged on January 1, 2019. Curbside recycling, except for cardboard, was discontinued.

Drop off recycling continued through igloos located in five locations around the area:

- Presque Isle City Hall back parking lot at 12 Second Street
- Parking Lot near the Court House off Chapman Street
- Presque Isle Landfill at 202 Lathrop Road
- Mapleton Town Office
- Washburn Town Office

Table B-1 lists the recyclable materials that can be dropped off in the igloos.

Table B-1 : Dropoff Recycling

Location	Materials
Red Igloos	Milk Jugs
Blue Igloos	Colored (Opaque) HDPE #2 Plastic
Yellow Igloos	Newspaper and Telephone Books
Green Igloos	Magazines and Catalogs
Gray Igloos	Tin and Steel Cans
Dumpsters Adjacent to Igloos	Corrugated Cardboard

Source: presqueislemaine.gov/faqs/.

B.4. OPPORTUNITIES AND RECOMMENDATIONS FOR WASTE MANAGEMENT/RECYCLING PLAN

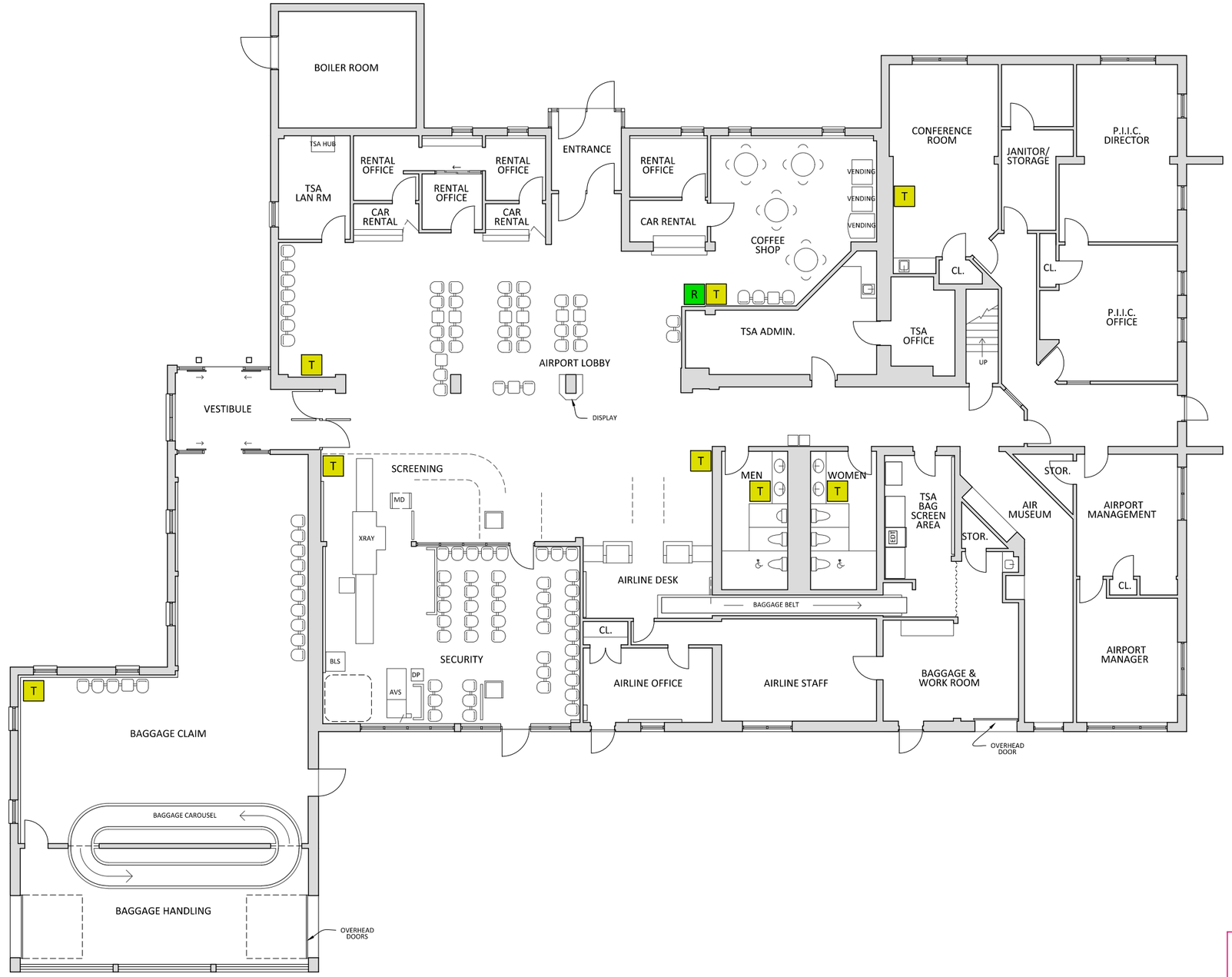
As described, the Airport is limited in their ability to recycle. Corrugated cardboard is the only recycled material collected from the Airport. It is impractical for the Airport to improve their recycling program with no viable curbside collection options available in the area. Should recycling services return to the area, it is recommended that PQI develop a recycling plan. It would not be anticipated that developing a recycling plan would provide cost savings to the Airport.

Figure B-1: Terminal Public Area Waste and Recycling Receptacles

LEGEND

T TRASH RECEPTACLE

R RECYCLING RECEPTACLE



K:\Presque Isle\T-18423.00 Master Plan\Draw\Drawings\Figures\TERMINAL.dwg

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Appendix C

Wetlands and Waterway and Function and Values Assessment Report

McFarland Johnson

Stantec

Northern Maine Regional Airport

Wetland and Waterway Delineation and
Function and Values Assessment Report

November 15, 2018

Prepared for:

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482 Payne Road Scarborough Court
Scarborough, ME 04074

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30 Park Drive
Topsham, ME 04086

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APPENDIX E FUNCTION VALUE ASSESSMENT SUMMARY TABLE E.1

1.0 INTRODUCTION

The Northern Maine Regional Airport (PQI) is planning future development and perimeter fence maintenance on their approximately 675-acre property in Presque Isle and Mapleton, Maine (project area). The scope and location of proposed activities within the project area have yet to be determined. On October 23 and 24, 2018, Stantec Consulting Services Inc. (Stantec) delineated wetlands and streams and performed a wetland function and value assessment (FVA) within the project area. The purpose of this work was to identify wetlands and streams that are subject to protection under the Maine Natural Resources Protection Act (NRPA) and Sections 401 and 404 of the Clean Water Act. This report is a summary of those resources identified within the project area.

2.0 SITE DESCRIPTION

PQI is located primarily in the town of Presque Isle with the western project boundary straddling the Presque Isle-Mapleton town line. The center of Presque Isle is located to the east of the project area, agricultural fields and Route 227 are located to the north, forested areas and Hanson Lake are located to the west, and Route 163/Mapleton Road and Presque Isle Stream are located to the south (Appendix A: Figures 1 and 2). The majority of the 675-acre project area is located within the perimeter fence of the active airport. These areas are regularly mowed and generally devoid of woody vegetation. Most of the area within the perimeter fence is upland. Upland areas are mowed to varying heights depending on the distance from the active runways. Grass species, mowed to approximately 2 to 4 inches tall, dominate the areas within 250 feet of runways. Beyond 250 feet from runways to the perimeter fence, vegetation is maintained to approximately 6 to 12 inches in height. Dominant species include common timothy (*Phleum pratense*), bird vetch (*Vicia cracca*), red clover (*Trifolium pratense*), bull thistle (*Cirsium vulgare*), wrinkle-leaf goldenrod (*Solidago rugosa*), red osier (*Cornus alba*), and red raspberry (*Rubus idaeus*). Approximately 42 acres of the project area are forested and located outside of the perimeter fence on either side of Airport Drive, which leads from Route 163 to the main airport terminal. Forested uplands within this area are generally uniform in elevation with microtopography creating small hills and valleys. Dominant tree and shrub species within the uplands include quaking aspen (*Populus tremuloides*), sugar maple (*Acer saccharum*), paper birch (*Betula papyrifera*), American larch (*Larix laricina*), black cherry (*Prunus serotina*), possumhaw (*Viburnum nudum*), and Morrow's honeysuckle (*Lonicera morrowii*). Delineated wetlands and streams within the project area are described in section 4.0.

The U.S. Department of Agriculture Soil Survey of Aroostook County, Maine[1] maps most of the project area as "Made Land," which reflects the significant land alteration associated with the original construction of the airport. The forested areas outside the perimeter fence are mapped as either Caribou gravelly loam, a well-drained soil associated with till plains and summits, or Easton-Burnham, a poorly drained soil complex associated with ground moraines and toeslopes.

[1] Web Soil Survey, Natural Resources Conservation Service, United States Department of Agriculture. Available at: http://websoilsurvey.nrcs.usda.gov/ [accessed November 2018].

3.0 FIELD SURVEY METHODS

Wetland boundaries regulated by state and federal jurisdiction were determined using the technical criteria described in the *Corps Wetland Delineation Manual*[2] and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Regional Supplement*[3]. Details on dominant vegetation, hydric soil indicators, and wetland hydrology indicators for each wetland are provided in the wetland summary table (Appendix A). Streams and other potential Waters of the United States were delineated based on technical criteria of the Maine NRPA and the Clean Water Rule: Definition of ‘‘Waters of the United States’’; Final Rule (July 27, 2017). The wetland delineation occurred outside of the appropriate spring vernal pool survey season. No potential vernal pools (PVPs) were identified within the project area. PVPs display typical physical characteristics of a vernal pool as defined by Maine Department of Environmental Protection (MDEP) in Chapter 335 of the NRPA and the U.S. Army Corps of Engineers (Corps) Maine General Permit (GP). Wetland and stream boundaries were located using a Trimble® Global Positioning System (GPS) receiver. GPS data were used to produce the Wetland and Stream Delineation Results map provided in Appendix B (Figure 1). Representative photographs were taken throughout the project area and are included in Appendix C. Corps Wetland Determination Data Forms were completed for representative wetlands during the wetland delineation and are provided in Appendix D.

4.0 WETLAND AND STREAM DELINEATION RESULTS

Stantec identified and delineated 22 wetlands, 3 perennial streams, and 1 intermittent stream within the project area. The most common wetland type[4] is palustrine emergent (PEM), which is the dominant or co-dominant wetland type of 19 of the 22 wetlands. The emergent community type is primarily the result of the vegetative maintenance (removal of woody vegetation) that is required around the active airport. The remaining wetlands are classified as palustrine forested (PFO) and palustrine scrub-shrub (PSS). Of the 22 delineated wetlands, 9 could be considered Wetlands of Special Significance (WSS) under the Maine NRPA. Five wetlands would be considered a WSS because they are within 25 feet of a river, stream, or brook. Five wetlands, located in the southern part of the project area, could be considered WSS because they are located within mapped Inland Wading Bird and Waterfowl Habitat (IWWH) (one wetland, 01TTI, meets both characteristics). This IWWH determination is based on previous mapping by the Maine Department of Inland Fisheries and Wildlife (MDIFW) and may be affected by development and vegetative maintenance that occurs within these mapped areas. Prior to any development activities, discussion with MDIFW and MDEP is recommended to determine which wetlands would be considered a WSS. Refer to Appendix B for a summary of delineated wetlands and Appendix A for resource locations.

Recent improvements and maintenance to the project area’s stormwater management system were observed at the time of the delineation. Notable observations include ditching and vegetation removal to several drainage ditches on

[2] Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1. U.S. Army Corps of Engineers Waterways Experiment Station, Vicksburg, MS.
[3] U.S. Army Corps of Engineers. 2011. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0)*, ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-12-1. Vicksburg, MS: U.S. Army Engineer Research and Development Center.
[4] Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. Office of Biological Services, U.S. Fish and Wildlife Service. FWS/OBS-79/31.

the northern side of the east-west runway, east of stream 02TT, and reconstruction of the stormwater pond north of wetland 01TTS (Figure 2).

Perennial stream 01TT is located outside of the perimeter fence and flows under the western end of the east-west runway through a large, approximately 10-foot by 10-foot, concrete box culvert. The stream flows from north to south, parallel to the western edge of the airport. The bankfull width of the stream is approximately 8 to 10 feet with cobble, gravel, and silt substrate. Based on aerial photography and portions of the stream visible from the perimeter fence, the stream is primarily bordered by emergent and forested wetlands.

Perennial stream 02TT is located near the center of the project area and flows from the forested areas near Airport Drive under the center of the east-west runway through 2 large, approximately 4-foot-diameter, concrete culverts. Approximately 1,800 feet of the stream channel, primarily located within the perimeter fence, was constructed/straightened during construction of the airport and is regularly maintained to provide adequate drainage within the active airport. The stream channel within the northern forested areas also appears to be part of a historic drainage ditch but the flow of water has created a naturalized, scoured channel over time. The bankfull width within the forested areas is approximately 9 to 10 feet with gravel, sand, and silt substrate. The bankfull width within the straightened/maintained portion of the stream through the airport is approximately 15 to 20 feet with uniform gravel and sand substrate and rip-rap armored culvert inlets and outlets.

Intermittent stream 03TT is located in the forested area south of Airport Drive and is a tributary of stream 02TT. The stream originates at a 24-inch-diameter culvert that presumably receives flow from the large paved area to the east. The stream also receives flow from wetland 01TTU. The bankfull width is approximately 4 to 5 feet with gravel, sand, and silt substrate.

Perennial stream 04TT is located in the forested area on the east side of Airport Drive. The stream originates at a 36-inch-diameter concrete culvert that likely receives flow from wetland 01TTX on the opposite side of Airport Drive. The stream flows southeast from the culvert for approximately 140 feet before entering an active beaver (*Castor canadensis*) impoundment where the stream channel is no longer visible in the flooded wetland (01TTW). The bankfull width is approximately 6 to 8 feet with gravel, sand, and silt substrate.

5.0 WETLANDS FUNCTION AND VALUE ASSESSMENT METHODS

Wetland functions and values were evaluated through direct field observation and a review of existing public data resources following the U.S. Army Corps of Engineers' *The Highway Methodology Workbook Supplement*.[5] This method bases determinations on the presence or absence of specific criteria for 13 wetland functions and values. As part of the evaluation, the "principal" (i.e., most important) functions and values associated with the subject wetland are identified and described. In addition, the ecological integrity of the wetland is evaluated based on the existing and

[5] U.S. Army Corps of Engineers. 1999. The Highway Methodology Workbook Supplement, Wetland Functions and Values: A Descriptive Approach. U.S. Army Corps of Engineers. New England Division. 32pp. NAEEP-360-1-30a.

past levels of disturbance and the overall significance of that wetland within the local watershed. This descriptive and qualitative approach integrates wetland science with professional value judgments made by a wetland scientist.

Following are the 13 functions and values considered in the assessment.

- **Groundwater Interchange (Recharge/Discharge) –** This function considers the potential for wetlands to serve as groundwater recharge and/or discharge areas. It refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.
- **Floodwater Alteration (Storage and Desynchronization) –** This function considers the effectiveness of the wetlands in reducing flood damage by water retention for prolonged periods following precipitation and the gradual release of floodwaters.
- **Fish and Shellfish Habitat –** This function considers the effectiveness of seasonal or permanent waterbodies associated with the wetland in question to provide fish and shellfish habitat.
- **Sediment/Toxicant/Pathogen Retention –** This function relates to a wetland's ability to reduce or prevent degradation of surface water and ground water quality by trapping sediments, toxicants, or pathogens that may enter the wetland. A wetland's effectiveness in performing this function is typically related to factors such as soil type, vegetation type and density, and landscape position.
- **Nutrient Removal/Retention/Transformation –** This wetland function relates to the effectiveness of the wetland to assimilate nutrients and prevent or reduce the adverse effects of excess nutrients on aquifers or surface waters such as ponds, lakes, streams, rivers, or estuaries.
- **Production Export –** This function relates to the effectiveness of the wetland to produce and export food or usable products for humans or other living organisms.
- **Sediment/Shoreline Stabilization –** This function considers the effectiveness of a wetland to stabilize stream banks and shorelines against erosion, primarily through the presence of persistent, well-rooted vegetation.
- **Wildlife Habitat –** This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and migrating species are considered.
- **Recreation (Consumptive and Non-Consumptive) –** This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting, and other active or passive recreational activities.
- **Educational/Scientific Value –** This value considers the effectiveness of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.
- ***Uniqueness/Heritage* –** This value relates to the effectiveness of the wetland or its associated water bodies to provide certain special values such as archaeological sites, unusual aesthetic quality, setting for historical events, or unique plants, animals, or geologic features.
- **Visual Quality/Aesthetics –** This value relates to the visual and aesthetic qualities of the wetland.
- **Endangered Species Habitat –** This value considers the suitability of the wetland to support threatened or endangered species.

6.0 WETLAND FUNCTION AND VALUE ASSESSMENT RESULTS

Stantec identified 22 wetland resources within the project area. The intent of the FVA is to document the existing functions and values of wetlands within the project area should any of the wetlands be impacted by future

development. No wetland impacts have been proposed at this time. The wetland function and values for individual wetlands are described below and summarized in Appendix E. In general, the evaluated wetlands provide limited functions and values. Principal functions and values for some wetlands are primarily related to their position within a highly developed/altered landscape and the presence of streams.

Groundwater Interchange (Recharge/Discharge)
A significant sand and gravel aquifer is located approximately 1,000 feet to the east of the project area, along Presque Isle Stream. The general flow of the delineated streams and wetlands within the project area is to the west, away from the aquifer. A high-water table was observed in portions of wetlands 01TTB, 01TTC, 01TTT, and 01TTW. In addition, the presence of streams within wetlands 01TTF, 01TTI, 01TTJ, 01TTT, and 01TTW suggest this is a principal function of these wetlands. Groundwater interchange is not considered a function for the other evaluated wetlands.

Floodwater Alteration (Storage and Desynchronization)
The area surrounding the delineated wetlands is highly developed and/or contains large impervious areas. Most of the wetlands have constructed inlets or outlets that receive or discharge stormwater flow from adjacent development. Portions of some wetlands are specifically constructed to receive stormwater flow. Therefore, this could be considered a principal function of all 22 wetlands.

Fish and Shellfish Habitat
Wetlands 01TTF, 01TTI, and 01TTJ are connected to perennial stream 01TT just outside the western project boundary, which is a tributary to Presque Isle Stream. No fish were observed at the time of the FVA, but it is presumed the stream could provide habitat for small species of fish making this a principal function of these wetlands. Small minnows were observed in stream 02TT, which also flows south into Presque Isle Stream. A small, narrow portion of wetland 01TTT abuts stream 02TT, making this a function of this wetland but unlikely a principal function.

Sediment/Toxicant/Pathogen Retention
Sediment and toxicant retention is partially a product of the position of the resource on the landscape relative to potential inputs. Due to their proximity to the airport, commercial development, and impervious surfaces, this is likely a principal function of all wetlands within the project area.

Nutrient Removal/Retention/Transformation
Similar to sediment and toxicant retention, the opportunity for a wetland to provide nutrient removal is partially a function of landscape position and available excess nutrient sources. Those same characteristics that allow wetlands to provide sediment/toxicant retention also allow them to provide nutrient removal. Existing development may be a potential source of nutrient inputs in the area. Given the proximity of the wetlands to development, the evaluated wetlands have the potential to provide this as a principal function.

Production Export
Production export is a wetland function that typically occurs in the form of nutrient or biomass transport via watercourses, foraging by wildlife species, and the removal of timber and other natural products. Wetlands 01TTT and 01TTW contains some fruit-producing shrubs such as winterberry (*Ilex verticillata*) and a variety of native flowering plants available for nectar foraging species. Nutrients exported through the transportation of detritus and flushing of organic material from the streams associated with wetlands 01TTF, 01TTI, 01TTJ, and 01TTT is likely minimal, but does occur. Vegetation within the other evaluated wetlands is regularly maintained and the wetlands are generally devoid of woody vegetation and do not provide this function.

Sediment/Shoreline Stabilization
Wetlands 01TTF, 01TTI, 01TTJ, 01TTT, and 01TTW contain streams and provide this as a principal function. None of the other evaluated wetlands provide this function.

Wildlife Habitat
Wetlands 01TTT and 01TTW are forested wetlands that could provide habitat for wetland associated species, invertebrates, and small mammals. An active beaver impoundment was observed in wetland 01TTW. The streams in wetlands 01TTF, 01TTI, 01TTJ, and 01TTT could provide this function for aquatic organisms. Wetlands 01TTI, 01TTJ, 01TTL, and 01TTN are located within mapped Inland Wading Bird and Waterfowl Habitat (IWWH). The delineated/maintained portions of these wetlands within the perimeter fence may provide IWWH to some degree, but better habitat is located outside the project area. Therefore, this would not be considered a primary function of the delineated wetlands.

Recreation (Consumptive and Non-Consumptive)
Public access is limited and there is no evidence of trails or other recreation use in the wetlands. Therefore, the evaluated wetlands do not provide this value.

Educational/Scientific Value
With limited public access; no known rare, threatened or endangered species; and no wildlife enhancement or walking paths, this is not a value provided by the evaluated wetlands.

Uniqueness/Heritage
The evaluated wetlands are generally common wetland types with no unique characteristics. Therefore, these wetlands do not provide this value.

Visual Quality/Aesthetics
The evaluated wetlands and the surrounding landscape do not have the characteristics to support this value.

Endangered Species Habitat
According to publicly available data, the northern part of the project area is mapped as upland sandpiper (*Bartramia longicauda*) habitat. The upland sandpiper is listed as a threatened species in Maine. The wetlands in the northern part of the project area are immediately adjacent to the western perimeter fence and forested areas and likely do not provide suitable habitat for the upland sandpiper. No other mapped endangered species or habitats are present in the project area. Stantec recommends contacting the Maine Natural Areas Program and MDIFW for a formal review of the project area for rare, threatened, and endangered species and habitats.

APPENDICES

Appendix A FIGURES: WETLAND AND STREAM DELINEATION RESULTS

Stantec

Legend

- Delineated Intermittent Stream
- Delineated Perennial Stream
- Open Wetland Line
- Delineated Wetland
- Delineation Limit

Notes:

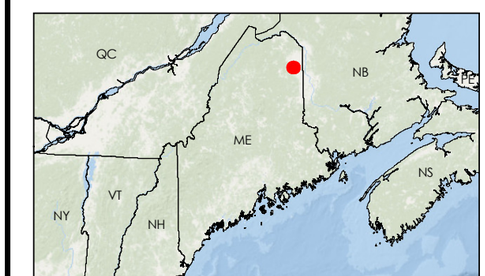
1. Wetland boundaries delineated in accordance with USACE Wetland Delineation Manual (1987) or subsequent versions.
2. Wetland and stream boundaries were located utilizing a Trimble GeoExplorer Series Receiver. Expected accuracy of GPS data is within 1 meter of actual position.

0 700 Feet

1:8,400 (At original document size of 11x17)

Data Sources

1. Coordinate System: NAD 1983 UTM Zone 19N
2. Aerial imagery provided by ArcGIS Online World Imagery Mapping Service (http://server.arcgisonline.com/arcgis/services/World_Imagery/MapServer).



Project Location 195211106

Presque Isle, Maine

Prepared by REM on 2018-11-06
Technical Review by KWH on 2018-11-00
Independent Review by TT on 2018-11-06

Client/Project

Northern Maine Regional Airport

Figure No.

1

Title

Wetland and Stream Delineation Results

Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.

Stantec

Legend

- Delineated Intermittent Stream
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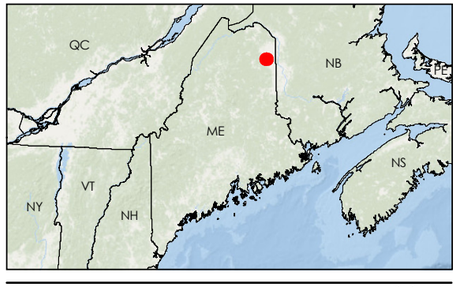
1:8,400 (At original document size of 11x17)

Data Sources

1. Coordinate System: NAD 1983 UTM Zone 19N
2. Aerial imagery provided by ArcGIS Online World Imagery Mapping Service (http://server.arcgisonline.com/arcgis/services/World_Imagery/MapServer).



Project Location
Presque Isle, Maine

195211106
Prepared by REM on 2018-11-06
Technical Review by KWH on 2018-11-00
Independent Review by TT on 2018-11-06

Client/Project
Northern Maine Regional Airport

Figure No.
2

Title
Wetland and Stream Delineation Results

Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.

C:\Users\rmock\Desktop\Temp_Working\Northern Maine Regional Airport\195211106_WetlandDelineation.mxd Revised: 2018-11-06 By: rmock
V:\1954\active_Task Owner and other Non-Bill\1954.20\b\195211106_PQI\gis_cad\mxd\195211106_07_PQI_WetlandDelineation.mxd Revised: 2018-11-06 By: rmock

Appendix B WETLAND SUMMARY TABLE

Appendix B Table 1. Wetland Summary

Wetland ID	Dominant Wetland Type	Additional Wetland Type(s)	Dominant Vegetation	Hydric Soil Description	Hydrology Indicators	Associated Resources	Wetland of Special Significance
01TTA	PEM	-	nodding sedge, cottongrass bulrush, lamp rush	F3: Depleted Matrix	A3: Saturation	-	No
01TTB	PEM	PFO (outside fence)	broad-leaf cat-tail, fowl manna grass, rattlesnake manna grass, wrinkle-leaf goldenrod, American larch, balsam fir, rusty Labrador-tea, speckled alder	F3: Depleted Matrix	A2: High Water Table, A3: Saturation	-	No
01TTC	PEM	PFO (outside fence)	broad-leaf cat-tail, fowl manna grass, rattlesnake manna grass, wrinkle-leaf goldenrod, American larch, balsam fir, rusty Labrador-tea, speckled alder	F3: Depleted Matrix	A2: High Water Table, A3: Saturation	-	No
01TTD	PEM	-	broad-leaf cat-tail, black-girdle bulrush, speckled alder, lamp rush, wrinkle-leaf goldenrod, cottongrass bulrush	F3: Depleted Matrix	A1: Surface Water, A3: Saturation, B10: Drainage Patterns	01TTE (hydrologic connection via culvert)	No
01TTE	PEM	-	broad-leaf cat-tail, red osier, cottgrass bulrush, nodding sedge, lamp rush	F3: Depleted Matrix	A1: Surface Water, A3: Saturation, B10: Drainage Patterns	01TTD (hydrologic connection via culvert)	No
01TTF	PEM	PFO (outside fence)	broad-lead cat-tail, reed canary grass, cottgrass bulrush, black-girdle bulrush, lamp rush, red osier, woodland horsetail	A2: Histic Epipedon, F3: Depleted Matrix	A1: Surface Water, A3: Saturation, B10: Drainage Patterns	Stream 01TT (outside fence)	Yes. Within 25 feet of stream (outside fence).
01TTG	PEM	PFO (outside fence)	black-gridle bulrush, lamp rush, reed canary grass, red osier, American larch, nodding sedge	F3: Depleted Matrix	A3: Saturation	-	No
01TTH	PEM	-	broad-leaf cat-tail, reed canary grass, cottongrass bulrush, lamp rush	F3: Depleted Matrix	A1: Surface Water, A3: Saturation		
01TTI	PEM	-	reed canary grass, broad-leaf cat-tail, bluejoint, cottongrass bulrush, wrinkle-leaf goldenrod, speckled alder	F3: Depleted Matrix	A1: Surface Water, A3: Saturation, B10: Drainage Patterns	Stream 01TT (outside fence)	Yes. Within 25 feet of stream (outside fence). Within mapped IWWH.
01TTJ	PEM	-	broad-leaf cat-tail, cottongrass bulrush, nodding sedge, shallow sedge, lamp rush, rattlesnake manna grass, reed canary grass, bluejoint	F3: Depleted Matrix	A1: Surface Water, A3: Saturation	-	Yes. Within mapped IWWH.
01TTL	PEM	-	broad-leaf cat-tail, cottongrass bulrush, nodding sedge, shallow sedge, lamp rush, rattlesnake manna grass, reed canary grass, bluejoint	F3: Depleted Matrix	A1: Surface Water, A3: Saturation	01TTM (hydrologic connection via culvert)	Yes. Within mapped IWWH.
01TTM	PEM	-	cottongrass bulrush, black-girdle bulrush, lamp rush, wrinkle-lead goldenrod, pussy willow, bluejoint, reed canary grass	F3: Depleted Matrix	A3: Saturation, B9: Water Stained Leaves	01TTL (hydrologic connection via culvert)	Yes. Within mapped IWWH.
01TTN	PEM		cottongrass bulrush, black-girdle bulrush, lamp rush, wrinkle-lead goldenrod, pussy willow, bluejoint, reed canary grass	F3: Depleted Matrix	A3: Saturation, B9: Water Stained Leaves	-	Yes. Within mapped IWWH.
01TTO	PSS	PEM	speckled alder, pussy willow, bluejoint, reed canary grass	F3: Depleted Matrix	A3: Saturation	-	No
01TTQ	PEM	-	cottongrass bulrush, reed canary grass, bluejoint, nodding sedge, lamp rush, red osier, broad-leaf cat-tail, pussy willow	F3: Depleted Matrix	A1: Surface Water, A3: Saturation	-	No
01TTR	PEM	-	cottongrass bulrush, reed canary grass, bluejoint, nodding sedge, lamp rush, red osier, broad-leaf cat-tail, pussy willow	F3: Depleted Matrix	A1: Surface Water, A3: Saturation	-	No

Wetland ID	Dominant Wetland Type	Additional Wetland Type(s)	Dominant Vegetation	Hydric Soil Description	Hydrology Indicators	Associated Resources	Wetland of Special Significance
01TTS	PEM	-	fowl manna grass, cottongrass bulrush, fringed willowherb, New England American-aster, red osier, bluejoint, pussy willow	F3: Depleted Matrix	A3: Saturation	-	No
01TTT	PFO	-	American larch, eastern arborvitae, red maple, black ash, speckled alder, gray willow, quaking aspen, bluejoint, rattlesnake manna grass, fowl manna grass, reed canary grass, sensitive fern, broad-leaf cat-tail	A1: Histosol	A1: Surface Water, A2 High Water Table, A3: Saturation, B9: Water Stained Leaves, B10: Drainage Patters	Stream 02TT	Yes. Within 25 feet of stream.
01TTU	PEM	PSS	broad-leaf cat-tail, fowl manna grass, reed canary grass, red osier, speckled alder, fringed willowherb	F3: Depleted Matrix	A3: Saturation, B10: Drainage Patters	Stream 03TT	Yes. Within 25 feet of stream.
01TTV	PEM	PSS	reed canary grass, pussy willow, speckled alder, sensitive fern, wrinkle-leaf goldenrod	F3: Depleted Matrix	A1: Surface Water, A3: Saturation, B10: Drainage Patterns	-	No
01TTW	PFO	-	eastern arborvitae, black ash, balsam fir, speckled alder, gray willow, pussy willow, sensitive fern, broad-leaf cat-tail, wrinkle-leaf goldenrod, bluejoint	A1: Histosol	A1: Surface Water, A2: High Water Table, A3: Saturation	Stream 04TT	Yes. Within 25 feet of stream.
01TTX	PEM	-	broad-leaf cat-tail, red osier, speckled alder, cottongrass bulrush, reed canary grass	F3: Depleted Matrix	A3: Saturation	Stream 04TT (hydrologic connection via culvert)	No

Appendix C REPRESENTATIVE PHOTOGRAPHS

Photo 1: PEM wetland 01TTA. Facing west towards the perimeter fence. Stantec. October 23, 2018.

Photo 2: PEM/PFO wetland 01TTB. Most of the wetland is located outside the perimeter fence. Stantec. October 23, 2018.

Photo 3: PEM wetland 01TTE showing recent woody vegetation removal. Looking east towards runway (top of slope). Stantec. October 23, 2018.

Photo 4: PEM wetland 01TTF showing recent woody vegetation removal. Looking west from near the intersection of the north-south and east-west runways. Stantec. October 23, 2018.

Photo 5: Perennial stream 01TT as it enters the concrete box culvert under the east-west runway. Stantec. October 23, 2018.

Photo 6: Perennial stream 01TT as it flows out of the concrete box culvert (bottom right) and flows parallel to the western delineation limits. PEM wetland 01TTI is in the low area in the background. Stantec. October 23, 2018.

Photo 7: PEM wetland 01TTH located entirely within the mowed airport area. Looking east towards the main runway. Stantec. October 23, 2018.

Photo 8: Northern portion of PEM wetland 01TTJ. Looking southwest towards perimeter fence. Stantec. October 23, 2018.

Photo 9: Southern portion of PEM wetland 01TTJ. Looking south towards perimeter fence and Route 163/Mapleton Road. Stantec. October 23, 2018.

Photo 10: PEM wetland 01TTM located entirely within the mowed airport area. Looking southeast towards the southeastern corner of the delineation limits. Stantec. October 23, 2018.

Photo 11: PSS/PEM wetland 01TTO located entirely outside the perimeter fence. Looking south down the eastern delineation limits. Stantec. October 23, 2018.

Photo 12: PEM wetland 01TTQ. Looking east down the delineation limits. Stantec. October 23, 2018.

Photo 13: PEM wetland 01TTX with woody vegetation recently removed. Stantec. October 23, 2018.

Photo 14: Eastern portion of PFO wetland 01TTT. Stantec. October 24, 2018.

Photo 15: Western portion of PFO wetland 01TTT. Stantec. October 24, 2018.

Photo 16: Northern end of perennial stream 02TT as it exits the culvert under Airport Drive. Stantec. October 24, 2018.

Photo 17: View upstream/north of perennial stream 02TT just north of wetland 01TTT. The stream channel appears to flow through an old excavated ditch/trench. Stantec. October 24, 2018.

Photo 18: View downstream/south of perennial stream 02TT towards culvert inlet under the east-west runway. The old ditch/trench was recently maintained. Stantec. October 23, 2018.

Photo 19: View downstream/south of perennial stream 02TT on the south side of the east-west runway, beyond the perimeter fence. Stantec. October 23, 2018.

Photo 20: PEM/PSS wetland 01TTU. Stantec. October 24, 2018.

Photo 21: View upstream/northeast of intermittent stream 03TT originating at culvert (background). Stantec. October 24, 2018.

Photo 22: PEM/PSS wetland 01TTV. Looking west from delineation limits. Stantec. October 24, 2018.

Photo 23: Southern portion of PFO wetland 01TTW near Airport Drive. Stantec. October 24, 2018.

Photo 24: Northern portion of PFO wetland 01TTW with recent beaver impoundment. Stantec. October 24, 2018.

Photo 25: View upstream/northwest of perennial stream 04TT originating from culvert under Airport Drive (background, just out of view) and flowing into wetland 01TTW. Stantec. October 24, 2018.

Photo 26: Recent maintenance to stormwater drainage ditch on the north side of the east-west runway. Stantec. October 23, 2018.

Photo 27: Reconstruction of the stormwater pond, north of wetland 01TTS. This area is visible as open water on available aerial photography. Stantec. October 23, 2018.

Appendix D CORPS WETLAND DETERMINATION DATA FORMS

WETLAND DETERMINATION DATA FORM
Northeast and Northcentral Region

Project/Site:	Northern Maine Regional Airport	Stantec Project #:	195211106
Applicant:	Stantec		
Investigator #1:	Tom Tetreau	Investigator #2:	
Soil Unit:	Easton-Burnham complex	NWI/WWI Classification:	upland
Landform:	Shoulder	Local Relief:	Linear
Slope (%):	5	Latitude: 46.685740	Longitude: -68.048399
Datum:	NAD 1983		

Date:	10/23/18
County:	Aroostook
State:	Maine
Wetland ID:	01TTF
Sample Point:	**upland**
Community ID:	upland

Are climatic/hydrologic conditions on the site typical for this time of year? (If no, explain in remarks) ☑ Yes ☐ No

Are Vegetation ☑, Soil ☑, or Hydrology ☐ significantly disturbed?
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic?

Are normal circumstances present? ☐ Yes ☑ No

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present?	☐ Yes ☑ No	Hydric Soils Present?	☐ Yes ☑ No
Wetland Hydrology Present?	☐ Yes ☑ No	Is This Sampling Point Within A Wetland?	☐ **Yes** ☑ **No**

Remarks: Vegetation maintained, woody vegetation removed, regulary mowed. Soils previously disturbed during original airport construction.

HYDROLOGY

Wetland Hydrology Indicators (Check here if indicators are not present ☑):

Primary:
- ☐ A1 - Surface Water
- ☐ A2 - High Water Table
- ☐ A3 - Saturation
- ☐ B1 - Water Marks
- ☐ B2 - Sediment Deposits
- ☐ B3 - Drift Deposits
- ☐ B4 - Algal Mat or Crust
- ☐ B5 - Iron Deposits
- ☐ B7 - Inundation Visible on Aerial Imagery
- ☐ B8 - Sparsely Vegetated Concave Surface
- ☐ B9 - Water-Stained Leaves
- ☐ B13 - Aquatic Fauna
- ☐ B15 - Marl Deposits
- ☐ C1 - Hydrogen Sulfide Odor
- ☐ C3 - Oxidized Rhizospheres on Living Roots
- ☐ C4 - Presence of Reduced Iron
- ☐ C6 - Recent Iron Reduction in Tilled Soils
- ☐ C7 - Thin Muck Surface
- ☐ Other (Explain in Remarks)

Secondary:
- ☐ B6 - Surface Soil Cracks
- ☐ B10 - Drainage Patterns
- ☐ B16 - Moss Trim Lines
- ☐ C2 - Dry-Season Water Table
- ☐ C8 - Crayfish Burrows
- ☐ C9 - Saturation Visible on Aerial Imagery
- ☐ D1 - Stunted or Stressed Plants
- ☐ D2 - Geomorphic Position
- ☐ D3 - Shallow Aquitard
- ☐ D4 - Microtopographic Relief
- ☐ D5 - FAC-Neutral Test

Field Observations:

Surface Water Present?	☐ Yes ☑ No	Depth:	(in.)
Water Table Present?	☐ Yes ☑ No	Depth:	(in.)
Saturation Present?	☐ Yes ☑ No	Depth:	(in.)

Wetland Hydrology Present? ☐ Yes ☑ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: N/A

Remarks:

SOILS

Map Unit Name: Easton-Burnham complex — Series Drainage Class: poorly drained

Taxonomy (Subgroup):

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators.) (Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered/Coated Sand Grains; Location: PL=Pore Lining, M=Matrix)

Top Depth	Bottom Depth	Horizon	Matrix Color (Moist)	Matrix %	Mottles Color (Moist)	Mottles %	Mottles Type	Mottles Location	Texture (e.g. clay, sand, loam)
0	10	1	10YR 4/4	100	--	--	--	--	silt loam
10	16	2	10YR 5/4	100	--	--	--	--	silt loam
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--

NRCS Hydric Soil Field Indicators (check here if indicators are not present ☑):
- ☐ A1- Histosol
- ☐ A2 - Histic Epipedon
- ☐ A3 - Black Histic
- ☐ A4 - Hydrogen Sulfide
- ☐ A5 - Stratified Layers
- ☐ A11 - Depleted Below Dark Surface
- ☐ A12 - Thick Dark Surface
- ☐ S1 - Sandy Muck Mineral
- ☐ S4 - Sandy Gleyed Matrix
- ☐ S5 - Sandy Redox
- ☐ S6 - Stripped Matrix
- ☐ S7 - Dark Surface (LRR R, MLRA 149B)
- ☐ S8 - Polyvalue Below Surface (LRR R, MLRA 149B)
- ☐ S9 - Thin Dark Surface (LRR R, MLRA 149B)
- ☐ F1 - Loamy Mucky Mineral (LRR K, L)
- ☐ F2 - Loamy Gleyed Matrix
- ☐ F3 - Depleted Matrix
- ☐ F6 - Redox Dark Surface
- ☐ F7 - Depleted Dark Surface
- ☐ F8 - Redox Depressions

Indicators for Problematic Soils [1]
- ☐ A10 - 2 cm Muck (LRR K, L, MLRA 149B)
- ☐ A16 - Coast Prairie Redox (LRR K, L, R)
- ☐ S3 - 5cm Mucky Peat of Peat (**LRR K, L, R**)
- ☐ S7 - Dark Surface (LRR K, L, M)
- ☐ S8 - Polyvalue Below Surface (**LRR K, L**)
- ☐ S9 - Thin Dark Surface (**LRR K, L**)
- ☐ F12 - Iron-Manganese Masses (**LRR K, L, R**)
- ☐ F19 - Piedmont Floodplain Soils (**MLRA 149B**)
- ☐ TA6 - Mesic Spodic (**MLRA 144A, 145, 149B**)
- ☐ TF2 - Red Parent Material
- ☐ TF12 - Very Shallow Dark Surface
- ☐ Other (Explain in Remarks)

[1] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (If Observed) Type: compact/rocky Depth: 16"

Hydric Soil Present? ☐ Yes ☑ No

Remarks:

Stantec

WETLAND DETERMINATION DATA FORM

Northeast and Northcentral Region

Project/Site: Northern Maine Regional Airport | Wetland ID: 01TTF | Sample Point **upland**

VEGETATION (Species identified in all uppercase are non-native species.)

Tree Stratum (Plot size: 10 meter radius)

	Species Name	% Cover	Dominant	Ind.Status
1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	0		

Sapling/Shrub Stratum (Plot size: 5 meter radius)

1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	0		

Herb Stratum (Plot size: 2 meter radius)

1.	*Phleum pratense*	50	Y	FACU
2.	*Vicia cracca*	25	Y	UPL
3.	*Trifolium pratense*	20	N	FACU
4.	*Solidago rugosa*	10	N	FAC
5.	*Cirsium vulgare*	10	N	FACU
6	*Rubus idaeus*	5	N	FACU
7.	*Solidago canadensis*	5	N	FACU
8.	*Cornus alba*	5	N	FACW
9.	*Taraxacum officinale*	5	N	FACU
10.	--	--	--	--
11.	--	--	--	--
12.	--	--	--	--
13.	--	--	--	--
14.	--	--	--	--
15.	--	--	--	--
	Total Cover =	135		

Woody Vine Stratum (Plot size: 10 meter radius)

1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
	Total Cover =	0		

Remarks:

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: ***0.0%*** (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL spp.	0	x 1 =	0
FACW spp.	5	x 2 =	10
FAC spp.	10	x 3 =	30
FACU spp.	95	x 4 =	380
UPL spp.	25	x 5 =	125
Total	135 (A)		545 (B)

Prevalence Index = B/A = ***4.037***

Hydrophytic Vegetation Indicators:

- ☐ Yes ☑ No Rapid Test for Hydrophytic Vegetation
- ☐ Yes ☑ No Dominance Test is > 50%
- ☐ Yes ☑ No Prevalence Index is ≤ 3.0 *
- ☐ Yes ☑ No Morphological Adaptations (Explain) *
- ☐ Yes ☑ No Problem Hydrophytic Vegetation (Explain) *

* Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft. tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft. tall.

Woody Vines - All woody vines greater than 3.28 ft. in height.

Hydrophytic Vegetation Present ☐ Yes ☑ No

Additional Remarks:

WETLAND DETERMINATION DATA FORM
Northeast and Northcentral Region

Project/Site:	Northern Maine Regional Airport	Stantec Project #:	195211106
Applicant:	Stantec		
Investigator #1:	Tom Tetreau	Investigator #2:	
Soil Unit:	Easton-Burnham complex	NWI/WWI Classification:	PEM
Landform:	Toeslope	Local Relief:	Linear
Slope (%):	0	Latitude: 46.685782	Longitude: -68.046029
Datum:	NAD 1983		

Date:	10/23/18
County:	Aroostook
State:	Maine
Wetland ID:	01TTF
Sample Point:	**Wetland**
Community ID:	PEM

Are climatic/hydrologic conditions on the site typical for this time of year? (If no, explain in remarks) ☑ Yes ☐ No

Are Vegetation ☑, Soil ☑, or Hydrology ☐ significantly disturbed?
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic?

Are normal circumstances present? ☐ Yes ☑ No

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present? ☑ Yes ☐ No
Wetland Hydrology Present? ☑ Yes ☐ No
Hydric Soils Present? ☑ Yes ☐ No
Is This Sampling Point Within A Wetland? ☑ **Yes** ☐ **No**

Remarks: Vegetation maintained, woody vegetation removed. Soils previously disturbed during original airport construction.

HYDROLOGY

Wetland Hydrology Indicators (Check here if indicators are not present ☐):

Primary:
- ☑ A1 - Surface Water
- ☐ A2 - High Water Table
- ☑ A3 - Saturation
- ☐ B1 - Water Marks
- ☐ B2 - Sediment Deposits
- ☐ B3 - Drift Deposits
- ☐ B4 - Algal Mat or Crust
- ☐ B5 - Iron Deposits
- ☐ B7 - Inundation Visible on Aerial Imagery
- ☐ B8 - Sparsely Vegetated Concave Surface
- ☐ B9 - Water-Stained Leaves
- ☐ B13 - Aquatic Fauna
- ☐ B15 - Marl Deposits
- ☐ C1 - Hydrogen Sulfide Odor
- ☐ C3 - Oxidized Rhizospheres on Living Roots
- ☐ C4 - Presence of Reduced Iron
- ☐ C6 - Recent Iron Reduction in Tilled Soils
- ☐ C7 - Thin Muck Surface
- ☐ Other (Explain in Remarks)

Secondary:
- ☐ B6 - Surface Soil Cracks
- ☑ B10 - Drainage Patterns
- ☐ B16 - Moss Trim Lines
- ☐ C2 - Dry-Season Water Table
- ☐ C8 - Crayfish Burrows
- ☐ C9 - Saturation Visible on Aerial Imagery
- ☐ D1 - Stunted or Stressed Plants
- ☐ D2 - Geomorphic Position
- ☐ D3 - Shallow Aquitard
- ☐ D4 - Microtopographic Relief
- ☐ D5 - FAC-Neutral Test

Field Observations:

Surface Water Present?	☑ Yes ☐ No	Depth:	1 to 3	(in.)
Water Table Present?	☐ Yes ☑ No	Depth:		(in.)
Saturation Present?	☑ Yes ☐ No	Depth:	0	(in.)

Wetland Hydrology Present? ☑ Yes ☐ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: N/A

Remarks:

SOILS

Map Unit Name: Easton-Burnham complex — Series Drainage Class: poorly drained

Taxonomy (Subgroup):

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators.) (Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered/Coated Sand Grains; Location: PL=Pore Lining, M=Matrix)

Top Depth	Bottom Depth	Horizon	Matrix Color (Moist)	Matrix %	Mottles Color (Moist)	Mottles %	Mottles Type	Mottles Location	Texture (e.g. clay, sand, loam)
10	0	1	--	--	--	--	--	--	organic material
0	10	2	10YR 5/1	90	10YR 4/4	10	C	M	silt loam
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--

NRCS Hydric Soil Field Indicators (check here if indicators are not present ☐):
- ☐ A1- Histosol
- ☑ A2 - Histic Epipedon
- ☐ A3 - Black Histic
- ☐ A4 - Hydrogen Sulfide
- ☐ A5 - Stratified Layers
- ☐ A11 - Depleted Below Dark Surface
- ☐ A12 - Thick Dark Surface
- ☐ S1 - Sandy Muck Mineral
- ☐ S4 - Sandy Gleyed Matrix
- ☐ S5 - Sandy Redox
- ☐ S6 - Stripped Matrix
- ☐ S7 - Dark Surface (LRR R, MLRA 149B)
- ☐ S8 - Polyvalue Below Surface (LRR R, MLRA 149B)
- ☐ S9 - Thin Dark Surface (LRR R, MLRA 149B)
- ☐ F1 - Loamy Mucky Mineral (LRR K, L)
- ☐ F2 - Loamy Gleyed Matrix
- ☐ F3 - Depleted Matrix
- ☐ F6 - Redox Dark Surface
- ☐ F7 - Depleted Dark Surface
- ☐ F8 - Redox Depressions

Indicators for Problematic Soils [1]
- ☐ A10 - 2 cm Muck (LRR K, L, MLRA 149B)
- ☐ A16 - Coast Prairie Redox (LRR K, L, R)
- ☐ S3 - 5cm Mucky Peat of Peat (**LRR K, L, R**)
- ☐ S7 - Dark Surface (LRR K, L, M)
- ☐ S8 - Polyvalue Below Surface (**LRR K, L**)
- ☐ S9 - Thin Dark Surface (**LRR K, L**)
- ☐ F12 - Iron-Manganese Masses (**LRR K, L, R**)
- ☐ F19 - Piedmont Floodplain Soils (**MLRA 149B**)
- ☐ TA6 - Mesic Spodic (**MLRA 144A, 145, 149B**)
- ☐ TF2 - Red Parent Material
- ☐ TF12 - Very Shallow Dark Surface
- ☐ Other (Explain in Remarks)

[1] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (If Observed) Type: compact/rocky Depth: 20"

Hydric Soil Present? ☑ Yes ☐ No

Remarks:

Stantec

WETLAND DETERMINATION DATA FORM

Northeast and Northcentral Region

Project/Site: Northern Maine Regional Airport | Wetland ID: 01TTF | Sample Point Wetland

VEGETATION (Species identified in all uppercase are non-native species.)

Tree Stratum (Plot size: 10 meter radius)

	Species Name	% Cover	Dominant	Ind.Status
1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	0		

Sapling/Shrub Stratum (Plot size: 5 meter radius)

1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	0		

Herb Stratum (Plot size: 2 meter radius)

1.	*Typha latifolia*	25	Y	OBL
2.	*Phalaris arundinacea*	20	Y	FACW
3.	*Cornus alba*	15	N	FACW
4.	*Scirpus cyperinus*	15	N	OBL
5.	*Scirpus atrocinctus*	5	N	OBL
6	*Juncus effusus*	5	N	OBL
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
11.	--	--	--	--
12.	--	--	--	--
13.	--	--	--	--
14.	--	--	--	--
15.	--	--	--	--
	Total Cover =	85		

Woody Vine Stratum (Plot size: 10 meter radius)

1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
	Total Cover =	0		

Remarks:

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: ***100.0%*** (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL spp.	50	x 1 =	50
FACW spp.	35	x 2 =	70
FAC spp.	0	x 3 =	0
FACU spp.	0	x 4 =	0
UPL spp.	0	x 5 =	0
Total	85 (A)		120 (B)

Prevalence Index = B/A = ***1.412***

Hydrophytic Vegetation Indicators:

- ☑ Yes ☐ No Rapid Test for Hydrophytic Vegetation
- ☑ Yes ☐ No Dominance Test is > 50%
- ☑ Yes ☐ No Prevalence Index is ≤ 3.0 *
- ☐ Yes ☑ No Morphological Adaptations (Explain) *
- ☐ Yes ☑ No Problem Hydrophytic Vegetation (Explain) *

* Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft. tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft. tall.

Woody Vines - All woody vines greater than 3.28 ft. in height.

Hydrophytic Vegetation Present ☑ Yes ☐ No

Additional Remarks:

WETLAND DETERMINATION DATA FORM
Northeast and Northcentral Region

Project/Site:	Northern Maine Regional Airport	Stantec Project #:	195211106
Applicant:	Stantec		
Investigator #1:	Tom Tetreau	Investigator #2:	
Soil Unit:	Easton-Burnham complex	NWI/WWI Classification:	upland
Landform:	Shoulder	Local Relief:	Convex
Slope (%):	0	Latitude: 46.680625	Longitude: -68.047654
Datum:	NAD 1983		

Date:	10/23/18
County:	Aroostook
State:	Maine
Wetland ID:	01TTJ
Sample Point:	**Upland**
Community ID:	upland

Are climatic/hydrologic conditions on the site typical for this time of year? (If no, explain in remarks) ☑ Yes ☐ No

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed?
Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic?

Are normal circumstances present? ☑ Yes ☐ No

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present? ☑ Yes ☐ No
Wetland Hydrology Present? ☐ Yes ☑ No
Hydric Soils Present? ☐ Yes ☑ No
Is This Sampling Point Within A Wetland? ☐ **Yes** ☑ **No**

Remarks:

HYDROLOGY

Wetland Hydrology Indicators (Check here if indicators are not present ☑):

Primary:
- ☐ A1 - Surface Water
- ☐ A2 - High Water Table
- ☐ A3 - Saturation
- ☐ B1 - Water Marks
- ☐ B2 - Sediment Deposits
- ☐ B3 - Drift Deposits
- ☐ B4 - Algal Mat or Crust
- ☐ B5 - Iron Deposits
- ☐ B7 - Inundation Visible on Aerial Imagery
- ☐ B8 - Sparsely Vegetated Concave Surface
- ☐ B9 - Water-Stained Leaves
- ☐ B13 - Aquatic Fauna
- ☐ B15 - Marl Deposits
- ☐ C1 - Hydrogen Sulfide Odor
- ☐ C3 - Oxidized Rhizospheres on Living Roots
- ☐ C4 - Presence of Reduced Iron
- ☐ C6 - Recent Iron Reduction in Tilled Soils
- ☐ C7 - Thin Muck Surface
- ☐ Other (Explain in Remarks)

Secondary:
- ☐ B6 - Surface Soil Cracks
- ☐ B10 - Drainage Patterns
- ☐ B16 - Moss Trim Lines
- ☐ C2 - Dry-Season Water Table
- ☐ C8 - Crayfish Burrows
- ☐ C9 - Saturation Visible on Aerial Imagery
- ☐ D1 - Stunted or Stressed Plants
- ☐ D2 - Geomorphic Position
- ☐ D3 - Shallow Aquitard
- ☐ D4 - Microtopographic Relief
- ☐ D5 - FAC-Neutral Test

Field Observations:

Surface Water Present?	☐ Yes	☑ No	Depth:	(in.)
Water Table Present?	☐ Yes	☑ No	Depth:	(in.)
Saturation Present?	☐ Yes	☑ No	Depth:	(in.)

Wetland Hydrology Present? ☐ Yes ☑ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: N/A

Remarks:

SOILS

Map Unit Name: Easton-Burnham complex — Series Drainage Class: poorly drained

Taxonomy (Subgroup):

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators.) (Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered/Coated Sand Grains; Location: PL=Pore Lining, M=Matrix)

Top Depth	Bottom Depth	Horizon	Matrix Color (Moist)	Matrix %	Mottles Color (Moist)	Mottles %	Mottles Type	Mottles Location	Texture (e.g. clay, sand, loam)
0	6	1	10YR 4/3	100	--	--	--	--	silt loam
6	12	2	10YR 4/4	100	--	--	--	--	silt loam
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--

NRCS Hydric Soil Field Indicators (check here if indicators are not present ☑):
- ☐ A1- Histosol
- ☐ A2 - Histic Epipedon
- ☐ A3 - Black Histic
- ☐ A4 - Hydrogen Sulfide
- ☐ A5 - Stratified Layers
- ☐ A11 - Depleted Below Dark Surface
- ☐ A12 - Thick Dark Surface
- ☐ S1 - Sandy Muck Mineral
- ☐ S4 - Sandy Gleyed Matrix
- ☐ S5 - Sandy Redox
- ☐ S6 - Stripped Matrix
- ☐ S7 - Dark Surface (LRR R, MLRA 149B)
- ☐ S8 - Polyvalue Below Surface (LRR R, MLRA 149B)
- ☐ S9 - Thin Dark Surface (LRR R, MLRA 149B)
- ☐ F1 - Loamy Mucky Mineral (LRR K, L)
- ☐ F2 - Loamy Gleyed Matrix
- ☐ F3 - Depleted Matrix
- ☐ F6 - Redox Dark Surface
- ☐ F7 - Depleted Dark Surface
- ☐ F8 - Redox Depressions

Indicators for Problematic Soils [1]
- ☐ A10 - 2 cm Muck (LRR K, L, MLRA 149B)
- ☐ A16 - Coast Prairie Redox (LRR K, L, R)
- ☐ S3 - 5cm Mucky Peat of Peat (**LRR K, L, R**)
- ☐ S7 - Dark Surface (LRR K, L, M)
- ☐ S8 - Polyvalue Below Surface (**LRR K, L**)
- ☐ S9 - Thin Dark Surface (**LRR K, L**)
- ☐ F12 - Iron-Manganese Masses (**LRR K, L, R**)
- ☐ F19 - Piedmont Floodplain Soils (**MLRA 149B**)
- ☐ TA6 - Mesic Spodic (**MLRA 144A, 145, 149B**)
- ☐ TF2 - Red Parent Material
- ☐ TF12 - Very Shallow Dark Surface
- ☐ Other (Explain in Remarks)

[1] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (If Observed) Type: compact Depth: 12"

Hydric Soil Present? ☐ Yes ☑ No

Remarks:

WETLAND DETERMINATION DATA FORM
Northeast and Northcentral Region

Project/Site: Northern Maine Regional Airport | Wetland ID: 01TTJ | Sample Point **Upland**

VEGETATION (Species identified in all uppercase are non-native species.)

Tree Stratum (Plot size: 10 meter radius)

	Species Name	% Cover	Dominant	Ind.Status
1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	0		

Sapling/Shrub Stratum (Plot size: 5 meter radius)

1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	0		

Herb Stratum (Plot size: 2 meter radius)

1.	*Phalaris arundinacea*	60	Y	FACW
2.	*Trifolium pratense*	40	Y	FACU
3.	*Cirsium vulgare*	10	N	FACU
4.	*Solidago rugosa*	10	N	FAC
5.	--	--	--	
6	--	--	--	
7.	--	--	--	
8.	--	--	--	
9.	--	--	--	--
10.	--	--	--	--
11.	--	--	--	--
12.	--	--	--	--
13.	--	--	--	--
14.	--	--	--	--
15.	--	--	--	--
	Total Cover =	120		

Woody Vine Stratum (Plot size: 10 meter radius)

1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
	Total Cover =	0		

Remarks:

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: ***50.0%*** (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL spp.	0	x 1 =	0
FACW spp.	60	x 2 =	120
FAC spp.	10	x 3 =	30
FACU spp.	50	x 4 =	200
UPL spp.	0	x 5 =	0
Total	120 (A)		350 (B)

Prevalence Index = B/A = ***2.917***

Hydrophytic Vegetation Indicators:

- ☐ Yes ☑ No Rapid Test for Hydrophytic Vegetation
- ☐ Yes ☑ No Dominance Test is > 50%
- ☑ Yes ☐ No Prevalence Index is ≤ 3.0 *
- ☐ Yes ☑ No Morphological Adaptations (Explain) *
- ☐ Yes ☑ No Problem Hydrophytic Vegetation (Explain) *

* Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft. tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft. tall.

Woody Vines - All woody vines greater than 3.28 ft. in height.

Hydrophytic Vegetation Present ☑ Yes ☐ No

Additional Remarks:

WETLAND DETERMINATION DATA FORM
Northeast and Northcentral Region

Project/Site:	Northern Maine Regional Airport	Stantec Project #:	195211106
Applicant:	Stantec		
Investigator #1:	Tom Tetreau	Investigator #2:	
Soil Unit:	Easton-Burnham complex	NWI/WWI Classification:	PEM
Landform:	Toeslope	Local Relief:	Linear
Slope (%):	0	Latitude: 46.680598	Longitude: -68.047621
Datum:	NAD 1983		

Date:	10/23/18
County:	Aroostook
State:	Maine
Wetland ID:	01TTJ
Sample Point:	**Wetland**
Community ID:	PEM

Are climatic/hydrologic conditions on the site typical for this time of year? (If no, explain in remarks) ☑ Yes ☐ No

Are Vegetation ☑, Soil ☑, or Hydrology ☐ significantly disturbed? Are normal circumstances present? ☐ Yes ☑ No

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic?

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present? ☑ Yes ☐ No

Wetland Hydrology Present? ☑ Yes ☐ No

Hydric Soils Present? ☑ Yes ☐ No

Is This Sampling Point Within A Wetland? ☑ **Yes** ☐ **No**

Remarks: Vegetation maintained, woody vegetation removed, regulary mowed. Soils previously disturbed during original airport construction.

HYDROLOGY

Wetland Hydrology Indicators (Check here if indicators are not present ☐):

Primary:

- ☑ A1 - Surface Water
- ☐ A2 - High Water Table
- ☑ A3 - Saturation
- ☐ B1 - Water Marks
- ☐ B2 - Sediment Deposits
- ☐ B3 - Drift Deposits
- ☐ B4 - Algal Mat or Crust
- ☐ B5 - Iron Deposits
- ☐ B7 - Inundation Visible on Aerial Imagery
- ☐ B8 - Sparsely Vegetated Concave Surface
- ☐ B9 - Water-Stained Leaves
- ☐ B13 - Aquatic Fauna
- ☐ B15 - Marl Deposits
- ☐ C1 - Hydrogen Sulfide Odor
- ☐ C3 - Oxidized Rhizospheres on Living Roots
- ☐ C4 - Presence of Reduced Iron
- ☐ C6 - Recent Iron Reduction in Tilled Soils
- ☐ C7 - Thin Muck Surface
- ☐ Other (Explain in Remarks)

Secondary:

- ☐ B6 - Surface Soil Cracks
- ☐ B10 - Drainage Patterns
- ☐ B16 - Moss Trim Lines
- ☐ C2 - Dry-Season Water Table
- ☐ C8 - Crayfish Burrows
- ☐ C9 - Saturation Visible on Aerial Imagery
- ☐ D1 - Stunted or Stressed Plants
- ☐ D2 - Geomorphic Position
- ☐ D3 - Shallow Aquitard
- ☐ D4 - Microtopographic Relief
- ☐ D5 - FAC-Neutral Test

Field Observations:

Surface Water Present?	☑ Yes ☐ No	Depth:	1 to 3	(in.)
Water Table Present?	☐ Yes ☑ No	Depth:		(in.)
Saturation Present?	☑ Yes ☐ No	Depth:	0	(in.)

Wetland Hydrology Present? ☑ Yes ☐ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: N/A

Remarks:

SOILS

Map Unit Name: Easton-Burnham complex Series Drainage Class: poorly drained

Taxonomy (Subgroup):

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators.) (Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered/Coated Sand Grains; Location: PL=Pore Lining, M=Matrix)

Top Depth	Bottom Depth	Horizon	Matrix Color (Moist)	Matrix %	Mottles Color (Moist)	Mottles %	Mottles Type	Mottles Location	Texture (e.g. clay, sand, loam)
3	0	1	--	--	--	--	--	--	organic material
0	6	2	10YR 4/2	90	10YR 4/4	10	C	M	silt loam
6	14	3	10YR 4/1	90	10YR 4/4	10	C	M	silt loam
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--

NRCS Hydric Soil Field Indicators (check here if indicators are not present ☐):

- ☐ A1- Histosol
- ☐ A2 - Histic Epipedon
- ☐ A3 - Black Histic
- ☐ A4 - Hydrogen Sulfide
- ☐ A5 - Stratified Layers
- ☐ A11 - Depleted Below Dark Surface
- ☐ A12 - Thick Dark Surface
- ☐ S1 - Sandy Muck Mineral
- ☐ S4 - Sandy Gleyed Matrix
- ☐ S5 - Sandy Redox
- ☐ S6 - Stripped Matrix
- ☐ S7 - Dark Surface (LRR R, MLRA 149B)
- ☐ S8 - Polyvalue Below Surface (LRR R, MLRA 149B)
- ☐ S9 - Thin Dark Surface (LRR R, MLRA 149B)
- ☐ F1 - Loamy Mucky Mineral (LRR K, L)
- ☐ F2 - Loamy Gleyed Matrix
- ☑ F3 - Depleted Matrix
- ☐ F6 - Redox Dark Surface
- ☐ F7 - Depleted Dark Surface
- ☐ F8 - Redox Depressions

Indicators for Problematic Soils [1]

- ☐ A10 - 2 cm Muck (LRR K, L, MLRA 149B)
- ☐ A16 - Coast Prairie Redox (LRR K, L, R)
- ☐ S3 - 5cm Mucky Peat of Peat (**LRR K, L, R**)
- ☐ S7 - Dark Surface (LRR K, L, M)
- ☐ S8 - Polyvalue Below Surface (**LRR K, L**)
- ☐ S9 - Thin Dark Surface (**LRR K, L**)
- ☐ F12 - Iron-Manganese Masses (**LRR K, L, R**)
- ☐ F19 - Piedmont Floodplain Soils (**MLRA 149B**)
- ☐ TA6 - Mesic Spodic (**MLRA 144A, 145, 149B**)
- ☐ TF2 - Red Parent Material
- ☐ TF12 - Very Shallow Dark Surface
- ☐ Other (Explain in Remarks)

[1] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (If Observed) Type: compact/rocky Depth: 17"

Hydric Soil Present? ☑ Yes ☐ No

Remarks:

Stantec

WETLAND DETERMINATION DATA FORM

Northeast and Northcentral Region

Project/Site: Northern Maine Regional Airport | Wetland ID: 01TTJ | Sample Point Wetland

VEGETATION (Species identified in all uppercase are non-native species.)

Tree Stratum (Plot size: 10 meter radius)

	Species Name	% Cover	Dominant	Ind.Status
1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	0		

Sapling/Shrub Stratum (Plot size: 5 meter radius)

1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	0		

Herb Stratum (Plot size: 2 meter radius)

1.	*Typha latifolia*	40	Y	OBL
2.	*Scirpus cyperinus*	40	Y	OBL
3.	*Phalaris arundinacea*	40	Y	FACW
4.	*Carex lurida*	20	N	OBL
5.	*Carex gynandra*	20	N	OBL
6	*Glyceria canadensis*	10	N	OBL
7.	*Calamagrostis canadensis*	10	N	OBL
8.	*Juncus effusus*	5	N	OBL
9.	--	--	--	--
10.	--	--	--	--
11.	--	--	--	--
12.	--	--	--	--
13.	--	--	--	--
14.	--	--	--	--
15.	--	--	--	--
	Total Cover =	185		

Woody Vine Stratum (Plot size: 10 meter radius)

1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
	Total Cover =	0		

Remarks:

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: ***100.0%*** (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL spp.	145	x 1 =	145
FACW spp.	40	x 2 =	80
FAC spp.	0	x 3 =	0
FACU spp.	0	x 4 =	0
UPL spp.	0	x 5 =	0
Total	185 (A)		225 (B)

Prevalence Index = B/A = ***1.216***

Hydrophytic Vegetation Indicators:

- ☑ Yes ☐ No Rapid Test for Hydrophytic Vegetation
- ☑ Yes ☐ No Dominance Test is > 50%
- ☑ Yes ☐ No Prevalence Index is ≤ 3.0 *
- ☐ Yes ☑ No Morphological Adaptations (Explain) *
- ☐ Yes ☑ No Problem Hydrophytic Vegetation (Explain) *

* Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft. tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft. tall.

Woody Vines - All woody vines greater than 3.28 ft. in height.

Hydrophytic Vegetation Present ☑ Yes ☐ No

Additional Remarks:

WETLAND DETERMINATION DATA FORM
Northeast and Northcentral Region

Project/Site:	Northern Maine Regional Airport	Stantec Project #:	195211106
Applicant:	Stantec		
Investigator #1:	Tom Tetreau	Investigator #2:	
Soil Unit:	Easton-Burnham complex	NWI/WWI Classification:	upland
Landform:	Shoulder	Local Relief:	Linear
Slope (%):	2	Latitude: 46.685919	Longitude: -68.037313
Datum:	NAD 1983		

Date:	10/23/18
County:	Aroostook
State:	Maine
Wetland ID:	01TTQ
Sample Point:	**Upland**
Community ID:	upland

Are climatic/hydrologic conditions on the site typical for this time of year? (If no, explain in remarks) ☑ Yes ☐ No

Are Vegetation ☑, Soil ☑, or Hydrology ☐ significantly disturbed? Are normal circumstances present? ☐ Yes ☑ No

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic?

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present? ☐ Yes ☑ No

Wetland Hydrology Present? ☐ Yes ☑ No

Hydric Soils Present? ☐ Yes ☑ No

Is This Sampling Point Within A Wetland? ☐ **Yes** ☑ **No**

Remarks: Vegetation maintained, woody vegetation removed, regulary mowed. Soils previously disturbed during original airport construction.

HYDROLOGY

Wetland Hydrology Indicators (Check here if indicators are not present ☑):

Primary:

- ☐ A1 - Surface Water
- ☐ A2 - High Water Table
- ☐ A3 - Saturation
- ☐ B1 - Water Marks
- ☐ B2 - Sediment Deposits
- ☐ B3 - Drift Deposits
- ☐ B4 - Algal Mat or Crust
- ☐ B5 - Iron Deposits
- ☐ B7 - Inundation Visible on Aerial Imagery
- ☐ B8 - Sparsely Vegetated Concave Surface
- ☐ B9 - Water-Stained Leaves
- ☐ B13 - Aquatic Fauna
- ☐ B15 - Marl Deposits
- ☐ C1 - Hydrogen Sulfide Odor
- ☐ C3 - Oxidized Rhizospheres on Living Roots
- ☐ C4 - Presence of Reduced Iron
- ☐ C6 - Recent Iron Reduction in Tilled Soils
- ☐ C7 - Thin Muck Surface
- ☐ Other (Explain in Remarks)

Secondary:

- ☐ B6 - Surface Soil Cracks
- ☐ B10 - Drainage Patterns
- ☐ B16 - Moss Trim Lines
- ☐ C2 - Dry-Season Water Table
- ☐ C8 - Crayfish Burrows
- ☐ C9 - Saturation Visible on Aerial Imagery
- ☐ D1 - Stunted or Stressed Plants
- ☐ D2 - Geomorphic Position
- ☐ D3 - Shallow Aquitard
- ☐ D4 - Microtopographic Relief
- ☐ D5 - FAC-Neutral Test

Field Observations:

Surface Water Present?	☐ Yes ☑ No	Depth:	(in.)
Water Table Present?	☐ Yes ☑ No	Depth:	(in.)
Saturation Present?	☐ Yes ☑ No	Depth:	(in.)

Wetland Hydrology Present? ☐ Yes ☑ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: N/A

Remarks:

SOILS

Map Unit Name: Easton-Burnham complex Series Drainage Class: poorly drained

Taxonomy (Subgroup):

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators.) (Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered/Coated Sand Grains; Location: PL=Pore Lining, M=Matrix)

Top Depth	Bottom Depth	Horizon	Matrix Color (Moist)	Matrix %	Mottles Color (Moist)	Mottles %	Mottles Type	Mottles Location	Texture (e.g. clay, sand, loam)
0	10	1	10YR 4/4	100	--	--	--	--	silt loam
10	16	2	10YR 5/4	100	--	--	--	--	silt loam
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--

NRCS Hydric Soil Field Indicators (check here if indicators are not present ☑):

- ☐ A1- Histosol
- ☐ A2 - Histic Epipedon
- ☐ A3 - Black Histic
- ☐ A4 - Hydrogen Sulfide
- ☐ A5 - Stratified Layers
- ☐ A11 - Depleted Below Dark Surface
- ☐ A12 - Thick Dark Surface
- ☐ S1 - Sandy Muck Mineral
- ☐ S4 - Sandy Gleyed Matrix
- ☐ S5 - Sandy Redox
- ☐ S6 - Stripped Matrix
- ☐ S7 - Dark Surface (LRR R, MLRA 149B)
- ☐ S8 - Polyvalue Below Surface (LRR R, MLRA 149B)
- ☐ S9 - Thin Dark Surface (LRR R, MLRA 149B)
- ☐ F1 - Loamy Mucky Mineral (LRR K, L)
- ☐ F2 - Loamy Gleyed Matrix
- ☐ F3 - Depleted Matrix
- ☐ F6 - Redox Dark Surface
- ☐ F7 - Depleted Dark Surface
- ☐ F8 - Redox Depressions

Indicators for Problematic Soils [1]

- ☐ A10 - 2 cm Muck (LRR K, L, MLRA 149B)
- ☐ A16 - Coast Prairie Redox (LRR K, L, R)
- ☐ S3 - 5cm Mucky Peat of Peat (**LRR K, L, R**)
- ☐ S7 - Dark Surface (LRR K, L, M)
- ☐ S8 - Polyvalue Below Surface (**LRR K, L**)
- ☐ S9 - Thin Dark Surface (**LRR K, L**)
- ☐ F12 - Iron-Manganese Masses (**LRR K, L, R**)
- ☐ F19 - Piedmont Floodplain Soils (**MLRA 149B**)
- ☐ TA6 - Mesic Spodic (**MLRA 144A, 145, 149B**)
- ☐ TF2 - Red Parent Material
- ☐ TF12 - Very Shallow Dark Surface
- ☐ Other (Explain in Remarks)

[1] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (If Observed) Type: compact/rocky Depth: 16"

Hydric Soil Present? ☐ Yes ☑ No

Remarks:

Stantec

WETLAND DETERMINATION DATA FORM

Northeast and Northcentral Region

Project/Site: Northern Maine Regional Airport | Wetland ID: 01TTQ | Sample Point **Upland**

VEGETATION (Species identified in all uppercase are non-native species.)

Tree Stratum (Plot size: 10 meter radius)

	Species Name	% Cover	Dominant	Ind.Status
1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	0		

Sapling/Shrub Stratum (Plot size: 5 meter radius)

1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	0		

Herb Stratum (Plot size: 2 meter radius)

1.	*Phleum pratense*	50	Y	FACU
2.	*Vicia americana*	25	Y	FACU
3.	*Trifolium pratense*	20	N	FACU
4.	*Solidago rugosa*	10	N	FAC
5.	*Cirsium vulgare*	5	N	FACU
6	*Rubus idaeus*	5	N	FACU
7.	*Solidago canadensis*	5	N	FACU
8.	*Taraxacum officinale*	5	N	FACU
9.	--	--	--	--
10.	--	--	--	--
11.	--	--	--	--
12.	--	--	--	--
13.	--	--	--	--
14.	--	--	--	--
15.	--	--	--	--
	Total Cover =	125		

Woody Vine Stratum (Plot size: 10 meter radius)

1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
	Total Cover =	0		

Remarks:

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: ***0.0%*** (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL spp.	0	x 1 =	0
FACW spp.	0	x 2 =	0
FAC spp.	10	x 3 =	30
FACU spp.	115	x 4 =	460
UPL spp.	0	x 5 =	0
Total	125 (A)		490 (B)

Prevalence Index = B/A = ***3.920***

Hydrophytic Vegetation Indicators:

- ☐ Yes ☑ No Rapid Test for Hydrophytic Vegetation
- ☐ Yes ☑ No Dominance Test is > 50%
- ☐ Yes ☑ No Prevalence Index is ≤ 3.0 *
- ☐ Yes ☑ No Morphological Adaptations (Explain) *
- ☐ Yes ☑ No Problem Hydrophytic Vegetation (Explain) *

* Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft. tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft. tall.

Woody Vines - All woody vines greater than 3.28 ft. in height.

Hydrophytic Vegetation Present ☐ Yes ☑ No

Additional Remarks:

WETLAND DETERMINATION DATA FORM
Northeast and Northcentral Region

Project/Site:	Northern Maine Regional Airport	Stantec Project #:	195211106
Applicant:	Stantec		
Investigator #1:	Tom Tetreau	Investigator #2:	
Soil Unit:	Easton-Burnham complex	NWI/WWI Classification:	PEM
Landform:	Toeslope	Local Relief:	Linear
Slope (%):	0	Latitude: 46.685853	Longitude: -68.03738
Datum:	NAD 1983		

Date:	10/23/18
County:	Aroostook
State:	Maine
Wetland ID:	01TTQ
Sample Point:	**Wetland**
Community ID:	PEM

Are climatic/hydrologic conditions on the site typical for this time of year? (If no, explain in remarks) ☑ Yes ☐ No

Are Vegetation ☑, Soil ☑, or Hydrology ☐ significantly disturbed? Are normal circumstances present? ☐ Yes ☑ No

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic?

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present?	☑ Yes ☐ No	Hydric Soils Present?	☑ Yes ☐ No
Wetland Hydrology Present?	☑ Yes ☐ No	Is This Sampling Point Within A Wetland?	☑ **Yes** ☐ **No**

Remarks: Vegetation maintained, woody vegetation removed, regulary mowed. Soils previously disturbed during original airport construction.

HYDROLOGY

Wetland Hydrology Indicators (Check here if indicators are not present ☐):

Primary:
- ☑ A1 - Surface Water
- ☐ A2 - High Water Table
- ☑ A3 - Saturation
- ☐ B1 - Water Marks
- ☐ B2 - Sediment Deposits
- ☐ B3 - Drift Deposits
- ☐ B4 - Algal Mat or Crust
- ☐ B5 - Iron Deposits
- ☐ B7 - Inundation Visible on Aerial Imagery
- ☐ B8 - Sparsely Vegetated Concave Surface
- ☐ B9 - Water-Stained Leaves
- ☐ B13 - Aquatic Fauna
- ☐ B15 - Marl Deposits
- ☐ C1 - Hydrogen Sulfide Odor
- ☐ C3 - Oxidized Rhizospheres on Living Roots
- ☐ C4 - Presence of Reduced Iron
- ☐ C6 - Recent Iron Reduction in Tilled Soils
- ☐ C7 - Thin Muck Surface
- ☐ Other (Explain in Remarks)

Secondary:
- ☐ B6 - Surface Soil Cracks
- ☐ B10 - Drainage Patterns
- ☐ B16 - Moss Trim Lines
- ☐ C2 - Dry-Season Water Table
- ☐ C8 - Crayfish Burrows
- ☐ C9 - Saturation Visible on Aerial Imagery
- ☐ D1 - Stunted or Stressed Plants
- ☐ D2 - Geomorphic Position
- ☐ D3 - Shallow Aquitard
- ☐ D4 - Microtopographic Relief
- ☐ D5 - FAC-Neutral Test

Field Observations:

Surface Water Present?	☑ Yes ☐ No	Depth:	<1	(in.)
Water Table Present?	☐ Yes ☑ No	Depth:		(in.)
Saturation Present?	☑ Yes ☐ No	Depth:	0	(in.)

Wetland Hydrology Present? ☑ Yes ☐ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: N/A

Remarks:

SOILS

Map Unit Name: Easton-Burnham complex Series Drainage Class: poorly drained

Taxonomy (Subgroup):

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators.) (Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered/Coated Sand Grains; Location: PL=Pore Lining, M=Matrix)

Top Depth	Bottom Depth	Horizon	Matrix Color (Moist)	Matrix %	Mottles Color (Moist)	Mottles %	Mottles Type	Mottles Location	Texture (e.g. clay, sand, loam)
4	0	1	--	--	--	--	--	--	organic material
0	10	2	10YR 5/1	90	10YR 4/4	10	C	M	silt loam
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--

NRCS Hydric Soil Field Indicators (check here if indicators are not present ☐):
- ☐ A1- Histosol
- ☐ A2 - Histic Epipedon
- ☐ A3 - Black Histic
- ☐ A4 - Hydrogen Sulfide
- ☐ A5 - Stratified Layers
- ☐ A11 - Depleted Below Dark Surface
- ☐ A12 - Thick Dark Surface
- ☐ S1 - Sandy Muck Mineral
- ☐ S4 - Sandy Gleyed Matrix
- ☐ S5 - Sandy Redox
- ☐ S6 - Stripped Matrix
- ☐ S7 - Dark Surface (LRR R, MLRA 149B)
- ☐ S8 - Polyvalue Below Surface (LRR R, MLRA 149B)
- ☐ S9 - Thin Dark Surface (LRR R, MLRA 149B)
- ☐ F1 - Loamy Mucky Mineral (LRR K, L)
- ☐ F2 - Loamy Gleyed Matrix
- ☑ F3 - Depleted Matrix
- ☐ F6 - Redox Dark Surface
- ☐ F7 - Depleted Dark Surface
- ☐ F8 - Redox Depressions

Indicators for Problematic Soils [1]
- ☐ A10 - 2 cm Muck (LRR K, L, MLRA 149B)
- ☐ A16 - Coast Prairie Redox (LRR K, L, R)
- ☐ S3 - 5cm Mucky Peat of Peat (**LRR K, L, R**)
- ☐ S7 - Dark Surface (LRR K, L, M)
- ☐ S8 - Polyvalue Below Surface (**LRR K, L**)
- ☐ S9 - Thin Dark Surface (**LRR K, L**)
- ☐ F12 - Iron-Manganese Masses (**LRR K, L, R**)
- ☐ F19 - Piedmont Floodplain Soils (**MLRA 149B**)
- ☐ TA6 - Mesic Spodic (**MLRA 144A, 145, 149B**)
- ☐ TF2 - Red Parent Material
- ☐ TF12 - Very Shallow Dark Surface
- ☐ Other (Explain in Remarks)

[1] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (If Observed) Type: compact/rocky Depth: 14"

Hydric Soil Present? ☑ Yes ☐ No

Remarks:

Stantec

WETLAND DETERMINATION DATA FORM

Northeast and Northcentral Region

Project/Site: Northern Maine Regional Airport | Wetland ID: 01TTQ | Sample Point Wetland

VEGETATION (Species identified in all uppercase are non-native species.)

Tree Stratum (Plot size: 10 meter radius)

	Species Name	% Cover	Dominant	Ind.Status
1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	0		

Sapling/Shrub Stratum (Plot size: 5 meter radius)

1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	0		

Herb Stratum (Plot size: 2 meter radius)

1.	*Scirpus cyperinus*	40	Y	OBL
2.	*Phalaris arundinacea*	40	Y	FACW
3.	*Calamagrostis canadensis*	15	N	OBL
4.	*Carex gynandra*	10	N	OBL
5.	*Typha latifolia*	10	N	OBL
6	*Cornus alba*	10	N	FACW
7.	*Juncus effusus*	5	N	OBL
8.	*Salix discolor*	5	N	FACW
9.	--	--	--	--
10.	--	--	--	--
11.	--	--	--	--
12.	--	--	--	--
13.	--	--	--	--
14.	--	--	--	--
15.	--	--	--	--
	Total Cover =	135		

Woody Vine Stratum (Plot size: 10 meter radius)

1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
	Total Cover =	0		

Remarks:

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: ***100.0%*** (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL spp.	80	x 1 =	80
FACW spp.	55	x 2 =	110
FAC spp.	0	x 3 =	0
FACU spp.	0	x 4 =	0
UPL spp.	0	x 5 =	0
Total	135 (A)		190 (B)

Prevalence Index = B/A = ***1.407***

Hydrophytic Vegetation Indicators:

- ☑ Yes ☐ No Rapid Test for Hydrophytic Vegetation
- ☑ Yes ☐ No Dominance Test is > 50%
- ☑ Yes ☐ No Prevalence Index is ≤ 3.0 *
- ☐ Yes ☑ No Morphological Adaptations (Explain) *
- ☐ Yes ☑ No Problem Hydrophytic Vegetation (Explain) *

* Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft. tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft. tall.

Woody Vines - All woody vines greater than 3.28 ft. in height.

Hydrophytic Vegetation Present ☑ Yes ☐ No

Additional Remarks:

WETLAND DETERMINATION DATA FORM
Northeast and Northcentral Region

Project/Site:	Northern Maine Regional Airport	Stantec Project #:	195211106
Applicant:	Stantec		
Investigator #1:	Tom Tetreau	Investigator #2:	
Soil Unit:	Easton-Burnham complex	NWI/WWI Classification:	upland
Landform:	Shoulder	Local Relief:	Convex
Slope (%):	3	Latitude: 46.688773	Longitude: -68.037974 Datum: NAD 1983

Date:	10/24/18
County:	Aroostook
State:	Maine
Wetland ID:	01TTT
Sample Point:	**Upland**
Community ID:	upland

Are climatic/hydrologic conditions on the site typical for this time of year? (If no, explain in remarks) ☑ Yes ☐ No

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed?
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic?

Are normal circumstances present? ☑ Yes ☐ No

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present? ☐ Yes ☑ No
Wetland Hydrology Present? ☐ Yes ☑ No
Hydric Soils Present? ☐ Yes ☑ No
Is This Sampling Point Within A Wetland? ☐ **Yes** ☑ **No**

Remarks:

HYDROLOGY

Wetland Hydrology Indicators (Check here if indicators are not present ☑):

Primary:
- ☐ A1 - Surface Water
- ☐ A2 - High Water Table
- ☐ A3 - Saturation
- ☐ B1 - Water Marks
- ☐ B2 - Sediment Deposits
- ☐ B3 - Drift Deposits
- ☐ B4 - Algal Mat or Crust
- ☐ B5 - Iron Deposits
- ☐ B7 - Inundation Visible on Aerial Imagery
- ☐ B8 - Sparsely Vegetated Concave Surface
- ☐ B9 - Water-Stained Leaves
- ☐ B13 - Aquatic Fauna
- ☐ B15 - Marl Deposits
- ☐ C1 - Hydrogen Sulfide Odor
- ☐ C3 - Oxidized Rhizospheres on Living Roots
- ☐ C4 - Presence of Reduced Iron
- ☐ C6 - Recent Iron Reduction in Tilled Soils
- ☐ C7 - Thin Muck Surface
- ☐ Other (Explain in Remarks)

Secondary:
- ☐ B6 - Surface Soil Cracks
- ☐ B10 - Drainage Patterns
- ☐ B16 - Moss Trim Lines
- ☐ C2 - Dry-Season Water Table
- ☐ C8 - Crayfish Burrows
- ☐ C9 - Saturation Visible on Aerial Imagery
- ☐ D1 - Stunted or Stressed Plants
- ☐ D2 - Geomorphic Position
- ☐ D3 - Shallow Aquitard
- ☐ D4 - Microtopographic Relief
- ☐ D5 - FAC-Neutral Test

Field Observations:

Surface Water Present?	☐ Yes ☑ No	Depth:	(in.)
Water Table Present?	☐ Yes ☑ No	Depth:	(in.)
Saturation Present?	☐ Yes ☑ No	Depth:	(in.)

Wetland Hydrology Present? ☐ Yes ☑ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: N/A

Remarks:

SOILS

Map Unit Name: Easton-Burnham complex Series Drainage Class: poorly drained

Taxonomy (Subgroup):

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators.) (Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered/Coated Sand Grains; Location: PL=Pore Lining, M=Matrix)

Top Depth	Bottom Depth	Horizon	Matrix Color (Moist)	Matrix %	Mottles Color (Moist)	Mottles %	Mottles Type	Mottles Location	Texture (e.g. clay, sand, loam)
0	6	1	10YR 3/2	100	--	--	--	--	silt loam
6	10	2	10YR 4/3	100	--	--	--	--	silt loam
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--

NRCS Hydric Soil Field Indicators (check here if indicators are not present ☑):
- ☐ A1- Histosol
- ☐ A2 - Histic Epipedon
- ☐ A3 - Black Histic
- ☐ A4 - Hydrogen Sulfide
- ☐ A5 - Stratified Layers
- ☐ A11 - Depleted Below Dark Surface
- ☐ A12 - Thick Dark Surface
- ☐ S1 - Sandy Muck Mineral
- ☐ S4 - Sandy Gleyed Matrix
- ☐ S5 - Sandy Redox
- ☐ S6 - Stripped Matrix
- ☐ S7 - Dark Surface (LRR R, MLRA 149B)
- ☐ S8 - Polyvalue Below Surface (LRR R, MLRA 149B)
- ☐ S9 - Thin Dark Surface (LRR R, MLRA 149B)
- ☐ F1 - Loamy Mucky Mineral (LRR K, L)
- ☐ F2 - Loamy Gleyed Matrix
- ☐ F3 - Depleted Matrix
- ☐ F6 - Redox Dark Surface
- ☐ F7 - Depleted Dark Surface
- ☐ F8 - Redox Depressions

Indicators for Problematic Soils [1]
- ☐ A10 - 2 cm Muck (LRR K, L, MLRA 149B)
- ☐ A16 - Coast Prairie Redox (LRR K, L, R)
- ☐ S3 - 5cm Mucky Peat of Peat (**LRR K, L, R**)
- ☐ S7 - Dark Surface (LRR K, L, M)
- ☐ S8 - Polyvalue Below Surface (**LRR K, L**)
- ☐ S9 - Thin Dark Surface (**LRR K, L**)
- ☐ F12 - Iron-Manganese Masses (**LRR K, L, R**)
- ☐ F19 - Piedmont Floodplain Soils (**MLRA 149B**)
- ☐ TA6 - Mesic Spodic (**MLRA 144A, 145, 149B**)
- ☐ TF2 - Red Parent Material
- ☐ TF12 - Very Shallow Dark Surface
- ☐ Other (Explain in Remarks)

[1] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (If Observed) Type: compact/rocky Depth: 10"

Hydric Soil Present? ☐ Yes ☑ No

Remarks:

Stantec

WETLAND DETERMINATION DATA FORM

Northeast and Northcentral Region

Project/Site: Northern Maine Regional Airport | Wetland ID: 01TTT | Sample Point **Upland**

VEGETATION (Species identified in all uppercase are non-native species.)

Tree Stratum (Plot size: 10 meter radius)

	Species Name	% Cover	Dominant	Ind.Status
1.	*Populus tremuloides*	50	Y	FACU
2.	*Fraxinus nigra*	5	N	FACW
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	55		

Sapling/Shrub Stratum (Plot size: 5 meter radius)

1.	*Prunus serotina*	25	Y	FACU
2.	*Viburnum nudum*	15	Y	FACW
3.	*Lonicera morrowii*	15	Y	FACU
4.	*Acer rubrum*	15	Y	FAC
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	70		

Herb Stratum (Plot size: 2 meter radius)

1.	*Rubus idaeus*	50	Y	FACU
2.	*Solidago rugosa*	10	N	FAC
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
11.	--	--	--	--
12.	--	--	--	--
13.	--	--	--	--
14.	--	--	--	--
15.	--	--	--	--
	Total Cover =	60		

Woody Vine Stratum (Plot size: 10 meter radius)

1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
	Total Cover =	0		

Remarks:

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: ***33.3%*** (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL spp.	0	x 1 =	0
FACW spp.	20	x 2 =	40
FAC spp.	25	x 3 =	75
FACU spp.	140	x 4 =	560
UPL spp.	0	x 5 =	0
Total	185 (A)		675 (B)

Prevalence Index = B/A = ***3.649***

Hydrophytic Vegetation Indicators:

- ☐ Yes ☑ No Rapid Test for Hydrophytic Vegetation
- ☐ Yes ☑ No Dominance Test is > 50%
- ☐ Yes ☑ No Prevalence Index is ≤ 3.0 *
- ☐ Yes ☑ No Morphological Adaptations (Explain) *
- ☐ Yes ☑ No Problem Hydrophytic Vegetation (Explain) *

* Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft. tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft. tall.

Woody Vines - All woody vines greater than 3.28 ft. in height.

Hydrophytic Vegetation Present ☐ Yes ☑ No

Additional Remarks:

WETLAND DETERMINATION DATA FORM
Northeast and Northcentral Region

Project/Site:	Northern Maine Regional Airport	Stantec Project #:	195211106
Applicant:	Stantec		
Investigator #1:	Tom Tetreau	Investigator #2:	
Soil Unit:	Easton-Burnham complex	NWI/WWI Classification:	PFO
Landform:	Shoulder	Local Relief:	Convex
Slope (%):	3	Latitude: 46.688865	Longitude: -68.038015
Datum:	NAD 1983		

Date:	10/24/18
County:	Aroostook
State:	Maine
Wetland ID:	01TTT
Sample Point:	**Wetland**
Community ID:	PFO

Are climatic/hydrologic conditions on the site typical for this time of year? (If no, explain in remarks) ☑ Yes ☐ No

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed?
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic?

Are normal circumstances present? ☑ Yes ☐ No

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present? ☑ Yes ☐ No
Wetland Hydrology Present? ☑ Yes ☐ No
Hydric Soils Present? ☑ Yes ☐ No
Is This Sampling Point Within A Wetland? ☑ **Yes** ☐ **No**

Remarks:

HYDROLOGY

Wetland Hydrology Indicators (Check here if indicators are not present ☐):

Primary:
- ☐ A1 - Surface Water
- ☐ A2 - High Water Table
- ☑ A3 - Saturation
- ☐ B1 - Water Marks
- ☐ B2 - Sediment Deposits
- ☐ B3 - Drift Deposits
- ☐ B4 - Algal Mat or Crust
- ☐ B5 - Iron Deposits
- ☐ B7 - Inundation Visible on Aerial Imagery
- ☐ B8 - Sparsely Vegetated Concave Surface
- ☑ B9 - Water-Stained Leaves
- ☐ B13 - Aquatic Fauna
- ☐ B15 - Marl Deposits
- ☐ C1 - Hydrogen Sulfide Odor
- ☐ C3 - Oxidized Rhizospheres on Living Roots
- ☐ C4 - Presence of Reduced Iron
- ☐ C6 - Recent Iron Reduction in Tilled Soils
- ☐ C7 - Thin Muck Surface
- ☐ Other (Explain in Remarks)

Secondary:
- ☐ B6 - Surface Soil Cracks
- ☑ B10 - Drainage Patterns
- ☐ B16 - Moss Trim Lines
- ☐ C2 - Dry-Season Water Table
- ☐ C8 - Crayfish Burrows
- ☐ C9 - Saturation Visible on Aerial Imagery
- ☐ D1 - Stunted or Stressed Plants
- ☐ D2 - Geomorphic Position
- ☐ D3 - Shallow Aquitard
- ☐ D4 - Microtopographic Relief
- ☐ D5 - FAC-Neutral Test

Field Observations:

Surface Water Present?	☐ Yes	☑ No	Depth:	(in.)
Water Table Present?	☐ Yes	☑ No	Depth:	(in.)
Saturation Present?	☑ Yes	☐ No	Depth: 0	(in.)

Wetland Hydrology Present? ☑ Yes ☐ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: N/A

Remarks:

SOILS

Map Unit Name: Easton-Burnham complex Series Drainage Class: poorly drained

Taxonomy (Subgroup):

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators.) (Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered/Coated Sand Grains; Location: PL=Pore Lining, M=Matrix)

Top Depth	Bottom Depth	Horizon	Matrix Color (Moist)	Matrix %	Mottles Color (Moist)	Mottles %	Mottles Type	Mottles Location	Texture (e.g. clay, sand, loam)
0	24	1	--	--	--	--	--	--	organic material
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--

NRCS Hydric Soil Field Indicators (check here if indicators are not present ☐):
- ☑ A1- Histosol
- ☐ A2 - Histic Epipedon
- ☐ A3 - Black Histic
- ☐ A4 - Hydrogen Sulfide
- ☐ A5 - Stratified Layers
- ☐ A11 - Depleted Below Dark Surface
- ☐ A12 - Thick Dark Surface
- ☐ S1 - Sandy Muck Mineral
- ☐ S4 - Sandy Gleyed Matrix
- ☐ S5 - Sandy Redox
- ☐ S6 - Stripped Matrix
- ☐ S7 - Dark Surface (LRR R, MLRA 149B)
- ☐ S8 - Polyvalue Below Surface (LRR R, MLRA 149B)
- ☐ S9 - Thin Dark Surface (LRR R, MLRA 149B)
- ☐ F1 - Loamy Mucky Mineral (LRR K, L)
- ☐ F2 - Loamy Gleyed Matrix
- ☐ F3 - Depleted Matrix
- ☐ F6 - Redox Dark Surface
- ☐ F7 - Depleted Dark Surface
- ☐ F8 - Redox Depressions

Indicators for Problematic Soils [1]
- ☐ A10 - 2 cm Muck (LRR K, L, MLRA 149B)
- ☐ A16 - Coast Prairie Redox (LRR K, L, R)
- ☐ S3 - 5cm Mucky Peat of Peat (**LRR K, L, R**)
- ☐ S7 - Dark Surface (LRR K, L, M)
- ☐ S8 - Polyvalue Below Surface (**LRR K, L**)
- ☐ S9 - Thin Dark Surface (**LRR K, L**)
- ☐ F12 - Iron-Manganese Masses (**LRR K, L, R**)
- ☐ F19 - Piedmont Floodplain Soils (**MLRA 149B**)
- ☐ TA6 - Mesic Spodic (**MLRA 144A, 145, 149B**)
- ☐ TF2 - Red Parent Material
- ☐ TF12 - Very Shallow Dark Surface
- ☐ Other (Explain in Remarks)

[1] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (If Observed) Type: Depth:

Hydric Soil Present? ☑ Yes ☐ No

Remarks: greater than 24" organic material

Stantec

WETLAND DETERMINATION DATA FORM

Northeast and Northcentral Region

Project/Site: Northern Maine Regional Airport | Wetland ID: 01TTT | Sample Point Wetland

VEGETATION (Species identified in all uppercase are non-native species.)

Tree Stratum (Plot size: 10 meter radius)

	Species Name	% Cover	Dominant	Ind.Status
1.	*Populus tremuloides*	20	Y	FACU
2.	*Acer rubrum*	15	Y	FAC
3.	*Fraxinus nigra*	10	Y	FACW
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	45		

Sapling/Shrub Stratum (Plot size: 5 meter radius)

1.	*Salix bebbiana*	20	Y	FACW
2.	*Alnus incana*	20	Y	FACW
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	40		

Herb Stratum (Plot size: 2 meter radius)

1.	*Calamagrostis canadensis*	50	Y	OBL
2.	*Doellingeria umbellata*	25	Y	FACW
3.	*Solidago rugosa*	15	N	FAC
4.	*Geum macrophyllum*	5	N	FACW
5.	*Onoclea sensibilis*	5	N	FACW
6	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
11.	--	--	--	--
12.	--	--	--	--
13.	--	--	--	--
14.	--	--	--	--
15.	--	--	--	--
	Total Cover =	100		

Woody Vine Stratum (Plot size: 10 meter radius)

1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
	Total Cover =	0		

Remarks:

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: ***85.7%*** (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL spp.	50	x 1 =	50
FACW spp.	85	x 2 =	170
FAC spp.	30	x 3 =	90
FACU spp.	20	x 4 =	80
UPL spp.	0	x 5 =	0
Total	185 (A)		390 (B)

Prevalence Index = B/A = ***2.108***

Hydrophytic Vegetation Indicators:

- ☐ Yes ☑ No Rapid Test for Hydrophytic Vegetation
- ☑ Yes ☐ No Dominance Test is > 50%
- ☑ Yes ☐ No Prevalence Index is ≤ 3.0 *
- ☐ Yes ☑ No Morphological Adaptations (Explain) *
- ☐ Yes ☑ No Problem Hydrophytic Vegetation (Explain) *

* Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft. tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft. tall.

Woody Vines - All woody vines greater than 3.28 ft. in height.

Hydrophytic Vegetation Present ☑ Yes ☐ No

Additional Remarks:

Appendix E FUNCTION VALUE ASSESSMENT SUMMARY TABLE

Appendix E Table 1. Function Value Assessment Summary

Wetland ID	Groundwater Interchange	Floodwater Alteration	Fish and Shellfish Habitat	Sediment/Toxicant Retention	Nutrient Removal	Production Export	Sediment/Shoreline Stabilization	Wildlife Habitat	Recreation	Educational/ Scientific Value	Uniqueness/Heritage	Visual Quality/Aesthetics	Endangered Species
01TTA		P		P	P								
01TTB	P	P		P	P								
01TTC	P	P		P	P								
01TTD		P		P	P								
01TTE		P		P	P								
01TTF	P	P	P	P	P	X	P	P					
01TTG		P		P	P								
01TTH		P		P	P								
01TTI	P	P	P	P	P	X	P	P					
01TTJ	P	P	P	P	P	X	P	P					
01TTL		P		P	P			X					
01TTM		P		P	P								
01TTN		P		P	P			X					
01TTO		P		P	P								
01TTQ		P		P	P								
01TTR		P		P	P								
01TTS		P		P	P								
01TTT	P	P	X	P	P	X	P	P					
01TTU		P		P	P								
01TTV		P		P	P								
01TTW	P	P		P	P	X	p	P					
01TTX		P		P	P								

PRESQUE ISLE
INTERNATIONAL AIRPORT
AÉROPORT INTERNATIONAL DE PRESQUE ISLE

Appendix D

Natural Resource Agency Coordination

McFarland Johnson

Stantec

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Maine Ecological Services Field Office
P. O. Box A
East Orland, ME 04431
Phone: (207) 469-7300 Fax: (207) 902-1588
http://www.fws.gov/mainefieldoffice/index.html

In Reply Refer To:
Consultation Code: 05E1ME00-2019-SLI-0134
Event Code: 05E1ME00-2019-E-00264
Project Name: Presque Isle International Airport

November 12, 2018

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies the threatened, endangered, candidate, and proposed species and designated or proposed critical habitat that may occur within the boundary of your proposed project or may be affected by your proposed project. This species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC Web site at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the Endangered Species Consultation Handbook at: http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

This species list also identifies candidate species under review for listing and those species that the Service considers species of concern. Candidate species have no protection under the Act but are included for consideration because they could be listed prior to completion of your project. Species of concern are those taxa whose conservation status is of concern to the Service (i.e., species previously known as Category 2 candidates), but for which further information is needed.

If a proposed project may affect only candidate species or species of concern, you are not required to prepare a Biological Assessment or biological evaluation or to consult with the Service. However, the Service recommends minimizing effects to these species to prevent future conflicts. Therefore, if early evaluation indicates that a project will affect a candidate species or species of concern, you may wish to request technical assistance from this office to identify appropriate minimization measures.

Please be aware that bald and golden eagles are not protected under the Endangered Species Act but are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.). Projects affecting these species may require development of an eagle conservation plan: http://www.fws.gov/windenergy/eagle_guidance.html Information on the location of bald eagle nests in Maine can be found on the Maine Field Office Web site: http://www.fws.gov/mainefieldoffice/Project%20review4.html

Additionally, wind energy projects should follow the wind energy guidelines: http://www.fws.gov/windenergy/ for minimizing impacts to migratory birds and bats. Projects may require development of an avian and bat protection plan.

Migratory birds are also a Service trust resource. Under the Migratory Bird Treaty Act, construction activities in grassland, wetland, stream, woodland, and other habitats that would result in the take of migratory birds, eggs, young, or active nests should be avoided. Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g.,

cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm and at: http://www.towerkill.com; and at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Maine Ecological Services Field Office
P. O. Box A
East Orland, ME 04431
(207) 469-7300

Project Summary

Consultation Code: 05E1ME00-2019-SLI-0134

Event Code: 05E1ME00-2019-E-00264

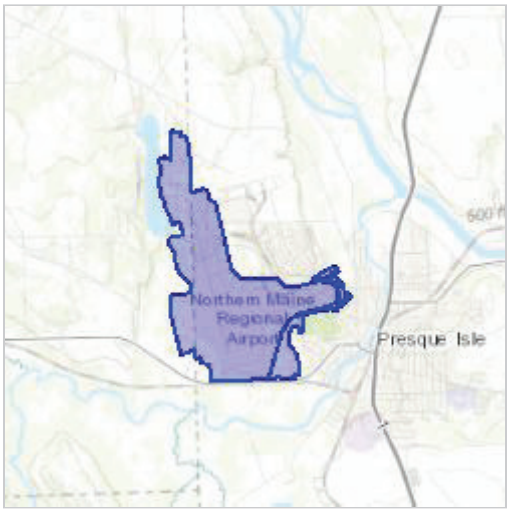
Project Name: Presque Isle International Airport

Project Type: TRANSPORTATION

Project Description: Master Plan Update

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/46.694505565729315N68.05078187753324W



Counties: Aroostook, ME

Endangered Species Act Species

There is a total of 2 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

---

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Canada Lynx *Lynx canadensis* Population: Wherever Found in Contiguous U.S. There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3652	Threatened
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

PAUL R. LEPAGE
GOVERNOR

STATE OF MAINE
DEPARTMENT OF
INLAND FISHERIES & WILDLIFE
284 STATE STREET
41 STATE HOUSE STATION
AUGUSTA ME 04333-0041

CHANDLER E. WOODCOCK
COMMISSIONER

December 18, 2018

Jordan N. Tate
McFarland Johnson
5 Depot Street
Freeport, ME 04032

RE: Information Request - Presque Isle International Airport, Presque Isle

Dear Jordan:

Per your request received November 27, 2018, we have reviewed current Maine Department of Inland Fisheries and Wildlife (MDIFW) information for known locations of Endangered, Threatened, and Special Concern species; designated Essential and Significant Wildlife Habitats; and fisheries habitat concerns within the vicinity of the *Presque Isle International Airport Project* in Presque Isle. For purposes of this review we are assuming that the proposed development will also include the undeveloped and/or forested portions of the project search area.

Our Department has not mapped any Essential Habitats that would be directly affected by your project.

Endangered, Threatened, and Special Concern Species

Bats

Of the eight species of bats that occur in Maine, the three *Myotis* species are protected under Maine's Endangered Species Act (MESA) and are afforded special protection under 12 M.R.S §12801 - §12810. The three *Myotis* species include little brown bat (State Endangered), northern long-eared bat (State Endangered), and eastern small-footed bat (State Threatened). The five remaining bat species are listed as Special Concern: big brown bat, red bat, hoary bat, silver-haired bat, and tri-colored bat.

While a comprehensive statewide inventory for bats has not been completed, based on historical evidence it is likely that several of these species occur within the project area during migration and/or the breeding season. We recommend that you contact the U.S. Fish and Wildlife Service--Maine Fish and Wildlife Complex (Wende Mahaney, 207-902-1569) for further guidance, as the northern long-eared bat is also listed as a Threatened Species under the Federal Endangered Species Act. Otherwise, our Agency does not anticipate significant impacts to any of the bat species as a result of this project.

Upland sandpiper

Upland sandpipers, a State Threatened species, have been documented within the project area. Upland sandpipers are protected under MESA and are afforded special protection under 12 M.R.S §12801 -

§12810. This species nests only on the ground and uses both native and cultivated vegetation for nesting sites. Therefore, to protect against unintended Take of breeding (including territorial, incubating, low mobility fledgling birds, and eggs) upland sandpipers, MDIFW recommends a construction window of September 1 – May 1.

Significant Wildlife Habitat

Inland Waterfowl and Wading Bird Habitats

This project search area intersects with Inland Waterfowl and Wading Bird Habitats (IWWHs), which are considered Significant Wildlife Habitat under Maine's Natural Resources Protection Act. These habitats provide important breeding, feeding, migration, staging, and wintering habitat for waterfowl and wading bird species. High and moderate value IWWHs within the study area includes both the wetland complex and a 250-foot upland zone. We recommend that these resources be avoided, including no clearing (other than FAA hazard trees) within the 250-foot undisturbed buffer from the wetland edge.

Significant Vernal Pools

At this time, MDIFW Significant Wildlife Habitat maps indicate no known presence of Significant Vernal Pools in the project search area; however, a comprehensive statewide inventory for Significant Vernal Pools has not been completed. Therefore, we recommend that surveys for vernal pools be conducted within the project boundary by qualified wetland scientists prior to final project design to determine whether there are Significant Vernal Pools present in the area. These surveys should extend up to 250 feet beyond the anticipated project footprint because of potential performance standard requirements for off-site Significant Vernal Pools, assuming such pools are located on land owned or controlled by the applicant. Once surveys are completed, survey forms should be submitted to our Agency for review well before to the submission of any necessary permits. Our Department will need to review and verify any vernal pool data prior to final determination of significance.

Fisheries Habitat

We generally recommend that 100-foot undisturbed vegetated buffers be maintained along streams. Buffers should be measured from the edge of stream or associated fringe and floodplain wetlands. Maintaining and enhancing buffers along streams that support coldwater fisheries is critical to the protection of water temperatures, water quality, natural inputs of coarse woody debris, and various forms of aquatic life necessary to support conditions required by many fish species. Stream crossings should be avoided, but if a stream crossing is necessary, or an existing crossing needs to be modified, it should be designed to provide full fish passage. Small streams, including intermittent streams, can provide crucial rearing habitat, cold water for thermal refugia, and abundant food for juvenile salmonids on a seasonal basis and undersized crossings may inhibit these functions. Generally, MDIFW recommends that all new, modified, and replacement stream crossings be sized to span at least 1.2 times the bankfull width of the stream. In addition, we generally recommend that stream crossings be open bottomed (i.e. natural bottom), although embedded structures which are backfilled with representative streambed material have been shown to be effective in not only providing habitat connectivity for fish but also for other aquatic organisms. Construction Best Management Practices should be closely followed to avoid erosion, sedimentation, alteration of stream flow, and other impacts as eroding soils

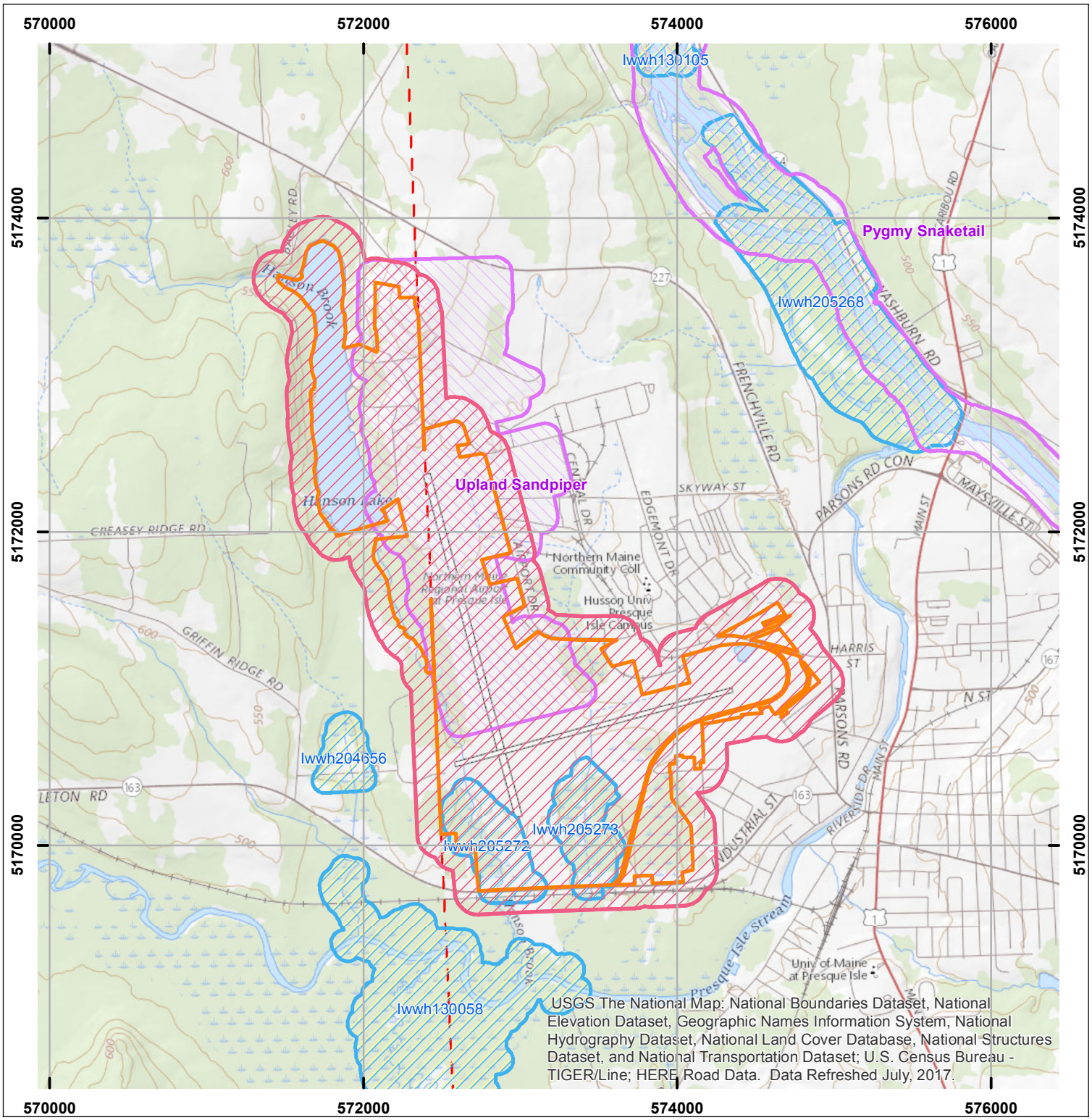
from construction activities can travel significant distances as well as transport other pollutants resulting in direct impacts to fish and fisheries habitat. In addition, we recommend that any necessary instream work occur between July 15 and October 1.

This consultation review has been conducted specifically for known MDIFW jurisdictional features and should not be interpreted as a comprehensive review for the presence of other regulated features that may occur in this area. Prior to the start of any future site disturbance we recommend additional consultation with the municipality, and other state resource agencies including the Maine Natural Areas Program and Maine Department of Environmental Protection in order to avoid unintended protected resource disturbance.

Please feel free to contact my office if you have any questions regarding this information, or if I can be of any further assistance.

Best regards,

John Perry
Environmental Review Coordinator



Environmental Review of Fish and Wildlife Observations and Priority Habitats

Project Name: Presque Isle, Presque Isle International Airport (Version 1)

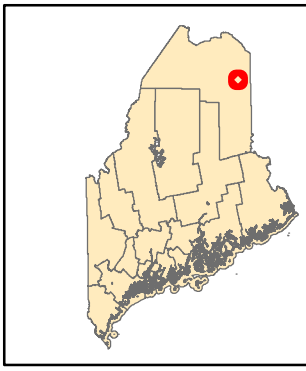
Maine Department of Inland Fisheries and Wildlife

0 0.1750.35 0.7 1.05 1.4 Miles

Projection: UTM, NAD83, Zone 19N

Date: 12/4/2018

- ProjectPolys
- ProjectSearchAreas
- Inland Waterfowl/Wading Bird
- ETSc Environmental Review Polygons



STATE OF MAINE
DEPARTMENT OF AGRICULTURE, CONSERVATION & FORESTRY
93 STATE HOUSE STATION
AUGUSTA, MAINE 04333

PAUL R. LEPAGE
GOVERNOR

WALTER E. WHITCOMB
COMMISSIONER

December 4, 2018

Jordan Tate
McFarland Johnson
5 Depot Street, Suite 25
Freeport, ME 04032

Via email: jtate@mjinc.com

Re: Rare and exemplary botanical features in proximity to: Presque Isle International Airport Master Plan Update, Presque Isle, Maine

Dear Ms. Tate:

I have searched the Natural Areas Program's Biological and Conservation Data System files in response to your request received November 16, 2018 for information on the presence of rare or unique botanical features documented from the vicinity of the project in Presque Isle, Maine. Rare and unique botanical features include the habitat of rare, threatened, or endangered plant species and unique or exemplary natural communities. Our review involves examining maps, manual and computerized records, other sources of information such as scientific articles or published references, and the personal knowledge of staff or cooperating experts.

Our official response covers only botanical features. For authoritative information and official response for zoological features you must make a similar request to the Maine Department of Inland Fisheries and Wildlife, 284 State Street, Augusta, Maine 04333.

According to the information currently in our Biological and Conservation Data System files, there are no rare botanical features documented specifically within the project area. This lack of data may indicate minimal survey efforts rather than confirm the absence of rare botanical features. You may want to have the site inventoried by a qualified field biologist to ensure that no undocumented rare features are inadvertently harmed.

If a field survey of the project area is conducted, please refer to the enclosed supplemental information regarding rare and exemplary botanical features documented to occur in the vicinity of the project site. The list may include information on features that have been known to occur historically in the area as well as recently field-verified information. While historic records have not been documented in several years, they may persist in the area if suitable habitat exists. The enclosed list identifies features with potential to occur in the area, and it should be considered if you choose to conduct field surveys.

This finding is available and appropriate for preparation and review of environmental assessments, but it is not a substitute for on-site surveys. Comprehensive field surveys do not exist for all natural areas in Maine, and in the absence of a specific field investigation, the Maine Natural Areas Program cannot provide a definitive statement on the presence or absence of unusual natural features at this site.

MOLLY DOCHERTY, DIRECTOR
MAINE NATURAL AREAS PROGRAM

DEPARTMENT OF Agriculture Conservation & Forestry

PHONE: (207) 287-8044
FAX: (207) 287-8040
WWW.MAINE.GOV/DACF/MNAP

The Natural Areas Program is continuously working to achieve a more comprehensive database of exemplary natural features in Maine. We would appreciate the contribution of any information obtained should you decide to do field work. The Natural Areas Program welcomes coordination with individuals or organizations proposing environmental alteration, or conducting environmental assessments. If, however, data provided by the Natural Areas Program are to be published in any form, the Program should be informed at the outset and credited as the source.

The Natural Areas Program has instituted a fee structure of $75.00 an hour to recover the actual cost of processing your request for information. You will receive an invoice for $150.00 for two hours of our services.

Thank you for using the Natural Areas Program in the environmental review process. Please do not hesitate to contact me if you have further questions about the Natural Areas Program or about rare or unique botanical features on this site.

Sincerely,

Kristen Puryear | Ecologist | Maine Natural Areas Program
207-287-8043 | kristen.puryear@maine.gov

Rare and Exemplary Botanical Features within 4 miles of
Project: Presque Isle International Airport, Presque Isle, Maine

Common Name	State Status	State Rank	Global Rank	Date Last Observed	Occurrence Number	Habitat
Alpine Rush						
	SC	S3	G5T5	1941-08-07	15	Non-tidal rivershore (non-forested, seasonally wet)
Auricled Twayblade						
	T	S2	G3G4	1902-07-14	6	Non-tidal rivershore (non-forested, seasonally wet),Forested wetland
	T	S2	G3G4	1942-07	1	Non-tidal rivershore (non-forested, seasonally wet),Forested wetland
Circumneutral Pond						
	<null>	S2	GNR	2003-09-05	6	Open water (non-forested, wetland)
Clinton's Bulrush						
	SC	S3	G4	1902-07-14	15	Open wetland, not coastal nor rivershore (non-forested, wetland), Non-tidal rivershore (non-forested, seasonally wet)
	SC	S3	G4	1902-07-14	4	Open wetland, not coastal nor rivershore (non-forested, wetland), Non-tidal rivershore (non-forested, seasonally wet)
Dioecious Sedge						
	SC	S3	G4G5	1935-06-16	3	Non-tidal rivershore (non-forested, seasonally wet),Open wetland, not coastal nor rivershore (non-forested, wetland)
Fries' Pondweed						
	E	S1	G5	1998-07-14	3	Open water (non-forested, wetland)
	E	S1	G5	2003-07-22	5	Open water (non-forested, wetland)
Garber's Sedge						
	SC	S2	G5	1935-06-16	11	Open wetland, not coastal nor rivershore (non-forested, wetland), Non-tidal rivershore (non-forested, seasonally wet)
Gaspe Shadbush						
	SC	S2	G5T4?	1980-08-01	7	Non-tidal rivershore (non-forested, seasonally wet)
	SC	S2	G5T4?	1941-07-19	5	Non-tidal rivershore (non-forested, seasonally wet)
	SC	S2	G5T4?	1940-07-16	6	Non-tidal rivershore (non-forested, seasonally wet)

Rare and Exemplary Botanical Features within 4 miles of
Project: Presque Isle International Airport, Presque Isle, Maine

Common Name	State Status	State Rank	Global Rank	Date Last Observed	Occurrence Number	Habitat
Lapland Buttercup						
	T	S2	G5	1941-07-01	4	Conifer forest (forest, upland),Forested wetland
Leonard's Skullcap						
	PE	SH	G4T4	1942-08	2	Non-tidal rivershore (non-forested, seasonally wet)
Limestone Swamp Bedstraw						
	PE	SH	G4?	1939-07-27	2	Open wetland, not coastal nor rivershore (non-forested, wetland)
Marsh Valerian						
	SC	S2	G4	1956-06-26	11	Forested wetland,Open wetland, not coastal nor rivershore (non-forested, wetland)
Prairie Sedge						
	T	S1	G5	1902-07-12	7	Open wetland, not coastal nor rivershore (non-forested, wetland)
	T	S1	G5	1945-07-22	6	Open wetland, not coastal nor rivershore (non-forested, wetland)
Purple Clematis						
	SC	S3	G5T5	1933-06-02	11	Non-tidal rivershore (non-forested, seasonally wet),Hardwood to mixed forest (forest, upland)
Shining Ladies'-tresses						
	T	S1	G4	1935-07-22	7	Non-tidal rivershore (non-forested, seasonally wet),Open wetland, not coastal nor rivershore (non-forested, wetland)
Showy Lady's-slipper						
	SC	S3	G4G5	1940-06-27	20	Forested wetland,Open wetland, not coastal nor rivershore (non-forested, wetland)
Slender Pondweed						
	SC	S2	G5	1998-07-14	13	Open water (non-forested, wetland)
	SC	S2	G5	1940-07-10	10	Open water (non-forested, wetland)
Small Yellow Water Crowfoot						
	SC	S2	G5T5	1941-07-01	8	Open water (non-forested, wetland)

Rare and Exemplary Botanical Features within 4 miles of
Project: Presque Isle International Airport, Presque Isle, Maine

Common Name	State Status	State Rank	Global Rank	Date Last Observed	Occurrence Number	Habitat
	SC	S2	G5T5	1939-07-27	7	Open water (non-forested, wetland)
Sparse-flowered Sedge						
	SC	S3	G5	1940-06-27	8	Forested wetland,Open wetland, not coastal nor rivershore (non-forested, wetland)
Swamp Honeysuckle						
	SC	S3	G5	1945-07-22	8	Forested wetland,Open wetland, not coastal nor rivershore (non-forested, wetland)
	SC	S3	G5	1941-06-17	10	Forested wetland,Open wetland, not coastal nor rivershore (non-forested, wetland)
White Adder's-mouth						
	E	S1	G5T4T5	1902-07-11	6	Forested wetland
Wild Ginger						
	T	S1S2	G5	1991	2	Hardwood to mixed forest (forest, upland)
	T	S1S2	G5	1993-10-21	14	Hardwood to mixed forest (forest, upland)

STATE RARITY RANKS

S1 Critically imperiled in Maine because of extreme rarity (five or fewer occurrences or very few remaining individuals or acres) or because some aspect of its biology makes it especially vulnerable to extirpation from the State of Maine.

S2 Imperiled in Maine because of rarity (6-20 occurrences or few remaining individuals or acres) or because of other factors making it vulnerable to further decline.

S3 Rare in Maine (20-100 occurrences).

S4 Apparently secure in Maine.

S5 Demonstrably secure in Maine.

SU Under consideration for assigning rarity status; more information needed on threats or distribution.

SNR Not yet ranked.

SNA Rank not applicable.

S#? Current occurrence data suggests assigned rank, but lack of survey effort along with amount of potential habitat create uncertainty (e.g. S3?).

Note: **State Rarity Ranks** are determined by the Maine Natural Areas Program for rare plants and rare and exemplary natural communities and ecosystems. The Maine Department of Inland Fisheries and Wildlife determines State Rarity Ranks for animals.

GLOBAL RARITY RANKS

G1 Critically imperiled globally because of extreme rarity (five or fewer occurrences or very few remaining individuals or acres) or because some aspect of its biology makes it especially vulnerable to extinction.

G2 Globally imperiled because of rarity (6-20 occurrences or few remaining individuals or acres) or because of other factors making it vulnerable to further decline.

G3 Globally rare (20-100 occurrences).

G4 Apparently secure globally.

G5 Demonstrably secure globally.

GNR Not yet ranked.

Note: **Global Ranks** are determined by NatureServe.

STATE LEGAL STATUS

Note: State legal status is according to 5 M.R.S.A. § 13076-13079, which mandates the Department of Conservation to produce and biennially update the official list of Maine's **Endangered** and **Threatened** plants. The list is derived by a technical advisory committee of botanists who use data in the Natural Areas Program's database to recommend status changes to the Department of Conservation.

E ENDANGERED; Rare and in danger of being lost from the state in the foreseeable future; or federally listed as Endangered.

T THREATENED; Rare and, with further decline, could become endangered; or federally listed as Threatened.

NON-LEGAL STATUS

SC SPECIAL CONCERN; Rare in Maine, based on available information, but not sufficiently rare to be considered Threatened or Endangered.

PE Potentially Extirpated; Species has not been documented in Maine in past 20 years or loss of last known occurrence has been documented.

ELEMENT OCCURRENCE RANKS - EO RANKS

Element Occurrence ranks are used to describe the quality of a rare plant population or natural community based on three factors:

- **Size**: Size of community or population relative to other known examples in Maine. Community or population's viability, capability to maintain itself.
- **Condition**: For communities, condition includes presence of representative species, maturity of species, and evidence of human-caused disturbance. For plants, factors include species vigor and evidence of human-caused disturbance.
- **Landscape context**: Land uses and/or condition of natural communities surrounding the observed area. Ability of the observed community or population to be protected from effects of adjacent land uses.

These three factors are combined into an overall ranking of the feature of **A**, **B**, **C**, or **D**, where **A** indicates an **excellent** example of the community or population and **D** indicates a **poor** example of the community or population. A rank of **E** indicates that the community or population is **extant** but there is not enough data to assign a quality rank. The Maine Natural Areas Program tracks all occurrences of rare (S1-S3) plants and natural communities as well as A and B ranked common (S4-S5) natural communities.

Note: **Element Occurrence Ranks** are determined by the Maine Natural Areas Program for rare plants and rare and exemplary natural communities and ecosystems. The Maine Department of Inland Fisheries and Wildlife determines Element Occurrence ranks for animals.

Visit our website for more information on rare, threatened, and endangered species!
http://www.maine.gov/dacf/mnap

PRESQUE ISLE
INTERNATIONAL AIRPORT
AÉROPORT INTERNATIONAL DE PRESQUE ISLE

Appendix E

Maine Historic Preservation Commission Response

McFarland Johnson

Stantec

MAINE HISTORIC PRESERVATION COMMISSION
55 CAPITOL STREET
65 STATE HOUSE STATION
AUGUSTA, MAINE
04333

PAUL R. LEPAGE
GOVERNOR

KIRK F. MOHNEY
DIRECTOR

December 18, 2018

Ms. Jordan Tate
McFarland Johnson
5 Depot Street
Freeport, ME 04032

Project: MHPC# 1621-18 Presque Isle International Airport; 650 Airport Drive
Airport Master Plan Update

Town: Presque Isle, ME

Dear Ms. Tate:

In response to your recent request, the Commission has reviewed the information received November 26 and December 7, 2018 to initiate consultation on the above referenced project in accordance with Section 106 of the National Historic Preservation Act of 1966, as amended (NHPA).

Based on the information submitted and research by our staff, we have determined that the Alert Hangar Complex including the apron are eligible for listing in the National Register of Historic Places. ***This is a new determination of eligibility.***

No other properties within the area of potential effect (APE) are eligible for listing in the National Register of Historic Places. The area is not sensitive for archaeological resources.

Please contact Megan M. Rideout of our staff if we can be of further assistance in this matter.

Sincerely,

Kirk F. Mohney

Kirk F. Mohney
State Historic Preservation Officer

PRESQUE ISLE
INTERNATIONAL AIRPORT
AÉROPORT INTERNATIONAL DE PRESQUE ISLE

Appendix F

Runway Length Analysis

McFarland Johnson

Stantec

F. Runway Length Analysis

FAA standard runway length analysis according to AC 150/5325-4B, is calculated based on the following factors:

- Maximum Takeoff Weight (MTOW)
- Maximum Landing Weight (MLW)
- Mean daily maximum temperature of the hottest month: 76°F for PQI
- Adjusts takeoff length by 10 feet for every foot of runway elevation difference
- Adjusts landing length by 15% to account for contaminated runways

The takeoff charts show different runway length distances based on the following legend:

- MTOW Highest Variant
- MTOW Lowest Variant
- MLW Highest Variant
- MLW Lowest Variant
- Runway Length Requirement

Table 2.1.1.1 - EMB-145 Airplane General Characteristics

DESIGN WEIGHTS		MODELS							
		ER	EU	EP	LR	LU	MP	MK	XR
Maximum Design Taxi Weight	lb	45636	44291	46495	48722	48700	46495	44291	53352
	kg	20700	20090	21090	22100	22090	21090	20090	24200
Maximum Design Landing Weight [3]	lb	41226	41226	41226	42549	42549	42549	42549	44092
	kg	18700	18700	18700	19300	19300	19300	19300	20000
Maximum Design Takeoff Weight [3]	lb	45415	44070	46275	48502	48480	46275	44070	53131
	kg	20600	19990	20990	22000	21990	20990	19990	24100
Operating Empty Weight [1]	lb	26339	26339	26339	26707	26707	26539	26539	27758
	kg	11947	11947	11947	12114	12114	12038	12038	12591
Maximum Design Zero Fuel Weight [2] [3]	lb	37699	37699	37699	39463	39463	39463	39463	40786
	kg	17100	17100	17100	17900	17900	17900	17900	18500
Maximum Payload [1]	lb	11359	11359	11359	12755	12755	12923	12923	13027
	kg	5153	5153	5153	5786	5786	5862	5862	5909
Maximum Seating Capacity	PAS-SEN-GERS	50	50	50	50	50	50	50	50
Maximum Cargo Volume	ft^3	325	325	325	325	325	325	325	325
	m^3	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2
Usable Fuel [4]	lb	9202	9202	9202	11435	11435	9202	9202	13199
	kg	4173	4173	4173	5187	5187	4173	4173	6032
	US GAL.	1360	1360	1360	1690	1690	1360	1360	1950
	LITERS	5146	5146	5146	6396	6396	5146	5146	7438

[1] Standard configuration (weights may vary according to optional equipment installed or interior layouts).

[2] For aircraft POST-MOD. S.B. 145-53-0064, consider MZFW = 17350 kg (38250 lb).

[3] For aircraft POST-MOD. S.B. 145-53-0068, consider MZFW = 18400 kg (40564 lb), MTOW= 22600 kg (49823 lb), and MLW= 19800 kg (43651 lb).

[4] Adopted fuel density of 0.811 kg/l (6.77 lb/US gal.).

2.2 Airplane Dimensions

2.2.1 External Dimensions

Overall span (EMB-145EP/ER/EU/MP/MK/LR/LU) ..... 20.04 m (65 ft 9 in)
Overall span (EMB-145XR) ..... 21.00 m (69 ft 11 in)
Height (maximum) ..... 6.75 m (22 ft 2 in)
Overall length ..... 29.87 m (98 ft 0 in)

2.2.2 Wing

Reference area ..... 51.18 m^2 (551 ft^2)
Reference aspect ratio 7.8

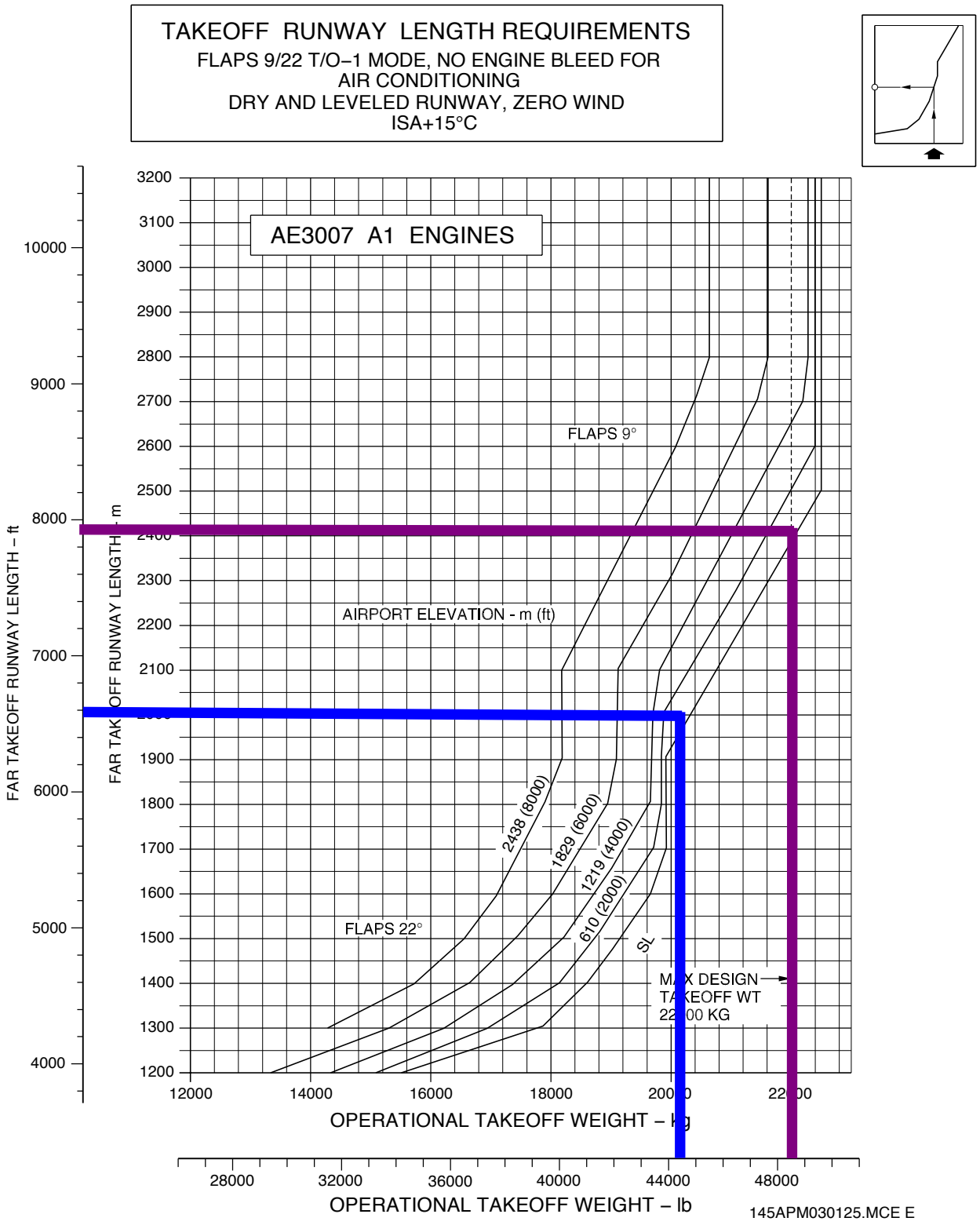


Figure 3.3.2 - FAR Takeoff Runway Length Requirements - ISA + 15°C Conditions
Sheet 1

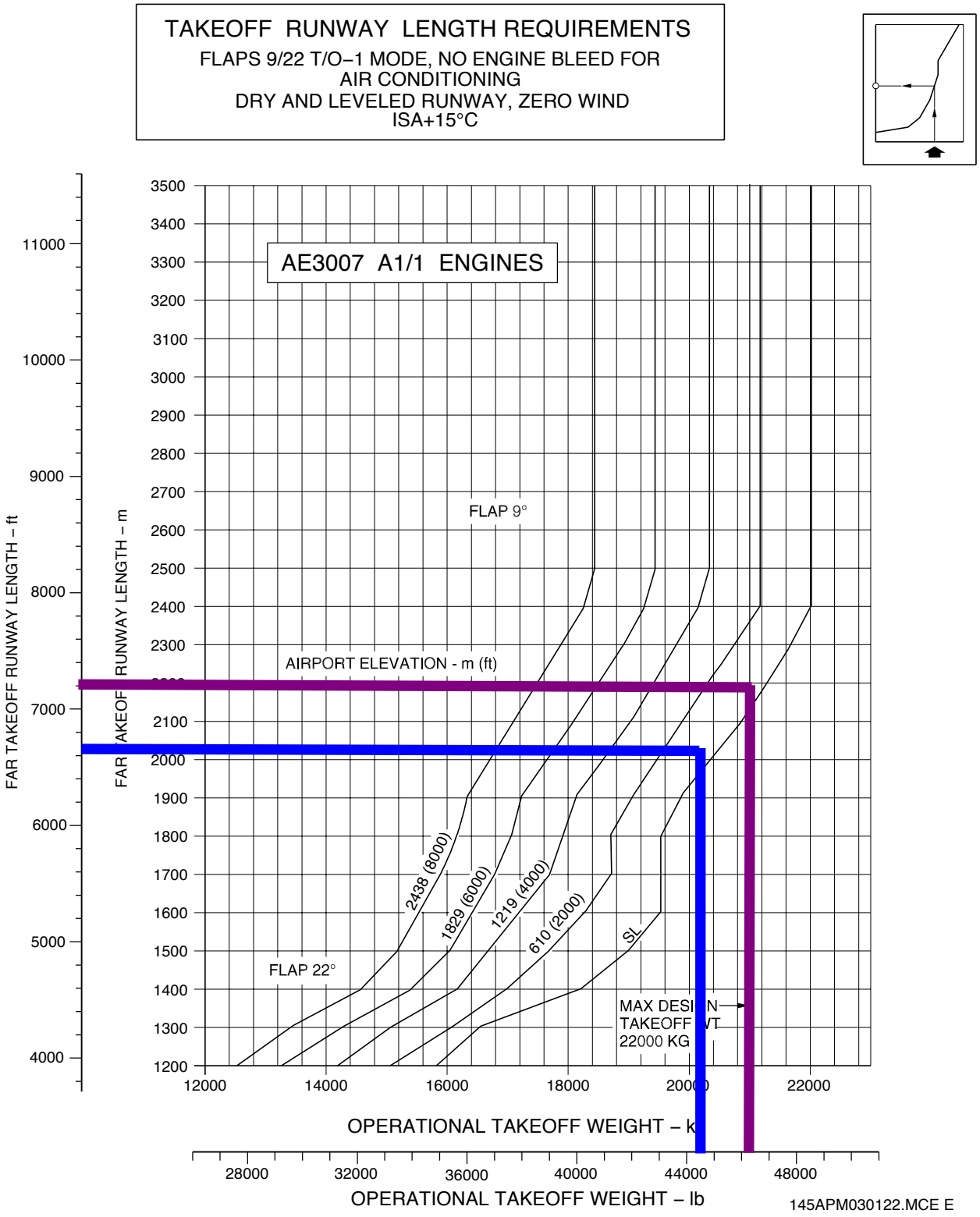


Figure 3.3.2 - FAR Takeoff Runway Length Requirements - ISA + 15°C Conditions Sheet 2

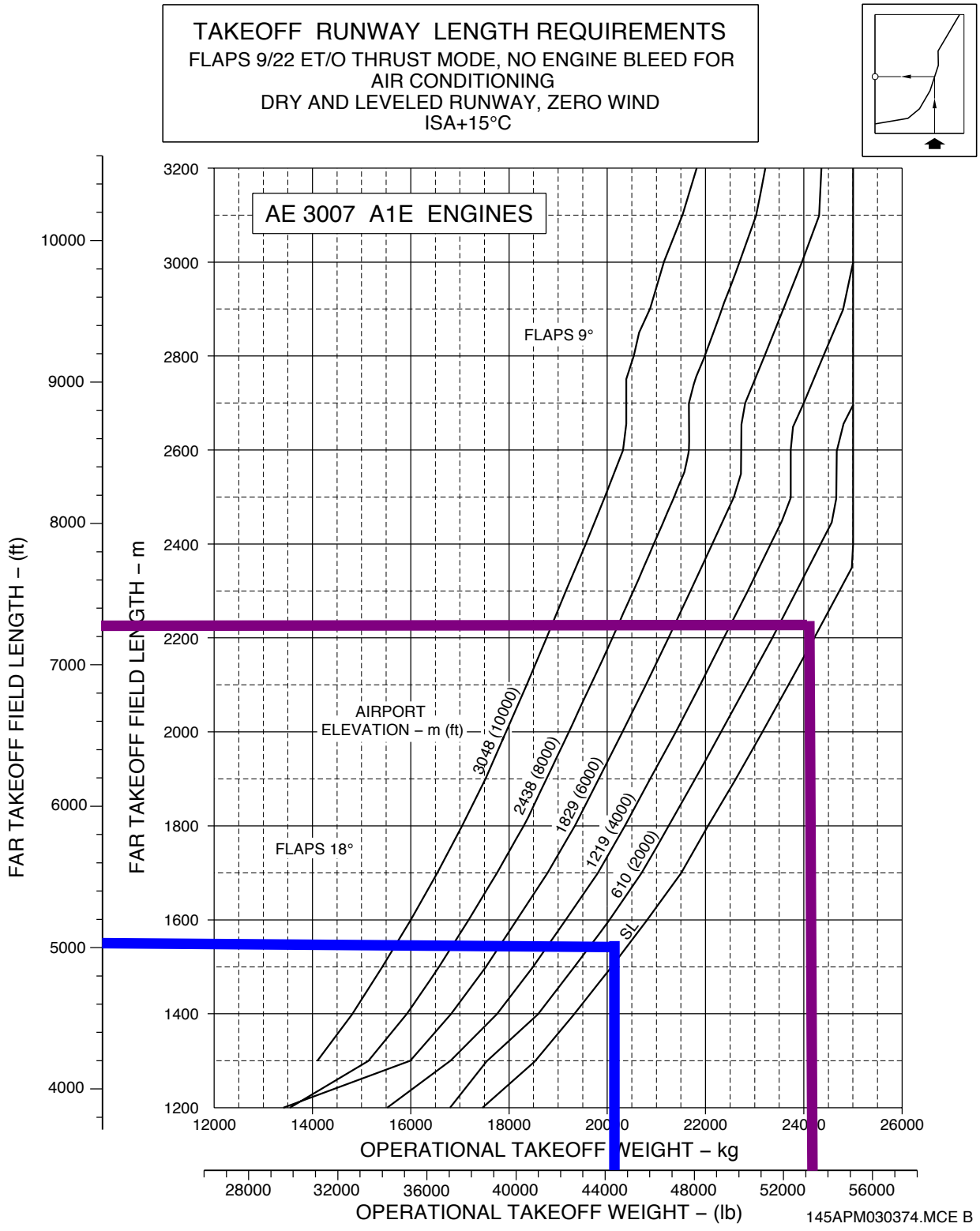


Figure 3.3.2 - FAR Takeoff Runway Length Requirements - ISA + 15°C Conditions Sheet 3

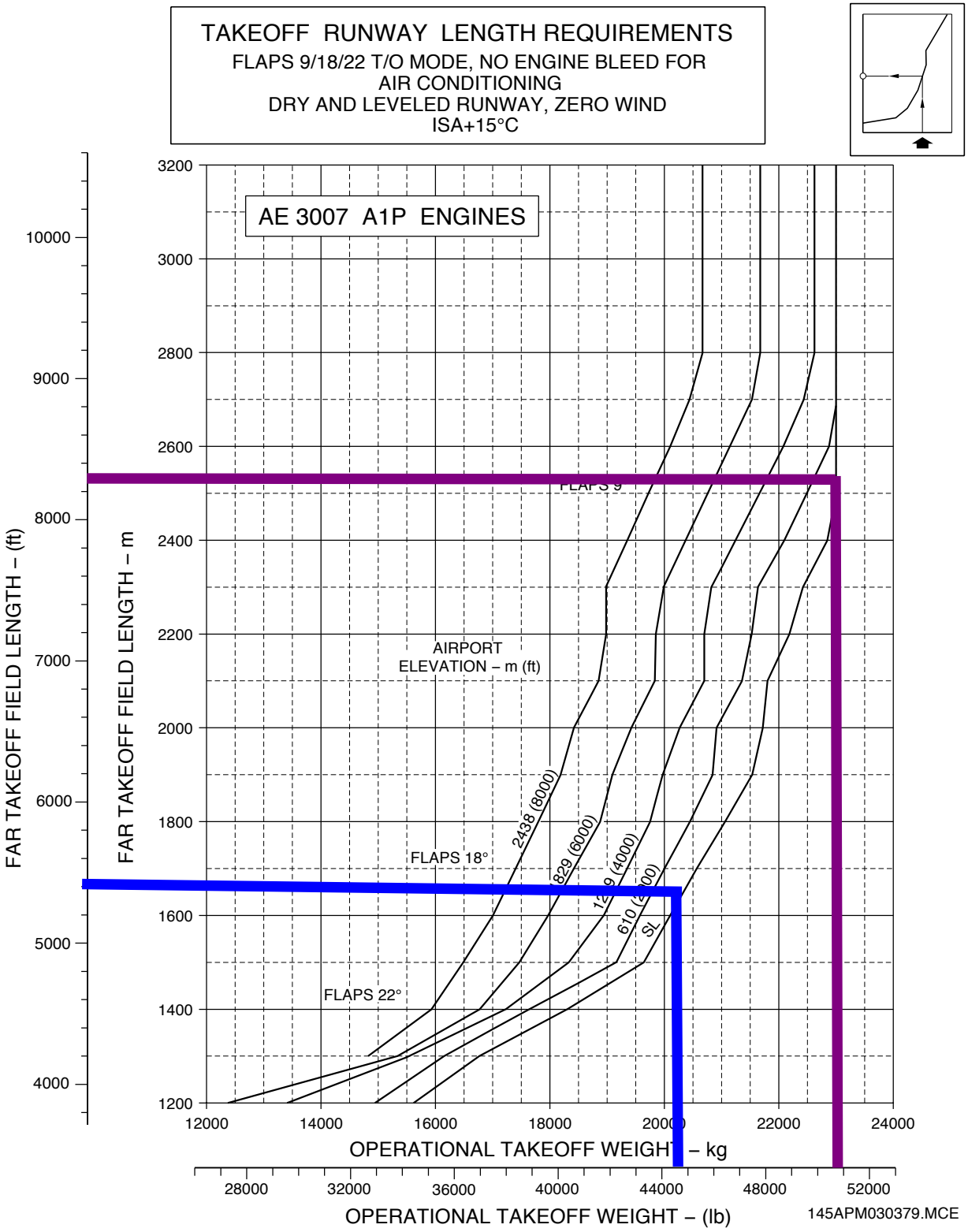


Figure 3.3.2 - FAR Takeoff Runway Length Requirements - ISA + 15ºC Conditions
Sheet 4

3.4 FAR Landing Runway Length Requirements

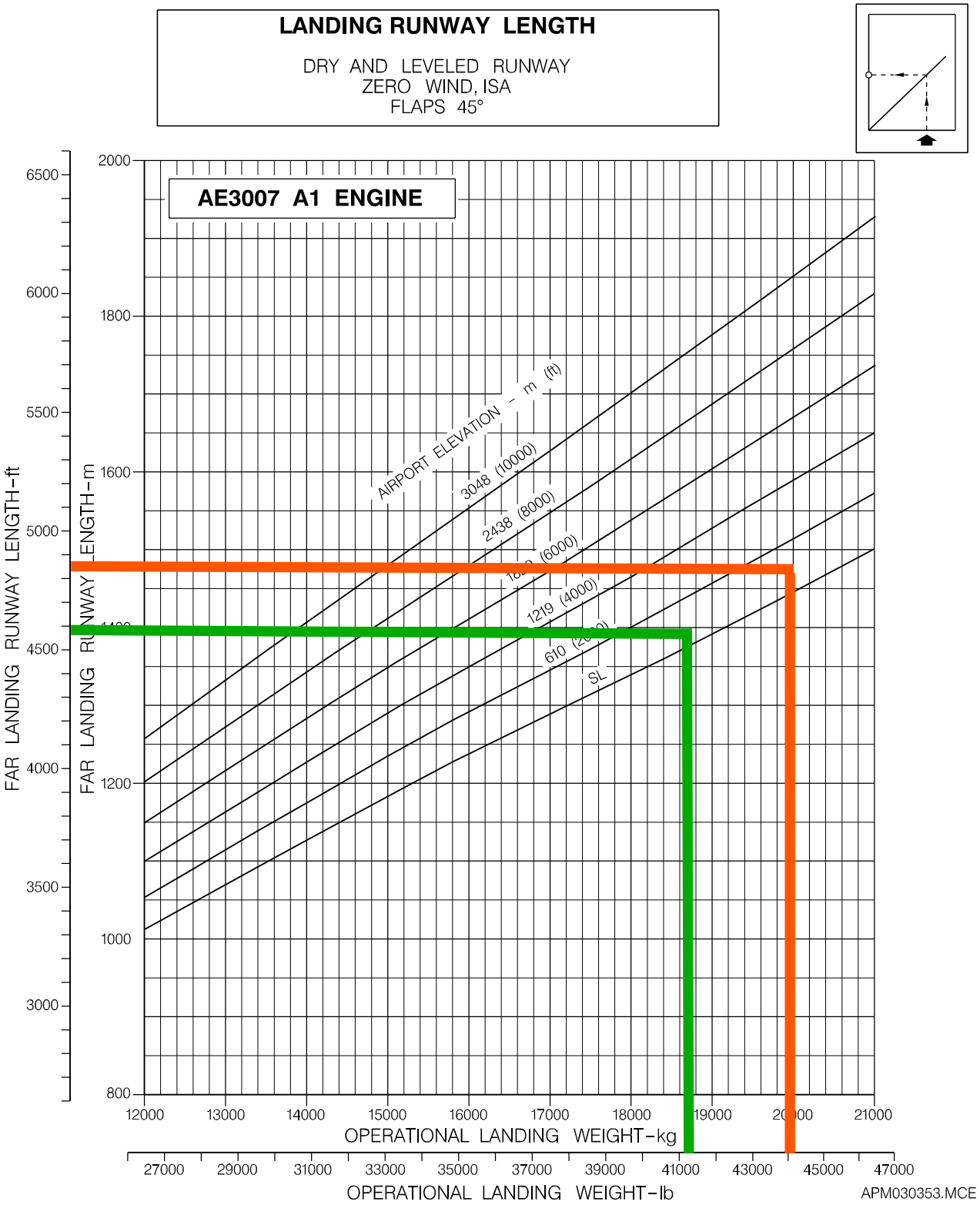


Figure 3.4.1 - FAR Landing Runway Length Requirements - Flaps 45º
Sheet 1

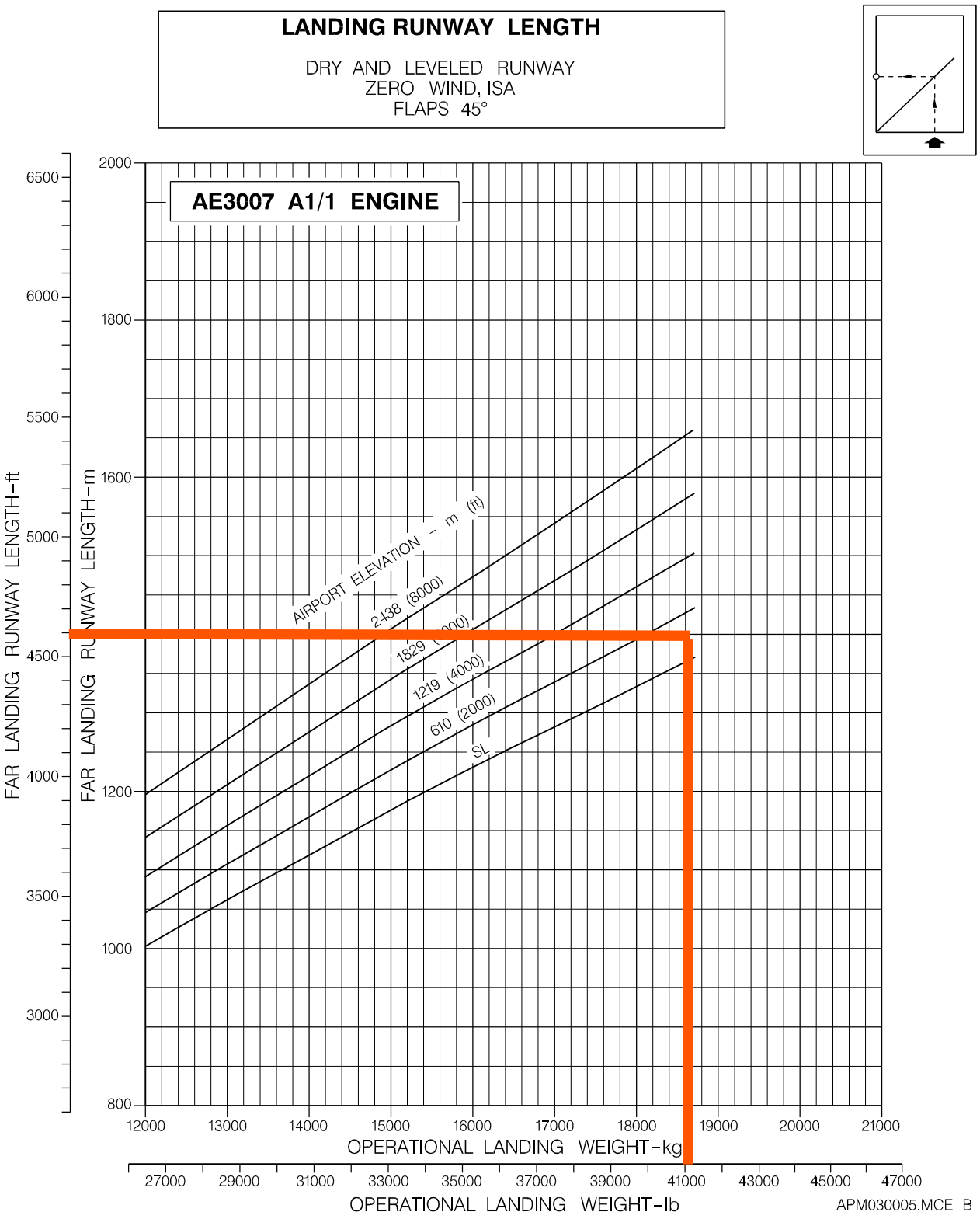


Figure 3.4.1 - FAR Landing Runway Length Requirements - Flaps 45º
Sheet 2

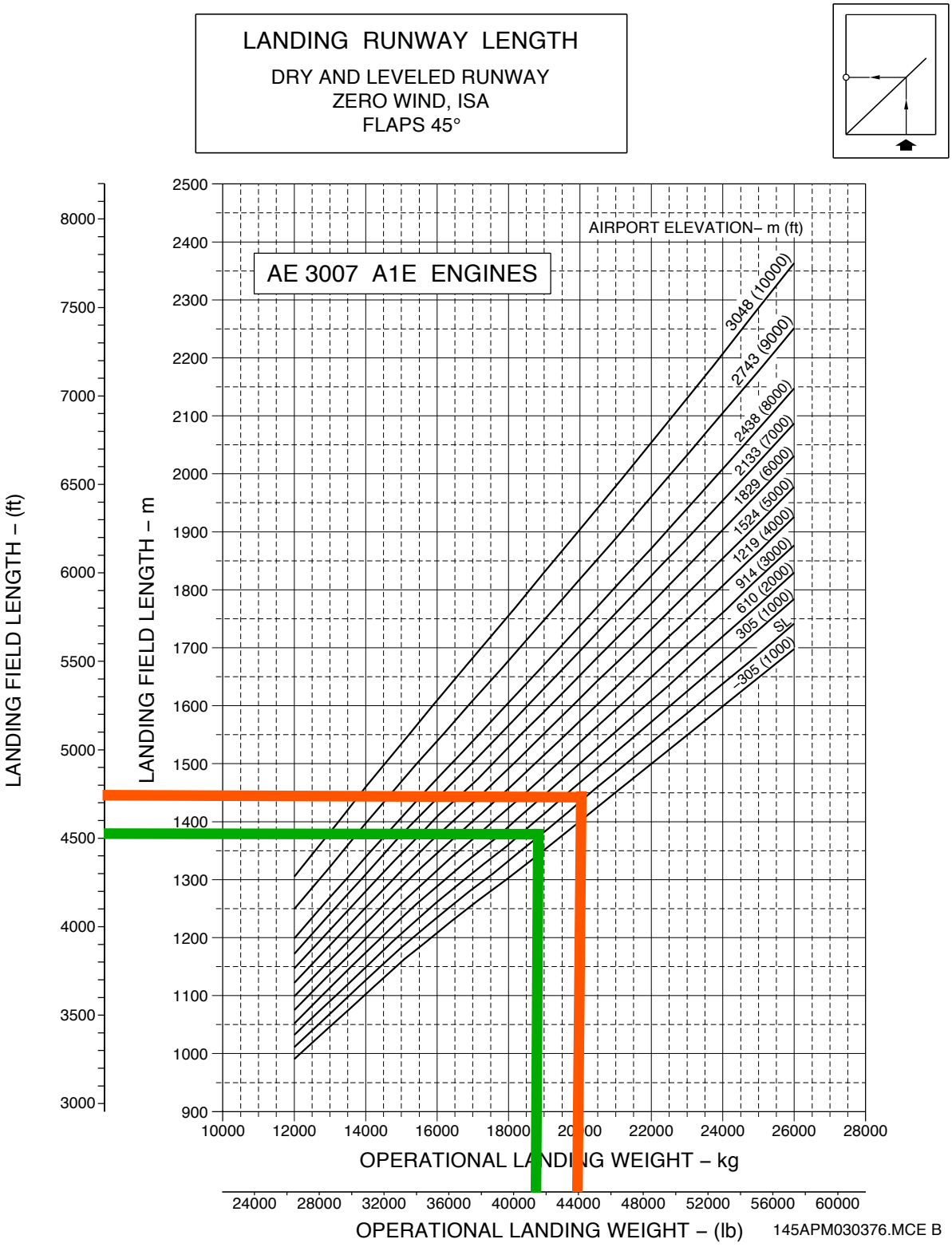


Figure 3.4.1 - FAR Landing Runway Length Requirements - Flaps 45º
Sheet 3

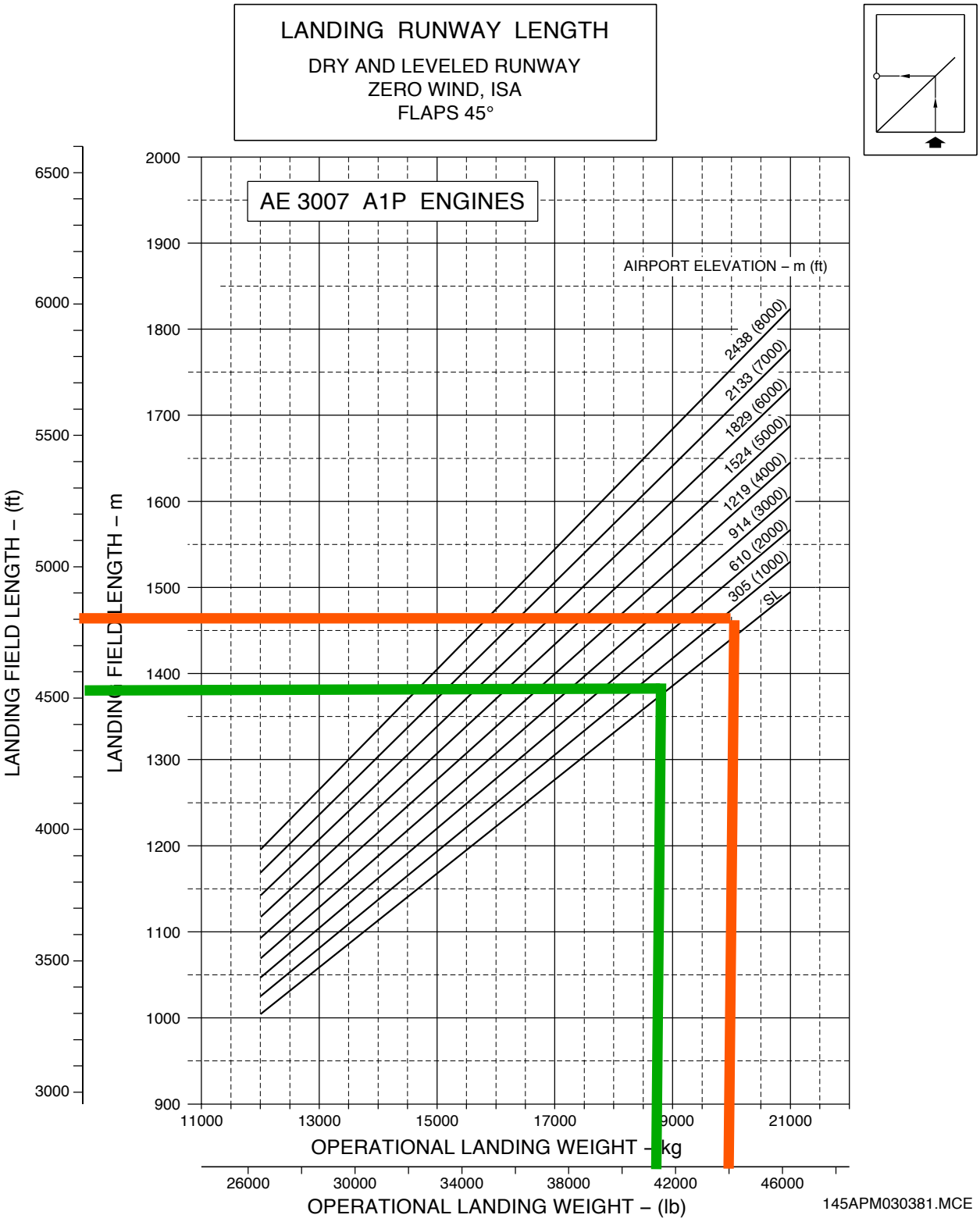
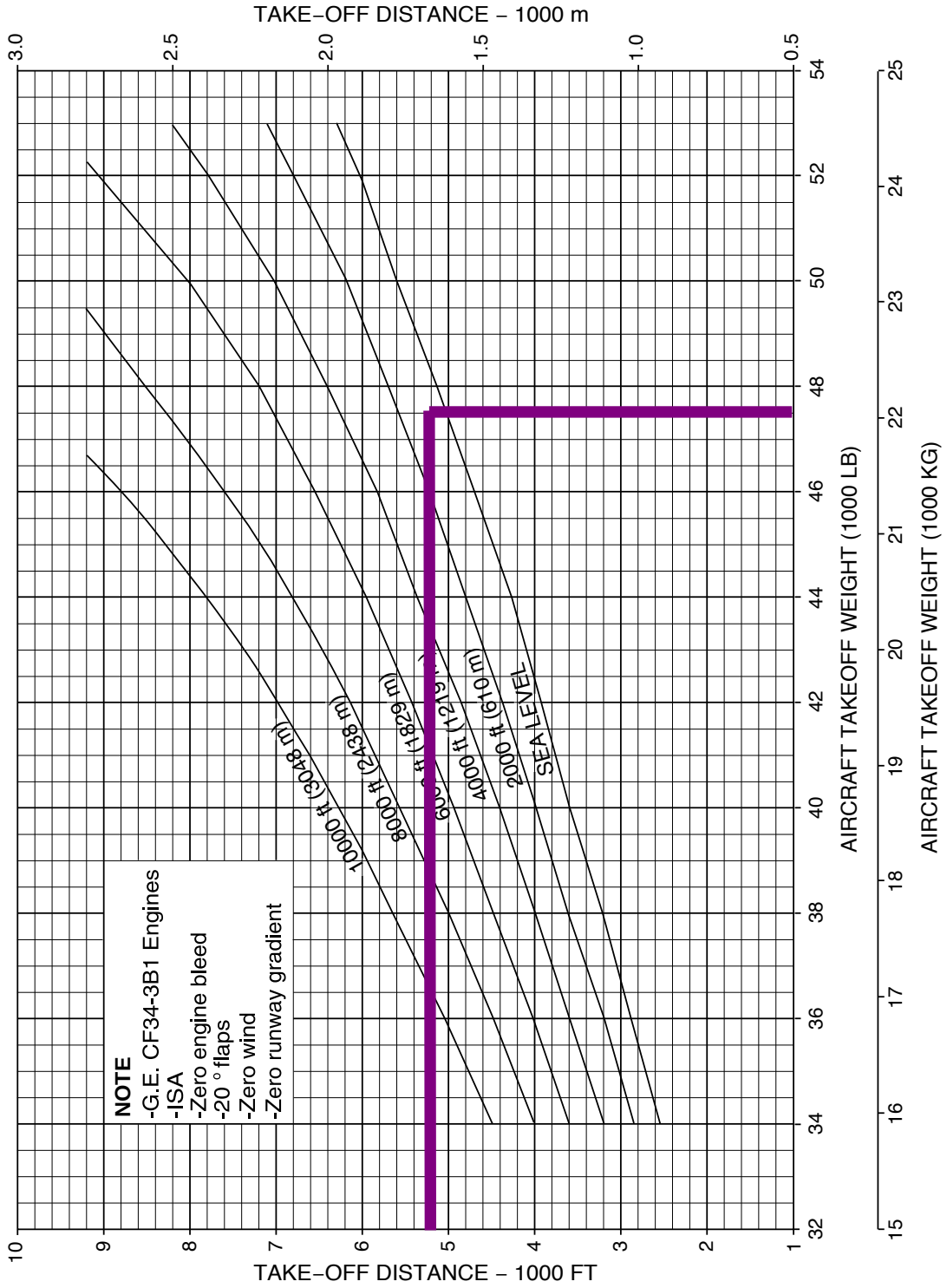
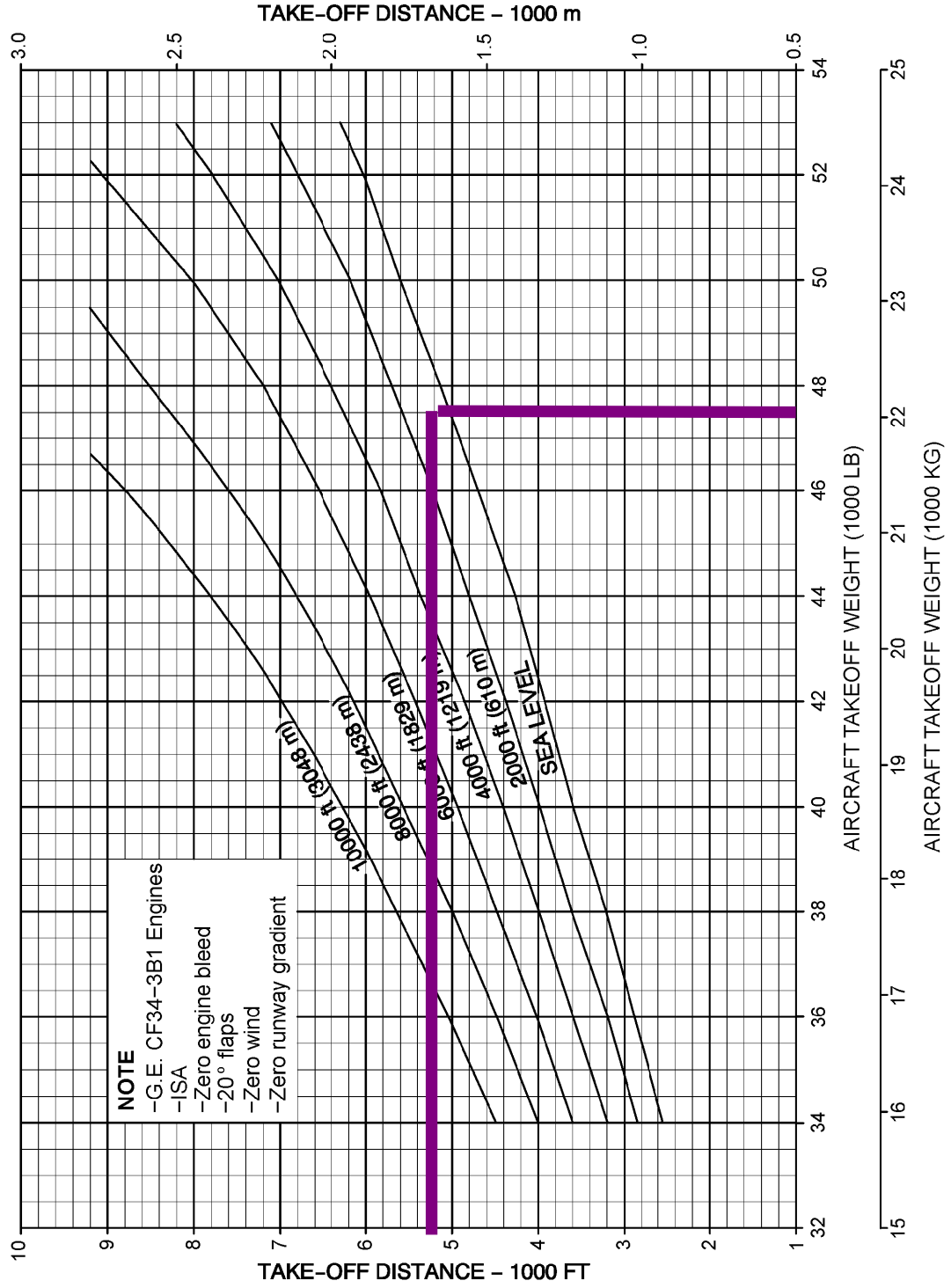


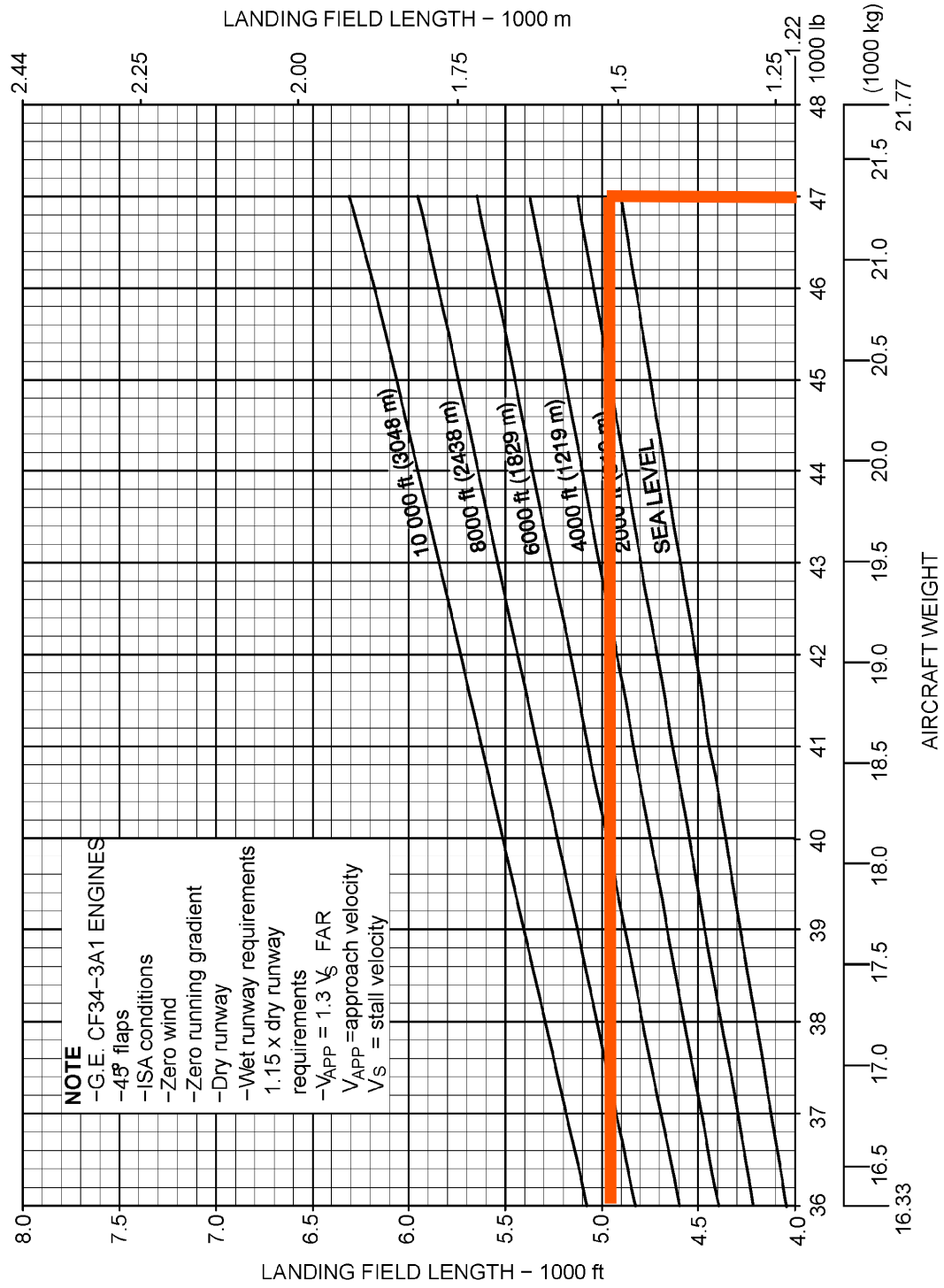
Figure 3.4.1 - FAR Landing Runway Length Requirements - Flaps 45º
Sheet 4



FAR Takeoff Runway Length Requirements – ISA Conditions – CRJ200
Figure 10

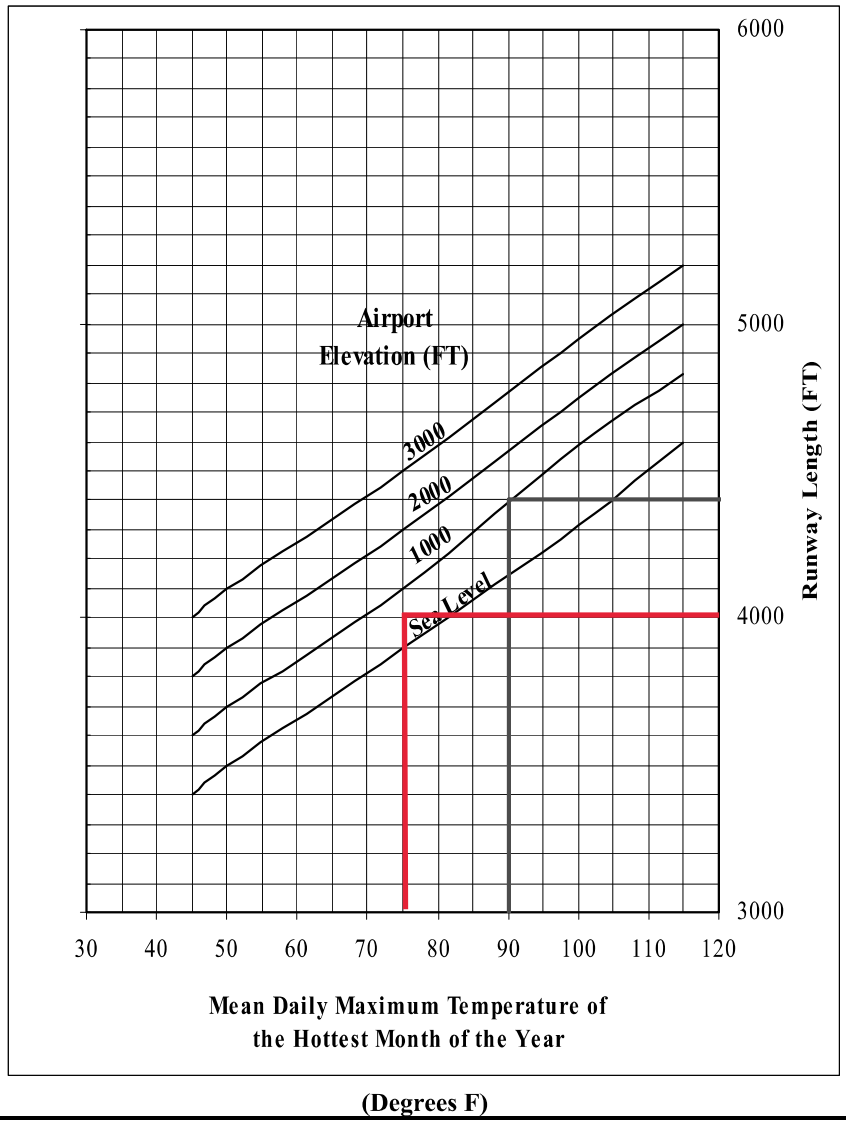


FAR Takeoff Runway Length Requirements – ISA + 8 C – CRJ200
Figure 12



FAR Landing Runway Length Requirements − Landing Flaps at 45 Degrees
Figure 21

Figure 2-2. Small Airplanes Having 10 or More Passenger Seats
(Excludes Pilot and Co-pilot)

Representative Airplanes	Runway Length Curves
Raytheon B80 Queen Air **Raytheon** E90 King Air **Raytheon** B99 Airliner **Raytheon** A100 King Air (Raytheon formerly Beech Aircraft) **Britten-Norman** Mark III-I Trilander **Mitsubishi** MU-2L **Swearigen** Merlin III-A **Swearigen** Merlin IV-A **Swearigen** Metro II	**Example:** Temperature (mean day max hot month) 90° F (32° C) Airport Elevation (msl) 1,000 feet (328 m) Recommended Runway Length 4,400 feet (1,341 m) **Note:** For airport elevations above 3,000 feet (915 m), use the 100 percent of fleet grouping in figure 2-1. 

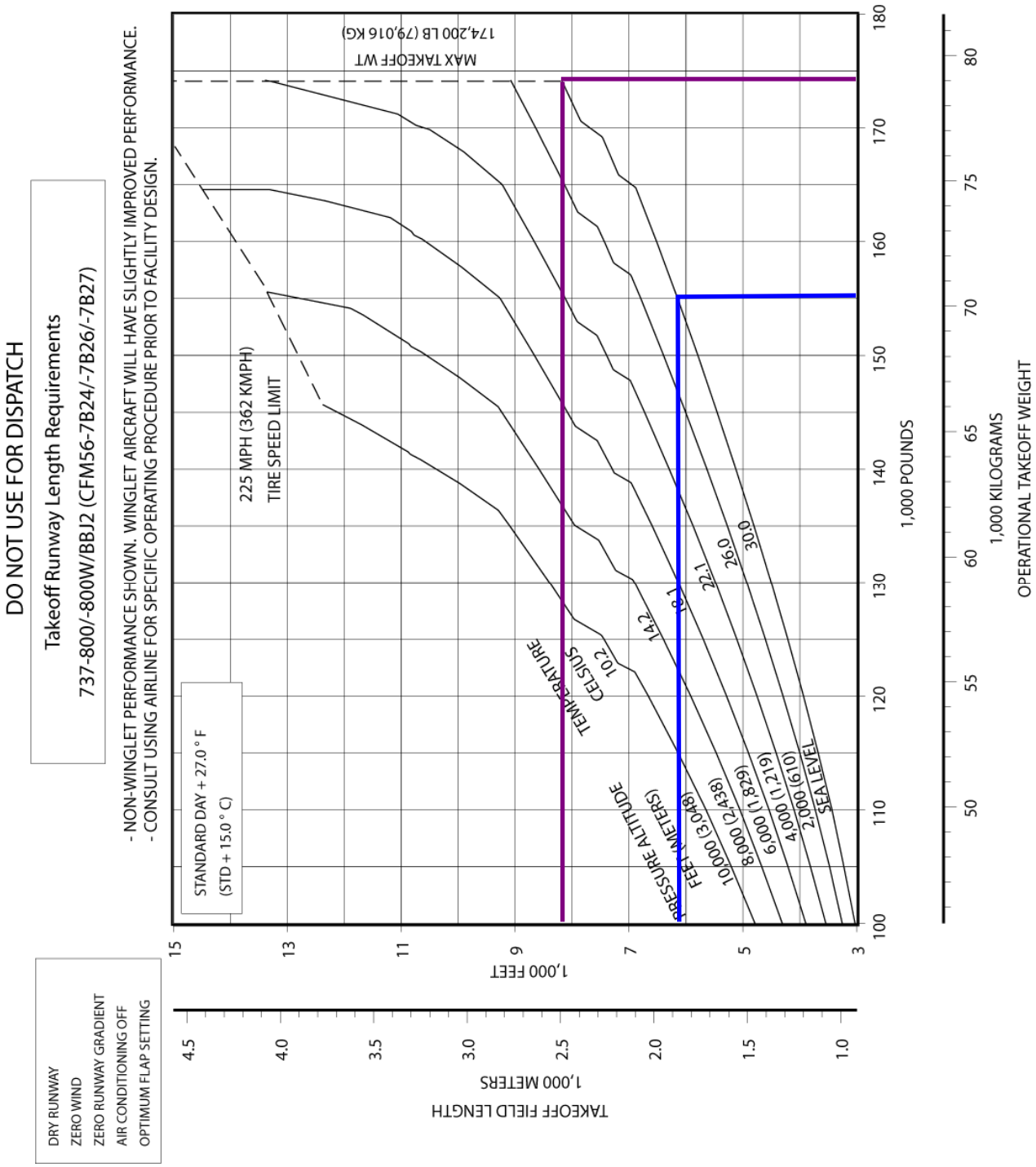
Cessna 208 Caravan

CHARACTERISTICS	UNITS	MODEL 737-800, -800 WITH WINGLETS		
MAX DESIGN TAXI WEIGHT	POUNDS	156,000	173,000	174,900
	KILOGRAMS	70,760	78,471	79,333
MAX DESIGN TAKEOFF WEIGHT	POUNDS	155,500	172,500	174,200
	KILOGRAMS	70,534	78,245	79,016
MAX DESIGN LANDING WEIGHT	POUNDS	144,000	144,000	146,300
	KILOGRAMS	65,317	65,317	66,361
MAX DESIGN ZERO FUEL WEIGHT	POUNDS	136,000	136,000	138,300
	KILOGRAMS	61,689	61,689	62,732
OPERATING EMPTY WEIGHT (1)	POUNDS	91,300	91,300	91,300
	KILOGRAMS	41,413	41,413	41,413
MAX STRUCTURAL PAYLOAD	POUNDS	44,700	44,700	47,000
	KILOGRAMS	20,276	20,276	21,319
SEATING CAPACITY (1)	TWO-CLASS	160	160	160
	ALL-ECONOMY	184	184	184
MAX CARGO - LOWER DECK	CUBIC FEET	1555	1555	1555
	CUBIC METERS	44.1	44.1	44.1
USABLE FUEL	US GALLONS	6875	6875	6875
	LITERS	26,022	26,022	26,022
	POUNDS	46,063	46,063	46,063
	KILOGRAMS	20,894	20,894	20,894

NOTE: (1) OPERATING EMPTY WEIGHT FOR BASELINE MIXED CLASS CONFIGURATION. CONSULT WITH AIRLINE FOR SPECIFIC WEIGHTS AND CONFIGURATIONS.

2.1.11 GENERAL CHARACTERISTICS

MODEL 737-800, -800 WITH WINGLETS



3.3.48 F.A.R. TAKEOFF RUNWAY LENGTH REQUIREMENTS

STANDARD DAY +27°F (STD + 15°C), DRY RUNWAY

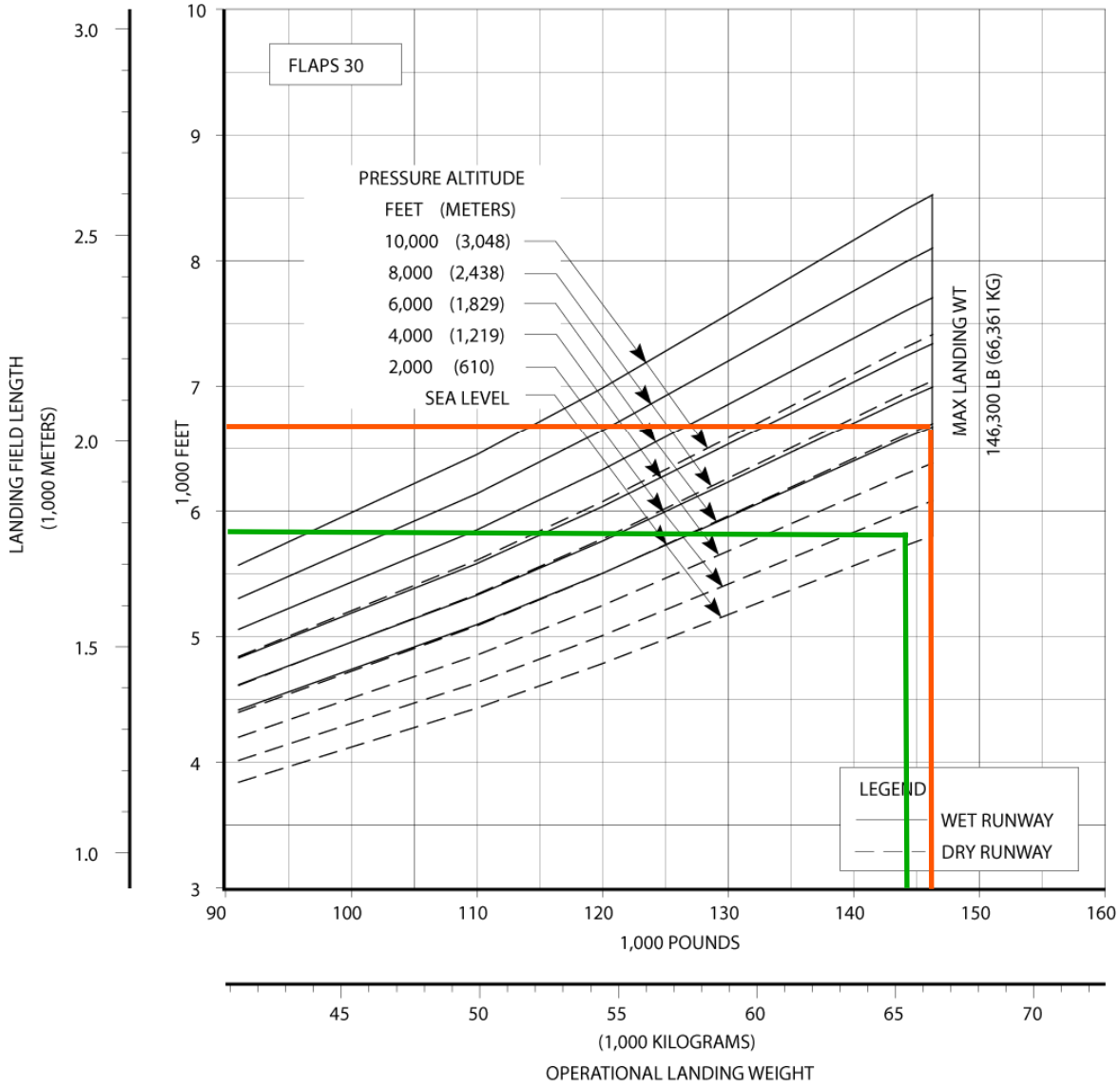
MODEL 737-800/-800W/BBJ2 (CFM56-7B24/-7B26/-7B27 ENGINES AT 26,000 LB SLST)

DO NOT USE FOR DISPATCH

Landing Field Length

737-800/-800W/BBJ2 (CFM56-7B Series)

- STANDARD DAY, ZERO WIND
- AUTO SPOILERS OPERATIVE
- ANTI-SKID OPERATIVE
- ZERO RUNWAY GRADIENT
- CONSULT USING AIRLINE FOR SPECIFIC OPERATING PROCEDURE PRIOR TO FACILITY DESIGN

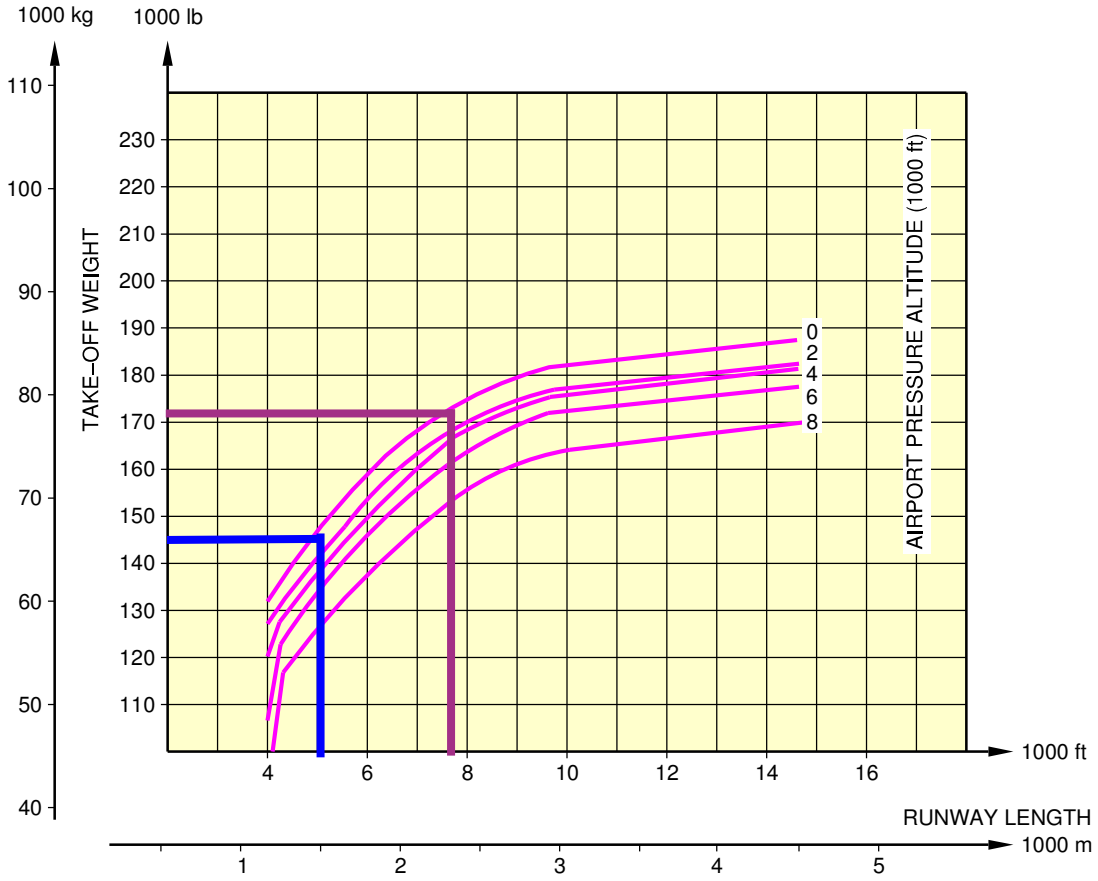


3.4.21 F.A.R. LANDING RUNWAY LENGTH REQUIREMENTS - FLAPS 30

MODEL 737-800

**ON A/C A320-200

NOTE: THESE CURVES ARE GIVEN FOR INFORMATION ONLY
THE APPROVED VALUES ARE STATED IN THE "OPERATING MANUALS" SPECIFIC TO THE AIRLINE OPERATING THE AIRCRAFT.

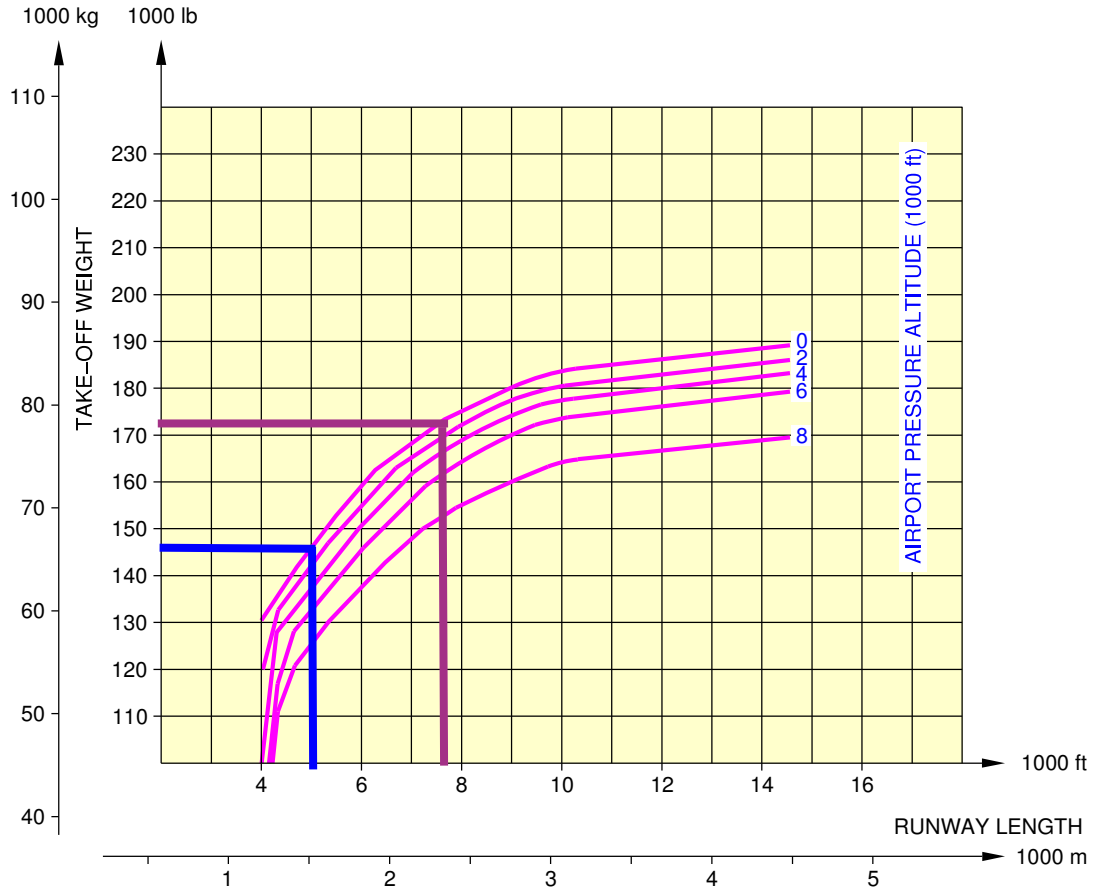


N_AC_030302_1_0050101_01_01

Take-Off Weight Limitation - ISA +15°C (+59°F) Conditions
CFM56 Series Engine
FIGURE-3-3-2-991-005-A01

**ON A/C A320-200

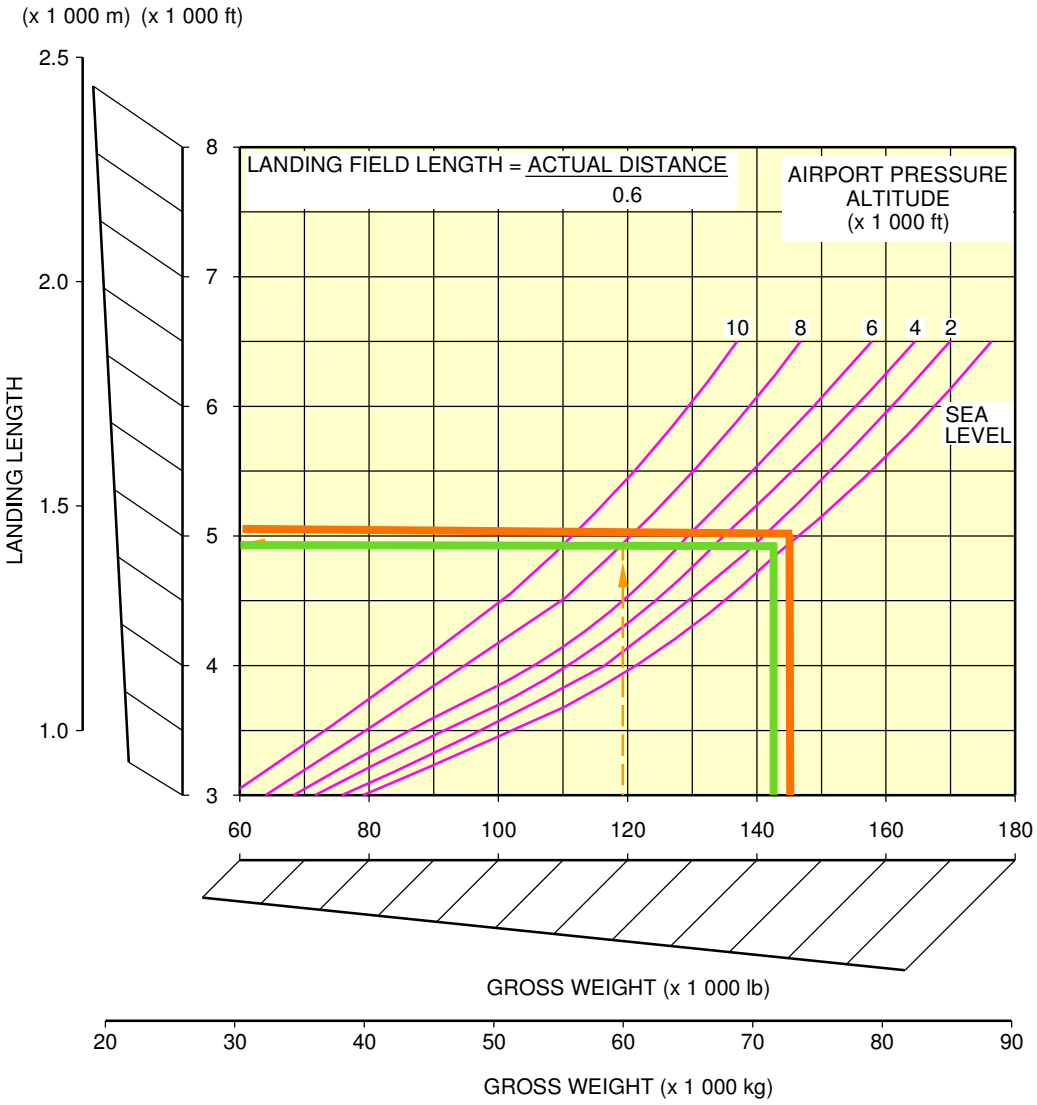
NOTE: THESE CURVES ARE GIVEN FOR INFORMATION ONLY
THE APPROVED VALUES ARE STATED IN THE "OPERATING MANUALS" SPECIFIC TO THE AIRLINE OPERATING THE AIRCRAFT.



N_AC_030302_1_0060101_01_00

Take-Off Weight Limitation - ISA +15°C (+59°F) Conditions
IAE V2500 Series Engine
FIGURE-3-3-2-991-006-A01

**ON A/C A320-200

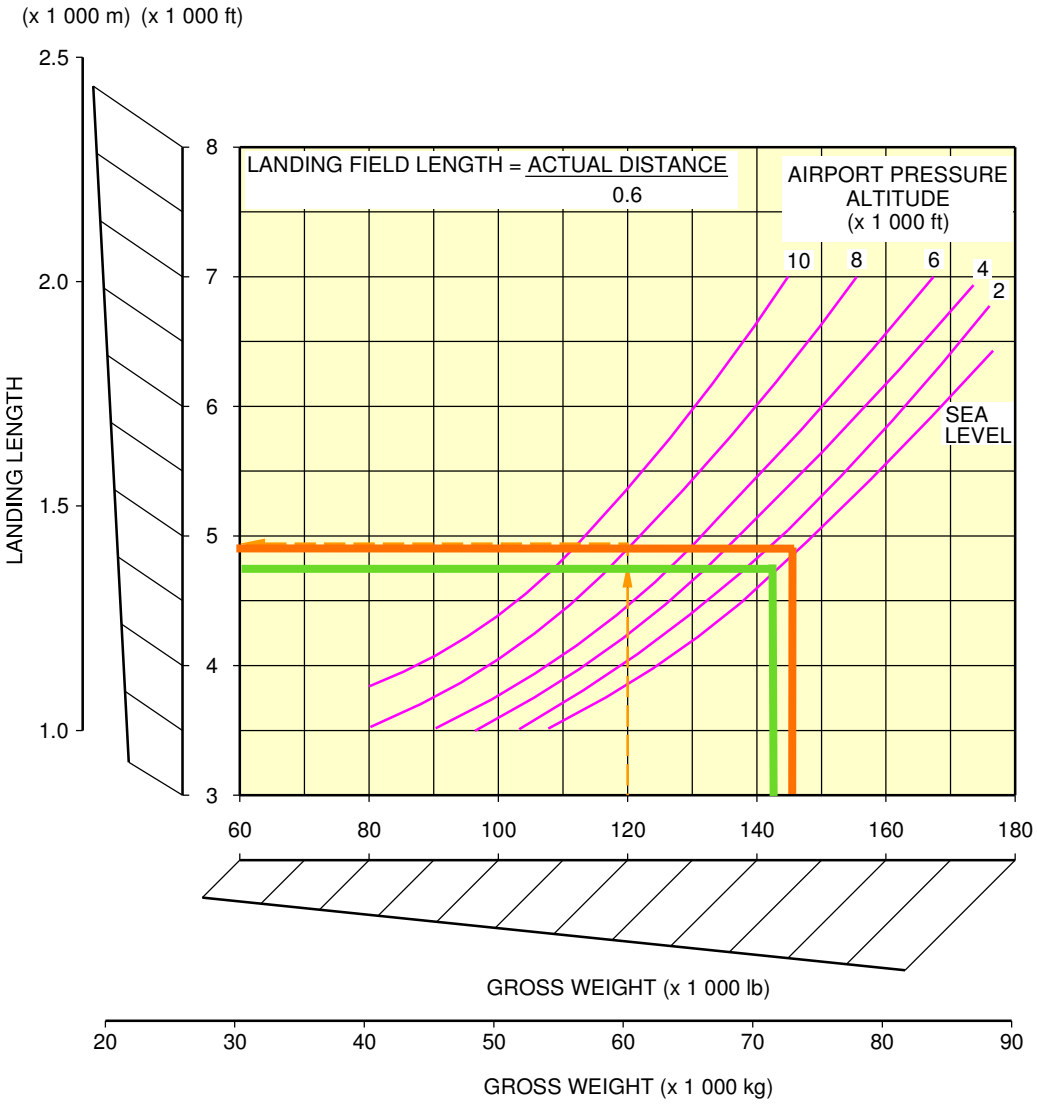


NOTE:
THESE CURVES ARE GIVEN FOR INFORMATION ONLY.
THE APPROVED VALUES ARE STATED IN THE "OPERATING MANUALS" SPECIFIC TO THE AIRLINE OPERATING THE AIRCRAFT.

N_AC_030401_1_0050101_01_01

Landing Field Length - ISA Conditions
CFM56 Series Engine
FIGURE-3-4-1-991-005-A01

**ON A/C A320-200



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THE APPROVED VALUES ARE STATED IN THE "OPERATING MANUALS" SPECIFIC TO THE AIRLINE OPERATING THE AIRCRAFT.

N_AC_030401_1_0060101_01_01

Landing Field Length - ISA Conditions
IAE V2500 Series Engine
FIGURE-3-4-1-991-006-A01

PRESQUE ISLE
INTERNATIONAL AIRPORT
AÉROPORT INTERNATIONAL DE PRESQUE ISLE

Appendix G

Taxiway E Planning Level
Cost Estimates

McFarland Johnson

Stantec

CITY OF PRESQUE ISLE

PRESQUE ISLE INTERNATIONAL AIRPORT

Engineer's Opinion of Probable Construction Costs

AIRPORT MASTER PLAN UPDATE

RECONSTRUCT TAXIWAY E

ITEM NUMBER	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
C-100-13.1	Contractor Quality Control Program	LS	1	$ 50,000.00	$ 50,000.00
C-101-5.1	Engineer's Field Office	LS	1	$ 15,000.00	$ 15,000.00
C-102-5.1	Siltation Fence	LF	3200	$ 4.00	$ 12,800.00
C-102-5.2	Hay Bales	EA	50	$ 10.00	$ 500.00
C-102-5.3	Erosion Control Blanket	SY	250	$ 3.00	$ 750.00
C-102-5.6	Sediment Filter Bags	EA	10	$ 200.00	$ 2,000.00
C-105-6.1	Mobilization	LS	1	$ 200,000.00	$ 200,000.00
P-152-4.1	Unclassified Excavation	CY	12,000	$ 10.00	$ 120,000.00
P-152-4.2	Open Rock Excavation	CY	500	$ 30.00	$ 15,000.00
P-152-4.3	Trench Rock Excavation	CY	100	$ 95.00	$ 9,500.00
P-152-4.4	Non-Frost Susceptible Borrow	CY	6,500	$ 25.00	$ 162,500.00
P-152-4.5	Asphalt Pavement Removal	CY	400	$ 20.00	$ 8,000.00
P-154-5.1	Subbase Course	CY	2,500	$ 30.00	$ 75,000.00
P-209-5.1	Crushed Aggregate Base Course	CY	2,500	$ 55.00	$ 137,500.00
P-395-5.1	Geotextile Fabric	SY	7,250	$ 2.00	$ 14,500.00
P-401-8.1	Asphalt Surface Course	TN	2,000	$ 160.00	$ 320,000.00
P-620-5.1	Pavement Markings	SF	4,000	$ 4.00	$ 16,000.00
D-701-5.1	18 Inch RCP	LF	1,000	$ 70.00	$ 70,000.00
D-705-5.1	Underdrain System, 6-inch PVC	LF	3,600	$ 35.00	$ 126,000.00
D-705-5.2	Underdrain Cleanouts	EA	10	$ 1,000.00	$ 10,000.00
D-751-5.1	Catch Basin (4' DIA.)	EA	4	$ 7,500.00	$ 30,000.00
D-751-5.2	Catch Basin (6' DIA.)	EA	2	$ 15,000.00	$ 30,000.00
T-901-5.1	Seeding	MSF	250	$ 75.00	$ 18,750.00
T-905-5.1	Topsoil	CY	3,000	$ 25.00	$ 75,000.00
T-908-5.1	Mulching	MSF	250	$ 30.00	$ 7,500.00
L-108-5.1	1/C No. 8 AWG 5KV, FAA L-824, Type C Cable	LF	4,500	$ 2.00	$ 9,000.00
L-108-5.2	1/C No. 6 AWG 600V, XHHW Green Safety Ground	LF	4,000	$ 1.75	$ 7,000.00
L-108-5.3	1/C No. 6, Bare Solid Counterpoise Wire in Trench	LF	4,000	$ 2.50	$ 10,000.00
L-108-5.4	1/C No. 6, Bare Solid Counterpoise Wire above Duct	LF	250	$ 1.50	$ 375.00
L-110-5.1	4 Way - 4" PVC Concrete Encased Ductbank	LF	250	$ 55.00	$ 13,750.00
L-125-5.1	Furnish and Install L-861T Taxiway Edge Light	EA	100	$ 2,000.00	$ 200,000.00
L-125-5.2	Remove Existing L-861T Taxiway Edge Light	EA	30	$ 450.00	$ 13,500.00

Construction Subtotal:	$	1,779,925.00
15% Contingency:	$	266,988.75
Construction Total:	$	2,046,913.75
Engineering (assume 20%):	$	409,382.75
TOTAL PROJECT COST:	**$**	**2,456,296.50**

Building Upgrades: ~$2M

Pavement Update: ~$1M

Total: ~$5.5M

CITY OF PRESQUE ISLE

PRESQUE ISLE INTERNATIONAL AIRPORT

Engineer's Opinion of Probable Construction Costs

AIRPORT MASTER PLAN UPDATE

REMOVE TAXIWAY E AND CONSTRUCT 4 NEW 4,500 SF HANGARS

ITEM NUMBER	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
C-100-13.1	Contractor Quality Control Program	LS	1	$ 50,000.00	$ 50,000.00
C-101-5.1	Engineer's Field Office	LS	1	$ 15,000.00	$ 15,000.00
C-102-5.1	Siltation Fence	LF	1000	$ 4.00	$ 4,000.00
C-102-5.2	Hay Bales	EA	25	$ 10.00	$ 250.00
C-102-5.3	Erosion Control Blanket	SY	250	$ 3.00	$ 750.00
C-102-5.6	Sediment Filter Bags	EA	10	$ 200.00	$ 2,000.00
C-105-6.1	Mobilization	LS	1	$ 450,000.00	$ 450,000.00
P-152-4.1	Unclassified Excavation	CY	12,500	$ 10.00	$ 125,000.00
P-152-4.2	Open Rock Excavation	CY	500	$ 30.00	$ 15,000.00
P-152-4.3	Trench Rock Excavation	CY	100	$ 95.00	$ 9,500.00
P-152-4.4	Non-Frost Susceptible Borrow	CY	7,500	$ 25.00	$ 187,500.00
P-152-4.5	Asphalt Pavement Removal	CY	400	$ 20.00	$ 8,000.00
P-154-5.1	Subbase Course	CY	3,000	$ 30.00	$ 90,000.00
P-209-5.1	Crushed Aggregate Base Course	CY	1,500	$ 55.00	$ 82,500.00
P-395-5.1	Geotextile Fabric	SY	8,000	$ 2.00	$ 16,000.00
P-401-8.1	Asphalt Surface Course	TN	2,200	$ 160.00	$ 352,000.00
P-620-5.1	Pavement Markings	SF	3,000	$ 4.00	$ 12,000.00
D-701-5.1	18 Inch RCP	LF	500	$ 70.00	$ 35,000.00
D-705-5.1	Underdrain System, 6-inch PVC	LF	2,000	$ 35.00	$ 70,000.00
D-705-5.2	Underdrain Cleanouts	EA	8	$ 1,000.00	$ 8,000.00
D-751-5.1	Catch Basin (4' DIA.)	EA	3	$ 7,500.00	$ 22,500.00
D-751-5.2	Catch Basin (6' DIA.)	EA	2	$ 15,000.00	$ 30,000.00
T-901-5.1	Seeding	MSF	150	$ 75.00	$ 11,250.00
T-905-5.1	Topsoil	CY	1,500	$ 25.00	$ 37,500.00
T-908-5.1	Mulching	MSF	150	$ 30.00	$ 4,500.00
L-108-5.1	1/C No. 8 AWG 5KV, FAA L-824, Type C Cable	LF	1,000	$ 2.00	$ 2,000.00
L-108-5.2	1/C No. 6 AWG 600V, XHHW Green Safety Ground	LF	1,000	$ 1.75	$ 1,750.00
L-108-5.3	1/C No. 6, Bare Solid Counterpoise Wire in Trench	LF	1,000	$ 2.50	$ 2,500.00
L-108-5.4	1/C No. 6, Bare Solid Counterpoise Wire above Duct	LF	700	$ 1.50	$ 1,050.00
L-110-5.1	4 Way - 4" PVC Concrete Encased Ductbank	LF	700	$ 55.00	$ 38,500.00
L-125-5.1	Furnish and Install L-861T Taxiway Edge Light	EA	20	$ 2,000.00	$ 40,000.00
L-125-5.2	Remove Existing L-861T Taxiway Edge Light	EA	10	$ 450.00	$ 4,500.00
S-001.01	Furnish and Install 4,500 SF Pre-Engineered Hangar with Utilities (Water, Sewer, Heat, Cooling, Electricity)	EA	4	$ 850,000.00	$ 3,400,000.00

Construction Subtotal:	$ 5,128,550.00
15% Contingency:	$ 769,282.50
Construction Total:	$ 5,897,832.50
Engineering/Architecture (assume 15%):	$ 884,674.88
TOTAL PROJECT COST:	**$ 6,782,507.38**

PRESQUE ISLE
INTERNATIONAL AIRPORT
AÉROPORT INTERNATIONAL DE PRESQUE ISLE

Appendix H

Airport Layout Plan Sheet Set

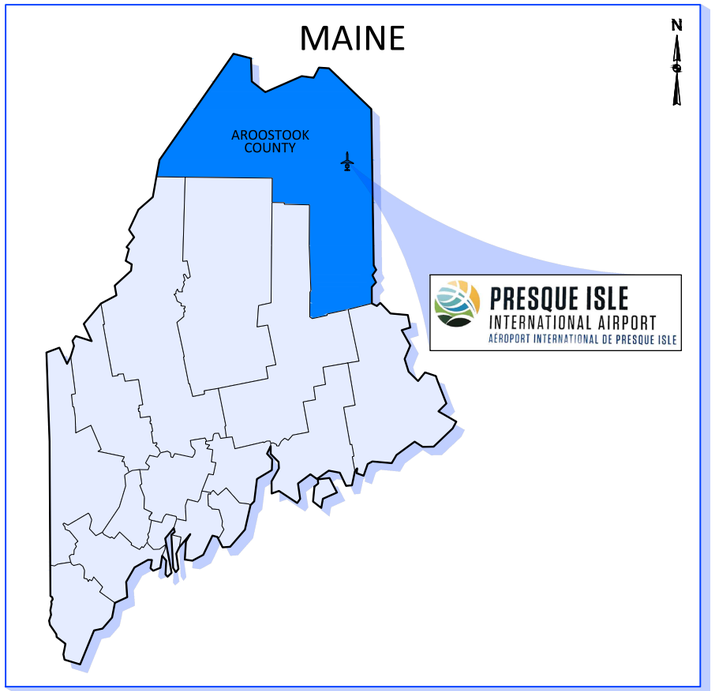
McFarland Johnson

Stantec

PRESQUE ISLE INTERNATIONAL AIRPORT
MASTER PLAN UPDATE

AROOSTOOK COUNTY, MAINE

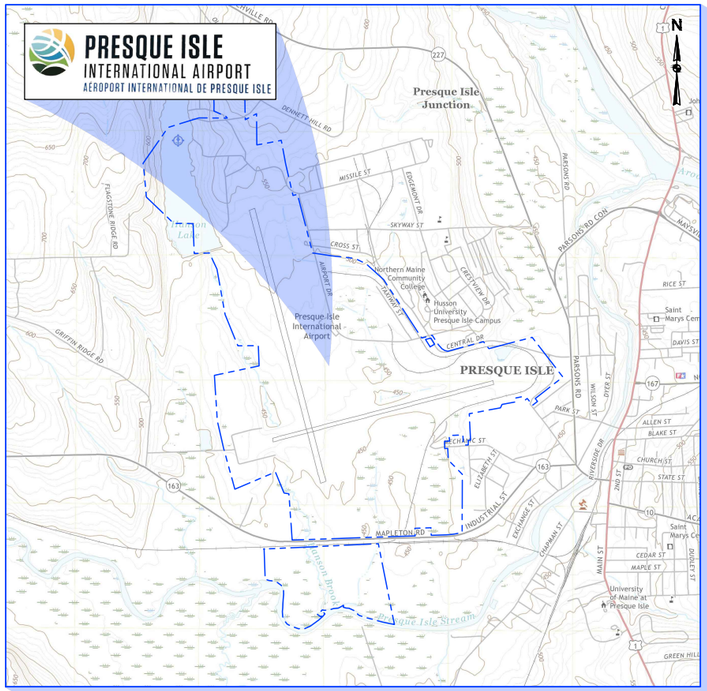
FEBRUARY 2022



LOCATION MAP

DRAWING INDEX

SHEET NO.	TITLE
1	EXISTING LAYOUT
2	AIRPORT LAYOUT PLAN
3	AIRPORT DATA TABLES
4	TERMINAL AREA PLAN
5	AIRPORT AIRSPACE PLAN
6	OUTER AIRPORT AIRSPACE PLAN
7	INNER APPROACH PLAN EXISTING RWY 1
8	INNER APPROACH PLAN PROPOSED RWY 36
9	INNER APPROACH PLAN EXISTING RWY 19/PROPOSED RWY 18
10	INNER APPROACH PLAN TABLES EXISTING RWY 19/PROPOSED RWY 18
11	INNER APPROACH PLAN EXISTING RWY 10/PROPOSED RWY 9
12	INNER APPROACH PLAN EXISTING RWY 28/PROPOSED RWY 27
13	DEPARTURE SURFACE EXISTING RWY 1/PROPOSED RWY 36
14	DEPARTURE SURFACE TABLES EXISTING RWY 1/PROPOSED RWY 36
15	DEPARTURE SURFACE EXISTING RWY 19/PROPOSED RWY 18
16	DEPARTURE SURFACE EXISTING RWY 10/PROPOSED RWY 9
17	DEPARTURE SURFACE EXISTING RWY 28/PROPOSED RWY 27
18	LAND USE PLAN
19	AIRPORT ENVIRONMENTAL INVENTORY MAP



VICINITY MAP

PREPARED FOR:

CITY OF PRESQUE ISLE

PREPARED BY:

McFarland Johnson
239 LITTLETON ROAD, SUITE 1A
WESTFORD, MASSACHUSETTS 01886 www.mjinc.com

FAA AIP PROJECT NO. 3-23-0039-049-2018
MCFARLAND JOHNSON PROJECT NO. 18423.00

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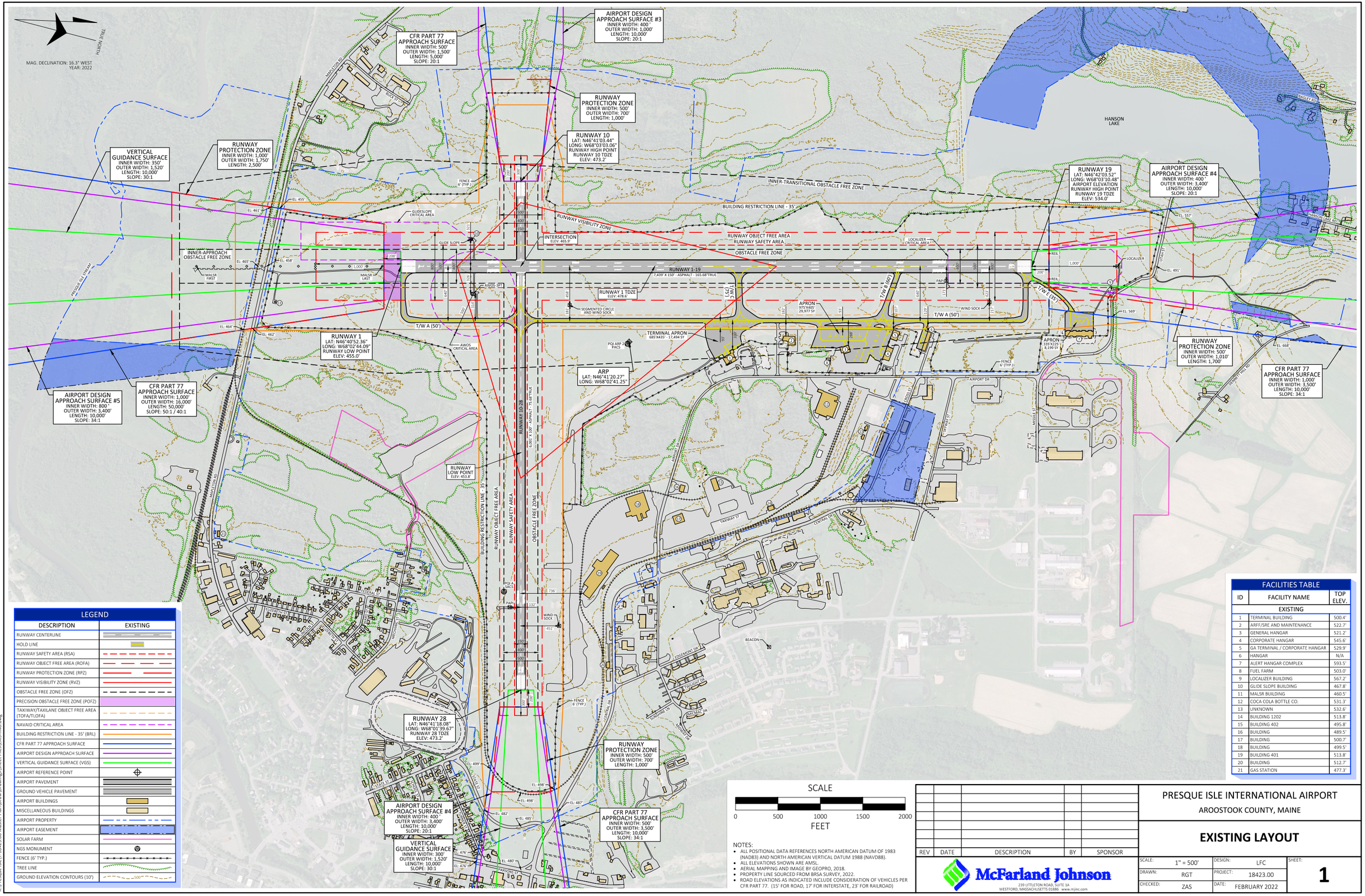

LEGEND

DESCRIPTION	EXISTING
RUNWAY CENTERLINE	
HOLD LINE	
RUNWAY SAFETY AREA (RSA)	
RUNWAY OBJECT FREE AREA (ROFA)	
RUNWAY PROTECTION ZONE (RPZ)	
RUNWAY VISIBILITY ZONE (RVZ)	
OBSTACLE FREE ZONE (OFZ)	
PRECISION OBSTACLE FREE ZONE (POFZ)	
TAXIWAY/TAXILANE OBJECT FREE AREA (TOFA/TLOFA)	
NAVAID CRITICAL AREA	
BUILDING RESTRICTION LINE - 35' (BRL)	
CFR PART 77 APPROACH SURFACE	
AIRPORT DESIGN APPROACH SURFACE	
VERTICAL GUIDANCE SURFACE (VGS)	
AIRPORT REFERENCE POINT	
AIRPORT PAVEMENT	
GROUND VEHICLE PAVEMENT	
AIRPORT BUILDINGS	
MISCELLANEOUS BUILDINGS	
AIRPORT PROPERTY	
AIRPORT EASEMENT	
SOLAR FARM	
NGS MONUMENT	
FENCE (6' TYP.)	
TREE LINE	
GROUND ELEVATION CONTOURS (10')	500'

FACILITIES TABLE

ID	FACILITY NAME	TOP ELEV.
	EXISTING	
1	TERMINAL BUILDING	500.4'
2	ARFF/SRE AND MAINTENANCE	522.7'
3	GENERAL HANGAR	521.2'
4	CORPORATE HANGAR	545.6'
5	GA TERMINAL / CORPORATE HANGAR	529.9'
6	HANGAR	N/A
7	ALERT HANGAR COMPLEX	593.5'
8	FUEL FARM	503.0'
9	LOCALIZER BUILDING	567.2'
10	GLIDE SLOPE BUILDING	467.8'
11	MALSR BUILDING	460.5'
12	COCA COLA BOTTLE CO.	531.3'
13	UNKNOWN	532.6'
14	BUILDING 1202	513.8'
15	BUILDING 402	495.8'
16	BUILDING	489.5'
17	BUILDING	500.7'
18	BUILDING	499.5'
19	BUILDING 401	513.8'
20	BUILDING	512.7'
21	GAS STATION	477.3'

SCALE

0 500 1000 1500 2000

FEET

NOTES:
- ALL POSITIONAL DATA REFERENCES NORTH AMERICAN DATUM OF 1983 (NAD83) AND NORTH AMERICAN VERTICAL DATUM 1988 (NAVD88).
- ALL ELEVATIONS SHOWN ARE AMSL.
- AERIAL MAPPING AND IMAGE BY GEOPRO, 2018.
- PROPERTY LINE SOURCED FROM BRSA SURVEY, 2022.
- ROAD ELEVATIONS AS INDICATED INCLUDE CONSIDERATION OF VEHICLES PER CFR PART 77. (15' FOR ROAD, 17' FOR INTERSTATE, 23' FOR RAILROAD)

REV	DATE	DESCRIPTION	BY	SPONSOR

McFarland Johnson
239 LITTLETON ROAD, SUITE 1A
WESTFORD, MASSACHUSETTS 01886 www.mjinc.com

PRESQUE ISLE INTERNATIONAL AIRPORT
AROOSTOOK COUNTY, MAINE

EXISTING LAYOUT

SCALE:	1" = 500'	DESIGN:	LFC
DRAWN:	RGT	PROJECT:	18423.00
CHECKED:	ZAS	DATE:	FEBRUARY 2022

SHEET: 1

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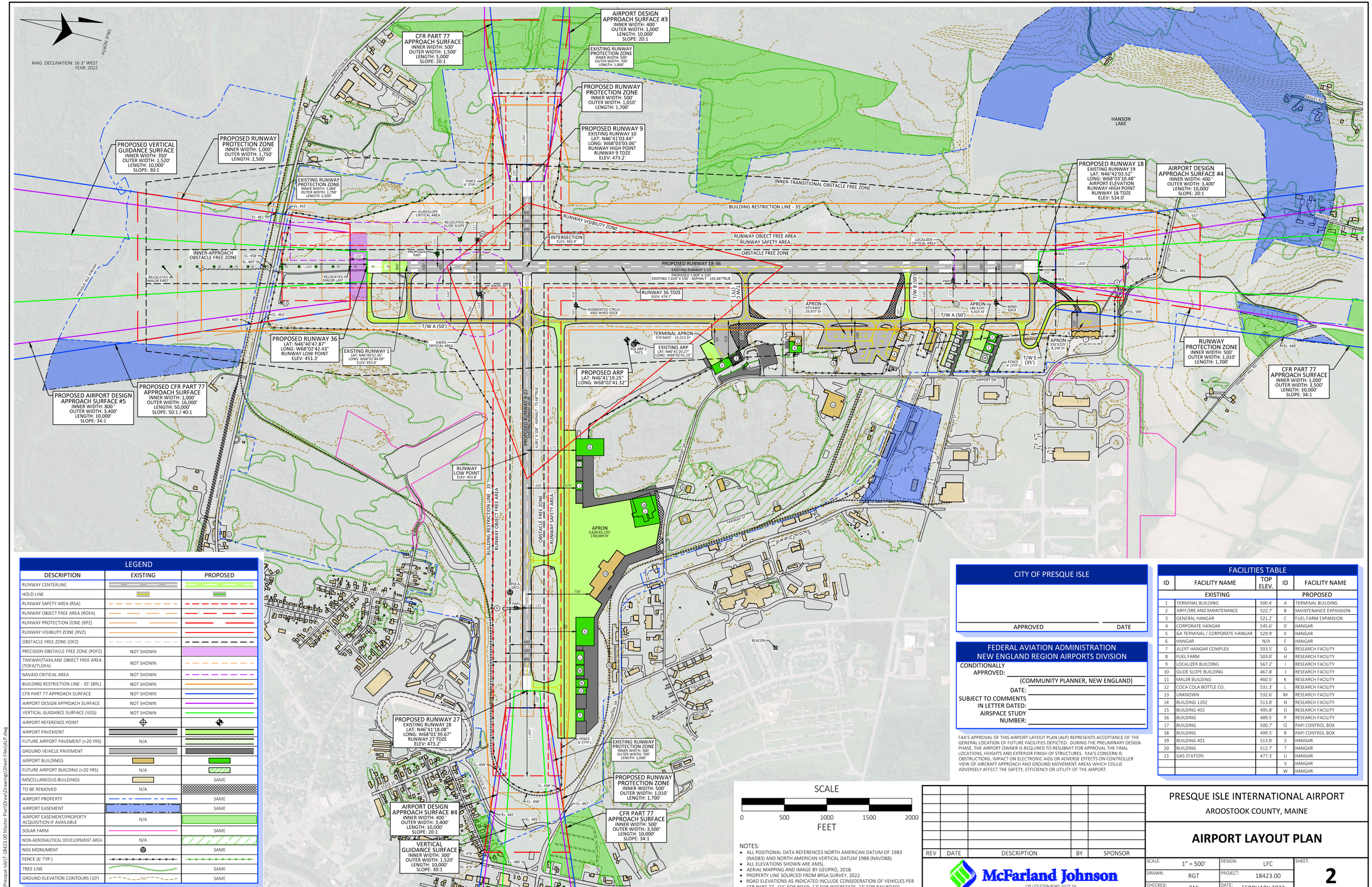

LEGEND

DESCRIPTION	EXISTING	PROPOSED
RUNWAY CENTERLINE		
HOLD LINE		
RUNWAY SAFETY AREA (RSA)		
RUNWAY OBJECT FREE AREA (ROFA)		
RUNWAY PROTECTION ZONE (RPZ)		
RUNWAY VISIBILITY ZONE (RVZ)		
OBSTACLE FREE ZONE (OFZ)		
PRECISION OBSTACLE FREE ZONE (POFZ)	NOT SHOWN	
TAXIWAY/TAXILANE OBJECT FREE AREA (TOFA/TLOFA)	NOT SHOWN	
NAVAID CRITICAL AREA	NOT SHOWN	
BUILDING RESTRICTION LINE - 35' (BRL)	NOT SHOWN	
CFR PART 77 APPROACH SURFACE	NOT SHOWN	
AIRPORT DESIGN APPROACH SURFACE	NOT SHOWN	
VERTICAL GUIDANCE SURFACE (VGS)	NOT SHOWN	
AIRPORT REFERENCE POINT		
AIRPORT PAVEMENT		
FUTURE AIRPORT PAVEMENT (>20 YRS)	N/A	
GROUND VEHICLE PAVEMENT		
AIRPORT BUILDINGS		
FUTURE AIRPORT BUILDING (>20 YRS)	N/A	
MISCELLANEOUS BUILDINGS		SAME
TO BE REMOVED	N/A	
AIRPORT PROPERTY		SAME
AIRPORT EASEMENT		SAME
AIRPORT EASEMENT/PROPERTY ACQUISITION IF AVAILABLE	N/A	
SOLAR FARM		SAME
NON-AERONAUTICAL DEVELOPMENT AREA	N/A	
NGS MONUMENT		SAME
FENCE (6' TYP.)		SAME
TREE LINE		SAME
GROUND ELEVATION CONTOURS (10')		SAME

CITY OF PRESQUE ISLE

APPROVED _____ DATE _____

FEDERAL AVIATION ADMINISTRATION
NEW ENGLAND REGION AIRPORTS DIVISION

CONDITIONALLY APPROVED: _____
(COMMUNITY PLANNER, NEW ENGLAND)
DATE: _____
SUBJECT TO COMMENTS IN LETTER DATED: _____
AIRSPACE STUDY NUMBER: _____

FAA'S APPROVAL OF THIS AIRPORT LAYOUT PLAN (ALP) REPRESENTS ACCEPTANCE OF THE GENERAL LOCATION OF FUTURE FACILITIES DEPICTED. DURING THE PRELIMINARY DESIGN PHASE, THE AIRPORT OWNER IS REQUIRED TO RESUBMIT FOR APPROVAL THE FINAL LOCATIONS, HEIGHTS AND EXTERIOR FINISH OF STRUCTURES. FAA'S CONCERN IS OBSTRUCTIONS, IMPACT ON ELECTRONIC AIDS OR ADVERSE EFFECTS ON CONTROLLER VIEW OF AIRCRAFT APPROACH AND GROUND MOVEMENT AREAS WHICH COULD ADVERSELY AFFECT THE SAFETY, EFFICIENCY OR UTILITY OF THE AIRPORT.

FACILITIES TABLE

ID	FACILITY NAME	TOP ELEV.	ID	FACILITY NAME
EXISTING			PROPOSED	
1	TERMINAL BUILDING	500.4'	A	TERMINAL BUILDING
2	ARFF/SRE AND MAINTENANCE	522.7'	B	MAINTENANCE EXPANSION
3	GENERAL HANGAR	521.2'	C	FUEL FARM EXPANSION
4	CORPORATE HANGAR	545.6'	D	HANGAR
5	GA TERMINAL / CORPORATE HANGAR	529.9'	E	HANGAR
6	HANGAR	N/A	F	HANGAR
7	ALERT HANGAR COMPLEX	593.5'	G	RESEARCH FACILITY
8	FUEL FARM	503.0'	H	RESEARCH FACILITY
9	LOCALIZER BUILDING	567.2'	I	RESEARCH FACILITY
10	GLIDE SLOPE BUILDING	467.8'	J	RESEARCH FACILITY
11	MALSR BUILDING	460.5'	K	RESEARCH FACILITY
12	COCA COLA BOTTLE CO.	531.3'	L	RESEARCH FACILITY
13	UNKNOWN	532.6'	M	RESEARCH FACILITY
14	BUILDING 1202	513.8'	N	RESEARCH FACILITY
15	BUILDING 402	495.8'	O	RESEARCH FACILITY
16	BUILDING	489.5'	P	RESEARCH FACILITY
17	BUILDING	500.7'	Q	PAPI CONTROL BOX
18	BUILDING	499.5'	R	PAPI CONTROL BOX
19	BUILDING 401	513.8'	S	HANGAR
20	BUILDING	512.7'	T	HANGAR
21	GAS STATION	477.3'	U	HANGAR
			V	HANGAR
			W	HANGAR

SCALE
0 500 1000 1500 2000
FEET

NOTES:
- ALL POSITIONAL DATA REFERENCES NORTH AMERICAN DATUM OF 1983 (NAD83) AND NORTH AMERICAN VERTICAL DATUM 1988 (NAVD88).
- ALL ELEVATIONS SHOWN ARE AMSL.
- AERIAL MAPPING AND IMAGE BY GEOPRO, 2018.
- PROPERTY LINE SOURCED FROM BRSA SURVEY, 2022.
- ROAD ELEVATIONS AS INDICATED INCLUDE CONSIDERATION OF VEHICLES PER CFR PART 77. (15' FOR ROAD, 17' FOR INTERSTATE, 23' FOR RAILROAD)

REV	DATE	DESCRIPTION	BY	SPONSOR

McFarland Johnson
239 LITTLETON ROAD, SUITE 1A
WESTFORD, MASSACHUSETTS 01886 www.mjinc.com

PRESQUE ISLE INTERNATIONAL AIRPORT
AROOSTOOK COUNTY, MAINE

AIRPORT LAYOUT PLAN

SCALE:	1" = 500'	DESIGN:	LFC
DRAWN:	RGT	PROJECT:	18423.00
CHECKED:	ZAS	DATE:	FEBRUARY 2022

SHEET: 2

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RUNWAY DATA TABLE

ITEM		EXISTING RUNWAY 1-19	PROPOSED RUNWAY 18-36	EXISTING RUNWAY 10-28	PROPOSED RUNWAY 9-27
RUNWAY END		1 / 19	36 / 18	10 / 28	9 / 27
RUNWAY DESIGN CODE (RDC)		C-II-2400	SAME	A-II-5000	C-II-5000
APPROACH REFERENCE CODE (APRC)		D/VI/2400	SAME	D/VI/5000	D/IV/5000, D/V/5000
DEPARTURE REFERENCE CODE (DPRC)		D/VI	SAME	D/VI	D/IV, D/V
CRITICAL AIRCRAFT		EMBRAER 145	SAME	CESSNA 208	EMBRAER 145
PAVEMENT STRENGTH	SINGLE WHEEL	100,000 LBS	SAME	100,000 LBS	SAME
	DUAL WHEEL	150,000 LBS	SAME	150,000 LBS	SAME
	DUAL TANDEM	240,000 LBS	SAME	240,000 LBS	SAME
	PCN	94/F/A/W/T	SAME	94/F/A/W/T	SAME
SURFACE TYPE		ASPHALT	ASPHALT-GROOVED	ASPHALT	SAME
EFFECTIVE RUNWAY GRADIENT		1.06%	1.04%	0.00%	SAME
MAXIMUM GRADE CHANGE		1.77%	SAME	0.99%	SAME
WIND COVERAGE (%)	ALL WEATHER	16 KNOT - 99.04%	SAME	13 KNOT - 93.55%	SAME
	IFR	16 KNOT - 99.29%	SAME	13 KNOT - 92.92%	SAME
RUNWAY LENGTH		7,439'	7,909'	6,001'	SAME
RUNWAY WIDTH		150'	SAME	100'	SAME
DISPLACED THRESHOLD		N/A	SAME	N/A	SAME
RUNWAY END COORDINATES	LATITUDE	1 - N46°40'52.36"	36 - N46°40'47.87"	10 - N46°41'03.44"	9 - N46°41'03.44"
	LONGITUDE	1 - W68°02'44.09"	36 - W68°02'42.43"	10 - W68°03'03.06"	9 - W68°03'03.06"
	LATITUDE	19 - N46°42'03.52"	18 - N46°42'03.52"	28 - N46°41'18.08"	27 - N46°41'18.08"
	LONGITUDE	19 - W68°03'10.48"	18 - W68°03'10.48"	28 - W68°01'39.67"	27 - W68°01'39.67"
RUNWAY LIGHTING		HIRL	SAME	MIRL	SAME
RUNWAY MARKING		PIR	SAME	NPI	SAME
CFR PART 77 APPROACH TYPE		PIR /NPI	SAME	VISUAL / NPI	SAME
CFR PART 77 APPROACH CATEGORY		PIR / C	SAME	B / C	SAME
CFR PART 77 APPROACH SLOPE		50:1-40:1 / 34:1	SAME	20:1 / 34:1	SAME
VISIBILITY MINIMUMS		1/2 MILE / 1-1/8 MILE	SAME	VISUAL / 1 MILE	SAME
TYPE OF AERONAUTICAL SURVEY		VERTICALLY GUIDED	SAME	VERTICALLY GUIDED	SAME
RUNWAY DEPARTURE SURFACE		YES / YES	SAME	YES / YES	SAME
AIRPORT DESIGN APPROACH SURFACE FROM TABLE 3-2 IN EB #99A		#5, #6 / #4, #6	SAME	#3 / #4, #6	SAME
RUNWAY PROTECTION ZONE (RPZ)	INNER WIDTH	1,000' / 500'	SAME	500' / 500'	500' / 500'
	OUTER WIDTH	1,750' / 1,010'	SAME	700' / 700'	1,010' / 1,010'
	LENGTH	2,500' / 1,700'	SAME	1,000' / 1,000'	1,700' / 1,700'
RUNWAY OBJECT FREE AREA (ROFA)	LENGTH BEYOND RUNWAY	1,000' / 1,000'	SAME	300' / 300'	1,000' / 1,000'
	WIDTH	800'	SAME	500'	800'
RUNWAY SAFETY AREA (RSA)	LENGTH BEYOND RUNWAY	1,000' / 1,000'	SAME	300' / 300'	1,000' / 1,000'
	WIDTH	500'	SAME	150'	500'
OBSTACLE FREE ZONE (OFZ)	LENGTH BEYOND RUNWAY	200' / 200'	SAME	200' / 200'	SAME
	WIDTH	400'	SAME	400'	SAME
VISUAL APPROACH AIDS		MALSR / REIL, PAPI	MALSR, PAPI / REIL, PAPI	NONE / PAPI	SAME
INSTRUMENT APPROACH AIDS		GPS (RNAV), ILS (CAT I) / GPS (RNAV), VOR	SAME	GPS (RNAV) / GPS (RNAV)	SAME
MAXIMUM ELEVATION		534.0'	SAME	473.2'	SAME
RUNWAY END ELEVATIONS		455.0' / 534.0'	451.3' / 534.0'	473.2' / 473.2'	SAME
DISPLACED THRESHOLD ELEVATION		N/A	SAME	N/A	SAME
TOUCH DOWN ZONE (TDZ) ELEVATION		478.6' / 534.0'	474.7' / 534.0'	473.2' / 473.2'	SAME
LINE OF SIGHT VIOLATIONS		N/A	SAME	N/A	SAME

MODIFICATION TO DESIGN STANDARDS

NO.	STANDARD MODIFIED	FAA STANDARDS	EXISTING CONDITION	PROPOSED ACTION	DATE APPROVED
1	FAA AC 150/5300-13A, CHAPTER 3, §309 ROFA.	ROFA SHOULD BE CLEAR OF OBJECTS NON-ESSENTIAL FOR AIR NAVIGATION OR AIRCRAFT GROUND MANEUVERING PURPOSES.	MEETS EXISTING ROFA. ONCE RUNWAY 10-28 (PROPOSED RUNWAY 9-27) BECOMES C-II, THE RAILROAD AND FENCE WILL BE WITHIN THE ROFA.	FUTURE ROFA IS 98% CLEAR. NO PROPOSED ACTION.	PENDING

AIRPORT DATA TABLE

ITEM		EXISTING	PROPOSED
AIRPORT REFERENCE CODE (ARC)		C-II	SAME
MEAN MAXIMUM TEMPERATURE OF HOTTEST MONTH		76° F	SAME
AIRPORT ELEVATION		534.0'	SAME
AIRPORT NAVIGATIONAL AIDS		BEACON, ILS (LOC & GS)	SAME
AIRPORT REFERENCE POINT	LATITUDE	N46°41'20.27"	N46°41'19.25"
	LONGITUDE	W68°02'41.25"	W68°02'41.32"
MISCELLANEOUS FACILITIES		AWOS, PAPI, REIL	SAME
CRITICAL AIRCRAFT		EMBRAER 145	SAME
MAGNETIC VARIATION (SOURCE: NGS, 2022)		16.3° W	SAME
NPIAS SERVICE LEVEL		NON-HUB PRIMARY	SAME
STATE SERVICE LEVEL		COMMERCIAL	SAME
COMBINED WIND COVERAGE (%)	ALL WEATHER	99.99%	SAME
16 KNOTS	IFR	99.99%	SAME
AIRCRAFT APPROACH CATEGORY (AAC)		C	SAME
AIRPLANE DESIGN GROUP (ADG)		II	SAME
TAXIWAY DESIGN GROUP (TDG)		3	SAME
TAXIWAY SAFETY AREA (TSA) WIDTH		79'	SAME
TAXIWAY OBJECT FREE AREA (TOFA) WIDTH		131'	SAME
TAXILANE OBJECT FREE AREA (TLOFA) WIDTH		115'	SAME
TAXIWAY EDGE SAFETY MARGIN (TESM)		10'	SAME
TAXIWAY LIGHTING		MITL	SAME
TAXIWAY MARKING		ENHANCED	SAME
TAXIWAY SURFACE TYPE		ASPHALT	SAME
TAXIWAY SHOULDER WIDTH		20'	SAME

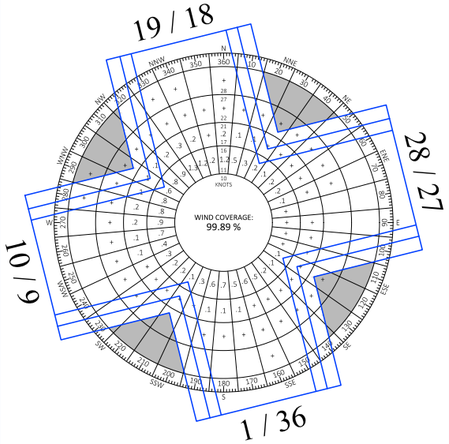
RUNWAY SAFETY AREA DETERMINATION

RUNWAY ID	STANDARD RSA LENGTH BEYOND RUNWAY END	ACTUAL RSA		RSA DETERMINATION	DATE APPROVED
		LENGTH BEYOND RUNWAY END	VIOLATIONS TO RSA ALONG SIDE OF RUNWAY		
EXISTING					
1	1,000'	1,000'	NONE	YES	09/20/2000
19	1,000'	1,000'	NONE	YES	09/20/2000
10	300'	300'	NONE	YES	09/20/2000
28	300'	300'	NONE	YES	09/20/2000
PROPOSED					
18	1,000'	1,000'	NONE	NO	N/A
36	1,000'	1,000'	NONE	NO	N/A
9	1,000'	1,000'	NONE	NO	N/A
27	1,000'	1,000'	NONE	NO	N/A

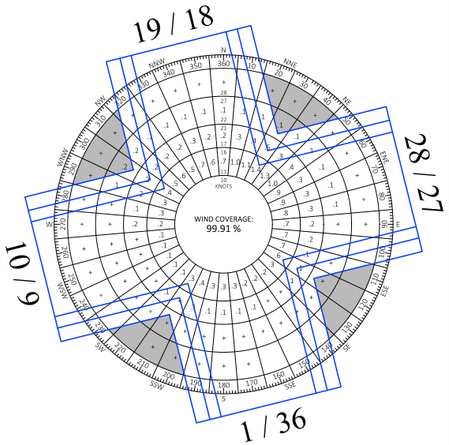
DECLARED DISTANCES

APPROACH END ID	TORA	TODA	ASDA	LDA	LDA		ASDA	DATE APPROVED
					APPROACH END RSA LENGTH	STOP END RSA LENGTH	RSA LENGTH	
EXISTING								
1	7,439'	7,439'	7,439'	7,439'	600'	1,000'	1,000'	N/A
19	7,439'	7,439'	7,439'	7,439'	600'	1,000'	1,000'	N/A
10	6,001'	6,001'	6,001'	6,001'	300'	300'	300'	N/A
28	6,001'	6,001'	6,001'	6,001'	300'	300'	300'	N/A
PROPOSED								
18	7,909'	7,909'	7,909'	7,909'	600'	1,000'	1,000'	N/A
36	7,909'	7,909'	7,909'	7,909'	600'	1,000'	1,000'	N/A
9	6,001'	6,001'	6,001'	6,001'	600'	1,000'	1,000'	N/A
27	6,001'	6,001'	6,001'	6,001'	600'	1,000'	1,000'	N/A

WIND COVERAGE



ALL WEATHER WINDROSE



IFR WINDROSE

SOURCE: PRESQUE ISLE INTERNATIONAL AIRPORT 2010-2019 (727130)

WIND COVERAGE	10.5 KNOTS	13 KNOTS	16 KNOTS
ALL WEATHER			
RUNWAY 1-19 / 18-36	94.04%	96.69%	99.04%
RUNWAY 10-28 / 9-27	88.98%	93.55%	98.26%
COMBINED	99.38%	99.89%	99.99%
IFR			
RUNWAY 1-19 / 18-36	96.80%	98.21%	99.29%
RUNWAY 10-28 / 9-27	88.21%	92.92%	97.74%
COMBINED	99.48%	99.91%	99.99%

NOTES:
- ALL POSITIONAL DATA REFERENCES NORTH AMERICAN DATUM OF 1983 (NAD83) AND NORTH AMERICAN VERTICAL DATUM 1988 (NAVD88).
- ALL ELEVATIONS SHOWN ARE AMSL.
- AERIAL MAPPING BY GEOPRO, 2018.

REV	DATE	DESCRIPTION	BY	SPONSOR

McFarland Johnson
239 LITTLETON ROAD, SUITE 1A
WESTFORD, MASSACHUSETTS 01886 www.mjinc.com

PRESQUE ISLE INTERNATIONAL AIRPORT
AROOSTOOK COUNTY, MAINE

AIRPORT DATA TABLES

SCALE:	NONE	DESIGN:	LFC	SHEET:
DRAWN:	RGT	PROJECT:	18423.00	3
CHECKED:	ZAS	DATE:	FEBRUARY 2022	

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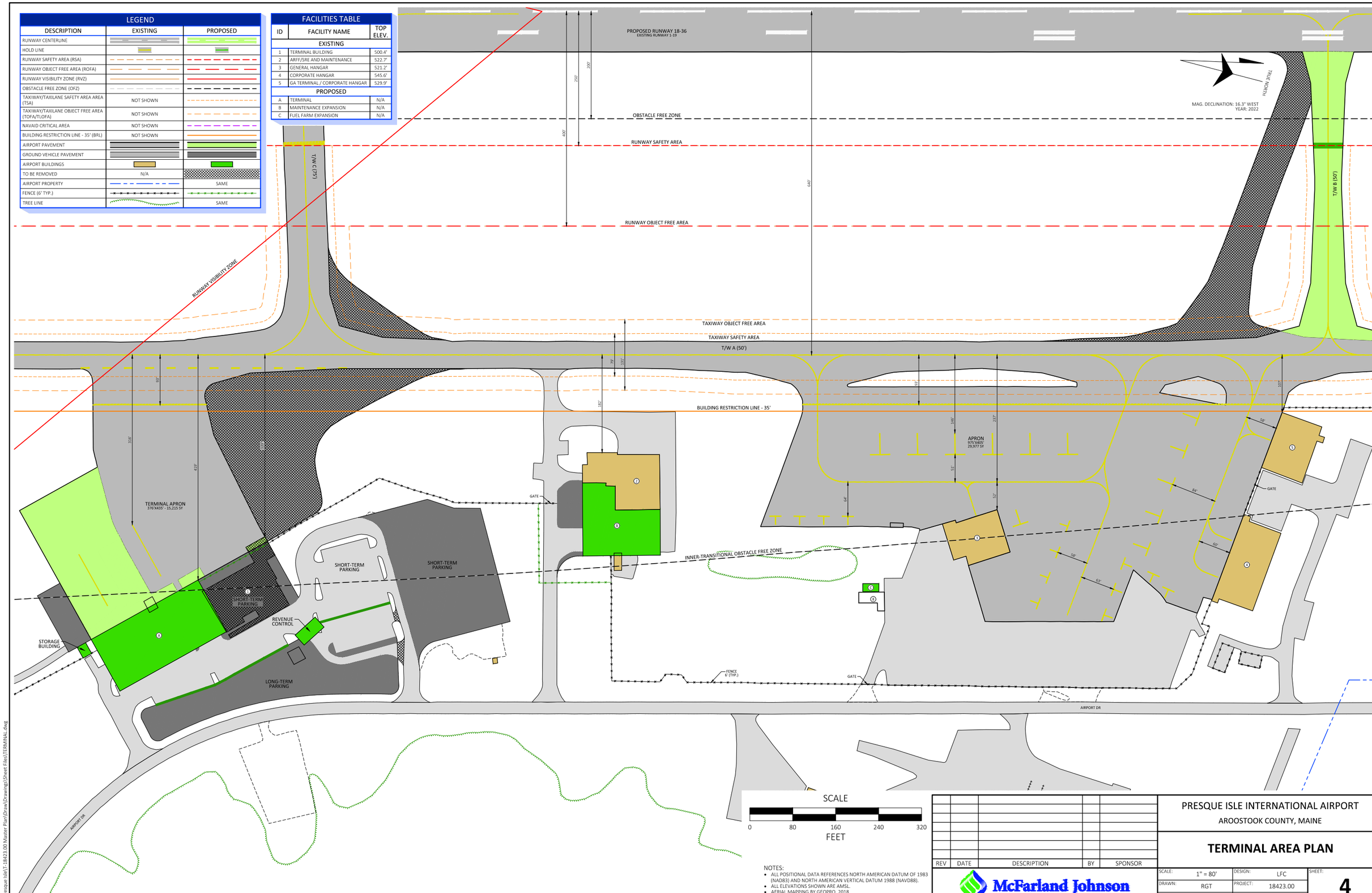
LEGEND

DESCRIPTION	EXISTING	PROPOSED
RUNWAY CENTERLINE		
HOLD LINE		
RUNWAY SAFETY AREA (RSA)		
RUNWAY OBJECT FREE AREA (ROFA)		
RUNWAY VISIBILITY ZONE (RVZ)		
OBSTACLE FREE ZONE (OFZ)		
TAXIWAY/TAXILANE SAFETY AREA AREA (TSA)	NOT SHOWN	
TAXIWAY/TAXILANE OBJECT FREE AREA (TOFA/TLOFA)	NOT SHOWN	
NAVAID CRITICAL AREA	NOT SHOWN	
BUILDING RESTRICTION LINE - 35' (BRL)	NOT SHOWN	
AIRPORT PAVEMENT		
GROUND VEHICLE PAVEMENT		
AIRPORT BUILDINGS		
TO BE REMOVED	N/A	
AIRPORT PROPERTY		SAME
FENCE (6' TYP.)		
TREE LINE		SAME

FACILITIES TABLE

ID	FACILITY NAME	TOP ELEV.
	EXISTING	
1	TERMINAL BUILDING	500.4'
2	ARFF/SRE AND MAINTENANCE	522.7'
3	GENERAL HANGAR	521.2'
4	CORPORATE HANGAR	545.6'
5	GA TERMINAL / CORPORATE HANGAR	529.9'
	PROPOSED	
A	TERMINAL	N/A
B	MAINTENANCE EXPANSION	N/A
C	FUEL FARM EXPANSION	N/A



NOTES:
- ALL POSITIONAL DATA REFERENCES NORTH AMERICAN DATUM OF 1983 (NAD83) AND NORTH AMERICAN VERTICAL DATUM 1988 (NAVD88).
- ALL ELEVATIONS SHOWN ARE AMSL.
- AERIAL MAPPING BY GEOPRO, 2018.
- PROPERTY LINE SOURCED FROM BRSA SURVEY, 2022.

REV	DATE	DESCRIPTION	BY	SPONSOR

McFarland Johnson
239 LITTLETON ROAD, SUITE 1A
WESTFORD, MASSACHUSETTS 01886 www.mjinc.com

PRESQUE ISLE INTERNATIONAL AIRPORT
AROOSTOOK COUNTY, MAINE

TERMINAL AREA PLAN

SCALE:	1" = 80'	DESIGN:	LFC	SHEET: 4
DRAWN:	RGT	PROJECT:	18423.00	
CHECKED:	ZAS	DATE:	FEBRUARY 2022	

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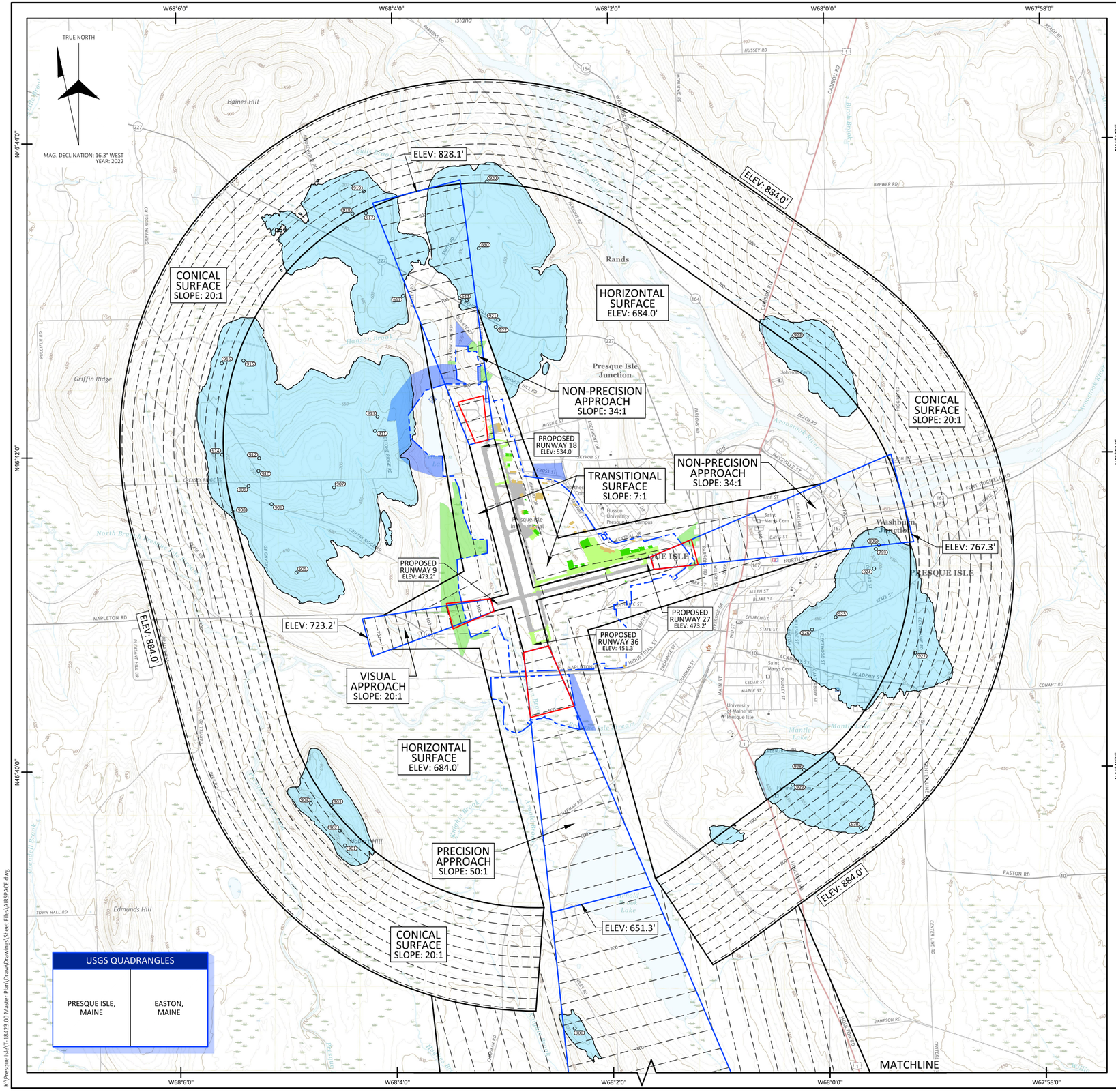
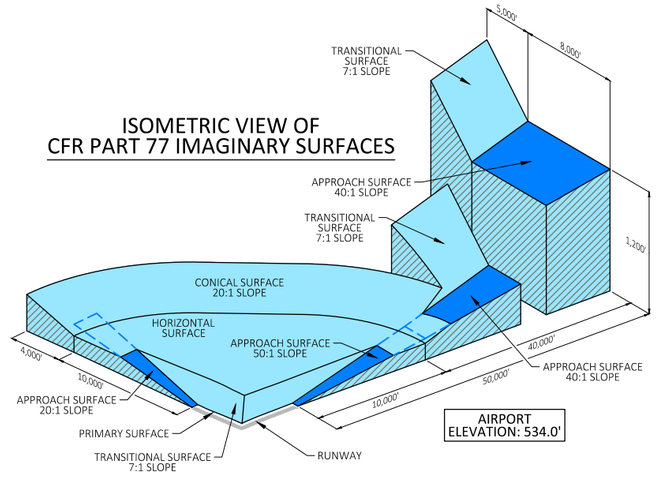


USGS QUADRANGLES

PRESQUE ISLE, MAINE	EASTON, MAINE

ISOMETRIC VIEW OF CFR PART 77 IMAGINARY SURFACES



PROPOSED CFR PART 77 APPROACH SURFACE: RWY 36

LABEL	DESCRIPTION	ELEVATION	SURFACE HEIGHT	PENETRATION	ACTION
900	TREE	788.3'	765.7'	22.6'	TRIM/REMOVE

PROPOSED CFR PART 77 APPROACH SURFACE: RWY 27

LABEL	DESCRIPTION	ELEVATION	SURFACE HEIGHT	PENETRATION	ACTION
806	TREE	763.2'	728.0'	35.2'	TRIM/REMOVE

PROPOSED CFR PART 77 CONICAL SURFACE

LABEL	DESCRIPTION	ELEVATION	SURFACE HEIGHT	PENETRATION	ACTION
901	TREE	843.6'	713.9'	129.7'	TRIM/REMOVE
902	TOWER	854.9'	701.2'	153.7'	LIGHT
904	TREE	796.8'	711.8'	85.0'	TRIM/REMOVE
908	TREE	704.8'	684.8'	20.0'	TRIM/REMOVE
914	TREE	759.4'	687.0'	72.4'	TRIM/REMOVE
916	TREE	714.4'	709.1'	5.3'	TRIM/REMOVE
918	GROUND	693.4'	690.6'	2.8'	NONE
919	TREE	736.2'	719.3'	16.9'	TRIM/REMOVE
920	TREE	726.7'	686.8'	39.9'	TRIM/REMOVE
923	COM TOWER	797.0'	694.3'	102.7'	LIGHT
927	TREE	769.1'	721.7'	47.4'	TRIM/REMOVE
929	TREE	722.9'	690.5'	32.4'	TRIM/REMOVE
930	WATER TOWER	854.2'	836.0'	18.2'	LIGHT

PROPOSED CFR PART 77 HORIZONTAL SURFACE

LABEL	DESCRIPTION	ELEVATION	SURFACE HEIGHT	PENETRATION	ACTION
611	TREE	689.5'	684.0'	5.5'	TRIM/REMOVE
617	TREE	707.3'	684.0'	23.3'	TRIM/REMOVE
630	TREE	754.6'	684.0'	70.6'	TRIM/REMOVE
799	TREE	766.6'	684.0'	82.6'	TRIM/REMOVE
806	TREE	763.2'	684.0'	79.2'	TRIM/REMOVE
903	TREE	732.3'	684.0'	48.3'	TRIM/REMOVE
905	TREE	745.2'	684.0'	61.2'	TRIM/REMOVE
906	POLE	711.8'	684.0'	27.8'	LIGHT
907	TREE	779.0'	684.0'	95.0'	TRIM/REMOVE
909	GROUND	709.8'	684.0'	25.8'	NONE
910	TREE	826.4'	684.0'	142.4'	TRIM/REMOVE
911	BUILDING	737.1'	684.0'	53.1'	LIGHT
912	TOWER	833.0'	684.0'	149.0'	LIGHT
913	TREE	790.4'	684.0'	106.4'	TRIM/REMOVE
915	TREE	709.1'	684.1'	25.0'	TRIM/REMOVE
917	TREE	718.1'	684.0'	34.1'	TRIM/REMOVE
921	BUILDING	708.3'	684.0'	24.3'	LIGHT
922	TREE	722.4'	684.0'	38.4'	TRIM/REMOVE
924	GROUND	713.3'	684.0'	29.3'	NONE
925	COM TOWER	767.3'	684.0'	83.3'	LIGHT
926	TREE	719.9'	684.1'	35.8'	TRIM/REMOVE
928	TREE	716.4'	684.0'	32.4'	TRIM/REMOVE

EXISTING AIRPORT PROPERTY

EXISTING AIRPORT EASEMENT

PROPOSED RUNWAY PROTECTION ZONE

AIRPORT EASEMENT/PROPERTY ACQUISITION IF AVAILABLE

NATIONAL ELEVATION DATASET OBSTRUCTIONS

SCALE

0 2000 4000 6000 8000

FEET

NOTES:

- FOR INNER APPROACH OBSTRUCTIONS PLEASE REFER TO SHEETS 7 THRU 12.
- USGS NATIONAL ELEVATION DATASET SHOWN REPRESENT GROUND, POLES, TREES AND BUILDING OBSTRUCTIONS. (ASSUMED OBJECT HEIGHT OF 100' ABOVE GROUND).
- ALL POSITIONAL DATA REFERENCES NORTH AMERICAN DATUM OF 1983 (NAD83) AND NORTH AMERICAN VERTICAL DATUM 1988 (NAVD88).
- ALL ELEVATIONS SHOWN ARE AMSL.
- TOWN OF MAPLETON AIRSPACE ZONING RESTRICTIONS ARE SHOWN ON SHEET 18.
- AERIAL MAPPING BY GEOPRO, 2018.
- PROPERTY LINE SOURCED FROM BRSA SURVEY, 2022.
- THIS SHEET DOES NOT SHOW A COMPREHENSIVE OBSTRUCTION REVIEW. OBSTRUCTIONS WERE FILTERED BASED ON THE SCALE OF THE SHEET.

REV	DATE	DESCRIPTION	BY	SPONSOR

PRESQUE ISLE INTERNATIONAL AIRPORT

AROOSTOOK COUNTY, MAINE

AIRPORT AIRSPACE PLAN

McFarland Johnson
239 LITTLETON ROAD, SUITE 1A
WESTFORD, MASSACHUSETTS 01886 www.mjinc.com

SCALE:	1" = 2,000'	DESIGN:	LFC
DRAWN:	RGT	PROJECT:	18423.00
CHECKED:	ZAS	DATE:	FEBRUARY 2022

SHEET: 5

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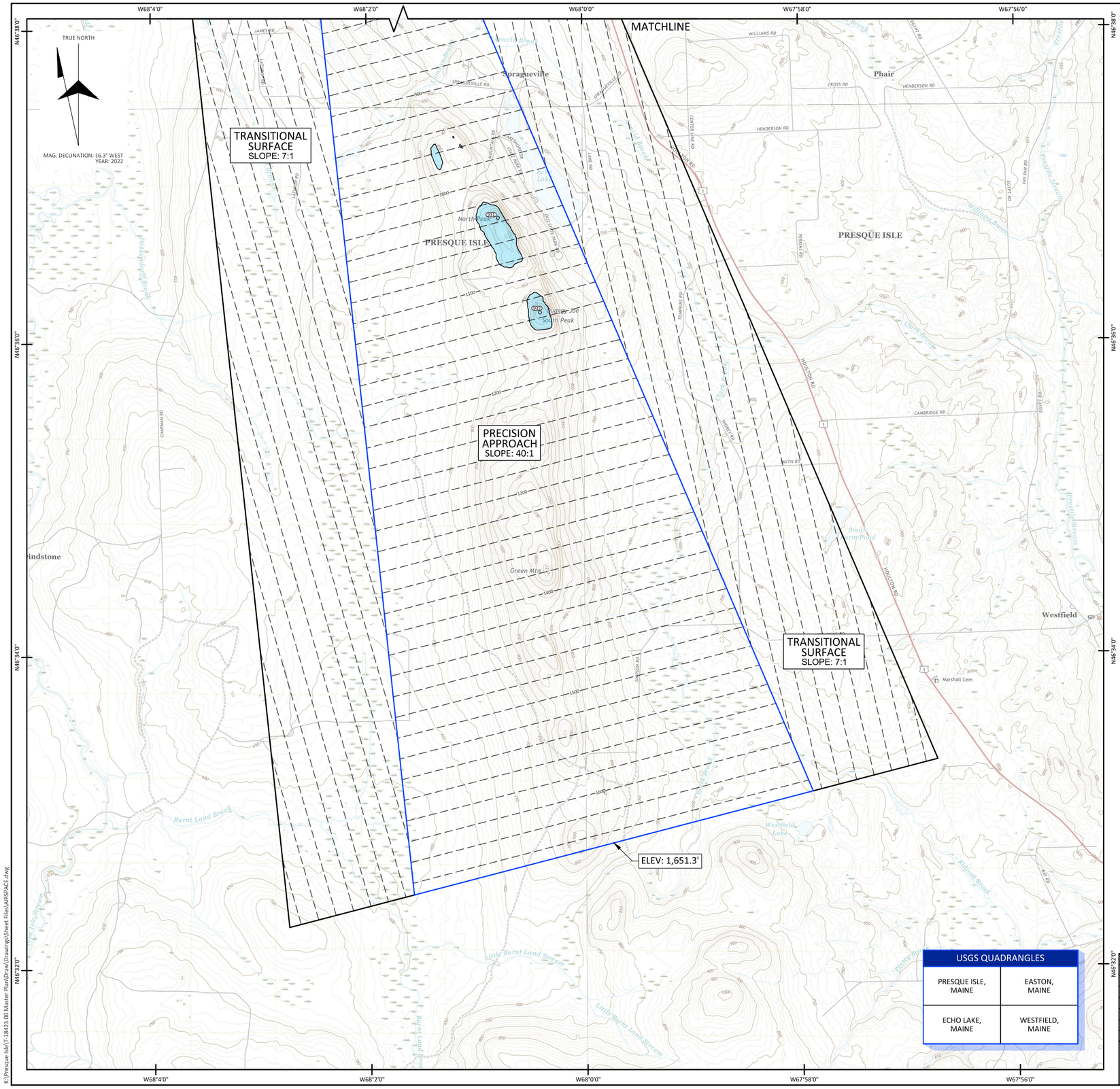

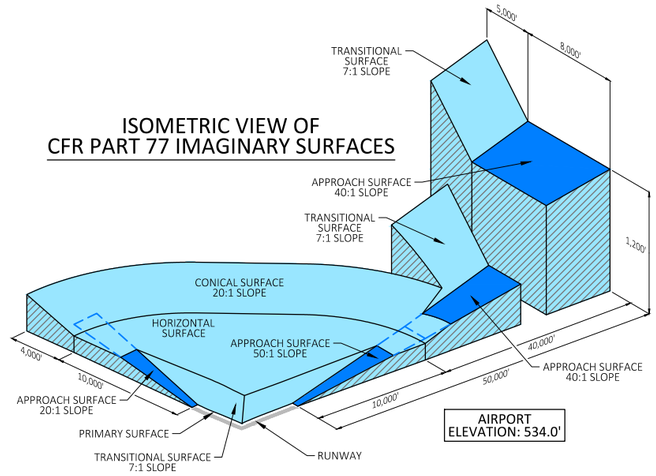

PROPOSED CFR PART 77 APPROACH SURFACE: RWY 36					
LABEL	DESCRIPTION	ELEVATION	SURFACE HEIGHT	PENETRATION	ACTION
931	TREE	1161.0'	1035.8'	125.2'	TRIM/REMOVE
932	TOWER	1266.0'	1135.1'	130.9'	LIT/NONE

NATIONAL ELEVATION DATASET OBSTRUCTIONS

SCALE
0 2000 4000 6000 8000
FEET

NOTES:
- FOR INNER APPROACH OBSTRUCTIONS PLEASE REFER TO SHEETS 7 THRU 12.
- USGS NATIONAL ELEVATION DATASET SHOWN REPRESENT GROUND, POLES, TREES AND BUILDING OBSTRUCTIONS. (ASSUMED OBJECT HEIGHT OF 100' ABOVE GROUND).
- ALL POSITIONAL DATA REFERENCES NORTH AMERICAN DATUM OF 1983 (NAD83) AND NORTH AMERICAN VERTICAL DATUM 1988 (NAVD88).
- ALL ELEVATIONS SHOWN ARE AMSL.
- TOWN OF MAPLETON AIRSPACE ZONING RESTRICTIONS ARE SHOWN ON SHEET 18.
- AERIAL MAPPING BY GEOPRO, 2018.
- PROPERTY LINE SOURCED FROM BRSA SURVEY, 2022.
- THIS SHEET DOES NOT SHOW A COMPREHENSIVE OBSTRUCTION REVIEW. OBSTRUCTIONS WERE FILTERED BASED ON THE SCALE OF THE SHEET.

USGS QUADRANGLES	
PRESQUE ISLE, MAINE	EASTON, MAINE
ECHO LAKE, MAINE	WESTFIELD, MAINE

REV	DATE	DESCRIPTION	BY	SPONSOR

PRESQUE ISLE INTERNATIONAL AIRPORT
AROOSTOOK COUNTY, MAINE

OUTER AIRPORT AIRSPACE PLAN

McFarland Johnson
239 LITTLETON ROAD, SUITE 1A
WESTFORD, MASSACHUSETTS 01886 www.mjinc.com

SCALE:	1" = 2,000'	DESIGN:	LFC
DRAWN:	RGT	PROJECT:	18423.00
CHECKED:	ZAS	DATE:	FEBRUARY 2022

SHEET: 6

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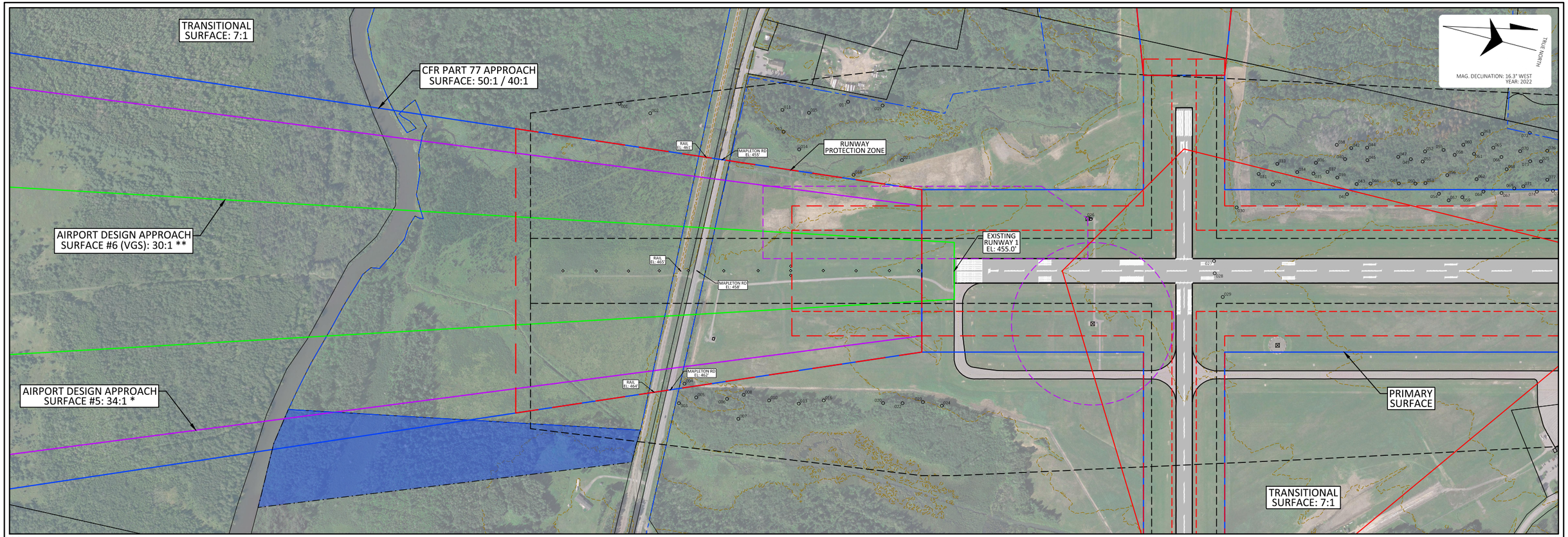
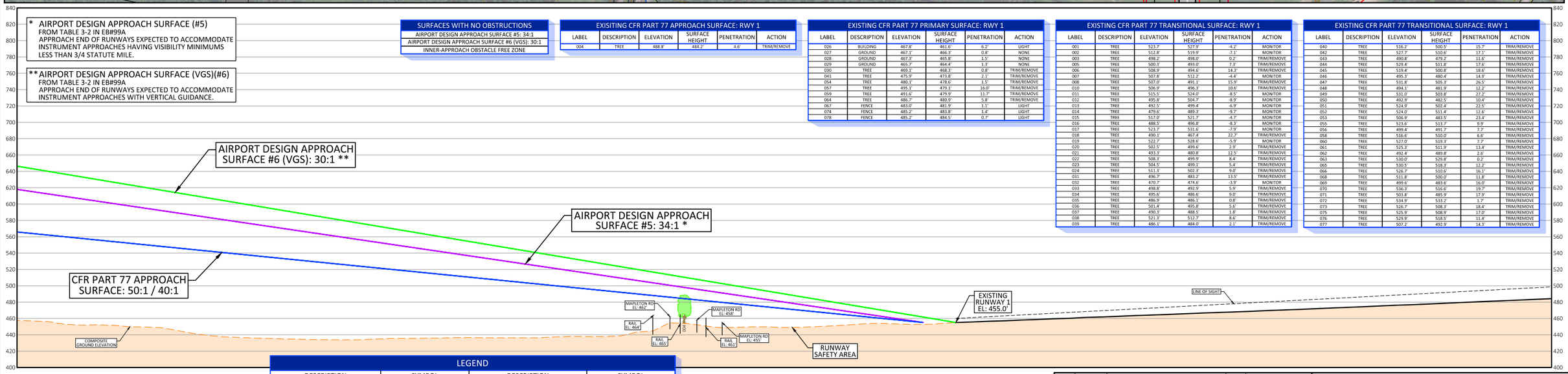


* AIRPORT DESIGN APPROACH SURFACE (#5)
FROM TABLE 3-2 IN EB#99A
APPROACH END OF RUNWAYS EXPECTED TO ACCOMMODATE INSTRUMENT APPROACHES HAVING VISIBILITY MINIMUMS LESS THAN 3/4 STATUTE MILE.

** AIRPORT DESIGN APPROACH SURFACE (VGS)(#6)
FROM TABLE 3-2 IN EB#99A
APPROACH END OF RUNWAYS EXPECTED TO ACCOMMODATE INSTRUMENT APPROACHES WITH VERTICAL GUIDANCE.



SURFACES WITH NO OBSTRUCTIONS

AIRPORT DESIGN APPROACH SURFACE #5: 34:1
AIRPORT DESIGN APPROACH SURFACE #6 (VGS): 30:1
INNER-APPROACH OBSTACLE FREE ZONE

EXISITING CFR PART 77 APPROACH SURFACE: RWY 1

LABEL	DESCRIPTION	ELEVATION	SURFACE HEIGHT	PENETRATION	ACTION
004	TREE	488.8'	484.2'	4.6'	TRIM/REMOVE

EXISTING CFR PART 77 PRIMARY SURFACE: RWY 1

LABEL	DESCRIPTION	ELEVATION	SURFACE HEIGHT	PENETRATION	ACTION
026	BUILDING	467.8'	461.6'	6.2'	LIGHT
027	GROUND	467.1'	466.3'	0.8'	NONE
028	GROUND	467.3'	465.8'	1.5'	NONE
029	GROUND	465.7'	464.4'	1.3'	NONE
030	TREE	469.1'	468.3'	0.8'	TRIM/REMOVE
041	TREE	475.9'	473.8'	2.1'	TRIM/REMOVE
054	TREE	480.1'	478.6'	1.5'	TRIM/REMOVE
057	TREE	495.1'	479.1'	16.0'	TRIM/REMOVE
059	TREE	491.6'	479.9'	11.7'	TRIM/REMOVE
064	TREE	486.7'	480.9'	5.8'	TRIM/REMOVE
067	FENCE	483.0'	481.9'	1.1'	LIGHT
074	FENCE	485.2'	483.8'	1.4'	LIGHT
078	FENCE	485.2'	484.5'	0.7'	LIGHT

EXISTING CFR PART 77 TRANSITIONAL SURFACE: RWY 1

LABEL	DESCRIPTION	ELEVATION	SURFACE HEIGHT	PENETRATION	ACTION
001	TREE	523.7'	527.9'	-4.2'	MONITOR
002	TREE	512.8'	519.9'	-7.1'	MONITOR
003	TREE	498.2'	498.0'	0.2'	TRIM/REMOVE
005	TREE	500.3'	493.0'	7.3'	TRIM/REMOVE
006	TREE	508.9'	494.6'	14.3'	TRIM/REMOVE
007	TREE	507.8'	512.2'	-4.4'	MONITOR
008	TREE	507.0'	491.1'	15.9'	TRIM/REMOVE
010	TREE	506.9'	496.3'	10.6'	TRIM/REMOVE
011	TREE	515.5'	524.0'	-8.5'	MONITOR
012	TREE	495.8'	504.7'	-8.9'	MONITOR
013	TREE	492.5'	499.4'	-6.9'	MONITOR
014	TREE	479.6'	489.3'	-9.7'	MONITOR
015	TREE	517.0'	521.7'	-4.7'	MONITOR
016	TREE	488.5'	496.8'	-8.3'	MONITOR
017	TREE	523.7'	531.6'	-7.9'	MONITOR
018	TREE	490.1'	467.4'	22.7'	TRIM/REMOVE
019	TREE	522.7'	528.6'	-5.9'	MONITOR
020	TREE	502.5'	499.6'	2.9'	TRIM/REMOVE
021	TREE	493.3'	480.8'	12.5'	TRIM/REMOVE
022	TREE	508.3'	499.9'	8.4'	TRIM/REMOVE
023	TREE	504.5'	499.1'	5.4'	TRIM/REMOVE
024	TREE	511.3'	502.3'	9.0'	TRIM/REMOVE
031	TREE	496.7'	483.2'	13.5'	TRIM/REMOVE
032	TREE	470.7'	474.6'	-3.9'	MONITOR
033	TREE	498.8'	492.9'	5.9'	TRIM/REMOVE
034	TREE	495.6'	486.6'	9.0'	TRIM/REMOVE
035	TREE	486.9'	486.1'	0.8'	TRIM/REMOVE
036	TREE	501.4'	495.8'	5.6'	TRIM/REMOVE
037	TREE	490.3'	488.5'	1.8'	TRIM/REMOVE
038	TREE	521.3'	512.7'	8.6'	TRIM/REMOVE
039	TREE	486.1'	484.0'	2.1'	TRIM/REMOVE

EXISTING CFR PART 77 TRANSITIONAL SURFACE: RWY 1

LABEL	DESCRIPTION	ELEVATION	SURFACE HEIGHT	PENETRATION	ACTION
040	TREE	516.2'	500.5'	15.7'	TRIM/REMOVE
042	TREE	527.7'	510.6'	17.1'	TRIM/REMOVE
043	TREE	490.8'	479.2'	11.6'	TRIM/REMOVE
044	TREE	529.4'	511.8'	17.6'	TRIM/REMOVE
045	TREE	519.4'	500.8'	18.6'	TRIM/REMOVE
046	TREE	495.3'	480.4'	14.9'	TRIM/REMOVE
047	TREE	531.8'	505.3'	26.5'	TRIM/REMOVE
048	TREE	494.1'	481.9'	12.2'	TRIM/REMOVE
049	TREE	531.0'	503.8'	27.2'	TRIM/REMOVE
050	TREE	492.9'	482.5'	10.4'	TRIM/REMOVE
051	TREE	524.9'	502.4'	22.5'	TRIM/REMOVE
052	TREE	524.0'	511.4'	12.6'	TRIM/REMOVE
053	TREE	506.9'	483.5'	23.4'	TRIM/REMOVE
055	TREE	523.6'	513.7'	9.9'	TRIM/REMOVE
056	TREE	499.4'	491.7'	7.7'	TRIM/REMOVE
058	TREE	516.6'	510.0'	6.6'	TRIM/REMOVE
060	TREE	527.0'	519.3'	7.7'	TRIM/REMOVE
061	TREE	525.3'	511.9'	13.4'	TRIM/REMOVE
062	TREE	492.4'	489.8'	2.6'	TRIM/REMOVE
063	TREE	530.0'	529.8'	0.2'	TRIM/REMOVE
065	TREE	530.5'	518.3'	12.2'	TRIM/REMOVE
066	TREE	526.7'	510.6'	16.1'	TRIM/REMOVE
068	TREE	511.8'	500.0'	11.8'	TRIM/REMOVE
069	TREE	499.6'	483.6'	16.0'	TRIM/REMOVE
070	TREE	536.3'	516.6'	19.7'	TRIM/REMOVE
071	TREE	503.8'	485.9'	17.9'	TRIM/REMOVE
072	TREE	534.9'	533.2'	1.7'	TRIM/REMOVE
073	TREE	526.7'	508.3'	18.4'	TRIM/REMOVE
075	TREE	525.9'	508.9'	17.0'	TRIM/REMOVE
076	TREE	529.9'	518.5'	11.4'	TRIM/REMOVE
077	TREE	507.3'	492.9'	14.3'	TRIM/REMOVE

LEGEND

DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL
RUNWAY SAFETY AREA (RSA)		CFR PART 77 OBSTRUCTIONS	000
RUNWAY OBJECT FREE AREA (ROFA)		CFR PART 77 SURFACE	
RUNWAY PROTECTION ZONE (RPZ)		AIRPORT DESIGN APPROACH SURFACE #5	
OBSTACLE FREE ZONE (OFZ)		AIRPORT DESIGN APPROACH SURFACE #6 (VGS)	
NAVAID CRITICAL AREA			
EXISTING AIRPORT PROPERTY			
EXISTING AIRPORT EASEMENT			
PARCEL BOUNDARY			
GROUND ELEVATION CONTOURS (10')	50		

SCALE
1" = 300' HORIZONTAL
1" = 60' VERTICAL

120
60
0
300
600
FEET

NOTES:
- ALL POSITIONAL DATA REFERENCES NORTH AMERICAN DATUM OF 1983 (NAD83) AND NORTH AMERICAN VERTICAL DATUM 1988 (NAVD88).
- ALL ELEVATIONS SHOWN ARE AMSL.
- AERIAL MAPPING AND IMAGE BY GEOPRO, 2018.
- PROPERTY LINE SOURCED FROM BRSA SURVEY, 2022.
- PARCELS PROVIDED BY THE CITY OF PRESQUE ISLE AND THE TOWN OF MAPLETON, 2021.
- ROAD ELEVATIONS AS INDICATED INCLUDE CONSIDERATION OF VEHICLES PER CFR PART 77. (15' FOR ROAD, 17' FOR INTERSTATE, 23' FOR RAILROAD)
- TREES WITHIN 10' OF SURFACE IDENTIFIED AS OBSTRUCTIONS.
- COMPOSITE GROUND ELEVATION PROFILE LIMITED TO APPROACH SURFACE.
- THIS SHEET DOES NOT SHOW A COMPREHENSIVE OBSTRUCTION REVIEW. OBSTRUCTIONS WERE FILTERED BASED ON THE SCALE OF THE SHEET.

REV	DATE	DESCRIPTION	BY	SPONSOR

McFarland Johnson
239 LITTLETON ROAD, SUITE 1A
WESTFORD, MASSACHUSETTS 01886 www.mjinc.com

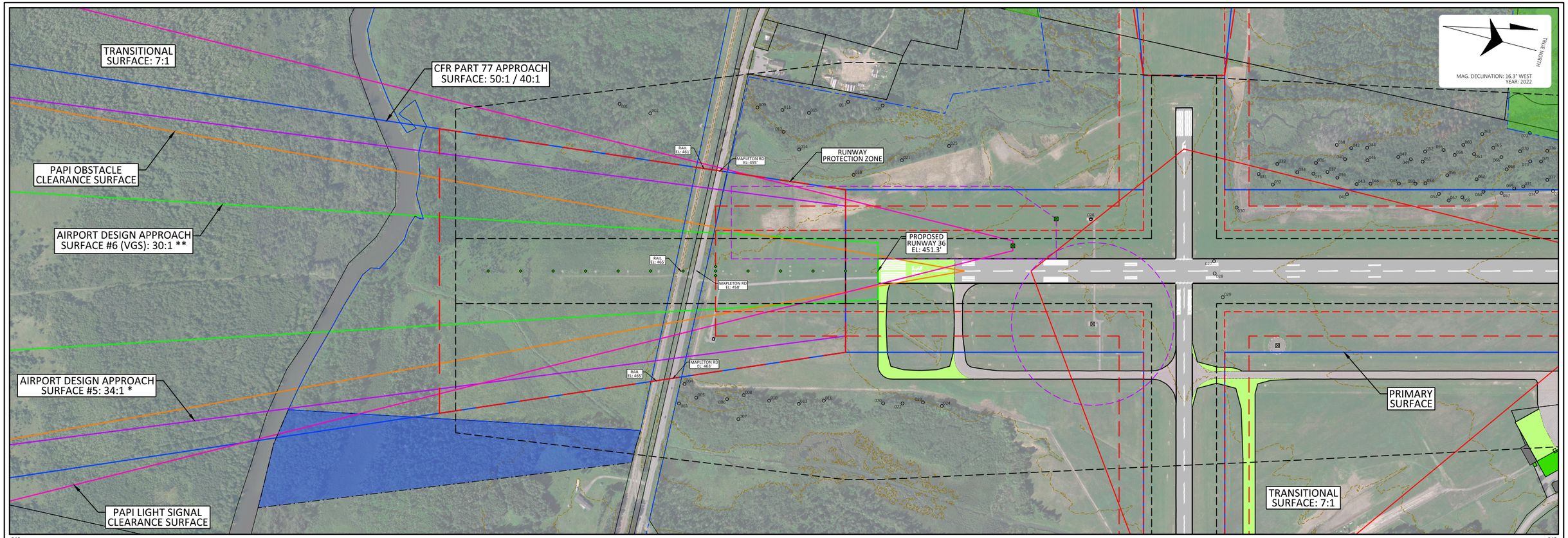
PRESQUE ISLE INTERNATIONAL AIRPORT
AROOSTOOK COUNTY, MAINE

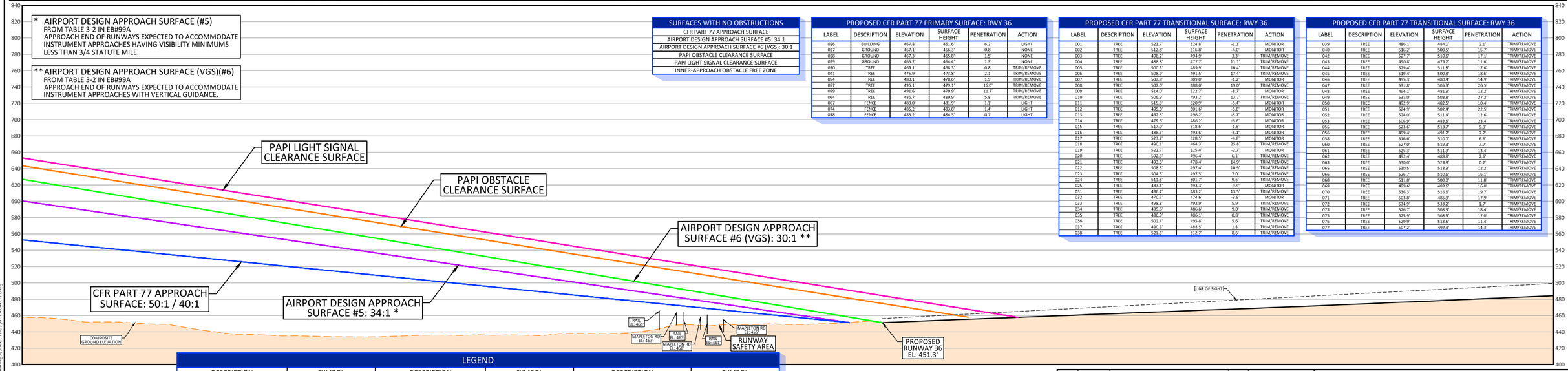
INNER APPROACH PLAN EXISTING RWY 1

SCALE:	1" = 300'	DESIGN:	LFC
DRAWN:	RGT	PROJECT:	18423.00
CHECKED:	ZAS	DATE:	FEBRUARY 2022

SHEET: 7

K:\Presque Isle\T-18423.00 Master Plan\Dcad\Drawings\Sheet Files\APPROACH.dwg





SURFACES WITH NO OBSTRUCTIONS
CFR PART 77 APPROACH SURFACE
AIRPORT DESIGN APPROACH SURFACE #5: 34:1
AIRPORT DESIGN APPROACH SURFACE #6 (VGS): 30:1
PAPI OBSTACLE CLEARANCE SURFACE
PAPI LIGHT SIGNAL CLEARANCE SURFACE
INNER-APPROACH OBSTACLE FREE ZONE

PROPOSED CFR PART 77 PRIMARY SURFACE: RWY 36

LABEL	DESCRIPTION	ELEVATION	SURFACE HEIGHT	PENETRATION	ACTION
026	BUILDING	467.8'	461.6'	6.2'	LIGHT
027	GROUND	467.1'	466.3'	0.8'	NONE
028	GROUND	467.3'	465.8'	1.5'	NONE
029	GROUND	465.7'	464.4'	1.3'	NONE
030	TREE	469.1'	468.3'	0.8'	TRIM/REMOVE
041	TREE	475.9'	473.8'	2.1'	TRIM/REMOVE
054	TREE	480.1'	478.6'	1.5'	TRIM/REMOVE
057	TREE	495.1'	479.1'	16.0'	TRIM/REMOVE
059	TREE	491.6'	479.9'	11.7'	TRIM/REMOVE
064	TREE	486.7'	480.9'	5.8'	TRIM/REMOVE
067	FENCE	483.0'	481.9'	1.1'	LIGHT
074	FENCE	485.2'	483.8'	1.4'	LIGHT
078	FENCE	485.2'	484.5'	0.7'	LIGHT

PROPOSED CFR PART 77 TRANSITIONAL SURFACE: RWY 36

LABEL	DESCRIPTION	ELEVATION	SURFACE HEIGHT	PENETRATION	ACTION
001	TREE	523.7'	524.8'	-1.1'	MONITOR
002	TREE	512.8'	516.8'	-4.0'	MONITOR
003	TREE	498.2'	494.9'	3.3'	TRIM/REMOVE
004	TREE	488.8'	477.7'	11.1'	TRIM/REMOVE
005	TREE	500.3'	489.9'	10.4'	TRIM/REMOVE
006	TREE	508.9'	491.5'	17.4'	TRIM/REMOVE
007	TREE	507.8'	509.0'	-1.2'	MONITOR
008	TREE	507.0'	488.0'	19.0'	TRIM/REMOVE
009	TREE	514.0'	522.7'	-8.7'	MONITOR
010	TREE	506.9'	493.2'	13.7'	TRIM/REMOVE
011	TREE	515.5'	520.9'	-5.4'	MONITOR
012	TREE	495.8'	501.6'	-5.8'	MONITOR
013	TREE	492.5'	496.2'	-3.7'	MONITOR
014	TREE	479.6'	486.2'	-6.6'	MONITOR
015	TREE	517.0'	518.6'	-1.6'	MONITOR
016	TREE	488.5'	493.6'	-5.1'	MONITOR
017	TREE	523.7'	528.5'	-4.8'	MONITOR
018	TREE	490.1'	464.3'	25.8'	TRIM/REMOVE
019	TREE	522.7'	525.4'	-2.7'	MONITOR
020	TREE	502.5'	496.4'	6.1'	TRIM/REMOVE
021	TREE	493.3'	478.4'	14.9'	TRIM/REMOVE
022	TREE	508.3'	497.4'	10.9'	TRIM/REMOVE
023	TREE	504.5'	497.5'	7.0'	TRIM/REMOVE
024	TREE	511.3'	501.7'	9.6'	TRIM/REMOVE
025	TREE	483.4'	493.3'	-9.9'	MONITOR
031	TREE	496.7'	483.2'	13.5'	TRIM/REMOVE
032	TREE	470.7'	474.6'	-3.9'	MONITOR
033	TREE	498.8'	492.9'	5.9'	TRIM/REMOVE
034	TREE	495.6'	486.6'	9.0'	TRIM/REMOVE
035	TREE	486.9'	486.1'	0.8'	TRIM/REMOVE
036	TREE	501.4'	495.8'	5.6'	TRIM/REMOVE
037	TREE	490.3'	488.5'	1.8'	TRIM/REMOVE
038	TREE	521.3'	512.7'	8.6'	TRIM/REMOVE

PROPOSED CFR PART 77 TRANSITIONAL SURFACE: RWY 36

LABEL	DESCRIPTION	ELEVATION	SURFACE HEIGHT	PENETRATION	ACTION
039	TREE	486.1'	484.0'	2.1'	TRIM/REMOVE
040	TREE	516.2'	500.5'	15.7'	TRIM/REMOVE
042	TREE	527.7'	510.6'	17.1'	TRIM/REMOVE
043	TREE	490.8'	479.2'	11.6'	TRIM/REMOVE
044	TREE	529.4'	511.8'	17.6'	TRIM/REMOVE
045	TREE	519.4'	500.8'	18.6'	TRIM/REMOVE
046	TREE	495.3'	480.4'	14.9'	TRIM/REMOVE
047	TREE	531.8'	505.3'	26.5'	TRIM/REMOVE
048	TREE	494.1'	481.9'	12.2'	TRIM/REMOVE
049	TREE	531.0'	503.8'	27.2'	TRIM/REMOVE
050	TREE	492.9'	482.5'	10.4'	TRIM/REMOVE
051	TREE	524.9'	502.4'	22.5'	TRIM/REMOVE
052	TREE	524.0'	511.4'	12.6'	TRIM/REMOVE
053	TREE	506.9'	483.5'	23.4'	TRIM/REMOVE
055	TREE	523.6'	513.7'	9.9'	TRIM/REMOVE
056	TREE	499.4'	491.7'	7.7'	TRIM/REMOVE
058	TREE	516.6'	510.0'	6.6'	TRIM/REMOVE
060	TREE	527.0'	519.3'	7.7'	TRIM/REMOVE
061	TREE	525.3'	511.9'	13.4'	TRIM/REMOVE
062	TREE	492.4'	489.8'	2.6'	TRIM/REMOVE
063	TREE	530.0'	529.8'	0.2'	TRIM/REMOVE
065	TREE	530.5'	518.3'	12.2'	TRIM/REMOVE
066	TREE	526.7'	510.6'	16.1'	TRIM/REMOVE
068	TREE	511.8'	500.0'	11.8'	TRIM/REMOVE
069	TREE	499.6'	483.6'	16.0'	TRIM/REMOVE
070	TREE	536.3'	516.6'	19.7'	TRIM/REMOVE
071	TREE	503.8'	485.9'	17.9'	TRIM/REMOVE
072	TREE	534.9'	533.2'	1.7'	TRIM/REMOVE
073	TREE	526.7'	508.3'	18.4'	TRIM/REMOVE
075	TREE	525.9'	508.9'	17.0'	TRIM/REMOVE
076	TREE	529.9'	518.5'	11.4'	TRIM/REMOVE
077	TREE	507.2'	492.9'	14.3'	TRIM/REMOVE

LEGEND

DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL
RUNWAY SAFETY AREA (RSA)		PROPOSED AIRPORT PAVEMENT		CFR PART 77 OBSTRUCTIONS	000
RUNWAY OBJECT FREE AREA (ROFA)		FUTURE AIRPORT PAVEMENT (>20 YRS)		CFR PART 77 SURFACE	
RUNWAY PROTECTION ZONE (RPZ)		PROPOSED GROUND VEHICLE PAVEMENT		AIRPORT DESIGN APPROACH SURFACE #5	
OBSTACLE FREE ZONE (OFZ)		PROPOSED AIRPORT BUILDINGS		AIRPORT DESIGN APPROACH SURFACE #6 (VGS)	
NAVAID CRITICAL AREA		FUTURE AIRPORT BUILDING (>20 YRS)		PAPI OBSTACLE CLEARANCE SURFACE	
EXISTING AIRPORT PROPERTY		TO BE REMOVED		PAPI LIGHT SIGNAL CLEARANCE SURFACE	
EXISTING AIRPORT EASEMENT		AIRPORT EASEMENT/PROPERTY ACQUISITION IF AVAILABLE			
PARCEL BOUNDARY					
GROUND ELEVATION CONTOURS (10')	50				

SCALE
1" = 300' HORIZONTAL
1" = 60' VERTICAL
120
60
0
300
600
FEET

NOTES:
- ALL POSITIONAL DATA REFERENCES NORTH AMERICAN DATUM OF 1983 (NAD83) AND NORTH AMERICAN VERTICAL DATUM 1988 (NAVD88).
- ALL ELEVATIONS SHOWN ARE AMSL.
- AERIAL MAPPING AND IMAGE BY GEOPRO, 2018.
- PROPERTY LINE SOURCED FROM BRSA SURVEY, 2022.
- PARCELS PROVIDED BY THE CITY OF PRESQUE ISLE AND THE TOWN OF MAPLETON, 2021.
- ROAD ELEVATIONS AS INDICATED INCLUDE CONSIDERATION OF VEHICLES PER CFR PART 77. (15' FOR ROAD, 17' FOR INTERSTATE, 23' FOR RAILROAD)
- TREES WITHIN 10' OF SURFACE IDENTIFIED AS OBSTRUCTIONS.
- COMPOSITE GROUND ELEVATION PROFILE LIMITED TO APPROACH SURFACE.
- THIS SHEET DOES NOT SHOW A COMPREHENSIVE OBSTRUCTION REVIEW. OBSTRUCTIONS WERE FILTERED BASED ON THE SCALE OF THE SHEET.

REV	DATE	DESCRIPTION	BY	SPONSOR

McFarland Johnson
239 LITTLETON ROAD, SUITE 1A
WESTFORD, MASSACHUSETTS 01886 www.mjinc.com

PRESQUE ISLE INTERNATIONAL AIRPORT
AROOSTOOK COUNTY, MAINE

INNER APPROACH PLAN PROPOSED RWY 36

SCALE:	1" = 300'	DESIGN:	LFC
DRAWN:	RGT	PROJECT:	18423.00
CHECKED:	ZAS	DATE:	FEBRUARY 2022

SHEET: 8

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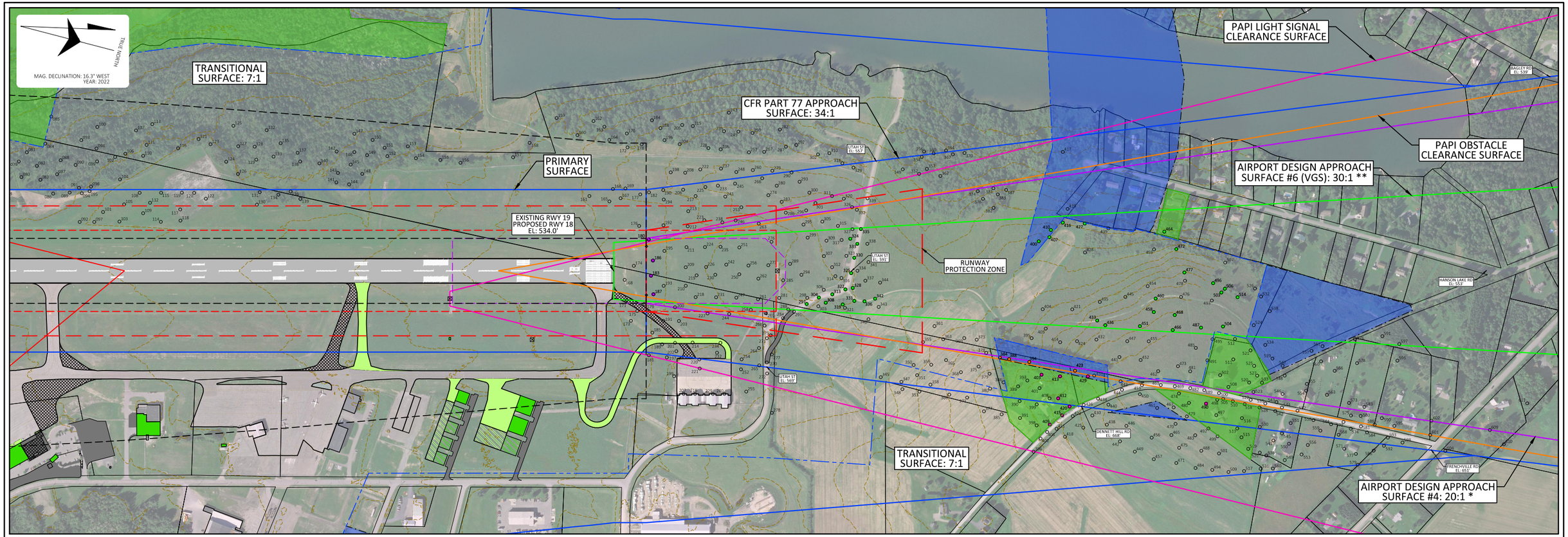

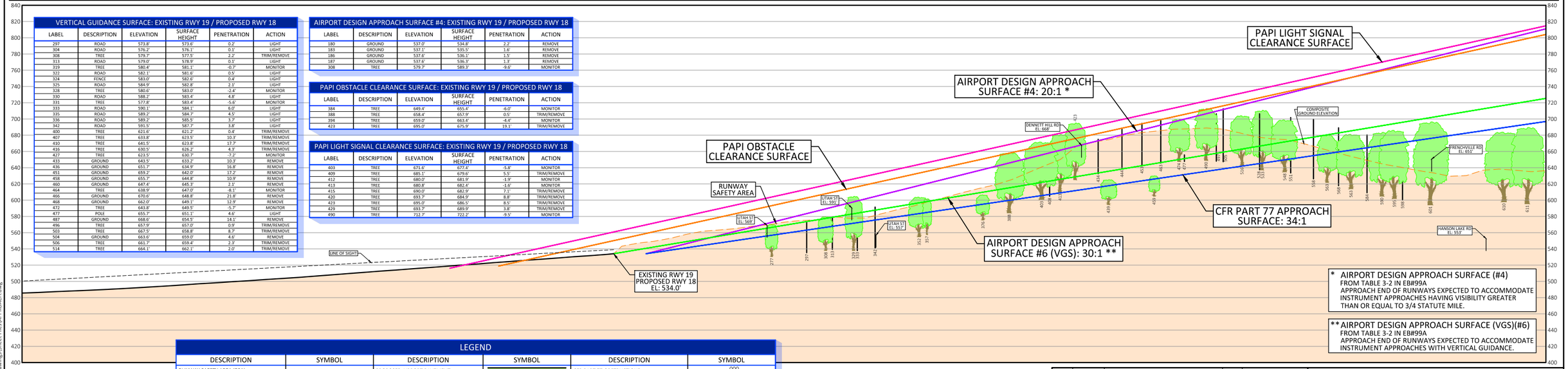

VERTICAL GUIDANCE SURFACE: EXISTING RWY 19 / PROPOSED RWY 18

LABEL	DESCRIPTION	ELEVATION	SURFACE HEIGHT	PENETRATION	ACTION
297	ROAD	573.8'	573.6'	0.2'	LIGHT
304	ROAD	576.2'	576.1'	0.1'	LIGHT
308	TREE	579.7'	577.5'	2.2'	TRIM/REMOVE
313	ROAD	579.0'	578.9'	0.1'	LIGHT
319	TREE	580.4'	581.1'	-0.7'	MONITOR
322	ROAD	582.1'	581.6'	0.5'	LIGHT
324	FENCE	583.0'	582.6'	0.4'	LIGHT
325	ROAD	584.9'	582.8'	2.1'	LIGHT
328	TREE	580.6'	583.0'	-2.4'	MONITOR
330	ROAD	588.2'	583.4'	4.8'	LIGHT
331	TREE	577.8'	583.4'	-5.6'	MONITOR
333	ROAD	590.1'	584.1'	6.0'	LIGHT
335	ROAD	589.2'	584.7'	4.5'	LIGHT
336	ROAD	589.2'	585.5'	3.7'	LIGHT
342	ROAD	591.5'	587.7'	3.8'	LIGHT
400	TREE	631.6'	621.2'	0.4'	TRIM/REMOVE
407	TREE	633.8'	623.5'	10.3'	TRIM/REMOVE
410	TREE	641.5'	623.8'	17.7'	TRIM/REMOVE
416	TREE	630.5'	626.2'	4.3'	TRIM/REMOVE
427	TREE	623.5'	630.7'	-7.2'	MONITOR
433	GROUND	643.5'	633.2'	10.3'	REMOVE
436	GROUND	651.7'	634.9'	16.8'	REMOVE
451	GROUND	659.2'	642.0'	17.2'	REMOVE
458	GROUND	655.7'	644.8'	10.9'	REMOVE
460	GROUND	647.4'	645.3'	2.1'	REMOVE
464	TREE	638.9'	647.0'	-8.1'	MONITOR
466	GROUND	670.6'	648.8'	21.8'	REMOVE
468	GROUND	662.0'	649.1'	12.9'	REMOVE
472	TREE	643.8'	649.5'	-5.7'	MONITOR
477	POLE	655.7'	651.1'	4.6'	LIGHT
487	GROUND	668.6'	654.5'	14.1'	REMOVE
496	TREE	657.9'	657.0'	0.9'	TRIM/REMOVE
503	TREE	667.5'	658.8'	8.7'	TRIM/REMOVE
504	GROUND	663.6'	659.0'	4.6'	REMOVE
506	TREE	661.7'	659.4'	2.3'	TRIM/REMOVE
514	TREE	664.1'	662.1'	2.0'	TRIM/REMOVE

AIRPORT DESIGN APPROACH SURFACE #4: EXISTING RWY 19 / PROPOSED RWY 18

LABEL	DESCRIPTION	ELEVATION	SURFACE HEIGHT	PENETRATION	ACTION
180	GROUND	537.0'	534.8'	2.2'	REMOVE
183	GROUND	537.1'	535.5'	1.6'	REMOVE
186	GROUND	537.6'	536.1'	1.5'	REMOVE
187	GROUND	537.6'	536.3'	1.3'	REMOVE
308	TREE	579.7'	589.3'	-9.6'	MONITOR

PAPI OBSTACLE CLEARANCE SURFACE: EXISTING RWY 19 / PROPOSED RWY 18

LABEL	DESCRIPTION	ELEVATION	SURFACE HEIGHT	PENETRATION	ACTION
384	TREE	649.4'	655.4'	-6.0'	MONITOR
388	TREE	658.4'	657.9'	0.5'	TRIM/REMOVE
394	TREE	659.0'	663.4'	-4.4'	MONITOR
423	TREE	695.0'	675.9'	19.1'	TRIM/REMOVE

PAPI LIGHT SIGNAL CLEARANCE SURFACE: EXISTING RWY 19 / PROPOSED RWY 18

LABEL	DESCRIPTION	ELEVATION	SURFACE HEIGHT	PENETRATION	ACTION
403	TREE	671.6'	677.4'	-5.8'	MONITOR
409	TREE	685.1'	679.6'	5.5'	TRIM/REMOVE
412	TREE	680.0'	681.9'	-1.9'	MONITOR
413	TREE	680.8'	682.4'	-1.6'	MONITOR
415	TREE	690.0'	682.9'	7.1'	TRIM/REMOVE
420	TREE	693.7'	684.9'	8.8'	TRIM/REMOVE
423	TREE	695.0'	686.5'	8.5'	TRIM/REMOVE
429	TREE	693.7'	689.9'	3.8'	TRIM/REMOVE
490	TREE	712.7'	722.2'	-9.5'	MONITOR

LEGEND

DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL
RUNWAY SAFETY AREA (RSA)		PROPOSED AIRPORT PAVEMENT		CFR PART 77 OBSTRUCTIONS	000
RUNWAY OBJECT FREE AREA (ROFA)		FUTURE AIRPORT PAVEMENT (>20 YRS)		ADAS #4 OBSTRUCTIONS	000
RUNWAY PROTECTION ZONE (RPZ)		PROPOSED GROUND VEHICLE PAVEMENT		ADAS #6 OBSTRUCTIONS	000
OBSTACLE FREE ZONE (OFZ)		PROPOSED AIRPORT BUILDINGS		PAPI OCS OBSTRUCTIONS	000
NAVAID CRITICAL AREA		FUTURE AIRPORT BUILDING (>20 YRS)		PAPI LSCS OBSTRUCTIONS	000
EXISTING AIRPORT PROPERTY		TO BE REMOVED		CFR PART 77 SURFACE	
EXISTING AIRPORT EASEMENT		AIRPORT EASEMENT/PROPERTY ACQUISITION IF AVAILABLE		AIRPORT DESIGN APPROACH SURFACE #4	
PARCEL BOUNDARY				AIRPORT DESIGN APPROACH SURFACE #6 (VGS)	
GROUND ELEVATION CONTOURS (10')	50			PAPI OBSTACLE CLEARANCE SURFACE	
				PAPI LIGHT SIGNAL CLEARANCE SURFACE	

SCALE
1" = 300' HORIZONTAL
1" = 60' VERTICAL

0 300 600 FEET
120 60

* AIRPORT DESIGN APPROACH SURFACE (#4)
FROM TABLE 3-2 IN EB#99A
APPROACH END OF RUNWAYS EXPECTED TO ACCOMMODATE INSTRUMENT APPROACHES HAVING VISIBILITY GREATER THAN OR EQUAL TO 3/4 STATUTE MILE.

** AIRPORT DESIGN APPROACH SURFACE (VGS)(#6)
FROM TABLE 3-2 IN EB#99A
APPROACH END OF RUNWAYS EXPECTED TO ACCOMMODATE INSTRUMENT APPROACHES WITH VERTICAL GUIDANCE.

NOTES:
- ALL POSITIONAL DATA REFERENCES NORTH AMERICAN DATUM OF 1983 (NAD83) AND NORTH AMERICAN VERTICAL DATUM 1988 (NAVD88).
- ALL ELEVATIONS SHOWN ARE AMSL.
- AERIAL MAPPING AND IMAGE BY GEOPRO, 2018.
- PROPERTY LINE SOURCED FROM BRSA SURVEY, 2022.
- PARCELS PROVIDED BY THE CITY OF PRESQUE ISLE AND THE TOWN OF MAPLETON, 2021.
- ROAD ELEVATIONS AS INDICATED INCLUDE CONSIDERATION OF VEHICLES PER CFR PART 77. (15' FOR ROAD, 17' FOR INTERSTATE, 23' FOR RAILROAD)
- TREES WITHIN 10' OF SURFACE IDENTIFIED AS OBSTRUCTIONS.
- COMPOSITE GROUND ELEVATION PROFILE LIMITED TO APPROACH SURFACE.
- THIS SHEET DOES NOT SHOW A COMPREHENSIVE OBSTRUCTION REVIEW. OBSTRUCTIONS WERE FILTERED BASED ON THE SCALE OF THE SHEET.

REV	DATE	DESCRIPTION	BY	SPONSOR

McFarland Johnson
239 LITTLETON ROAD, SUITE 1A
WESTFORD, MASSACHUSETTS 01886 www.mjinc.com

PRESQUE ISLE INTERNATIONAL AIRPORT
AROOSTOOK COUNTY, MAINE

INNER APPROACH PLAN
EXISTING RWY 19/PROPOSED RWY 18

SCALE:	1" = 300'	DESIGN:	LFC
DRAWN:	RGT	PROJECT:	18423.00
CHECKED:	ZAS	DATE:	FEBRUARY 2022

SHEET: 9

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CFR PART 77 APPROACH SURFACE: EXISTING RWY 19 / PROPOSED RWY 18

LABEL	DESCRIPTION	ELEVATION	SURFACE HEIGHT	PENETRATION	ACTION
180	GROUND	537.0'	534.5'	2.5'	NONE
182	GROUND	547.3'	534.5'	12.8'	NONE
183	GROUND	537.1'	534.9'	2.2'	NONE
185	GROUND	540.3'	535.2'	5.1'	NONE
186	GROUND	537.6'	535.3'	2.3'	NONE
187	GROUND	537.6'	535.4'	2.2'	NONE
189	GROUND	544.0'	537.0'	7.0'	NONE
190	GROUND	550.5'	537.1'	13.4'	NONE
191	GROUND	542.5'	537.1'	5.4'	NONE
192	GROUND	540.0'	537.2'	2.8'	NONE
193	GROUND	539.2'	537.1'	2.1'	NONE
194	GROUND	544.1'	537.2'	6.9'	NONE
195	GROUND	539.5'	537.3'	2.2'	NONE
200	GROUND	542.3'	539.2'	3.1'	NONE
201	GROUND	546.9'	539.3'	7.6'	NONE
202	GROUND	548.4'	539.4'	9.0'	NONE
203	GROUND	543.4'	540.0'	3.4'	NONE
206	GROUND	553.8'	540.7'	13.1'	NONE
209	GROUND	545.0'	541.2'	3.8'	NONE
210	GROUND	544.7'	541.2'	3.5'	NONE
211	GROUND	544.3'	541.3'	3.0'	NONE
212	GROUND	546.1'	541.5'	4.6'	NONE
213	GROUND	546.3'	541.6'	4.7'	NONE
214	GROUND	548.5'	542.4'	6.1'	NONE
217	GROUND	542.3'	543.0'	9.3'	NONE
218	GROUND	546.1'	542.9'	3.2'	NONE
219	GROUND	548.1'	543.2'	4.9'	NONE
223	GROUND	552.0'	544.5'	7.5'	NONE
224	GROUND	548.0'	544.7'	3.3'	NONE
225	GROUND	560.8'	544.7'	16.1'	NONE
226	GROUND	550.1'	544.9'	5.2'	NONE
227	GROUND	546.2'	545.1'	1.1'	NONE
230	GROUND	551.6'	546.5'	5.1'	NONE
231	GROUND	549.5'	546.6'	2.9'	NONE
232	GROUND	551.5'	546.9'	4.6'	NONE
233	GROUND	562.7'	547.0'	15.7'	NONE
234	GROUND	549.5'	547.5'	2.0'	NONE
235	GROUND	550.7'	547.5'	3.2'	NONE
238	GROUND	553.5'	547.8'	5.7'	NONE
241	GROUND	558.3'	548.3'	10.0'	NONE
242	GROUND	553.0'	548.5'	4.5'	NONE
244	GROUND	549.4'	549.1'	0.3'	NONE
245	GROUND	564.3'	550.1'	14.2'	NONE
246	GROUND	556.4'	550.3'	6.1'	NONE
247	GROUND	552.3'	550.4'	1.9'	NONE
250	GROUND	554.7'	550.9'	3.8'	NONE
251	GROUND	553.0'	550.9'	2.1'	NONE
253	GROUND	562.9'	551.3'	11.6'	NONE
254	GROUND	552.0'	551.4'	0.6'	NONE
256	GROUND	556.2'	552.6'	3.6'	NONE
258	GROUND	553.0'	552.9'	0.1'	NONE
261	GROUND	555.0'	554.3'	0.7'	NONE
262	GROUND	556.8'	554.4'	2.4'	NONE
263	GROUND	556.9'	554.4'	2.5'	NONE
264	FENCE	554.9'	554.5'	0.4'	LIGHT
265	FENCE	558.7'	554.5'	4.2'	LIGHT
266	GROUND	563.5'	555.0'	8.5'	NONE
268	FENCE	558.0'	555.4'	2.6'	LIGHT
269	BUILDING	567.2'	555.6'	11.6'	LIGHT
270	ROAD	568.8'	555.8'	13.0'	LIGHT
271	ROAD	565.4'	555.9'	9.5'	LIGHT
273	GROUND	558.3'	556.1'	2.2'	NONE
274	GROUND	568.1'	556.2'	11.9'	NONE
275	TREE	566.5'	556.6'	9.9'	TRIM/REMOVE
276	GROUND	557.0'	556.7'	0.3'	NONE
277	TREE	570.1'	556.8'	13.3'	TRIM/REMOVE
280	GROUND	565.9'	557.6'	8.3'	NONE
281	GROUND	558.4'	558.1'	0.3'	NONE
283	GROUND	570.5'	558.6'	11.9'	NONE
284	ROAD	569.1'	558.8'	10.3'	LIGHT
285	GROUND	560.2'	558.8'	1.4'	NONE
286	GROUND	568.5'	559.3'	9.2'	NONE
288	FENCE	562.8'	559.8'	3.0'	LIGHT
289	GROUND	561.4'	560.1'	1.3'	NONE
290	GROUND	561.5'	560.4'	1.1'	NONE
291	ROAD	571.1'	560.7'	10.4'	LIGHT
293	GROUND	564.5'	561.8'	2.7'	NONE

CFR PART 77 APPROACH SURFACE: EXISTING RWY 19 / PROPOSED RWY 18

LABEL	DESCRIPTION	ELEVATION	SURFACE HEIGHT	PENETRATION	ACTION
294	GROUND	563.2'	562.2'	1.0'	NONE
295	GROUND	568.3'	562.6'	5.7'	NONE
296	GROUND	574.7'	563.0'	11.7'	NONE
297	ROAD	573.8'	563.1'	10.7'	LIGHT
298	FENCE	567.3'	563.2'	4.1'	LIGHT
299	GROUND	564.5'	563.2'	1.3'	NONE
300	GROUND	569.5'	563.6'	5.9'	NONE
301	GROUND	574.6'	564.7'	9.9'	NONE
303	GROUND	566.8'	565.2'	1.6'	NONE
304	ROAD	576.2'	565.3'	10.9'	LIGHT
305	GROUND	574.6'	566.0'	8.6'	NONE
306	FENCE	569.7'	566.1'	3.6'	LIGHT
307	GROUND	571.1'	566.2'	4.9'	NONE
308	TREE	579.7'	566.5'	13.2'	TRIM/REMOVE
309	GROUND	572.9'	566.6'	6.3'	NONE
311	GROUND	570.3'	567.6'	2.7'	NONE
312	GROUND	571.6'	567.7'	3.9'	NONE
313	ROAD	579.0'	567.8'	11.2'	LIGHT
314	GROUND	571.0'	568.3'	2.7'	NONE
315	GROUND	578.9'	568.8'	10.1'	NONE
316	FENCE	577.5'	569.4'	8.1'	LIGHT
317	GROUND	578.4'	569.4'	9.0'	NONE
319	TREE	580.4'	569.6'	10.8'	TRIM/REMOVE
320	GROUND	571.5'	569.8'	1.7'	NONE
321	GROUND	571.1'	570.0'	1.1'	NONE
322	ROAD	582.1'	570.1'	12.0'	LIGHT
323	FENCE	576.9'	570.2'	6.7'	LIGHT
324	FENCE	583.0'	571.0'	12.0'	LIGHT
325	ROAD	584.9'	571.1'	13.8'	LIGHT
326	GROUND	572.9'	571.3'	1.6'	NONE
327	FENCE	582.4'	571.4'	11.0'	LIGHT
328	TREE	580.6'	571.4'	9.2'	TRIM/REMOVE
329	TREE	604.8'	571.6'	33.2'	TRIM/REMOVE
330	ROAD	588.2'	571.7'	16.5'	LIGHT
331	TREE	577.8'	571.7'	6.1'	TRIM/REMOVE
332	FENCE	576.7'	572.1'	4.6'	LIGHT
333	ROAD	590.1'	572.3'	17.8'	LIGHT
334	GROUND	578.0'	572.3'	5.7'	NONE
335	ROAD	589.2'	572.9'	16.3'	LIGHT
336	ROAD	589.2'	573.5'	15.7'	LIGHT
337	GROUND	577.5'	573.7'	3.8'	NONE
338	GROUND	576.9'	574.0'	2.9'	NONE
339	ROAD	577.8'	574.1'	3.7'	LIGHT
340	GROUND	574.4'	574.3'	0.1'	NONE
341	GROUND	576.8'	574.2'	2.6'	NONE
342	ROAD	591.5'	575.5'	16.0'	LIGHT
343	GROUND	576.5'	576.1'	0.4'	NONE
344	GROUND	578.7'	576.4'	2.3'	NONE
345	GROUND	576.9'	576.5'	0.4'	NONE
347	GROUND	585.8'	580.2'	5.6'	NONE
349	TREE	601.4'	580.5'	20.9'	TRIM/REMOVE
350	GROUND	585.9'	582.4'	3.5'	NONE
351	GROUND	589.6'	583.1'	6.5'	NONE
352	TREE	603.7'	583.4'	20.3'	TRIM/REMOVE
354	TREE	602.9'	583.9'	19.0'	TRIM/REMOVE
355	GROUND	586.6'	584.1'	2.5'	NONE
357	TREE	601.7'	584.9'	16.8'	TRIM/REMOVE
358	GROUND	593.6'	585.5'	8.1'	NONE
359	GROUND	592.1'	585.6'	6.5'	NONE
361	GROUND	586.6'	586.2'	0.4'	NONE
362	TREE	599.8'	587.3'	12.5'	TRIM/REMOVE
363	GROUND	591.2'	587.8'	3.4'	NONE
365	GROUND	597.0'	588.3'	8.7'	NONE
367	TREE	594.2'	589.5'	4.7'	TRIM/REMOVE
368	GROUND	593.0'	591.0'	12.4'	NONE
369	GROUND	594.8'	591.6'	3.2'	NONE
370	TREE	593.4'	591.7'	1.7'	TRIM/REMOVE
373	GROUND	595.4'	593.9'	1.5'	NONE
374	TREE	595.4'	594.0'	1.4'	TRIM/REMOVE
375	GROUND	608.1'	594.2'	13.9'	NONE
376	TREE	606.4'	595.0'	11.4'	TRIM/REMOVE
378	GROUND	600.8'	595.6'	5.2'	NONE
379	GROUND	611.5'	596.2'	15.3'	NONE
380	GROUND	615.3'	596.3'	19.0'	NONE
381	TREE	613.7'	596.9'	16.8'	TRIM/REMOVE
382	TREE	610.1'	596.9'	13.2'	TRIM/REMOVE
383	TREE	620.1'	597.7'	22.4'	TRIM/REMOVE

CFR PART 77 APPROACH SURFACE: EXISTING RWY 19 / PROPOSED RWY 18

LABEL	DESCRIPTION	ELEVATION	SURFACE HEIGHT	PENETRATION	ACTION
384	TREE	649.4'	598.1'	51.3'	TRIM/REMOVE
386	TREE	647.1'	598.7'	48.4'	TRIM/REMOVE
387	TREE	606.7'	599.2'	7.5'	TRIM/REMOVE
388	TREE	658.4'	599.8'	58.6'	TRIM/REMOVE
389	TREE	659.1'	601.3'	57.8'	TRIM/REMOVE
393	GROUND	628.5'	603.0'	25.5'	NONE
394	TREE	659.0'	603.4'	55.6'	TRIM/REMOVE
395	GROUND	611.9'	603.8'	8.1'	NONE
400	TREE	621.6'	605.1'	16.5'	TRIM/REMOVE
401	TREE	652.5'	605.3'	52.2'	TRIM/REMOVE
403	TREE	671.6'	605.6'	66.0'	TRIM/REMOVE
404	GROUND	607.0'	605.8'	1.2'	NONE
405	GROUND	620.5'	606.3'	14.2'	NONE
407	TREE	633.8'	607.1'	26.7'	TRIM/REMOVE
408	BUILDING	669.9'	607.1'	62.8'	LIGHT
410	TREE	641.5'	607.3'	34.2'	TRIM/REMOVE
412	TREE	680.0'	608.6'	71.4'	TRIM/REMOVE
413	TREE	680.8'	608.9'	71.9'	TRIM/REMOVE
414	GROUND	636.2'	609.0'	27.2'	NONE
416	TREE	630.5'	609.5'	21.0'	TRIM/REMOVE
417	TREE	610.4'	609.5'	0.9'	TRIM/REMOVE
419	TREE	624.9'	610.3'	14.6'	TRIM/REMOVE
421	GROUND	617.6'	611.2'	6.4'	NONE
423	TREE	695.0'	611.7'	83.3'	TRIM/REMOVE
424	GROUND	643.9'	612.1'	31.8'	NONE
426	GROUND	652.2'	613.2'	39.0'	NONE
427	TREE	623.5'	613.4'	10.1'	TRIM/REMOVE
428	TREE	614.1'	613.5'	0.6'	TRIM/REMOVE
429	TREE	693.7'	614.0'	79.7'	TRIM/REMOVE
431	GROUND	665.9'	615.1'	50.8'	NONE
432	GROUND	655.3'	615.5'	39.8'	NONE
433	GROUND	643.5'	615.7'	27.8'	NONE
434	ROAD	675.0'	615.8'	59.2'	LIGHT
435	GROUND	623.9'	616.1'	7.8'	NONE
436	GROUND	651.7'	617.2'	34.5'	NONE
439	TREE	625.2'	617.8'	7.4'	TRIM/REMOVE
440	GROUND	662.7'	617.8'	44.9'	NONE
441	GROUND	669.6'	619.7'	49.9'	NONE
443	GROUND	675.3'	620.0'	55.3'	NONE
444	ROAD	688.7'	620.2'	68.5'	LIGHT
445	GROUND	630.0'	620.7'	9.3'	NONE
447	GROUND	663.8'	621.1'	42.7'	NONE
450	GROUND	678.3'	623.5'	54.8'	NONE
451	GROUND	659.2'	623.4'	35.8'	NONE
452	GROUND	673.5'	623.5'	50.0'	NONE
453	ROAD	694.6'	623.8'	70.8'	LIGHT
454	GROUND	634.0'	624.8'	9.2'	NONE
455	GROUND	669.0'	625.0'	44.0'	NONE
458	GROUND	655.7'	625.9'	29.8'	NONE
459	TREE	629.9'	626.0'	3.9'	TRIM/REMOVE
460	GROUND	647.4'	626.3'	21.1'	NONE
461	GROUND	678.5'	626.6'	51.9'	NONE
462	GROUND	683.0'	626.7'	56.3'	NONE
463	ROAD	699.1'	627.2'	71.9'	LIGHT
464	TREE	638.9'	627.8'	11.1'	TRIM/REMOVE
466	GROUND	670.6'	629.4'	41.2'	NONE
467	GROUND	681.7'	629.5'	52.2'	NONE
468	GROUND	662.0'	629.7'	32.3'	NONE
469	GROUND	685.6'	629.8'	55.8'	NONE
472	TREE	643.8'	630.0'	13.8'	TRIM/REMOVE
473	GROUND	685.2'	630.3'	54.9'	NONE
474	TREE	699.5'	630.4'	69.1'	TRIM/REMOVE
476	GROUND	648.4'	630.9'	17.5'	NONE
477	POLE	655.7'	631.4'	24.3'	LIGHT
478	GROUND	638.1'	631.6'	6.5'	NONE
479	GROUND	683.3'	632.0'	51.3'	NONE
480	TREE	693.0'	632.3'	60.7'	TRIM/REMOVE
481	GROUND	686.6'	632.6'	54.0'	NONE
482	ROAD	702.8'	632.6'	70.2'	LIGHT
485	POLE	701.2'	633.5'	67.7'	LIGHT
487	GROUND	668.6'	634.5'	34.1'	NONE
489	ROAD	702.9'	635.1'	67.8'	LIGHT
490	TREE	712.7'	635.4'	77.3'	TRIM/REMOVE
491	POLE	687.6'	635.6'	52.0'	LIGHT
493	GROUND	651.3'	636.4'	14.9'	NONE
495	GROUND	671.1'	636.5'	34.6'	NONE
496	TREE	657.9'	636.7'	21.2'	TRIM/REMOVE

CFR PART 77 APPROACH SURFACE: EXISTING RWY 19 / PROPOSED RWY 18

LABEL	DESCRIPTION	ELEVATION	SURFACE HEIGHT	PENETRATION	ACTION
497	BUILDING	706.3'	637.2'	69.1'	LIGHT
498	TREE	703.3'	637.4'	65.9'	TRIM/REMOVE
500	GROUND	684.1'	637.8'	46.3'	NONE
502	BUILDING	701.0'	637.9'	63.1'	LIGHT
503	TREE	667.5'	638.2'	29.3'	TRIM/REMOVE
504	GROUND	663.6'	638.4'	25.2'	NONE
505	POLE	712.5'	638.5'	74.0'	LIGHT
506	TREE	661.7'	638.8'	22.9'	TRIM/REMOVE
507	TREE	643.7'	638.8'	4.9'	TRIM/REMOVE
508	POLE	705.5'	639.4'	66.1'	LIGHT
510	POWER LINE	710.2'	640.3'	69.9'	LIGHT
511	GROUND	669.6'	640.3'	29.3'	NONE
512	GROUND	663.1'	640.7'	22.4'	NONE
514	TREE	664.1'	641.1'	23.0'	TRIM/REMOVE
516	TREE	703.9'	641.9'	62.0'	TRIM/REMOVE
518	POLE	710.5'	642.4'	68.1'	LIGHT
520	TREE	676.4'	643.2'	33.2'	TRIM/REMOVE
521	TREE	663.5'	643.5'	20.0'	TRIM/REMOVE
522	ROAD	689.1'	643.4'	45.7'	LIGHT
523	TREE	688.6'	643.9'	44.7'	TRIM/REMOVE
524	GROUND	645.9'	644.0'	1.9'	NONE
525	BUILDING	666.3'	644.1'	22.2'	LIGHT
526	TREE	647.9'	644.3'	3.6'	TRIM/REMOVE
527	BUILDING	667.4'	644.7'	22.7'	LIGHT
528	POWER LINE	706.3'	645.1'	61.2'	LIGHT
530	TREE	701.1'	645.2'	55.9'	TRIM/REMOVE
532	TREE	649.8'	645.3'	4.5'	TRIM/REMOVE
533	TREE	710.6'	645.5'	65.1'	TRIM/REMOVE
534	VEGETATION	650.1'	646.1'	4.0'	TRIM/REMOVE
535	ROAD	702.3'	646.1'	39.5'	LIGHT
538	TREE	647.0'	646.9'	0.1'	TRIM/REMOVE
539	TREE	666.6'	647.4'	19.2'	TRIM/REMOVE
542	POLE	705.3'	647.9'	57.4'	LIGHT
543	POLE	688.7'	648.2'	40.5'	LIGHT
544	GROUND	669.5'	649.2'	20.3'	NONE
546	BUILDING	676.8'	649.2'	27.6'	LIGHT
547	TREE	667.6'	649.3'	18.3'	TRIM/REMOVE
548	TREE	698.7'	649.6'	49.1'	TRIM/REMOVE
551	BUILDING	701.7'	650.7'	51.0'	LIGHT
552	ROAD	681.7'	652.0'	29.7'	LIGHT
554	BUILDING	688.0'	653.6'	34.4'	LIGHT
555	TREE	671.8'	653.7'	18.1'	TRIM/REMOVE
557	TREE	658.0'	654.4'	3.6'	TRIM/REMOVE
558	POLE	699.6'	654.8'	44.8'	LIGHT
559	GROUND	664.9'	656.1'	8.8'	NONE
560	TREE	669.1'	656.2'	12.9'	TRIM/REMOVE
561	TREE	646.6'	656.4'	-9.8'	MONITOR
563	TREE	680.3'	657.2'	23.0'	TRIM/REMOVE
564	POWER LINE	689.2'	658.0'	31.2'	LIGHT
566	TREE	653.3'	658.7'	-5.4'	MONITOR
568	BUILDING	689.1'	659.4'	29.7'	LIGHT
570	ROAD	668.5'	660.2'	8.3'	LIGHT
573	TREE	669.0'	661.3'	7.7'	TRIM/REMOVE
574	POLE	687.1'	661.6'	25.5'	LIGHT
575	TREE	681.1'	661.6'	19.5'	TRIM/REMOVE
576	TREE	663.7'	662.3'	1.4'	TRIM/REMOVE
578	TREE	660.0'	662.7'	-2.7'	MONITOR
580	TREE	673.5'	663.4'	10.1'	TRIM/REMOVE
581	ROAD	663.5'	663.4'	0.1'	LIGHT
583	BUILDING	671.2'	664.1'	7.1'	LIGHT
584	POWER LINE	680.3'	664.5'	15.8'	LIGHT
588	POLE	668.8'	665.9'	2.9'	LIGHT
590	TREE	683.5'	667.2'	16.3'	TRIM/REMOVE
591	TREE	671.6'	667.4'	4.2'	TRIM/REMOVE
593	POLE	678.3'	668.3'	10.0'	LIGHT
595	TREE	685.9'	669.5'	16.4'	TRIM/REMOVE
596	TREE	671.4'	670.1'	1.3'	TRIM/REMOVE
597	TREE	676.7'	670.4'	6.3'	TRIM/REMOVE
598	POWER LINE	672.6'	671.0'	1.6'	LIGHT
601	TREE	696.3'	676.0'	20.3'	TRIM/REMOVE
602	TREE	690.2'	676.2'	14.0'	TRIM/REMOVE
604	TREE	680.9'	678.7'	2.2'	TRIM/REMOVE
609	TREE	680.2'	680.9'	-0.9'	MONITOR
610	TREE	683.8'	689.4'	-5.6'	MONITOR
611	TREE	689.5'	693.6'	-4.1'	MONITOR

CFR PART 77 PRIMARY SURFACE: EXISTING RWY 19 / PROPOSED RWY 18

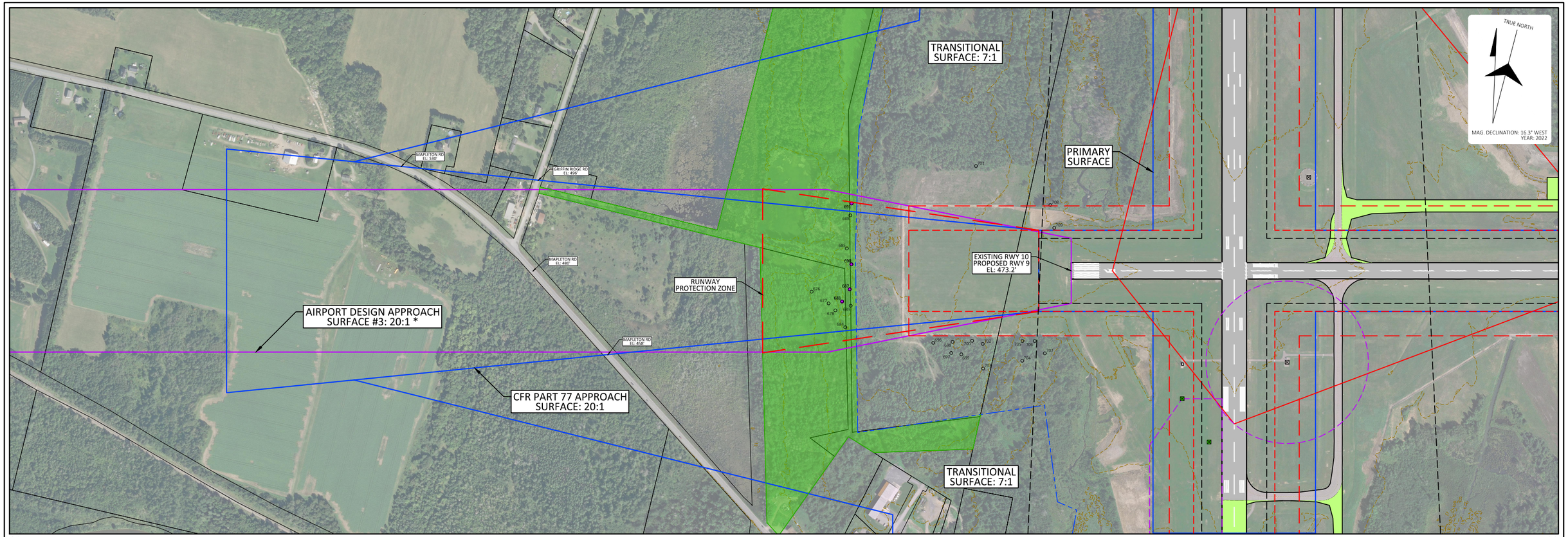
LABEL	DESCRIPTION	ELEVATION	SURFACE HEIGHT	PENETRATION	ACTION
086	TREE	498.9'	487.1'	11.8'	TRIM/REMOVE
089	TREE	496.5'	488.0'	8.5'	TRIM/REMOVE
092	GROUND	489.5'	488.6'	0.9'	NONE
094	FENCE	492.3'	488.7'	3.6'	LIGHT
095	FENCE	493.6'	489.1'	4.5'	LIGHT
097	GROUND	490.4'	489.3'	1.1'	NONE
101	GROUND	491.0'	489.8'	1.2'	NONE
103	GROUND	492.0'	490.8'	1.2'	NONE
105	GROUND	492.7'	491.2'	1.5'	NONE
108	GROUND	493.3'	492.3'	1.0'	NONE
109	GROUND	494.8'	492.5'	2.3'	NONE
112	GROUND	495.5'	493.1'	2.4'	NONE
114	GROUND	494.4'	493.9'	0.5'	NONE
115	GROUND	494.8'	493.9'	0.9'	NONE
117	GROUND	496.1'	495.4'	0.7'	NONE
118	GROUND	495.8'	495.5'	0.3'	NONE
119	GROUND	495.7'	495.5'	0.2'	NONE
120	GROUND	496.9'	496.6'	0.3'	NONE
122	GROUND	497.7'	497.5'	0.2'	NONE
130	FENCE	503.3'	501.5'	1.8'	LIGHT
131	TREE	514.8'	501.7'	13.1'	TRIM/REMOVE
134	TREE	521.7'	503.3'	18.4'	TRIM/REMOVE
136	TREE	518.6'	504.3'	14.3'	TRIM/REMOVE
139	TREE	522.7'	505.1'	17.6'	TRIM/REMOVE
161	GROUND	532.0'	531.6'	0.4'	NONE
165	GROUND	537.1'	533.6'	3.5'	NONE
167	GROUND	539.9'	534.0'	5.9'	NONE
168	GROUND	534.1'	534.0'	0.1'	NONE
171	GROUND	534.6'	534.0'	0.6'	NONE
173	GROUND	534.0'	534.0'	0.0'	NONE
174	GROUND	535.8'	534.0'	1.8'	NONE
175	GROUND	536.7'	534.0'	2.7'	NONE
176	GROUND	536.3'	534.0'	2.3'	NONE
177	GROUND	544.9'	534.0'	10.9'	NONE
179	GROUND	538.0'	534.0'	4.0'	NONE

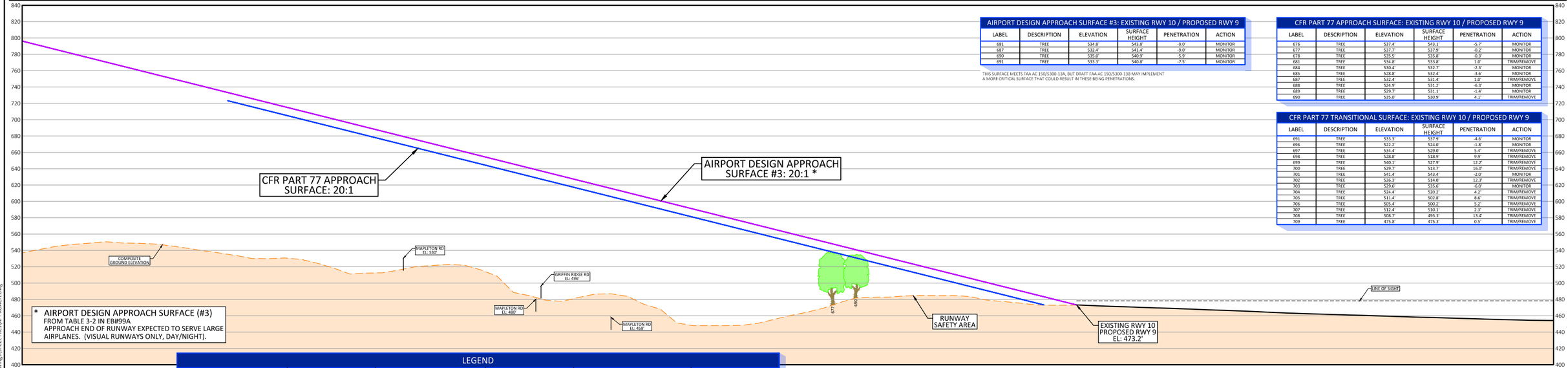
CFR PART 77 TRANSITIONAL SURFACE: EXISTING RWY 19 / PROPOSED RWY 18

LABEL	DESCRIPTION	ELEVATION	SURFACE HEIGHT	PENETRATION	ACTION
079	TREE	534.9'	510.1'	24.8'	TRIM/REMOVE
080	TREE	513.4'	496.6'	16.8'	TRIM/REMOVE
081	TREE	527.1'	518.5'	8.6'	TRIM/REMOVE
082	TREE	524.6'	507.1'	17.5'	TRIM/REMOVE
083	TREE	512.2'	495.0'	17.2'	TRIM/REMOVE
084	TREE	537.7'	527.1'	10.6'	TRIM/REMOVE
085	TREE	544.9'	551.3'	-6.4'	MONITOR
087	TREE	520.4'	500.9'	19.5'	TRIM/REMOVE
088	TREE	531.8'	513.4'	18.4'	TRIM/REMOVE
090	TREE	532.8'	510.0'	22.8'	TRIM/REMOVE
091	TREE	508.1'	490.1'	18.0'	TRIM/REMOVE
093	TREE	548.8'	532.2'	16.6'	TRIM/REMOVE
096	TREE	510.8'	491.9'	18.9'	TRIM/REMOVE
098	TREE	538.4'	525.6'	12.8'	TRIM/REMOVE
099	TREE	535.0'	514.2'	20.8'	TRIM/REMOVE
100	TREE	550.5'	544.6'	5.9'	TRIM/REMOVE
102	TREE	539.0'	519.2'	19.8'	TRIM/REMOVE
104	TREE	512.2'	499.9'	12.3'	TRIM/REMOVE
106	TREE	541.4'	522.8'	18.6'	TRIM/REMOVE
107	TREE	550.0'	544.1'	5.9'	TRIM/REMOVE
110	TREE	540.1'	522.2'	17.9'	TRIM/REMOVE
111	TREE	549.6'	532.1'	17.5'	TRIM/REMOVE
113	TREE	543.6'	550.8'	-7.2'	MONITOR
116	TREE	542.8'	531.5'	11.3'	TRIM/REMOVE
121	TREE	552.1'	541.4'	10.7'	TRIM/REMOVE
123	TREE	553.5'	537.7'	15.8'	TRIM/REMOVE
124	TREE	548.5'	523.6'	24.9'	TRIM/REMOVE
125	TREE	547.3'	555.8'	-8.5'	MONITOR
126	TREE	519.3'	513.7'	5.6'	TRIM/REMOVE
127	TREE	550.9'	538.2'	12.7'	TRIM/REMOVE
128	TREE	544.6'	539.1'	5.5'	TRIM/REMOVE
129	TREE	534.3'	527.8'	6.5'	TRIM/REMOVE
132	TREE	558.2'	554.7'	3.5'	TRIM/REMOVE
133	TREE	538.6'	531.8'	6.8'	TRIM/REMOVE
135	TREE	550.0'	544.2'	5.8'	TRIM/REMOVE
137	TREE	550.5'	537.2'	13.3'	TRIM/REMOVE
138	TREE	547.9'	529.8'	18.1'	TRIM/REMOVE
140	TREE	541.5'	529.8'	11.7'	TRIM/REMOVE
141	TREE	534.2'	514.8'	19.4'	TRIM/REMOVE
142	TREE	546.0'	542.0'	4.0'	TRIM/REMOVE
143	TREE	536.3'	523.3'	13.0'	TRIM/REMOVE
144	TREE	536.3'	514.2'	22.1'	TRIM/REMOVE
145	TREE	550.8'	531.9'	18.9'	TRIM/REMOVE
146	TREE	555.1'	543.2'	11.9'	TRIM/REMOVE
147	TREE	560.1'	559.3'	0.8'	TRIM/REMOVE
148	TREE	531.5'	524.7'	6.8'	TRIM/REMOVE
149	TREE	565.3'	541.6'	23.7'	TRIM/REMOVE
150	TREE	563.4'	555.5'	7.9'	TRIM/REMOVE
151	TREE	565.0'	549.7'	15.3'	TRIM/REMOVE
152	TREE	558.8'	542.6'	16.2'	TRIM/REMOVE
153	TREE	555.3'	553.1'	2.2'	TRIM/REMOVE
154	TREE	564.6'	543.4'	21.2'	TRIM/REMOVE
155	TREE	546.2'	544.0'	2.2'	TRIM/REMOVE
156	TREE	549.4'	543.5'	5.9'	TRIM/REMOVE
157	TREE	569.4'	553.1'	16.3'	TRIM/REMOVE
158	TREE	570.1'	567.4'	2.7'	TRIM/REMOVE

CFR PART 77 TRANSITIONAL SURFACE: EXISTING RWY 19 / PROPOSED RWY 18

LABEL	DESCRIPTION	ELEVATION	SURFACE HEIGHT	PENETRATION	ACTION
159	TREE	585.6'	591.6'	-6.0'	MONITOR
160	TREE	573.3'	578.5'	-5.2'	MONITOR
162	TREE	593.9'	592.3'	1.6'	TRIM/REMOVE
163	TREE	596.7'	588.3'	8.4'	TRIM/REMOVE
164	TREE	603.8'	577.1'	26.7'	TRIM/REMOVE
166	GROUND	537.4'	534.5'	2.9'	NONE
169	GROUND	541.3'	535.1'	6.2'	NONE
170	TREE	602.3'	583.4'	18.9'	TRIM/REMOVE
172	TREE	603.5'	571.2'	32.3'	TRIM/REMOVE
178	TREE	603.7'	573.9'	29.8'	TRIM/REMOVE
181	GROUND	538.5'	537.1'	1.4'	NONE
184	TREE	608.3'	595.4'	12.9'	TRIM/REMOVE
188	TREE	603.9'	589.1'	14.8'	TRIM/REMOVE
196	TREE	606.7'	578.8'	27.9'	TRIM/REMOVE
197	GROUND	546.9'	540.2'	6.7'	NONE
198	GROUND	551.9'	550.9'	1.0'	NONE
199	TANK	558.5'	557.2'	1.3'	LIGHT
204	TREE	622.3'	576.4'	45.9'	TRIM/REMOVE
205	TREE	609.5'	593.4'	16.1'	TRIM/REMOVE
207	BUILDING	592.8'	573.5'	19.3'	LIGHT
208	GROUND	555.7'	551.6'	4.1'	NONE
215	TREE	619.2'	593.2'	26.0'	TRIM/REMOVE
216	BUILDING	592.9'	574.4'	18.5'	LIGHT
220	GROUND	551.6'	544.3'	7.3'	NONE
221	GROUND	552.8'	552.3'	0.5'	NONE
222	GROUND	556.8'	555.5'	1.3'	NONE
228	TREE	625.0'	574.9'	50.1'	TRIM/REMOVE
229	BUILDING	593.3'	575.6'	17.7'	LIGHT
236	TREE	626.2'	574.7'	51.5'	TRIM/REMOVE
237	GROUND	561.8'	557.8'	4.0'	NONE
239	TREE	621.5'	590.8'	30.7'	TRIM/REMOVE
240	BUILDING	593.5'	576.4'	17.1'	LIGH





* AIRPORT DESIGN APPROACH SURFACE (#3)
FROM TABLE 3-2 IN EB#99A
APPROACH END OF RUNWAY EXPECTED TO SERVE LARGE AIRPLANES. (VISUAL RUNWAYS ONLY, DAY/NIGHT).

AIRPORT DESIGN APPROACH SURFACE #3: EXISTING RWY 10 / PROPOSED RWY 9

LABEL	DESCRIPTION	ELEVATION	SURFACE HEIGHT	PENETRATION	ACTION
681	TREE	534.8'	543.8'	-9.0'	MONITOR
687	TREE	532.4'	541.4'	-9.0'	MONITOR
690	TREE	535.0'	540.9'	-5.9'	MONITOR
691	TREE	533.3'	540.8'	-7.5'	MONITOR

THIS SURFACE MEETS FAA AC 150/5300-13A, BUT DRAFT FAA AC 150/5300-13B MAY IMPLEMENT A MORE CRITICAL SURFACE THAT COULD RESULT IN THESE BEING PENETRATIONS.

CFR PART 77 APPROACH SURFACE: EXISTING RWY 10 / PROPOSED RWY 9

LABEL	DESCRIPTION	ELEVATION	SURFACE HEIGHT	PENETRATION	ACTION
676	TREE	537.4'	543.1'	-5.7'	MONITOR
677	TREE	537.7'	537.9'	-0.2'	MONITOR
678	TREE	535.5'	535.8'	-0.3'	MONITOR
681	TREE	534.8'	533.8'	1.0'	TRIM/REMOVE
684	TREE	530.4'	532.7'	-2.3'	MONITOR
685	TREE	528.8'	532.4'	-3.6'	MONITOR
687	TREE	532.4'	531.4'	1.0'	TRIM/REMOVE
688	TREE	524.9'	531.2'	-6.3'	MONITOR
689	TREE	529.7'	531.1'	-1.4'	MONITOR
690	TREE	535.0'	530.9'	4.1'	TRIM/REMOVE

CFR PART 77 TRANSITIONAL SURFACE: EXISTING RWY 10 / PROPOSED RWY 9

LABEL	DESCRIPTION	ELEVATION	SURFACE HEIGHT	PENETRATION	ACTION
691	TREE	533.3'	537.9'	-4.6'	MONITOR
696	TREE	522.2'	524.0'	-1.8'	MONITOR
697	TREE	534.4'	529.0'	5.4'	TRIM/REMOVE
698	TREE	528.8'	518.9'	9.9'	TRIM/REMOVE
699	TREE	540.1'	527.9'	12.2'	TRIM/REMOVE
700	TREE	529.7'	513.7'	16.0'	TRIM/REMOVE
701	TREE	541.4'	543.4'	-2.0'	MONITOR
702	TREE	526.3'	514.0'	12.3'	TRIM/REMOVE
703	TREE	529.6'	535.6'	-6.0'	MONITOR
704	TREE	524.4'	520.2'	4.2'	TRIM/REMOVE
705	TREE	511.4'	502.8'	8.6'	TRIM/REMOVE
706	TREE	505.4'	500.2'	5.2'	TRIM/REMOVE
707	TREE	512.4'	510.1'	2.3'	TRIM/REMOVE
708	TREE	508.7'	495.3'	13.4'	TRIM/REMOVE
709	TREE	475.8'	475.3'	0.5'	TRIM/REMOVE

LEGEND

DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL
RUNWAY SAFETY AREA (RSA)		PROPOSED AIRPORT PAVEMENT		CFR PART 77 OBSTRUCTIONS	000
RUNWAY OBJECT FREE AREA (ROFA)		FUTURE AIRPORT PAVEMENT (>20 YRS)		ADAS #3 OBSTRUCTIONS	000
RUNWAY PROTECTION ZONE (RPZ)		PROPOSED GROUND VEHICLE PAVEMENT		CFR PART 77 SURFACE	
OBSTACLE FREE ZONE (OFZ)		PROPOSED AIRPORT BUILDINGS		AIRPORT DESIGN APPROACH SURFACE #3	
NAVAID CRITICAL AREA		FUTURE AIRPORT BUILDING (>20 YRS)			
EXISTING AIRPORT PROPERTY		TO BE REMOVED			
EXISTING AIRPORT EASEMENT		AIRPORT EASEMENT/PROPERTY ACQUISITION IF AVAILABLE			
PARCEL BOUNDARY					
GROUND ELEVATION CONTOURS (10')	50				

SCALE
1" = 300' HORIZONTAL
1" = 60' VERTICAL
0 300 600 FEET
120 60

NOTES:
- ALL POSITIONAL DATA REFERENCES NORTH AMERICAN DATUM OF 1983 (NAD83) AND NORTH AMERICAN VERTICAL DATUM 1988 (NAVD88).
- ALL ELEVATIONS SHOWN ARE AMSL.
- AERIAL MAPPING AND IMAGE BY GEOPRO, 2018.
- PROPERTY LINE SOURCED FROM BRSA SURVEY, 2022.
- PARCELS PROVIDED BY THE CITY OF PRESQUE ISLE AND THE TOWN OF MAPLETON, 2021.
- ROAD ELEVATIONS AS INDICATED INCLUDE CONSIDERATION OF VEHICLES PER CFR PART 77. (15' FOR ROAD, 17' FOR INTERSTATE, 23' FOR RAILROAD)
- TREES WITHIN 10' OF SURFACE IDENTIFIED AS OBSTRUCTIONS.
- COMPOSITE GROUND ELEVATION PROFILE LIMITED TO APPROACH SURFACE.
- THIS SHEET DOES NOT SHOW A COMPREHENSIVE OBSTRUCTION REVIEW. OBSTRUCTIONS WERE FILTERED BASED ON THE SCALE OF THE SHEET.

REV	DATE	DESCRIPTION	BY	SPONSOR

McFarland Johnson
239 LITTLETON ROAD, SUITE 3A
WESTFORD, MASSACHUSETTS 01886 www.mjinc.com

PRESQUE ISLE INTERNATIONAL AIRPORT
AROOSTOOK COUNTY, MAINE

INNER APPROACH PLAN
EXISTING RWY 10/PROPOSED RWY 9

SCALE:	1" = 300'	DESIGN:	LFC
DRAWN:	RGT	PROJECT:	18423.00
CHECKED:	ZAS	DATE:	FEBRUARY 2022

SHEET: 11

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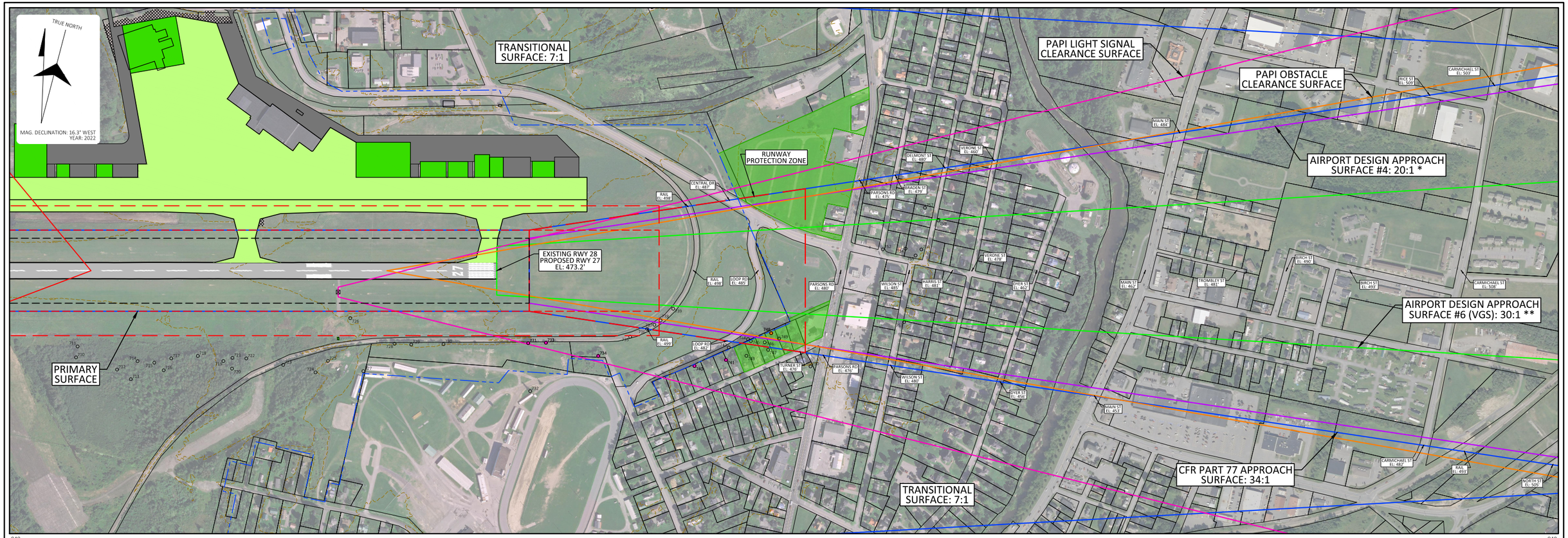


CFR PART 77 TRANSITIONAL SURFACE: EXISTING RWY 28 / PROPOSED RWY 27

LABEL	DESCRIPTION	ELEVATION	SURFACE HEIGHT	PENETRATION	ACTION
710	TREE	488.8'	494.7'	-5.9'	MONITOR
711	TREE	477.9'	485.1'	-7.2'	MONITOR
712	TREE	499.4'	506.3'	-6.9'	MONITOR
713	TREE	509.6'	515.3'	-5.7'	MONITOR
714	TREE	505.2'	499.5'	5.7'	TRIM/REMOVE
715	TREE	502.5'	501.7'	0.8'	TRIM/REMOVE
716	TREE	507.4'	508.7'	-1.3'	MONITOR
717	TREE	502.6'	498.6'	4.0'	TRIM/REMOVE
718	TREE	507.2'	497.7'	9.5'	TRIM/REMOVE
719	TREE	509.2'	503.6'	5.6'	TRIM/REMOVE
720	TREE	513.7'	510.5'	3.2'	TRIM/REMOVE
721	TREE	514.0'	501.1'	12.9'	TRIM/REMOVE
722	TREE	510.6'	502.3'	8.3'	TRIM/REMOVE
723	TREE	500.8'	509.8'	-9.0'	MONITOR
724	TREE	512.5'	518.0'	-5.5'	MONITOR
725	TREE	515.3'	508.6'	6.7'	TRIM/REMOVE
726	TREE	470.7'	471.9'	-1.2'	MONITOR
727	POLE	524.2'	519.3'	4.9'	LIGHT
728	TREE	495.2'	496.8'	-1.6'	MONITOR
729	TREE	494.1'	498.2'	-4.1'	MONITOR
730	TREE	495.3'	499.4'	-4.1'	MONITOR
731	TREE	502.2'	501.2'	1.0'	TRIM/REMOVE
732	TREE	534.0'	543.5'	-9.5'	MONITOR
733	TREE	495.3'	501.8'	-6.5'	MONITOR
734	TREE	513.6'	516.0'	-2.4'	MONITOR
735	RAILROAD	500.7'	500.5'	0.2'	NONE
736	RAILROAD	502.5'	494.7'	7.8'	NONE
740	TREE	538.2'	529.5'	8.7'	TRIM/REMOVE
741	TREE	536.5'	525.7'	10.8'	TRIM/REMOVE
742	POLE	515.5'	515.0'	0.5'	LIGHT
743	TREE	528.9'	523.1'	5.8'	TRIM/REMOVE
747	TREE	523.0'	518.9'	4.1'	TRIM/REMOVE
750	TREE	525.6'	535.6'	-10.0'	MONITOR

CFR PART 77 APPROACH SURFACE: EXISTING RWY 28 / PROPOSED RWY 27

LABEL	DESCRIPTION	ELEVATION	SURFACE HEIGHT	PENETRATION	ACTION
737	RAILROAD	502.4'	495.9'	6.5'	NONE
738	RAILROAD	502.4'	497.0'	5.4'	NONE
739	RAILROAD	501.4'	499.3'	2.1'	NONE
744	POWER LINE	513.9'	512.8'	0.5'	LIGHT
745	TREE	515.4'	513.3'	2.1'	TRIM/REMOVE
746	TREE	528.9'	515.9'	13.0'	TRIM/REMOVE
748	TREE	535.0'	517.1'	17.9'	TRIM/REMOVE
749	TREE	528.9'	518.5'	10.4'	TRIM/REMOVE
752	TREE	533.8'	537.3'	-3.5'	MONITOR
753	TREE	536.1'	541.1'	-5.0'	MONITOR
754	TREE	542.6'	541.4'	1.2'	TRIM/REMOVE
755	TREE	544.4'	543.2'	1.2'	TRIM/REMOVE
756	TREE	549.9'	544.3'	5.6'	TRIM/REMOVE
757	TREE	539.3'	544.9'	-5.6'	MONITOR
759	TREE	539.2'	547.3'	-8.1'	MONITOR

PAPI OBSTACLE CLEARANCE SURFACE: EXISTING RWY 28 / PROPOSED RWY 27

LABEL	DESCRIPTION	ELEVATION	SURFACE HEIGHT	PENETRATION	ACTION
748	TREE	535.0'	541.1'	-6.1'	MONITOR

PAPI LIGHT SIGNAL CLEARANCE SURFACE: EXISTING RWY 28 / PROPOSED RWY 27

LABEL	DESCRIPTION	ELEVATION	SURFACE HEIGHT	PENETRATION	ACTION
731	TREE	502.2'	500.6'	1.6'	TRIM/REMOVE
733	TREE	495.3'	504.1'	-8.8'	MONITOR
734	TREE	513.6'	514.4'	-0.8'	MONITOR
740	TREE	538.2'	533.4'	4.8'	TRIM/REMOVE
741	TREE	536.5'	539.5'	-3.0'	MONITOR

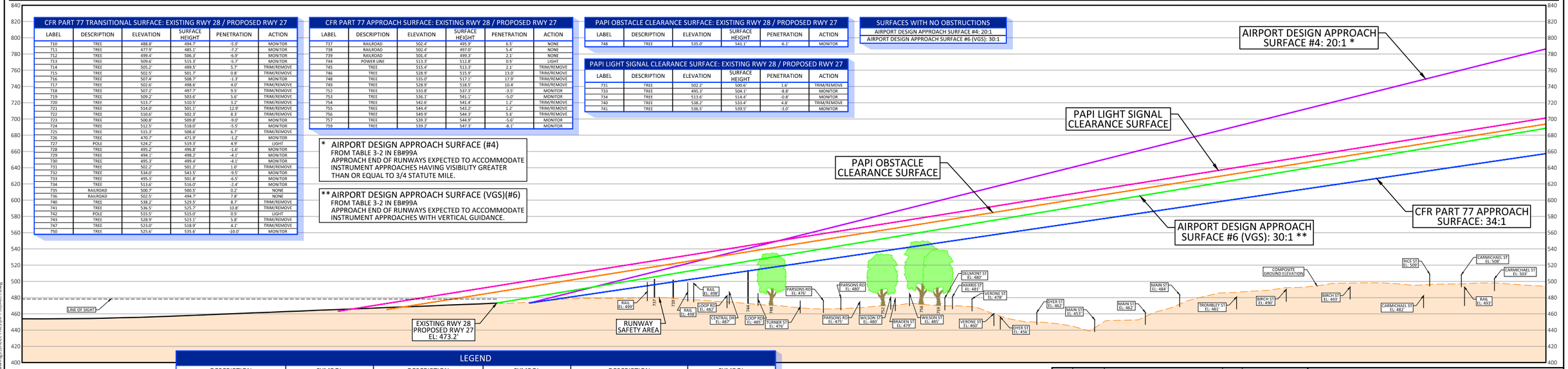
SURFACES WITH NO OBSTRUCTIONS

AIRPORT DESIGN APPROACH SURFACE #4: 20:1

AIRPORT DESIGN APPROACH SURFACE #6 (VGS): 30:1

* AIRPORT DESIGN APPROACH SURFACE (#4)
FROM TABLE 3-2 IN E8#99A
APPROACH END OF RUNWAYS EXPECTED TO ACCOMMODATE INSTRUMENT APPROACHES HAVING VISIBILITY GREATER THAN OR EQUAL TO 3/4 STATUTE MILE.

** AIRPORT DESIGN APPROACH SURFACE (VGS)(#6)
FROM TABLE 3-2 IN E8#99A
APPROACH END OF RUNWAYS EXPECTED TO ACCOMMODATE INSTRUMENT APPROACHES WITH VERTICAL GUIDANCE.



LEGEND

DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL
RUNWAY SAFETY AREA (RSA)		PROPOSED AIRPORT PAVEMENT		CFR PART 77 OBSTRUCTIONS	
RUNWAY OBJECT FREE AREA (ROFA)		FUTURE AIRPORT PAVEMENT (>20 YRS)		PAPI OCS OBSTRUCTIONS	
RUNWAY PROTECTION ZONE (RPZ)		PROPOSED GROUND VEHICLE PAVEMENT		PAPI LSCS OBSTRUCTIONS	
OBSTACLE FREE ZONE (OFZ)		PROPOSED AIRPORT BUILDINGS		CFR PART 77 SURFACE	
NAVAID CRITICAL AREA		FUTURE AIRPORT BUILDING (>20 YRS)		AIRPORT DESIGN APPROACH SURFACE #4	
EXISTING AIRPORT PROPERTY		TO BE REMOVED		AIRPORT DESIGN APPROACH SURFACE #6 (VGS)	
EXISTING AIRPORT EASEMENT		AIRPORT EASEMENT/PROPERTY ACQUISITION IF AVAILABLE		PAPI OBSTACLE CLEARANCE SURFACE	
PARCEL BOUNDARY				PAPI LIGHT SIGNAL CLEARANCE SURFACE	
GROUND ELEVATION CONTOURS (10')	50				

SCALE
1" = 300' HORIZONTAL
1" = 60' VERTICAL
0 300 600
FEET
120
60

NOTES:
- ALL POSITIONAL DATA REFERENCES NORTH AMERICAN DATUM OF 1983 (NAD83) AND NORTH AMERICAN VERTICAL DATUM 1988 (NAVD88).
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- TREES WITHIN 10' OF SURFACE IDENTIFIED AS OBSTRUCTIONS.
- COMPOSITE GROUND ELEVATION PROFILE LIMITED TO APPROACH SURFACE.
- THIS SHEET DOES NOT SHOW A COMPREHENSIVE OBSTRUCTION REVIEW. OBSTRUCTIONS WERE FILTERED BASED ON THE SCALE OF THE SHEET.

REV	DATE	DESCRIPTION	BY	SPONSOR

McFarland Johnson
239 LITTLETON ROAD, SUITE 1A
WESTFORD, MASSACHUSETTS 01886 www.mjinc.com

PRESQUE ISLE INTERNATIONAL AIRPORT
AROOSTOOK COUNTY, MAINE

INNER APPROACH PLAN
EXISTING RWY 28/PROPOSED RWY 27

SCALE:	1" = 300'	DESIGN:	LFC
DRAWN:	RGT	PROJECT:	18423.00
CHECKED:	ZAS	DATE:	FEBRUARY 2022

SHEET: 12

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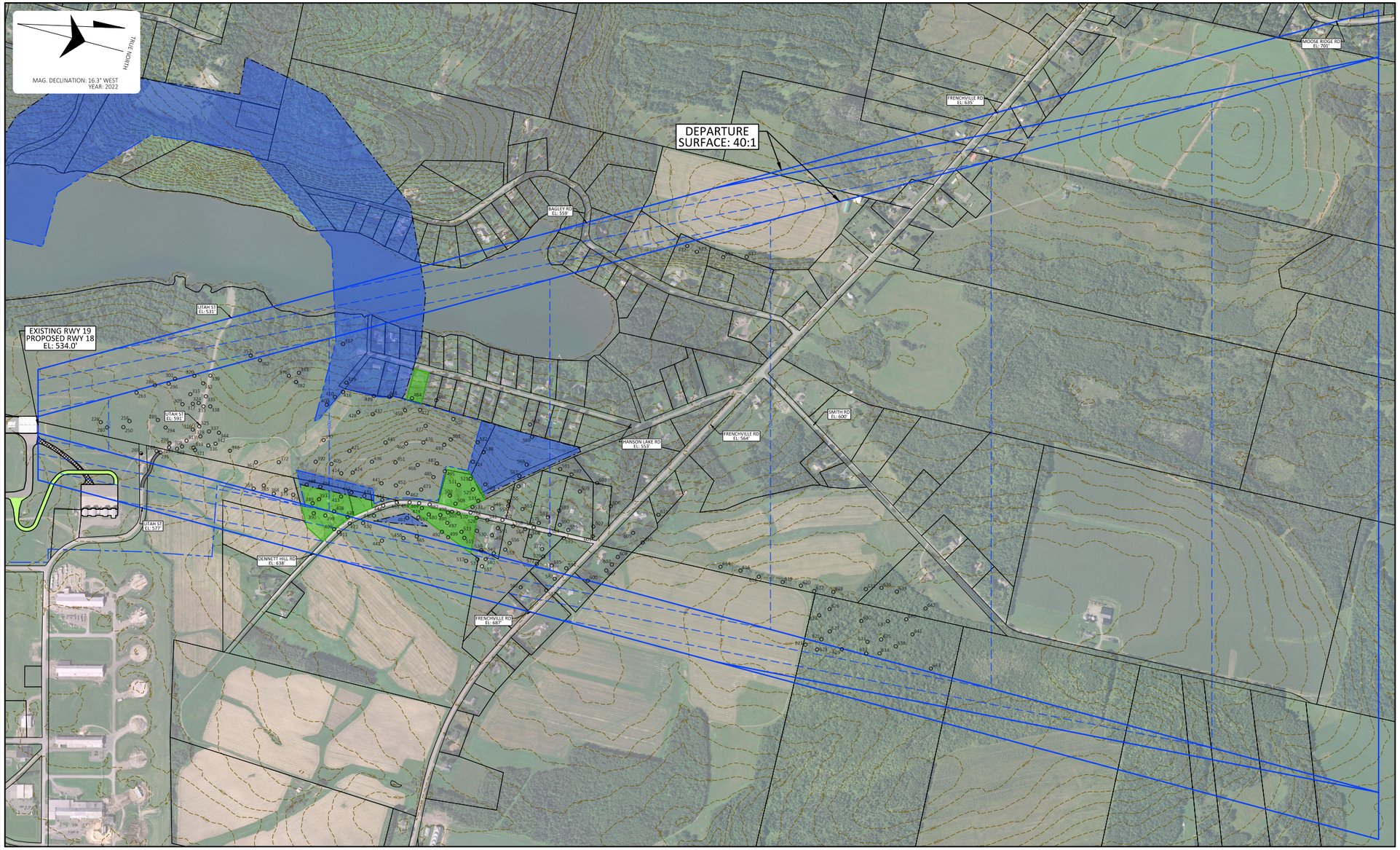

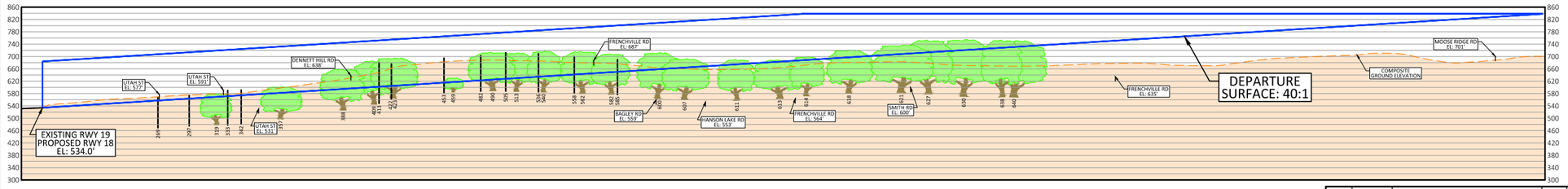

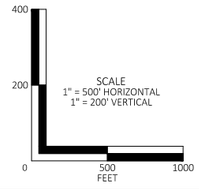

LEGEND					
DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL
EXISTING AIRPORT PROPERTY		PROPOSED AIRPORT PAVEMENT		OBSTRUCTIONS	000
EXISTING AIRPORT EASEMENT		FUTURE AIRPORT PAVEMENT (>20 YRS)		DEPARTURE SURFACE	
AIRPORT EASEMENT/PROPERTY ACQUISITION IF AVAILABLE		PROPOSED GROUND VEHICLE PAVEMENT			
		PROPOSED AIRPORT BUILDINGS			
PARCEL BOUNDARY		FUTURE AIRPORT BUILDING (>20 YRS)			
GROUND ELEVATION CONTOURS (10')	50	TO BE REMOVED			

NOTES:
- ALL POSITIONAL DATA REFERENCES NORTH AMERICAN DATUM OF 1983 (NAD83) AND NORTH AMERICAN VERTICAL DATUM 1988 (NAVD88).
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- TREES WITHIN 10' OF SURFACE IDENTIFIED AS OBSTRUCTIONS.
- COMPOSITE GROUND ELEVATION PROFILE LIMITED TO DEPARTURE SURFACE.
- THIS SHEET DOES NOT SHOW A COMPREHENSIVE OBSTRUCTION REVIEW. OBSTRUCTIONS WERE FILTERED BASED ON THE SCALE OF THE SHEET.

REV	DATE	DESCRIPTION	BY	SPONSOR

McFarland Johnson
239 LITTLETON ROAD, SUITE 1A
WESTFORD, MASSACHUSETTS 01886 www.mjinc.com

PRESQUE ISLE INTERNATIONAL AIRPORT
AROOSTOOK COUNTY, MAINE

DEPARTURE SURFACE
EXISTING RWY 1/PROPOSED RWY 36

SCALE:	1" = 500'	DESIGN:	LFC
DRAWN:	RGT	PROJECT:	18423.00
CHECKED:	ZAS	DATE:	FEBRUARY 2022

SHEET: 13

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DEPARTURE SURFACE: EXISTING RWY 1 / PROPOSED RWY 36

LABEL	DESCRIPTION	ELEVATION	SURFACE HEIGHT	PENETRATION	ACTION
226	GROUND	550.1'	548.3'	1.8'	NONE
230	GROUND	551.6'	549.7'	1.9'	NONE
250	GROUND	554.7'	553.4'	1.3'	NONE
256	GROUND	556.2'	554.8'	1.4'	NONE
263	GROUND	556.9'	556.3'	0.6'	NONE
269	BUILDING	567.2'	557.4'	9.8'	LIGHT
286	GROUND	568.5'	560.5'	8.0'	NONE
288	FENCE	562.8'	560.9'	1.9'	LIGHT
289	GROUND	561.4'	561.2'	0.2'	NONE
291	ROAD	571.1'	561.7'	9.4'	LIGHT
294	GROUND	563.2'	563.0'	0.2'	NONE
296	GROUND	574.7'	563.7'	11.0'	NONE
297	ROAD	573.8'	563.7'	10.1'	LIGHT
298	FENCE	567.3'	563.8'	3.5'	LIGHT
301	GROUND	574.6'	568.2'	6.4'	NONE
303	GROUND	566.8'	565.5'	1.3'	NONE
308	TREE	579.7'	566.6'	13.1'	TRIM/REMOVE
309	GROUND	572.9'	566.7'	6.2'	NONE
313	ROAD	579.0'	567.7'	11.3'	LIGHT
315	GROUND	578.9'	568.6'	10.3'	NONE
316	FENCE	577.5'	569.1'	8.4'	LIGHT
317	GROUND	578.4'	569.1'	9.3'	NONE
319	TREE	580.4'	569.3'	11.1'	TRIM/REMOVE
320	GROUND	571.5'	569.4'	2.1'	NONE
321	GROUND	571.1'	569.6'	1.5'	NONE
324	FENCE	583.0'	570.4'	12.6'	LIGHT
325	ROAD	584.9'	570.6'	14.3'	LIGHT
328	TREE	580.6'	570.8'	9.8'	TRIM/REMOVE
332	FENCE	576.7'	571.4'	5.3'	LIGHT
333	ROAD	590.1'	571.6'	18.5'	LIGHT
335	ROAD	589.2'	572.1'	17.1'	LIGHT
336	ROAD	589.2'	572.6'	16.6'	LIGHT
337	GROUND	577.5'	572.8'	4.7'	NONE
338	GROUND	576.9'	573.0'	3.9'	NONE
339	ROAD	577.8'	573.0'	4.8'	LIGHT
342	ROAD	591.5'	574.2'	17.3'	LIGHT
344	GROUND	578.7'	575.0'	3.7'	NONE
346	GROUND	579.2'	577.5'	1.7'	NONE
357	TREE	601.7'	594.7'	7.0'	TRIM/REMOVE
359	GROUND	592.1'	582.9'	9.2'	NONE
361	GROUND	586.6'	583.4'	3.2'	NONE
362	TREE	599.8'	584.3'	15.5'	TRIM/REMOVE
365	GROUND	597.0'	585.1'	11.9'	NONE
368	GROUND	603.4'	587.5'	15.9'	NONE
372	GROUND	589.8'	588.6'	1.2'	NONE
375	GROUND	608.1'	590.2'	17.9'	NONE
376	TREE	606.4'	590.8'	15.6'	TRIM/REMOVE
379	GROUND	611.5'	591.8'	19.7'	NONE
382	TREE	610.1'	592.4'	17.7'	TRIM/REMOVE
383	TREE	620.1'	593.1'	27.0'	TRIM/REMOVE
388	TREE	658.4'	594.9'	63.5'	TRIM/REMOVE
389	TREE	659.1'	596.2'	62.9'	TRIM/REMOVE
390	GROUND	627.5'	616.7'	10.8'	NONE
392	GROUND	602.2'	597.0'	5.2'	NONE
393	GROUND	628.5'	597.7'	30.8'	NONE
394	TREE	659.0'	598.0'	61.0'	TRIM/REMOVE
397	GROUND	598.9'	598.7'	0.2'	NONE
399	GROUND	638.9'	616.4'	22.5'	NONE
400	TREE	621.6'	599.4'	22.2'	TRIM/REMOVE
405	GROUND	620.5'	600.5'	20.0'	NONE
408	BUILDING	669.9'	601.1'	68.8'	LIGHT
409	TREE	685.1'	654.7'	30.4'	TRIM/REMOVE
410	TREE	641.5'	601.3'	40.2'	TRIM/REMOVE
411	POLE	680.7'	661.0'	19.7'	LIGHT
413	TREE	680.8'	602.7'	78.1'	TRIM/REMOVE
414	GROUND	636.2'	602.8'	33.4'	NONE
416	TREE	630.5'	603.1'	27.4'	TRIM/REMOVE
417	TREE	610.4'	603.2'	7.2'	TRIM/REMOVE
419	TREE	624.9'	603.8'	21.1'	TRIM/REMOVE
420	TREE	693.7'	607.2'	86.5'	TRIM/REMOVE
421	GROUND	617.6'	604.6'	13.0'	NONE
422	POLE	675.6'	626.5'	49.1'	LIGHT
423	TREE	695.0'	605.1'	89.9'	TRIM/REMOVE
424	GROUND	643.9'	605.4'	38.5'	NONE
428	TREE	614.1'	606.6'	7.5'	TRIM/REMOVE
430	GROUND	656.4'	616.7'	39.7'	NONE
431	GROUND	665.9'	608.0'	57.9'	NONE
436	GROUND	651.7'	609.7'	42.0'	NONE
437	TREE	600.2'	609.8'	-9.6'	MONITOR
439	TREE	625.2'	610.2'	15.0'	TRIM/REMOVE
440	GROUND	662.7'	610.2'	52.5'	NONE
441	GROUND	669.6'	611.9'	57.7'	NONE
442	GROUND	663.4'	661.1'	2.3'	NONE
443	GROUND	675.3'	612.1'	63.2'	NONE
444	ROAD	688.7'	612.3'	76.4'	LIGHT
445	GROUND	630.0'	612.7'	17.3'	NONE
448	TREE	610.9'	613.6'	-2.7'	MONITOR
451	GROUND	659.2'	615.0'	44.2'	NONE
452	GROUND	673.5'	615.1'	58.4'	NONE
453	ROAD	694.6'	615.3'	79.3'	LIGHT
456	GROUND	674.2'	639.6'	34.6'	NONE
459	TREE	629.9'	617.2'	12.7'	TRIM/REMOVE
460	GROUND	647.4'	617.5'	29.9'	NONE
461	GROUND	678.5'	617.7'	60.8'	NONE
462	GROUND	683.0'	617.8'	65.2'	NONE
463	ROAD	699.1'	618.2'	80.9'	LIGHT
464	TREE	638.9'	618.7'	20.2'	TRIM/REMOVE
465	GROUND	678.8'	625.5'	53.3'	NONE
466	GROUND	670.6'	620.1'	50.5'	NONE
467	GROUND	681.7'	620.2'	61.5'	NONE
469	GROUND	685.6'	620.4'	65.2'	NONE
472	TREE	643.8'	620.6'	23.2'	TRIM/REMOVE
473	GROUND	685.2'	620.8'	64.4'	NONE
474	TREE	699.5'	621.0'	78.5'	TRIM/REMOVE
476	GROUND	648.4'	621.4'	27.0'	NONE
477	POLE	655.7'	621.8'	33.9'	LIGHT
480	TREE	693.0'	622.6'	70.4'	TRIM/REMOVE
482	ROAD	702.8'	622.8'	80.0'	LIGHT
485	POLE	701.2'	623.6'	77.6'	LIGHT
486	TREE	621.2'	624.3'	-3.1'	MONITOR
487	GROUND	668.6'	624.4'	44.2'	NONE
490	TREE	712.7'	625.2'	87.5'	TRIM/REMOVE

DEPARTURE SURFACE: EXISTING RWY 1 / PROPOSED RWY 36

LABEL	DESCRIPTION	ELEVATION	SURFACE HEIGHT	PENETRATION	ACTION
492	POLE	712.2'	625.5'	86.7'	LIGHT
493	GROUND	651.3'	626.1'	25.2'	NONE
495	GROUND	671.1'	626.2'	44.9'	NONE
497	BUILDING	706.3'	626.8'	79.5'	LIGHT
498	TREE	703.3'	626.9'	76.4'	TRIM/REMOVE
499	GROUND	688.8'	627.0'	61.8'	NONE
502	BUILDING	701.0'	627.3'	73.7'	LIGHT
503	TREE	667.5'	627.6'	39.9'	TRIM/REMOVE
505	POLE	712.5'	627.9'	84.6'	LIGHT
507	TREE	643.7'	628.1'	15.6'	TRIM/REMOVE
508	POLE	705.5'	628.6'	76.9'	LIGHT
510	POWER LINE	710.2'	629.3'	80.9'	LIGHT
511	GROUND	669.6'	629.4'	40.2'	NONE
513	TREE	710.9'	630.0'	80.9'	TRIM/REMOVE
515	TREE	709.5'	630.6'	78.9'	TRIM/REMOVE
517	GROUND	685.7'	672.6'	13.1'	NONE
521	TREE	663.5'	632.1'	31.4'	TRIM/REMOVE
522	ROAD	689.1'	632.0'	57.1'	LIGHT
523	TREE	688.6'	632.4'	56.2'	TRIM/REMOVE
524	GROUND	645.9'	632.5'	13.4'	NONE
525	BUILDING	666.3'	632.6'	33.7'	LIGHT
528	POWER LINE	706.3'	633.4'	72.9'	LIGHT
530	TREE	701.1'	633.5'	67.6'	TRIM/REMOVE
531	GROUND	685.2'	660.6'	24.6'	NONE
532	TREE	649.8'	633.6'	16.2'	TRIM/REMOVE
533	TREE	710.6'	633.8'	76.8'	TRIM/REMOVE
536	BUILDING	709.3'	634.5'	74.8'	LIGHT
537	BUILDING	695.8'	680.5'	15.3'	LIGHT
538	TREE	647.0'	635.0'	12.0'	TRIM/REMOVE
539	TREE	666.6'	635.4'	31.2'	TRIM/REMOVE
540	TREE	716.6'	654.8'	61.8'	TRIM/REMOVE
542	POLE	705.3'	635.8'	69.5'	LIGHT
545	TREE	708.2'	636.9'	71.3'	TRIM/REMOVE
546	BUILDING	676.8'	636.9'	39.9'	LIGHT
549	GROUND	678.8'	637.3'	41.5'	NONE
551	BUILDING	701.7'	638.2'	63.5'	LIGHT
552	ROAD	681.7'	639.3'	42.4'	LIGHT
553	DIRT PILE	679.9'	639.9'	40.0'	LIGHT
554	BUILDING	688.0'	640.6'	47.4'	LIGHT
555	TREE	671.8'	640.8'	31.0'	TRIM/REMOVE
556	GROUND	670.5'	640.9'	29.6'	NONE
558	POLE	699.6'	641.7'	57.9'	LIGHT
560	TREE	669.1'	642.9'	26.2'	TRIM/REMOVE
561	TREE	646.6'	643.1'	3.5'	TRIM/REMOVE
562	TREE	715.6'	722.9'	-7.3'	MONITOR
563	TREE	680.3'	643.8'	36.5'	TRIM/REMOVE
564	POWER LINE	689.2'	644.4'	44.8'	LIGHT
565	TREE	640.1'	644.7'	-4.6'	MONITOR
567	TREE	638.6'	645.5'	-6.9'	MONITOR
568	BUILDING	689.1'	645.6'	43.5'	LIGHT
569	TREE	642.8'	645.9'	-3.1'	MONITOR
570	ROAD	668.5'	646.3'	22.2'	LIGHT
572	TREE	695.8'	647.0'	48.8'	TRIM/REMOVE
575	TREE	681.1'	647.5'	33.6'	TRIM/REMOVE
577	POLE	679.3'	648.2'	31.1'	LIGHT
579	TREE	687.5'	648.5'	39.0'	TRIM/REMOVE
582	TREE	707.9'	715.8'	-7.9'	MONITOR
583	BUILDING	671.2'	649.6'	21.6'	LIGHT
584	POWER LINE	680.3'	650.0'	30.3'	LIGHT
585	BUILDING	689.7'	650.4'	39.3'	LIGHT
587	TREE	692.8'	674.1'	18.7'	TRIM/REMOVE
589	TREE	654.3'	652.1'	2.2'	TRIM/REMOVE
590	TREE	683.5'	652.3'	31.2'	TRIM/REMOVE
591	TREE	671.6'	652.4'	19.2'	TRIM/REMOVE
593	POLE	678.3'	653.1'	25.2'	LIGHT
594	POLE	684.5'	653.8'	30.7'	LIGHT
595	TREE	685.9'	654.1'	31.8'	TRIM/REMOVE
597	TREE	676.7'	654.9'	21.8'	TRIM/REMOVE
599	TREE	657.8'	656.8'	1.0'	TRIM/REMOVE
600	TREE	712.0'	659.3'	52.7'	TRIM/REMOVE
601	TREE	696.3'	659.7'	36.6'	TRIM/REMOVE
602	TREE	690.2'	659.9'	30.3'	TRIM/REMOVE
603	TREE	651.2'	660.7'	-9.5'	MONITOR
605	TREE	698.4'	662.8'	35.6'	TRIM/REMOVE
606	TREE	667.3'	663.8'	3.5'	TRIM/REMOVE
607	TREE	692.2'	664.0'	28.2'	TRIM/REMOVE
608	TREE	688.0'	665.4'	22.6'	TRIM/REMOVE
609	TREE	680.9'	668.9'	12.0'	TRIM/REMOVE
610	TREE	683.8'	671.1'	12.7'	TRIM/REMOVE
611	TREE	689.5'	674.6'	14.9'	TRIM/REMOVE
612	TREE	687.0'	681.1'	5.9'	TRIM/REMOVE
613	TREE	688.5'	683.3'	5.2'	TRIM/REMOVE
614	TREE	698.9'	688.6'	10.3'	TRIM/REMOVE
615	TREE	691.5'	689.3'	2.2'	TRIM/REMOVE
616	TREE	711.8'	693.1'	18.7'	TRIM/REMOVE
617	TREE	707.3'	694.6'	12.7'	TRIM/REMOVE
618	TREE	720.5'	697.3'	23.2'	TRIM/REMOVE
619	TREE	715.9'	702.8'	13.1'	TRIM/REMOVE
620	TREE	728.8'	706.8'	22.0'	TRIM/REMOVE
621	TREE	736.7'	726.5'	10.2'	TRIM/REMOVE
622	TREE	740.4'	709.9'	30.5'	TRIM/REMOVE
623	TREE	736.4'	734.9'	1.5'	TRIM/REMOVE
624	TREE	751.8'	711.1'	40.7'	TRIM/REMOVE
625	TREE	747.1'	711.5'	35.6'	TRIM/REMOVE
626	TREE	743.9'	713.3'	30.6'	TRIM/REMOVE
627	TREE	752.4'	713.4'	39.0'	TRIM/REMOVE
628	TREE	730.1'	714.3'	15.8'	TRIM/REMOVE
629	TREE	739.0'	718.2'	20.8'	TRIM/REMOVE
630	TREE	754.6'	720.6'	34.0'	TRIM/REMOVE
631	TREE	738.9'	721.6'	17.3'	TRIM/REMOVE
632	TREE	726.8'	721.7'	5.1'	TRIM/REMOVE
633	TREE	740.6'	722.0'	18.6'	TRIM/REMOVE
634	TREE	751.2'	724.7'	26.5'	TRIM/REMOVE
635	TREE	745.8'	725.1'	20.7'	TRIM/REMOVE
636	TREE	730.4'	725.1'	5.3'	TRIM/REMOVE
637	TREE	748.3'	726.6'	21.7'	TRIM/REMOVE
638	TREE	752.7'	728.4'	24.3'	TRIM/REMOVE
639	TREE	733.0'	728.7'	4.3'	TRIM/REMOVE
640	TREE	750.9'	730.8'	20.1'	TRIM/REMOVE
641	TREE	745.6'	732.2'	13.4'	TRIM/REMOVE
642	TREE	738.8'	735.1'	3.7'	TRIM/REMOVE
643	TREE	744.3'	736.4'	7.9'	TRIM/REMOVE

REV	DATE	DESCRIPTION	BY	SPONSOR

McFarland Johnson
239 LITTLETON ROAD, SUITE 1A
WESTFORD, MASSACHUSETTS 01886 www.mjinc.com

PRESQUE ISLE INTERNATIONAL AIRPORT
AROOSTOOK COUNTY, MAINE

DEPARTURE SURFACE TABLES EXISTING RWY 1/PROPOSED RWY 36

SCALE:	NONE	DESIGN:	LFC
DRAWN:	RGT	PROJECT:	18423.00
CHECKED:	ZAS	DATE:	FEBRUARY 2022

SHEET: 14

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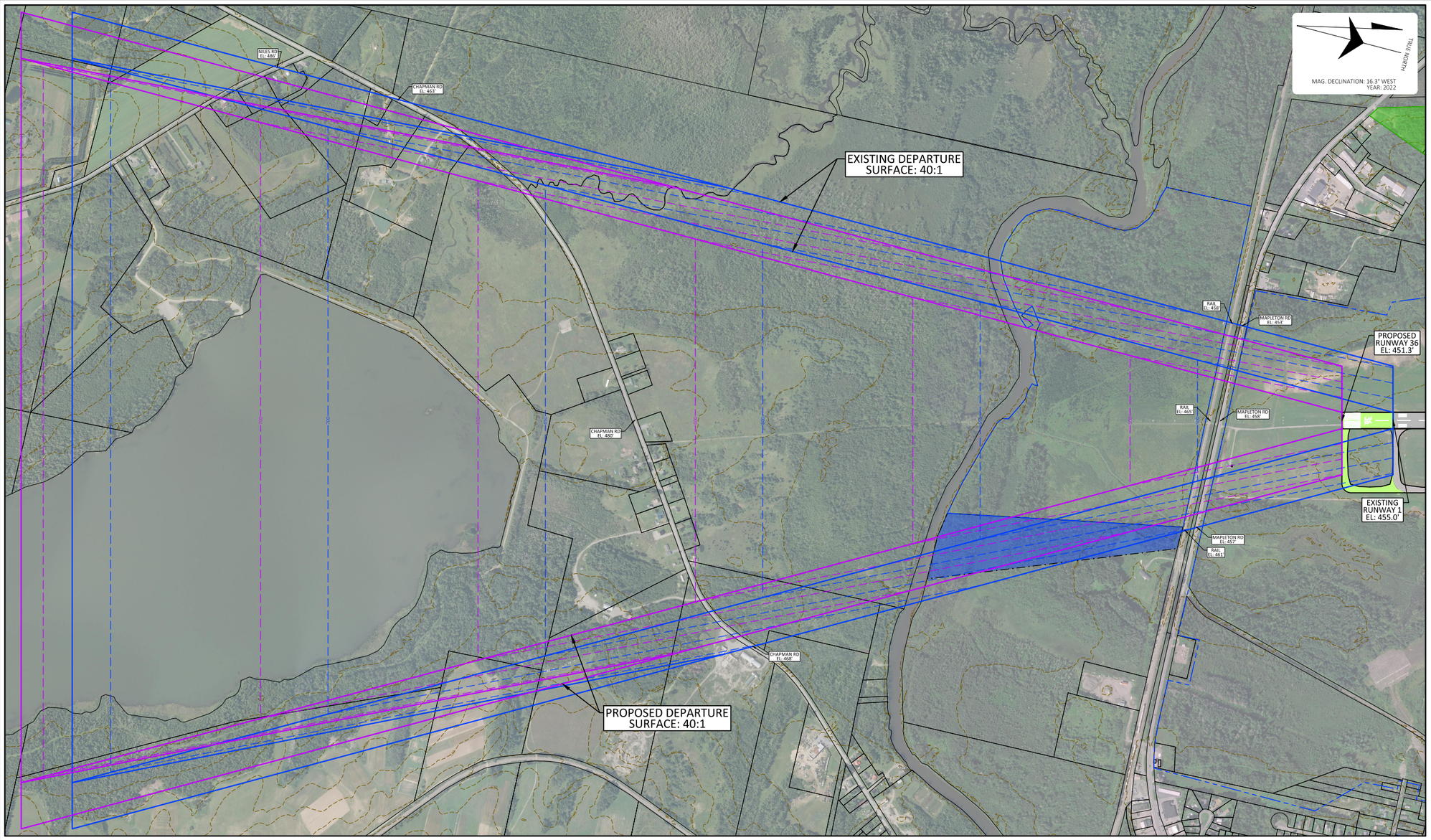

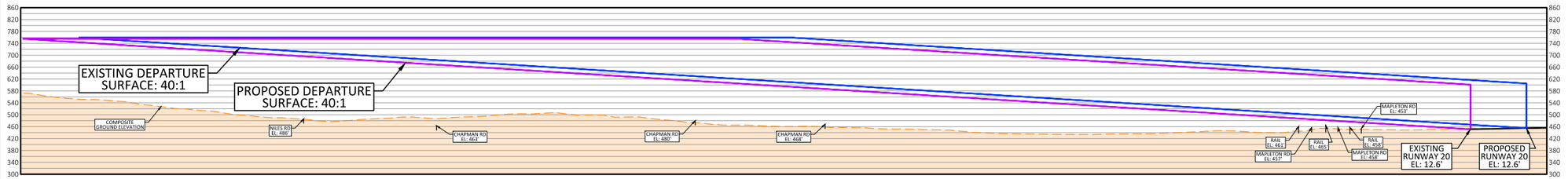

SURFACES WITH NO OBSTRUCTIONS
EXISTING DEPARTURE SURFACE: RUNWAY 19
PROPOSED DEPARTURE SURFACE: RUNWAY 18

400
200
0
500
1000
FEET
SCALE
1" = 500' HORIZONTAL
1" = 200' VERTICAL

LEGEND

DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL
EXISTING AIRPORT PROPERTY		PROPOSED AIRPORT PAVEMENT		EXISTING DEPARTURE SURFACE	
EXISTING AIRPORT EASEMENT		FUTURE AIRPORT PAVEMENT (>20 YRS)		PROPOSED DEPARTURE SURFACE	
AIRPORT EASEMENT/PROPERTY ACQUISITION IF AVAILABLE		PROPOSED GROUND VEHICLE PAVEMENT			
		PROPOSED AIRPORT BUILDINGS			
PARCEL BOUNDARY		FUTURE AIRPORT BUILDING (>20 YRS)			
GROUND ELEVATION CONTOURS (10')	50	TO BE REMOVED			

NOTES:
- ALL POSITIONAL DATA REFERENCES NORTH AMERICAN DATUM OF 1983 (NAD83) AND NORTH AMERICAN VERTICAL DATUM 1988 (NAVD88).
- ALL ELEVATIONS SHOWN ARE AMSL.
- AERIAL MAPPING AND IMAGE BY GEOPRO, 2018.
- PROPERTY LINE SOURCED FROM BRSA SURVEY, 2022.
- PARCELS PROVIDED BY THE CITY OF PRESQUE ISLE AND THE TOWN OF MAPLETON, 2021.
- ROAD ELEVATIONS AS INDICATED INCLUDE CONSIDERATION OF VEHICLES PER CFR PART 77. (15' FOR ROAD, 17' FOR INTERSTATE, 23' FOR RAILROAD)
- TREES WITHIN 10' OF SURFACE IDENTIFIED AS OBSTRUCTIONS.
- COMPOSITE GROUND ELEVATION PROFILE LIMITED TO DEPARTURE SURFACE.
- THIS SHEET DOES NOT SHOW A COMPREHENSIVE OBSTRUCTION REVIEW. OBSTRUCTIONS WERE FILTERED BASED ON THE SCALE OF THE SHEET.

REV	DATE	DESCRIPTION	BY	SPONSOR

McFarland Johnson
339 LITTLETON ROAD, SUITE 1A
WESTFORD, MASSACHUSETTS 01886 www.mjinc.com

PRESQUE ISLE INTERNATIONAL AIRPORT
AROOSTOOK COUNTY, MAINE

DEPARTURE SURFACE
EXISTING RWY 19/PROPOSED RWY 18

SCALE:	1" = 500'	DESIGN:	LFC
DRAWN:	RGT	PROJECT:	18423.00
CHECKED:	ZAS	DATE:	FEBRUARY 2022

SHEET: 15

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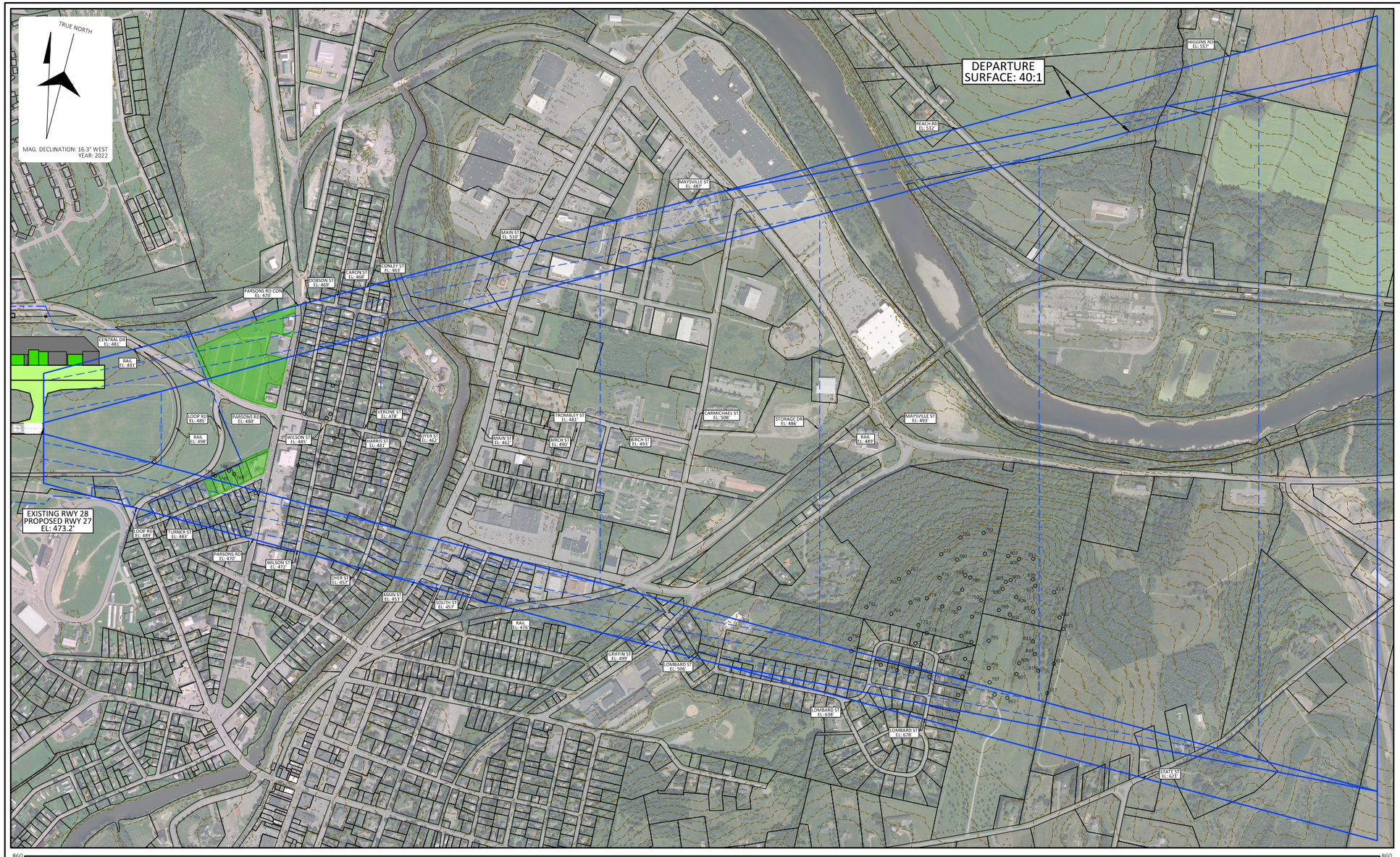
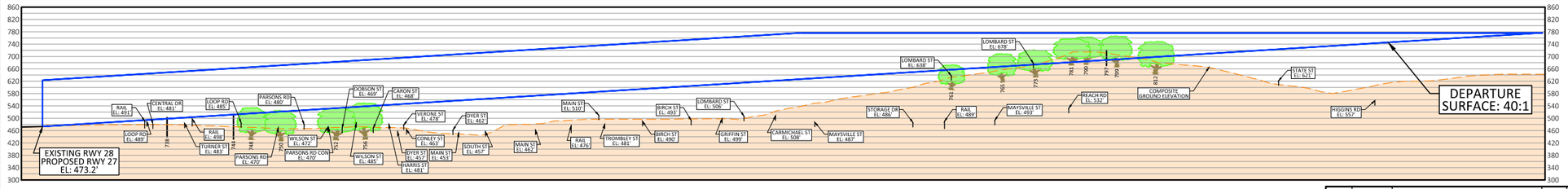
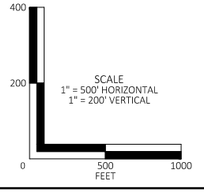


DEPARTURE SURFACE: EXISTING RWY 10 / PROPOSED RWY 9

LABEL	DESCRIPTION	ELEVATION	SURFACE HEIGHT	PENETRATION	ACTION
738	RAILROAD	502.4'	498.4'	4.0'	NONE
744	POWER LINE	513.3'	511.9'	1.4'	LIGHT
745	TREE	515.4'	512.3'	3.1'	TRIM/REMOVE
748	TREE	535.0'	515.5'	19.5'	TRIM/REMOVE
749	TREE	528.9'	516.7'	12.2'	TRIM/REMOVE
750	TREE	525.6'	528.8'	-3.2'	MONITOR
751	TREE	523.7'	531.1'	-7.4'	MONITOR
752	TREE	533.8'	532.7'	1.1'	TRIM/REMOVE
753	TREE	536.1'	535.9'	0.2'	TRIM/REMOVE
755	TREE	544.4'	537.7'	6.7'	TRIM/REMOVE
756	TREE	549.9'	538.6'	11.3'	TRIM/REMOVE
757	TREE	539.3'	539.1'	0.2'	TRIM/REMOVE
758	TREE	529.6'	539.4'	-9.8'	MONITOR
760	TREE	662.8'	656.9'	5.9'	TRIM/REMOVE
761	TREE	673.1'	659.7'	13.4'	TRIM/REMOVE
762	TREE	660.7'	660.7'	0.0'	TRIM/REMOVE
763	TREE	693.1'	684.4'	8.7'	TRIM/REMOVE
764	TREE	680.7'	666.3'	14.4'	TRIM/REMOVE
765	TREE	709.2'	690.8'	18.4'	TRIM/REMOVE
766	TREE	669.7'	668.0'	1.7'	TRIM/REMOVE
767	TREE	674.0'	670.3'	3.7'	TRIM/REMOVE
768	TREE	686.9'	670.7'	16.2'	TRIM/REMOVE
769	TREE	714.1'	687.1'	27.0'	TRIM/REMOVE
770	TREE	704.5'	671.8'	32.7'	TRIM/REMOVE
771	TREE	703.7'	672.5'	31.2'	TRIM/REMOVE
772	TREE	706.4'	673.1'	33.3'	TRIM/REMOVE
773	TREE	721.1'	674.4'	46.7'	TRIM/REMOVE
774	TREE	710.4'	674.5'	35.9'	TRIM/REMOVE
775	TREE	714.4'	692.1'	22.3'	TRIM/REMOVE
776	TREE	712.3'	677.3'	35.0'	TRIM/REMOVE
777	TREE	689.0'	677.8'	11.2'	TRIM/REMOVE
778	TREE	722.4'	677.9'	44.5'	TRIM/REMOVE
779	TREE	728.9'	677.9'	51.0'	TRIM/REMOVE
780	TREE	699.6'	681.3'	18.3'	TRIM/REMOVE
781	TREE	757.5'	730.4'	27.1'	TRIM/REMOVE
782	TREE	741.1'	681.9'	59.2'	TRIM/REMOVE
783	TREE	684.1'	682.1'	2.0'	TRIM/REMOVE
784	TREE	754.9'	682.3'	72.6'	TRIM/REMOVE
785	TREE	735.6'	682.4'	53.2'	TRIM/REMOVE
786	TREE	760.6'	682.5'	78.1'	TRIM/REMOVE
787	TREE	761.3'	683.1'	78.2'	TRIM/REMOVE
788	TREE	723.3'	683.2'	40.1'	TRIM/REMOVE
789	TREE	724.1'	684.3'	39.8'	TRIM/REMOVE
790	TREE	763.4'	684.5'	78.9'	TRIM/REMOVE
791	TREE	754.5'	684.7'	69.8'	TRIM/REMOVE
792	TREE	735.2'	686.9'	48.3'	TRIM/REMOVE
793	TREE	690.9'	687.3'	3.6'	TRIM/REMOVE
794	TREE	703.4'	687.6'	15.8'	TRIM/REMOVE
795	TREE	742.4'	688.5'	53.9'	TRIM/REMOVE
796	TREE	726.7'	688.5'	38.2'	TRIM/REMOVE
797	BUILDING	720.0'	688.8'	31.2'	LIGHT
798	FENCE	709.4'	708.2'	1.2'	LIGHT
799	TREE	766.6'	690.8'	75.8'	TRIM/REMOVE
800	TREE	752.3'	691.7'	60.6'	TRIM/REMOVE
801	TREE	744.6'	692.4'	52.2'	TRIM/REMOVE
802	TREE	705.1'	710.1'	-5.0'	MONITOR
803	TREE	717.7'	693.0'	24.7'	TRIM/REMOVE
804	TREE	765.2'	693.3'	71.9'	TRIM/REMOVE
805	TREE	743.7'	693.5'	50.2'	TRIM/REMOVE
806	TREE	763.2'	694.7'	68.5'	TRIM/REMOVE
807	TREE	733.8'	694.8'	39.0'	TRIM/REMOVE
808	TREE	721.0'	695.4'	25.6'	TRIM/REMOVE
809	TREE	746.2'	695.5'	50.7'	TRIM/REMOVE
810	TREE	733.3'	698.5'	34.8'	TRIM/REMOVE
811	TREE	744.6'	698.6'	46.0'	TRIM/REMOVE
812	TREE	748.9'	698.7'	50.2'	TRIM/REMOVE
813	TREE	709.6'	698.6'	11.0'	TRIM/REMOVE
814	TREE	738.1'	699.1'	39.0'	TRIM/REMOVE
815	TREE	744.4'	699.1'	45.3'	TRIM/REMOVE
816	TREE	716.0'	699.8'	16.2'	TRIM/REMOVE
817	TREE	703.8'	701.9'	1.9'	TRIM/REMOVE
818	TREE	716.1'	703.3'	12.8'	TRIM/REMOVE
819	TREE	720.1'	703.4'	16.7'	TRIM/REMOVE
820	TREE	717.6'	704.7'	12.9'	TRIM/REMOVE
821	TREE	708.1'	705.6'	2.5'	TRIM/REMOVE





LEGEND

DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL
EXISTING AIRPORT PROPERTY		PROPOSED AIRPORT PAVEMENT		OBSTRUCTIONS	
EXISTING AIRPORT EASEMENT		FUTURE AIRPORT PAVEMENT (>20 YRS)		DEPARTURE SURFACE	
AIRPORT EASEMENT/PROPERTY ACQUISITION IF AVAILABLE		PROPOSED GROUND VEHICLE PAVEMENT			
		PROPOSED AIRPORT BUILDINGS			
PARCEL BOUNDARY		FUTURE AIRPORT BUILDING (>20 YRS)			
GROUND ELEVATION CONTOURS (10')		TO BE REMOVED			

NOTES:
- ALL POSITIONAL DATA REFERENCES NORTH AMERICAN DATUM OF 1983 (NAD83) AND NORTH AMERICAN VERTICAL DATUM 1988 (NAVD88).
- ALL ELEVATIONS SHOWN ARE AMSL.
- AERIAL MAPPING AND IMAGE BY GEOPRO, 2018.
- PROPERTY LINE SOURCED FROM BRSA SURVEY, 2022.
- PARCELS PROVIDED BY THE CITY OF PRESQUE ISLE AND THE TOWN OF MAPLETON, 2021.
- ROAD ELEVATIONS AS INDICATED INCLUDE CONSIDERATION OF VEHICLES PER CFR PART 77. (15' FOR ROAD, 17' FOR INTERSTATE, 23' FOR RAILROAD)
- TREES WITHIN 10' OF SURFACE IDENTIFIED AS OBSTRUCTIONS.
- COMPOSITE GROUND ELEVATION PROFILE LIMITED TO DEPARTURE SURFACE.
- THIS SHEET DOES NOT SHOW A COMPREHENSIVE OBSTRUCTION REVIEW. OBSTRUCTIONS WERE FILTERED BASED ON THE SCALE OF THE SHEET.

REV	DATE	DESCRIPTION	BY	SPONSOR

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239 LITTLETON ROAD, SUITE 1A
WESTFORD, MASSACHUSETTS 01886 www.mjinc.com

PRESQUE ISLE INTERNATIONAL AIRPORT
AROOSTOOK COUNTY, MAINE

DEPARTURE SURFACE EXISTING RWY 10/PROPOSED RWY 9

SCALE:	1" = 500'	DESIGN:	LFC	SHEET:	16
DRAWN:	RGT	PROJECT:	18423.00		
CHECKED:	ZAS	DATE:	FEBRUARY 2022		

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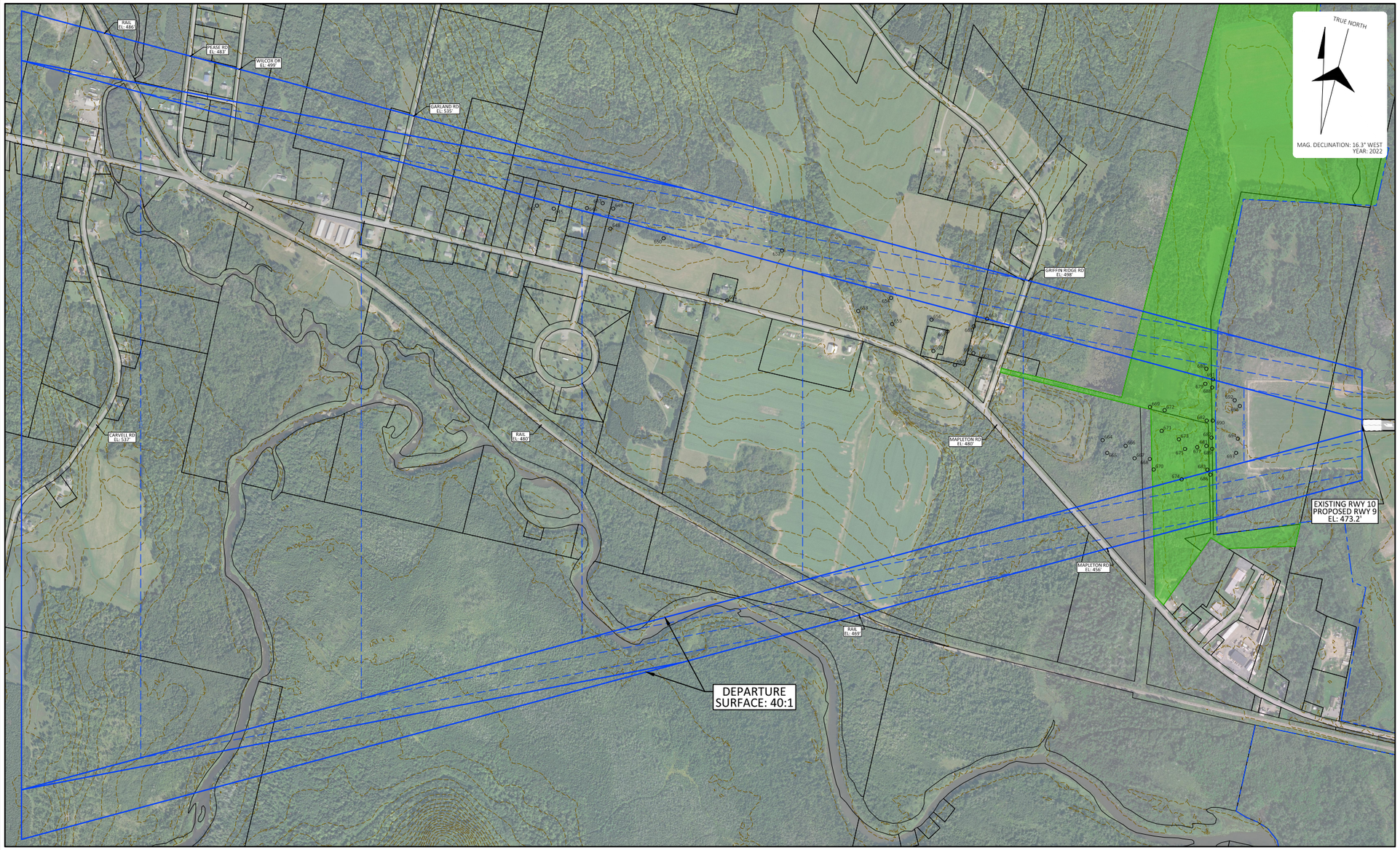

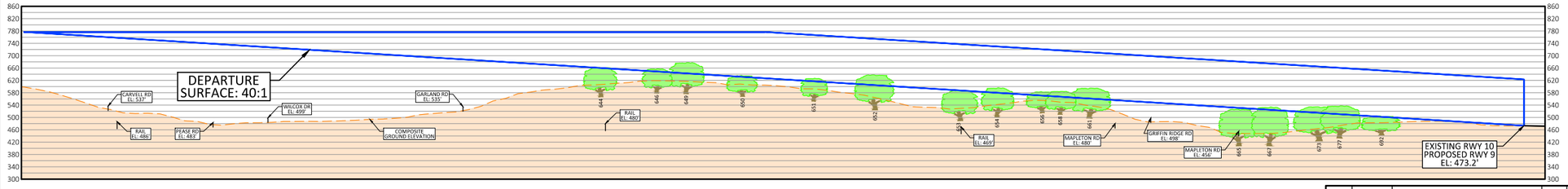

DEPARTURE SURFACE: EXISTING RWY 28 / PROPOSED RWY 27					
LABEL	DESCRIPTION	ELEVATION	SURFACE HEIGHT	PENETRATION	ACTION
644	TREE	662.1'	660.2'	1.9'	TRIM/REMOVE
645	TREE	658.9'	656.4'	2.5'	TRIM/REMOVE
646	TREE	657.4'	660.7'	-3.3'	MONITOR
647	TREE	675.8'	684.6'	-8.8'	MONITOR
648	TREE	667.1'	643.5'	23.6'	TRIM/REMOVE
649	TREE	677.6'	674.2'	3.4'	TRIM/REMOVE
650	TREE	635.4'	631.4'	4.0'	TRIM/REMOVE
651	TREE	626.6'	617.1'	9.5'	TRIM/REMOVE
652	TREE	638.1'	646.1'	-8.0'	MONITOR
653	TREE	587.6'	587.4'	0.2'	TRIM/REMOVE
654	TREE	595.7'	579.9'	15.8'	TRIM/REMOVE
655	TREE	587.6'	579.7'	7.9'	TRIM/REMOVE
656	TREE	583.1'	570.7'	12.4'	TRIM/REMOVE
657	TREE	576.6'	570.3'	6.3'	TRIM/REMOVE
658	TREE	584.6'	567.2'	17.4'	TRIM/REMOVE
659	TREE	577.6'	565.5'	12.1'	TRIM/REMOVE
660	TREE	585.4'	561.3'	24.1'	TRIM/REMOVE
661	TREE	595.1'	561.2'	33.9'	TRIM/REMOVE
662	TREE	578.5'	559.8'	18.7'	TRIM/REMOVE
663	TREE	573.8'	559.3'	14.5'	TRIM/REMOVE
664	TREE	525.0'	532.0'	-7.0'	MONITOR
665	TREE	527.1'	531.0'	-3.9'	MONITOR
666	TREE	522.7'	526.8'	-4.1'	MONITOR
667	TREE	533.6'	524.8'	8.8'	TRIM/REMOVE
668	TREE	527.2'	521.3'	5.9'	TRIM/REMOVE
669	TREE	520.6'	521.3'	-0.7'	MONITOR
670	TREE	526.9'	520.4'	6.5'	TRIM/REMOVE
671	TREE	533.6'	518.7'	14.9'	TRIM/REMOVE
672	TREE	513.1'	518.0'	-4.9'	MONITOR
673	TREE	534.8'	514.7'	20.1'	TRIM/REMOVE
674	TREE	525.9'	515.3'	10.6'	TRIM/REMOVE
675	TREE	533.0'	513.4'	19.6'	TRIM/REMOVE
677	TREE	537.7'	510.5'	27.2'	TRIM/REMOVE
679	TREE	513.4'	508.7'	4.7'	TRIM/REMOVE
680	TREE	526.8'	536.2'	-9.4'	MONITOR
681	TREE	534.8'	508.5'	26.3'	TRIM/REMOVE
682	TREE	521.2'	508.4'	12.8'	TRIM/REMOVE
683	TREE	521.9'	508.3'	13.6'	TRIM/REMOVE
686	TREE	525.8'	517.8'	8.0'	TRIM/REMOVE
687	TREE	532.4'	507.3'	25.1'	TRIM/REMOVE
688	TREE	524.9'	507.2'	17.7'	TRIM/REMOVE
689	TREE	529.7'	507.2'	22.5'	TRIM/REMOVE
690	TREE	535.0'	507.1'	27.9'	TRIM/REMOVE
691	TREE	533.3'	507.9'	25.4'	TRIM/REMOVE
692	TREE	504.1'	502.1'	2.0'	TRIM/REMOVE
693	TREE	495.3'	501.8'	-6.5'	MONITOR
694	TREE	494.7'	501.4'	-6.7'	MONITOR
695	TREE	500.5'	501.0'	-0.5'	MONITOR

SCALE
1" = 500' HORIZONTAL
1" = 200' VERTICAL
400
200
0
500
1000
FEET

LEGEND					
DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL
EXISTING AIRPORT PROPERTY		PROPOSED AIRPORT PAVEMENT		OBSTRUCTIONS	000
EXISTING AIRPORT EASEMENT		FUTURE AIRPORT PAVEMENT (>20 YRS)		DEPARTURE SURFACE	
AIRPORT EASEMENT/PROPERTY ACQUISITION IF AVAILABLE		PROPOSED GROUND VEHICLE PAVEMENT			
		PROPOSED AIRPORT BUILDINGS			
PARCEL BOUNDARY		FUTURE AIRPORT BUILDING (>20 YRS)			
GROUND ELEVATION CONTOURS (10')	50	TO BE REMOVED			

NOTES:
- ALL POSITIONAL DATA REFERENCES NORTH AMERICAN DATUM OF 1983 (NAD83) AND NORTH AMERICAN VERTICAL DATUM 1988 (NAVD88).
- ALL ELEVATIONS SHOWN ARE AMSL.
- AERIAL MAPPING AND IMAGE BY GEOPRO, 2018.
- PROPERTY LINE SOURCED FROM BRSA SURVEY, 2022.
- PARCELS PROVIDED BY THE CITY OF PRESQUE ISLE AND THE TOWN OF MAPLETON, 2021.
- ROAD ELEVATIONS AS INDICATED INCLUDE CONSIDERATION OF VEHICLES PER CFR PART 77. (15' FOR ROAD, 17' FOR INTERSTATE, 23' FOR RAILROAD)
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WESTFORD, MASSACHUSETTS 01886 www.mjinc.com

PRESQUE ISLE INTERNATIONAL AIRPORT
AROOSTOOK COUNTY, MAINE

DEPARTURE SURFACE
EXISTING RWY 28/PROPOSED RWY 27

SCALE:	1" = 500'	DESIGN:	LFC
DRAWN:	RGT	PROJECT:	18423.00
CHECKED:	ZAS	DATE:	FEBRUARY 2022
SHEET:	17		

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TRUE NORTH

MAG. DECLINATION: 16.3° WEST
YEAR: 2022

TOWN OF MAPLETON

CITY OF PRESQUE ISLE

HANSON LAKE

PROPOSED RUNWAY PROTECTION ZONE

EXISTING RUNWAY PROTECTION ZONE

RUNWAY PROTECTION ZONE

PRESQUE ISLE ANIMAL HOSPITAL

MARSTON RD

BUCK ST

BAGLEY RD

HANSON LAKE RD

UTAH ST

PRESQUE ISLE STREAM

RELOCATED GLIDE SLOPE

PROPOSED PAPI

RELOCATED MALSR FIRST

RELOCATED MALSR LAST

PROPOSED RUNWAY 18-36

EXISTING RUNWAY 1-19

AWOS-3PT

SEGMENTED CIRCLE AND WIND SOCK

PAPI

REIL

LOCALIZER

WIND SOCK

TERMINAL BUILDING

AIRPORT DR

CADDIS ST

SKYLINE ST

MISSILE ST

DENNETT HILL RD

PROPOSED RUNWAY 9-27
EXISTING RUNWAY 10-28

AIRPORT DR

NORTHERN MAINE COMMUNITY COLLEGE

TAXIWAY ST

CENTRAL DR

MAPLETON RD

FEDERAL ST

ELIZABETH ST

LINCOLN ST

WARD ST

MECHANIC ST

PAPI

BEACON

PRESQUE ISLE PRE-K

PRESQUE ISLE MIDDLE SCHOOL

EDGEMONT DR

TWILIGHT DR

MICMAC DR

SUNSHINE LN

MIDWAY DR

EXISTING RUNWAY PROTECTION ZONE

STATE ST

SCHOOL ST

PRESQUE ISLE SEVENTH-DAY ADVENTIST CHURCH

TURNER ST

PROPOSED RUNWAY PROTECTION ZONE

PARSONS ST

MUNICIPAL ZONING

TOWN OF MAPLETON	
AIRCRAFT HAZARD ZONE	
RESIDENCE AND FARMING DISTRICT (R-F)	
GENERAL INDUSTRIAL DISTRICT (I-1)	
LAKE AND RECREATION DISTRICT (L-R)	
CITY OF PRESQUE ISLE	
AGRICULTURAL/FARMING ZONE (AFZ)	
AIRCRAFT HAZARD ZONE (AHZ)	
BUSINESS ZONE (BZ)	
DOWNTOWN RETAIL BUSINESS ZONE (DRBZ)	
GENERAL DEVELOPMENT ZONE (GDZ)	
INDUSTRIAL ZONE (IZ)	
INDUSTRIAL ZONE - CONDITIONAL (IZ-C)	
LIGHT INDUSTRIAL ZONE (LIZ)	
RETAIL BUSINESS ZONE (RBZ)	
RESOURCE PROTECTION ZONE (RPZ)	
SUBURBAN RESIDENTIAL ZONE (SRZ)	
URBAN RESIDENTIAL ZONE-1 (URZ-1)	
URBAN RESIDENTIAL ZONE-2 (URZ-2)	
WATERSHED PROTECTION AGRICULTURAL/FARMING ZONE (WPAFZ)	
WATERSHED PROTECTION AGRICULTURAL ZONE (WPAHZ)	
WATERSHED PROTECTION BUSINESS ZONE (WPBZ)	
WATERSHED RESOURCE PROTECTION ZONE (WRPZ)	

LEGEND

DESCRIPTION	EXISTING	PROPOSED
RUNWAY PROTECTION ZONE (RPZ)		
RUNWAY VISIBILITY ZONE (RVZ)		
AIRPORT PAVEMENT		
FUTURE AIRPORT PAVEMENT (>20 YRS)	N/A	
GROUND VEHICLE PAVEMENT	N/A	
AIRPORT BUILDINGS		
FUTURE AIRPORT BUILDING (>20 YRS)	N/A	
TO BE REMOVED	N/A	
NOISE CONTOUR (65 DNL)	NOT SHOWN	
AIRPORT PROPERTY		SAME
AIRPORT EASEMENT		SAME
AIRPORT EASEMENT/PROPERTY ACQUISITION IF AVAILABLE	N/A	
SOLAR FARM		SAME
NON-AERONAUTICAL DEVELOPMENT AREA	N/A	
MUNICIPALITY BOUNDARY		SAME
PARCEL BOUNDARY		SAME

PROPOSED RPZ CONTROL PLAN

LABEL	TAX PARCEL NUMBER	OWNER	ZONING	ACREAGE	ACTION
RUNWAY 9					
9-1	003-018	WINSLOW, CARL AND WILMA	RESIDENCE AND FARMING DISTRICT (R-F) / GENERAL INDUSTRIAL DISTRICT (I-1)	5.84	ACQUIRE
9-2	003-012	BONVILLE, JASON AND SERENA		6.36	ACQUIRE
RUNWAY 27					
27-1	043-155-105	CITY OF PRESQUE ISLE	BUSINESS ZONE (BZ)	1.27	ACQUIRE
27-2	043-155-087	CITY OF PRESQUE ISLE	AIRCRAFT HAZARD ZONE (AHZ)	2.43	NONE
27-3	039-197-039	NORTH HAVEN INC	AIRCRAFT HAZARD ZONE (AHZ)	0.05	ACQUIRE
27-4	039-197-041	COUNTRY FARMS PROPERTIES INC	URBAN RESIDENTIAL ZONE-2 (URZ-2)	0.13	ACQUIRE
27-5	039-197-037	NORTH HAVEN INC	URBAN RESIDENTIAL ZONE-2 (URZ-2)	0.28	ACQUIRE
27-6	039-197-035	BARNES, DIANE	URBAN RESIDENTIAL ZONE-2 (URZ-2)	0.23	ACQUIRE
27-7	039-197-033	COWETT, BONNIE	URBAN RESIDENTIAL ZONE-2 (URZ-2)	0.17	ACQUIRE
27-8	039-197-029	PORTER, THOMAS	URBAN RESIDENTIAL ZONE-2 (URZ-2)	0.10	ACQUIRE
27-9	039-197-027	HANSON LAKE HOLDINGS LLC	URBAN RESIDENTIAL ZONE-2 (URZ-2)	0.05	ACQUIRE
27-10	039-197-025	MARTIN, FERNAND	URBAN RESIDENTIAL ZONE-2 (URZ-2)	< 0.01	ACQUIRE

SCALE

0 500 1000 1500 2000

FEET

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- PROPERTY LINE SOURCED FROM BRSA SURVEY, 2022.
- PARCELS AND ZONING DATA PROVIDED BY THE CITY OF PRESQUE ISLE AND THE TOWN OF MAPLETON, 2021.

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McFarland Johnson
239 LITTLETON ROAD, SUITE 3A
WESTFORD, MASSACHUSETTS 01886 www.mjinc.com

PRESQUE ISLE INTERNATIONAL AIRPORT

AROOSTOOK COUNTY, MAINE

LAND USE PLAN

SCALE:	1" = 500'	DESIGN:	LFC
DRAWN:	RGT	PROJECT:	18423.00
CHECKED:	ZAS	DATE:	FEBRUARY 2022
SHEET:	18		

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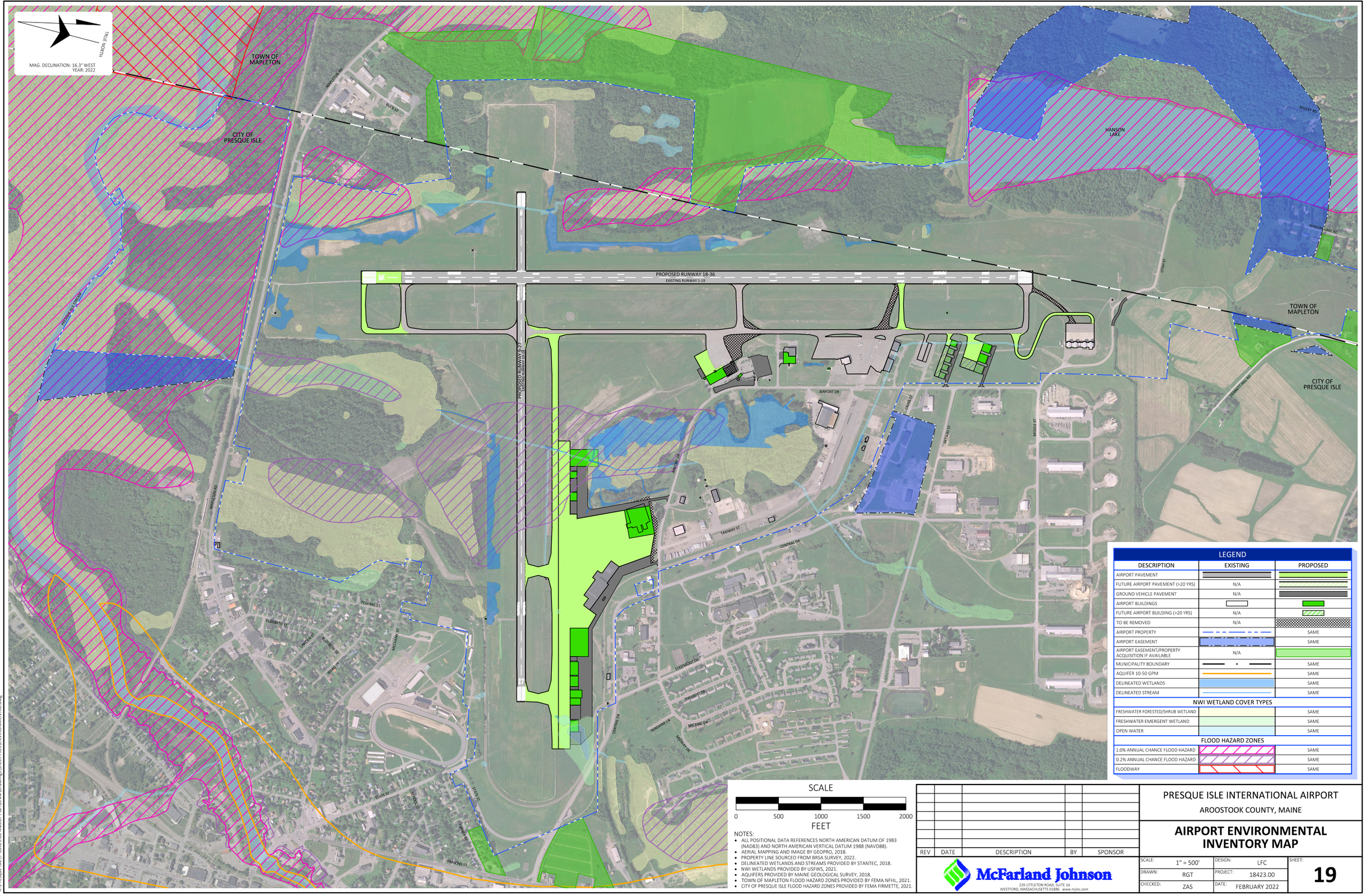

LEGEND		
DESCRIPTION	EXISTING	PROPOSED
AIRPORT PAVEMENT		
FUTURE AIRPORT PAVEMENT (>20 YRS)	N/A	
GROUND VEHICLE PAVEMENT	N/A	
AIRPORT BUILDINGS		
FUTURE AIRPORT BUILDING (>20 YRS)	N/A	
TO BE REMOVED	N/A	
AIRPORT PROPERTY		SAME
AIRPORT EASEMENT		SAME
AIRPORT EASEMENT/PROPERTY ACQUISITION IF AVAILABLE	N/A	
MUNICIPALITY BOUNDARY		SAME
AQUIFER 10-50 GPM		SAME
DELINEATED WETLANDS		SAME
DELINEATED STREAM		SAME
NWI WETLAND COVER TYPES		
FRESHWATER FORESTED/SHRUB WETLAND		SAME
FRESHWATER EMERGENT WETLAND		SAME
OPEN WATER		SAME
FLOOD HAZARD ZONES		
1.0% ANNUAL CHANCE FLOOD HAZARD		SAME
0.2% ANNUAL CHANCE FLOOD HAZARD		SAME
FLOODWAY		SAME

SCALE

0 500 1000 1500 2000

FEET

NOTES:

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- AERIAL MAPPING AND IMAGE BY GEOPRO, 2018.
- PROPERTY LINE SOURCED FROM BRSA SURVEY, 2022.
- DELINEATED WETLANDS AND STREAMS PROVIDED BY STANTEC, 2018.
- NWI WETLANDS PROVIDED BY USFWS, 2021.
- AQUIFERS PROVIDED BY MAINE GEOLOGICAL SURVEY, 2018.
- TOWN OF MAPLETON FLOOD HAZARD ZONES PROVIDED BY FEMA NFHL, 2021.
- CITY OF PRESQUE ISLE FLOOD HAZARD ZONES PROVIDED BY FEMA FIRMETTE, 2021.

REV	DATE	DESCRIPTION	BY	SPONSOR

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PRESQUE ISLE INTERNATIONAL AIRPORT

AROOSTOOK COUNTY, MAINE

AIRPORT ENVIRONMENTAL INVENTORY MAP

SCALE:	1" = 500'	DESIGN: LFC	SHEET: 19
DRAWN:	RGT	PROJECT: 18423.00	
CHECKED:	ZAS	DATE: FEBRUARY 2022	

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PRESQUE ISLE
INTERNATIONAL AIRPORT
AÉROPORT INTERNATIONAL DE PRESQUE ISLE

Appendix I

Public Participation

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Stantec

PRESQUE ISLE
INTERNATIONAL AIRPORT
AÉROPORT INTERNATIONAL DE PRESQUE ISLE

Master Plan Update

Technical Advisory Committee Meeting #1
December 4, 2019

McFarland Johnson

Stantec

AGENDA

- Introductions
- What is a Master Plan
- Master Plan Process
- Goals and Objectives
- Public Participation Process and Role
- Airport Inventory
- Forecast
- Environmental Overview
- Next Steps

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WHAT IS A MASTER PLAN?

- What is a Master Plan?
  - Official FAA planning document
  - Reflects the City of Presque Isle's goals for the airport
  - Depicts future airport development covering 20 years

- What Generated the Need for the Master Plan Update?
  - FAA airport design standard changes
  - Changes in activity and facility needs since last Master Plan

- Master Plan Goals
  - Meet the aviation needs of citizens and businesses in the airport's service area
  - Maintain safe and efficient airside facilities compliant with airport design standards and FAA (Federal Aviation Administration) and MaineDOT (Department of Transportation) guidance
  - Identify opportunities for economic sustainability at the airport as required by grant assurances
  - Maintain planning flexibility for future changes in the aviation industry

MASTER PLAN PROCESS

1st Technical Advisory Committee Meeting
-Inventory, Forecast, and Environmental Overview

2nd Technical Advisory Committee Meeting
-Facility Requirements

3rd Technical Advisory Committee Meeting
-Alternatives

1st public meeting

4th Technical Advisory Committee Meeting
-Draft Plan

2nd public meeting

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GOALS AND OBJECTIVES

Goals:

- Meet the aviation needs of citizens and businesses in the airport's service area
- Maintain safe and efficient airside facilities
- Identify opportunities for economic sustainability
- Maintain planning flexibility for future changes
- Develop a fee structure for non-aeronautical use property

Objectives:

- Develop a flexible, scenario-based approach
- Develop a plan to meet the growing demands on the airport
- Evaluate and recommend alternatives
- Engage the public through participation in the planning process
- Obtain approval from FAA of the resulting ALP

PUBLIC PARTICIPATION

- Technical Advisory Committee (4 meetings)
  - PQI, FAA, Maine DOT, City of Presque Isle, Stakeholders
- Public Information Meetings (2)
  - Informal, open-house, workshop

ROLE OF THE TAC

- Assists project team with technical expertise
- Acts as a ‘sounding board’ for development and analysis of various alternatives
- Provides technical input, reviews documents, and provides guidance
- Communicates information to constituents and the planning team

INVENTORY

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EXISTING AIRSIDE FACILITIES AND SERVICES

- Runway 1-19
  - 7,439’ x 150’
  - 79-foot elevation difference
  - HIRL
  - MALSR/4-Box PAPI, REIL
- Runway 10-28
  - 6,001’ x 100’
  - MIRL
  - None/4-Box PAPI
- Taxiways
  - Taxiway A
  - Taxiway B
  - Taxiway C
  - Taxiway E
- Visual
  - Segmented Circle and Windsock

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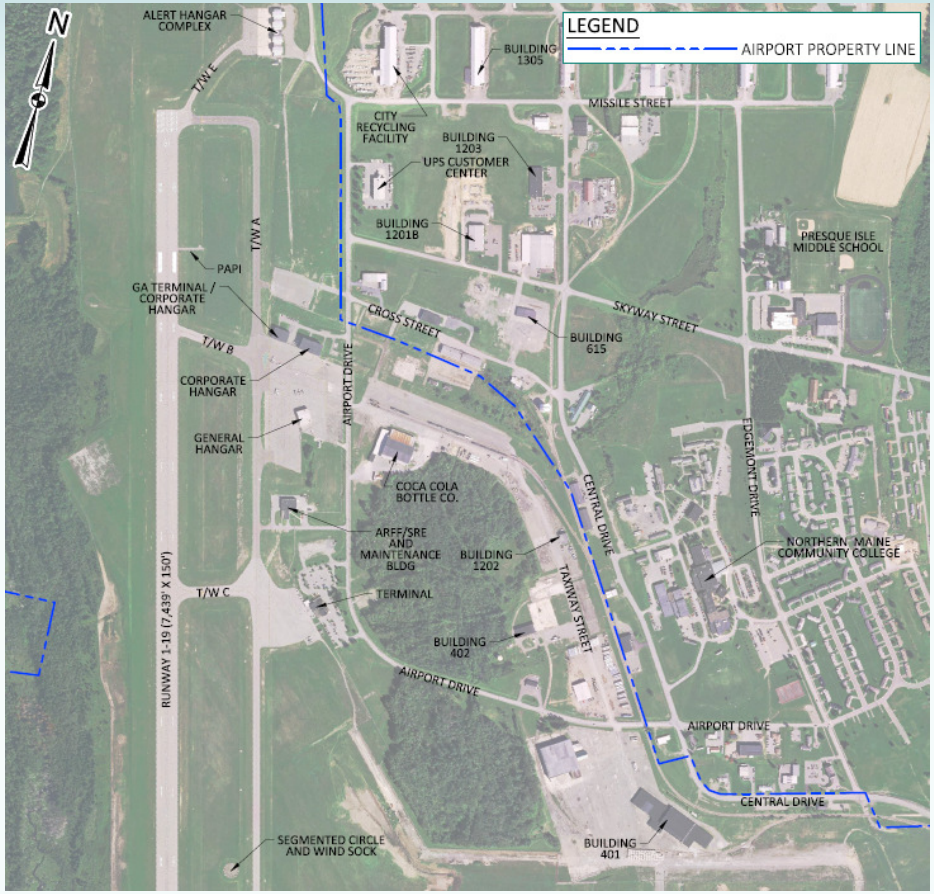
EXISTING LANDSIDE FACILITIES AND SERVICES



- Airport Facilities
  - 7 Conventional Hangars (45,278 Total SF)
  - Buildings Managed by PQI Industrial Council for Non-Aviation Use
- Airport/FBO Services
  - Fuel (100LL/Jet-A)
  - Car Rentals
  - Aircraft/Avionic Repairs
  - Essential Air Service (EAS)
  - Customs Clearance
  - Deicing
- Based Aircraft (2017)
  - 20 Single Engine, 4 Multi, 1 Jet
- Terminal Facilities
  - 1950s

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FORECAST

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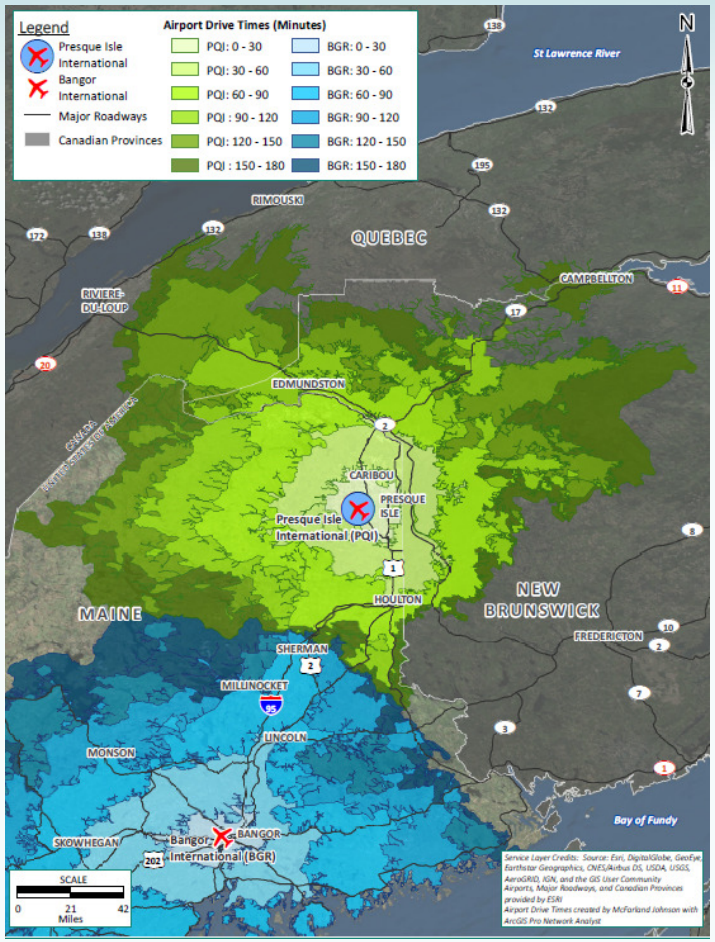
COMMERCIAL AIRPORT SERVICE AREA



- Gateway Airport to northern Maine
- Commercial service catchment area up to a 3-hour drive time from PQI
  - North of Bangor
  - Reach into Canada
- Essential Air Service airport
  - Designed to guarantee minimal level of scheduled air service
  - United Airlines is the current EAS provider to Newark

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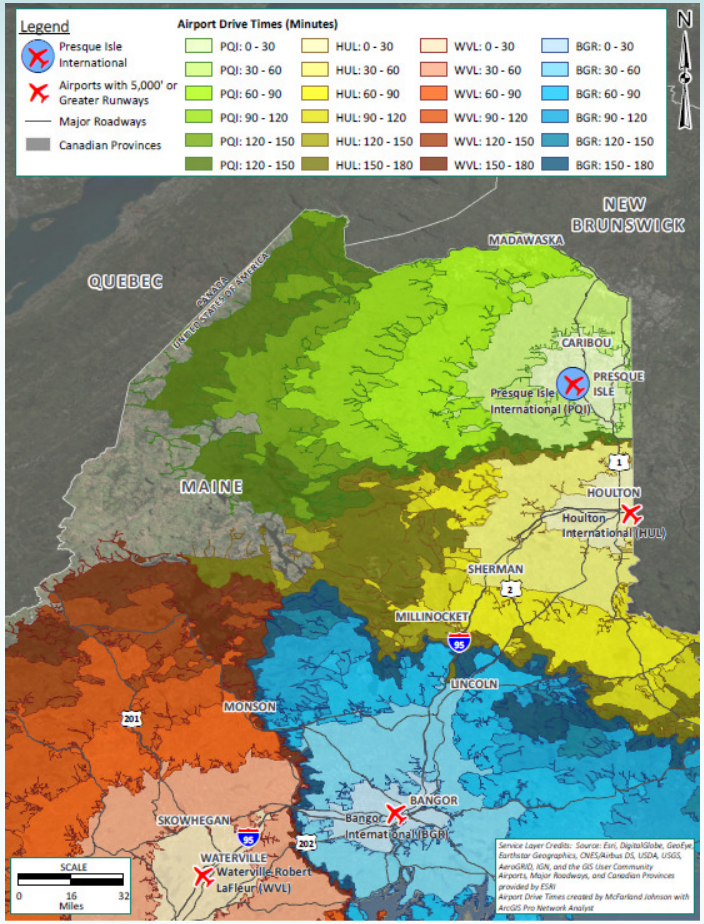
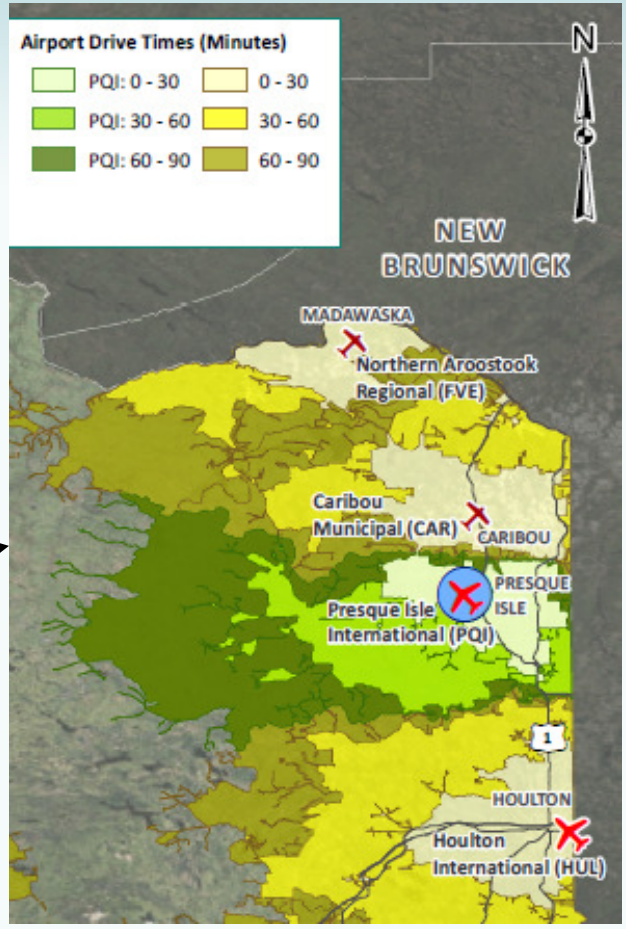
GENERAL AVIATION AIRPORT SERVICE AREA



GA Jet Service Area

GA Non-Jet Service Area



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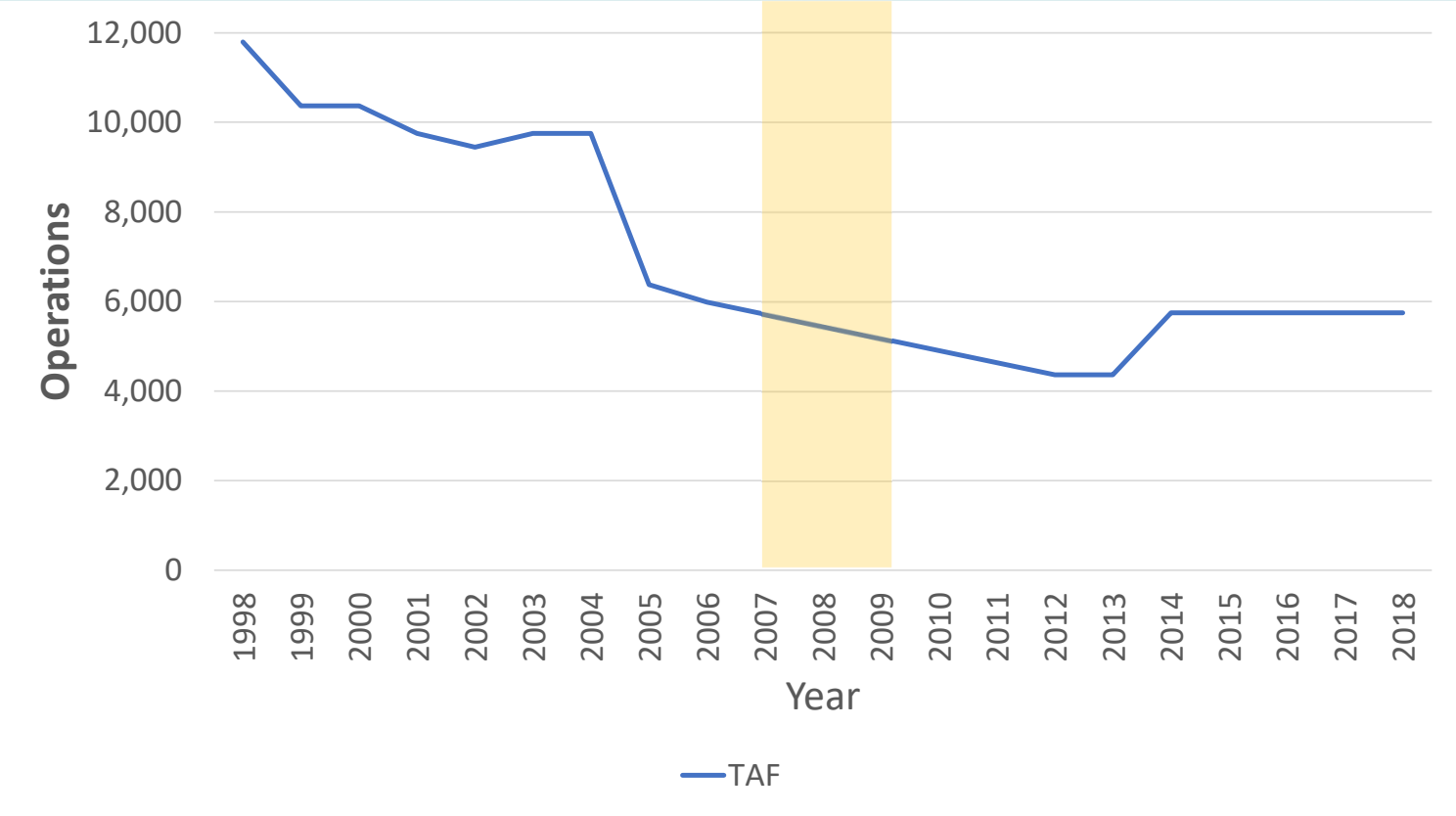
AIRCRAFT OPERATIONS - HISTORICAL



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AIRCRAFT OPERATIONS

Year	Itinerant Operations					Local Operations			Total
	Air Carrier	Air Taxi	GA	Mil	Total	GA	Mil	Total	Operations
Baseline	1,804	2,177	1,031	54	5,066	684	0	684	5,750
2023	1,248	2,650	1,255	66	5,218	832	0	832	6,051
2028	1,248	2,825	1,338	70	5,480	887	0	887	6,368
2038	1,248	3,202	1,517	79	6,046	1,006	0	1,006	7,052

- 1.03% CAGR
- EAS provider change results in fewer operations: 3rd summer flight gone

	2018	2023	2028	2038
Operations	5,750	6,051	6,368	7,052
Peak Month	575	605	637	705
Average Day Peak Month	19	20	21	24
Peak Hour	3	3	3	4

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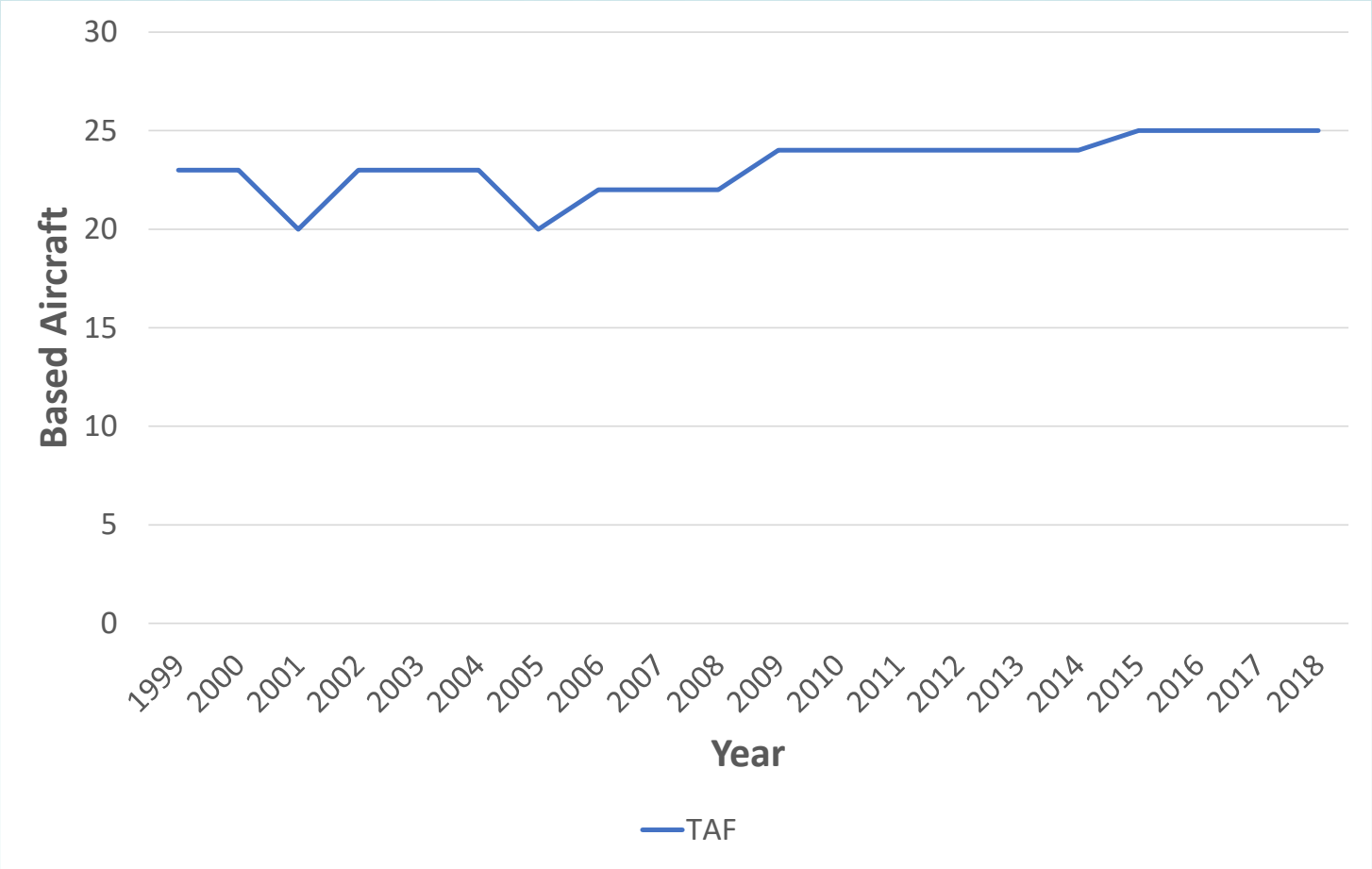
BASED AIRCRAFT - HISTORICAL



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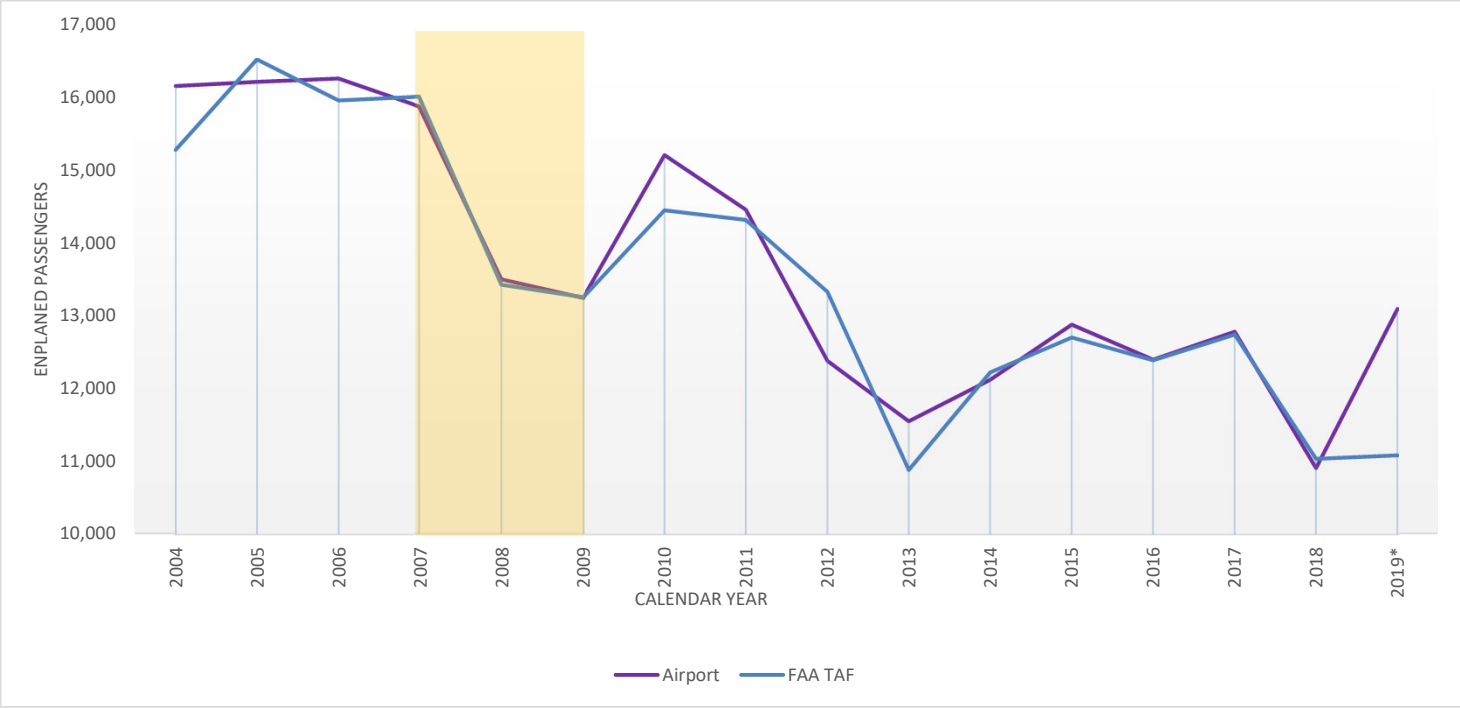
BASED AIRCRAFT

Year	Single	Multi	Jet	Rotor	Total
Baseline	20	4	1	0	25
2023	20	4	2	0	26
2028	20	5	3	0	28
2038	22	5	4	0	31

- Five-year trend analysis
- Grow at a rate of 1.03% annually
- Jets will be small (Cessna Citation)

ENPLANEMENTS - HISTORICAL



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ENPLANEMENTS

	Baseline	2023	2028	2038
Enplanements	11,974	16,948	19,974	26,027
Peak Month	1,197	1,695	1,997	2,603
Average Day Peak Month	40	56	67	87
Peak Hour	50	50	50	50

- Load factor methodology
- First branded jet service, many more seats/options for a very large region
- Farther reach than ever before

TERMINAL AREA FORECAST (TAF) COMPARISON

	Actual	Forecast			
	2019*	2023	2028	2038	CAGR
	FAA TAF				
Enplanements	11,087	11,286	11,486	12,000	0.42%
Total Operations	5,750	5,750	5,750	5,750	0.00%
Based Aircraft	25	27	27	27	0.41%
	Master Plan Forecast				
Enplanements	13,100	16,948	19,974	26,027	3.96%
Total Operations	5,809	6,051	6,368	7,052	1.03%
Based Aircraft	25	26	28	31	1.03%
	Percent Difference From TAF				
Enplanements	18.16%	50.17%	73.90%	116.89%	-
Total Operations	1.03%	5.24%	10.74%	22.64%	-
Based Aircraft	0.00%	-2.56%	2.54%	13.56%	-

Enplanements CAGR:

- 2018 enplanements were 1,000 below TAF despite no service in June
- * 2019 on track for 13,100 which far exceeds 2045 TAF
- * 2019 12% above 2018 excluding June (Jan-Oct)
- * 2019 24% above 2018 including June (Jan-Oct)

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CRITICAL AIRCRAFT

- Runway 1-19
  - C-II
  - ERJ-145

JetPhotos: https://www.jetphotos.com/aircraft/manufacturer/Embraer/serial/14500864

- Runway 10-28
  - B-II
  - Cessna 208 Caravan

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ENVIRONMENTAL OVERVIEW

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ENVIRONMENTAL OVERVIEW GOALS

- Early Identification of Constraints
- Incorporate Findings Into Alternatives
  - Avoid/Minimize Impacts
  - Consider Mitigation Requirements
  - Make Informed Decisions
- Basis for Future NEPA, SEQR, and Permits

ENVIRONMENT

- The National Environmental Policy Act (NEPA) of 1969 requires that all federal agencies consider the potential impacts their projects and policies have on the environment.
- The following impact categories are considered:
  - Biotic resources
  - Water resources
  - Coastal resources
  - Department of Transportation Act, Section 4(f) resources
  - Historic resources
  - Farmlands
  - Land use
  - Noise
  - Visual effects
  - Air quality
  - Hazardous materials and solid waste
  - Energy
  - Climate
  - Socioeconomic, environmental justice, and children's environmental health and safety risks
- As the Airport proposed improvements and upgrades, potential cumulative impacts will be further evaluated in subsequent NEPA documents.

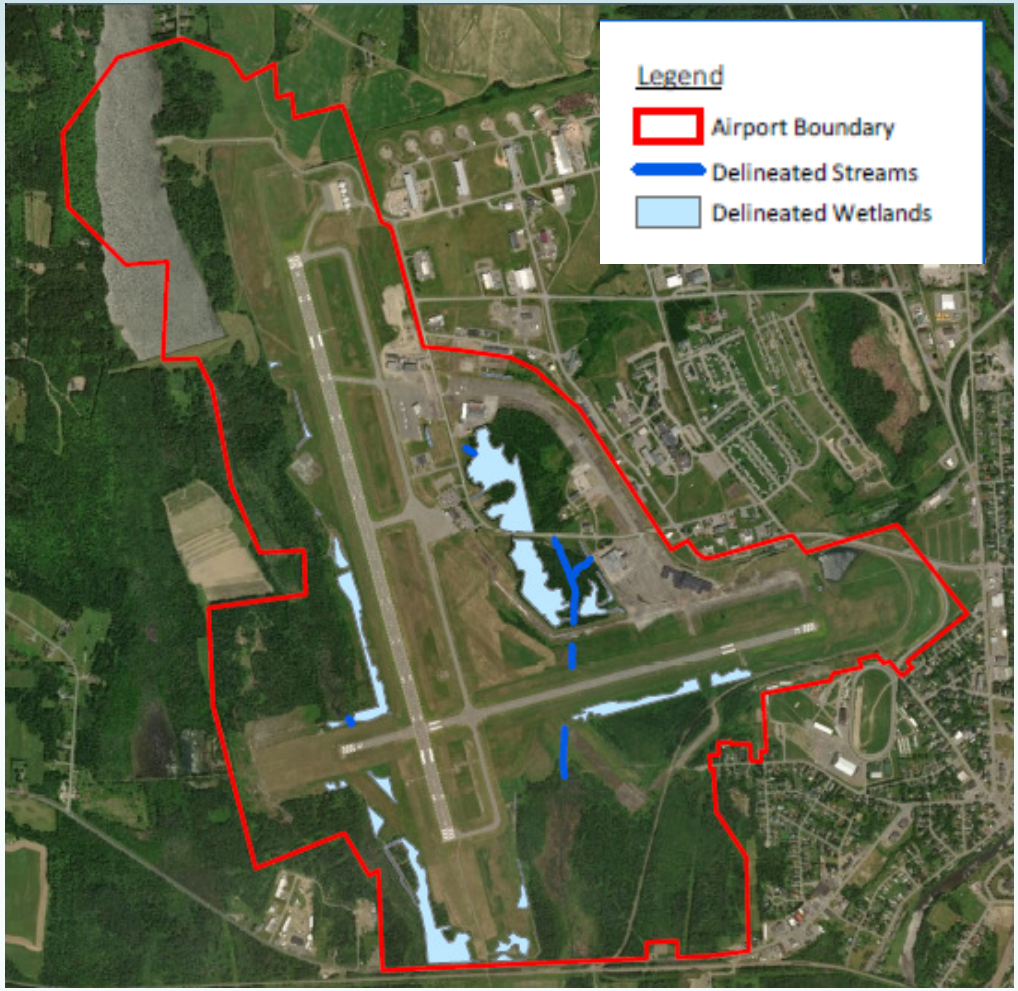
THREATENED AND ENDANGERED SPECIES

Canada Lynx
Lynx canadensis

Upland Sandpipers
Bartramia longicauda

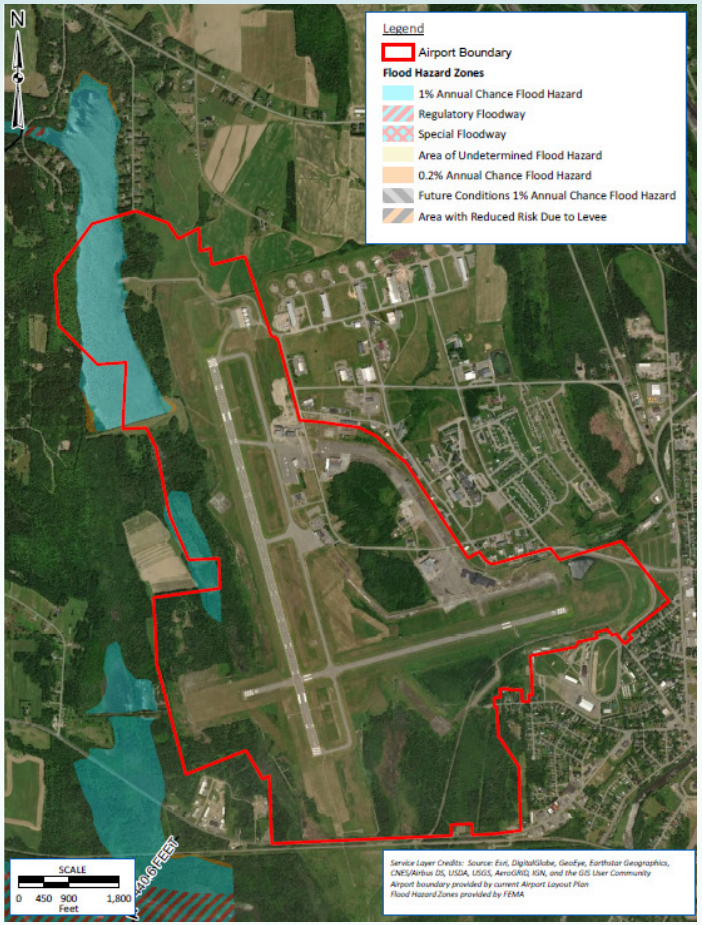
Northern Long-Eared Bat
Myotis septentrionalis

DELINEATED WETLANDS AND WATERWAYS



- 22 wetlands
  - 19 palustrine emergent (PEM)
  - 9 wetlands of special significance (WSS)
- Three perennial streams
- One intermittent stream

FEMA FLOOD PLAINS



- Portion of the Airport along the western boundary within a 100-year, Zone A, floodplain associated with Hanson Brook
- Smaller portion along the northwestern boundary located within a 100-year, Zone AE, floodplain associated with Hanson Brook Lake

AQUIFERS

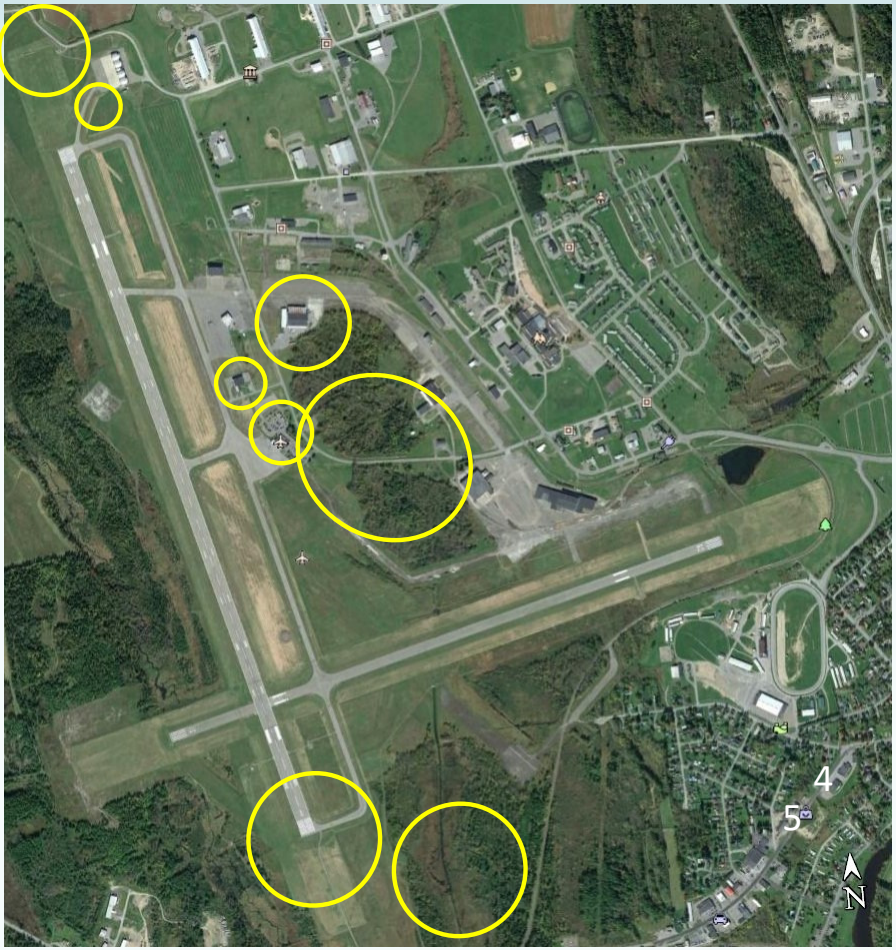
- Maine Geologic Survey published the Significant Sand and Gravel Aquifers in the Presque Isle Quadrangle map on January 1, 2002
  - Significant sand and gravel aquifer with a potential yield of 10-50 gallons per minute in the immediate vicinity of the Airport

NEXT STEPS

- Review and approval of forecast by FAA (submitted September 2019)
- Submit Draft Interim Report #1 for TAC review
- Capacity Analysis and Facility Requirements chapter
- Interim Report #2

- Next TAC meeting: Spring 2020

KEY CONSIDERATIONS



- Terminal constraints
- Taxiway E non-standard conditions (direct access)
- Runway Length (contaminated runway scenario)
- Economic/terminal development potential
- SRE/maintenance storage
- Obstructions & Terrain Runway 19 end
- Wetlands

PROJECT CONTACTS

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Sign-in Sheet

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Presque Isle International Airport Master Plan Update
Technical Advisory Committee 1 – Summary Notes
December 4, 2019

Meeting commenced at 2:15 p.m.

Introductions

Laura Canham opened the meeting by welcoming everyone and members of the TAC introduced themselves. The agenda for the meeting was introduced.

What is a Master Plan?

L. Canham presented on the purpose of the Master Plan including the Master Plan process. This includes the placement of the TAC meetings and public meetings through the duration of the planning process.

Goals and Objectives

Goals and objectives of the Master Plan were reviewed with the ultimate objective resulting in FAA approval of the Airport Layout Plan – the 20-year plan for the airport.

Public Participation Process and Role

As part of the Master Plan, there will be four TAC meetings and two public meetings that will be an information/open-house type workshop. Input from the TAC will be sought throughout the process. TAC members will also communicate information to constituents and the planning team and act as a 'sounding board'.

Inventory

Megan Carter-Witt described the general airside and landside facilities at Presque Isle International Airport, including runways, taxiways, lighting, hangar facilities, Airport/FBO services, based aircraft, and the terminal. Existing facilities were described in their importance to the Airport and how they will affect the rest of the plan. Key findings included a 79-foot elevation difference between Runways 1 and 1-19, Runway 10-28 not having a parallel taxiway or turn-arounds resulting in back-taxi operations, and both runways having the capacity to be used for commercial operations.

The following discussion items came up:

- A question about which runway end was lower, Runway 1 was confirmed to be lower.
- Discussion on Runway 10-28 resulted in preferences and support for turn-around areas on the runway ends, but not a full parallel taxiway.

Forecasts

The catchment and service areas for the Airport's commercial service, general aviation jet service, and non-jet general aviation service. The unique circumstances associated with essential air service (EAS) at PQI was discussed.

Forecasts were created for aircraft operations, based aircraft, and enplanements.

Air carrier operations are forecast to remain constant due to EAS while total operations are forecast to grow at a rate of approximately 1 percent annually.

Based aircraft are forecast to grow at approximately 1 percent annually. Most growth is anticipated to occur for in the based jets, which are anticipated to be small jets, such as Cessna Citations.

Enplanement growth rates were calculated using load factor of the ERJ 145 being flown by United Airlines, who is providing EAS service at the Airport.

Aircraft operations and based aircraft forecasts remain within 10% of the TAF within 5 years and 15% in 10 years. However, the enplanement forecast far exceeds the TAF. The 2019 enplanements are on track for 13,100 which far exceeds the 2045 TAF. The TAF was based on lower numbers than the 2018 enplanements (when there was one month of no air carrier service) and therefore does not adequately show the existing enplanements or take the new jet service and farther reach into consideration.

The critical aircraft within the planning period is a C-II ERJ-145 for Runway 1-19 and a B-II Cessna 208 Caravan for Runway 10-28.

The following discussion items came up:

- With a single point of service due to EAS, there is uncertainty of the critical aircraft, as that could change with the upcoming selection of EAS provider. Aircraft are subject to change with each EAS renewal (every 2-4 years). Long-term there are no new aircraft being built in the 9 to 50 seat market segment.
- The question came up how enplanements were increasing when the socioeconomic data shows a decline. PQI currently captures only 7 percent of its market area while Bangor captures 10-12 percent. PQI is experiencing the best enplanement numbers in 9 years and it is reasonable to expect those numbers to continue to grow if they can continue to capture more of its own market. Additionally, for local areas of Canada, PQI is the closest commercial service airport.
- It was noted that in Maine a high percentage of people are out of the workforce compared to the rest of the United States. The age structure and job structure of the local economy indicates that PQI travel is dependent on the price structure. Leisure travelers are price and destination/access sensitive.

- The biggest leakage factors identified were price, reliability, and hub service.
- Car rentals were reported to be down significantly, which could mean that business travelers are flying elsewhere due to the lower reliability PQI flights have experienced. A comment was made about a smaller aircraft with more frequent flights potentially capturing back the business travelers as a delay or cancellation would not mean a full-delay. That brought about a discussion that some companies require jet service for business travel.

Environmental Overview

The key goals of the environmental overview are early identification to incorporate findings and make informed decisions throughout the planning process. The findings will be the basis for future National Environmental Policy Act, State Environmental Quality Review, and permits.

There are three threatened or endangered species that could exist on Airport property based on the animals' preferred habitats: Canada Lynx, Norther Long-Eared Bat, and Upland Sandpiper.

A partial wetland delineation was conducted for areas within the Runway Object Free Area (ROFA) and portions of the airport property identified for potential revenue generation. There were 22 wetlands, three perennial streams, and one intermittent stream identified within the areas surveyed.

FEMA 100-year flood plains were identified on and near Airport property. These flood plains are associated with Hanson Brook and Hanson Brook Lake. Sand and gravel aquifers are located east of the Airport, but none were identified on Airport property.

Next Steps

The following next steps were identified by L. Canham:

- FAA approval of the forecasts
- Submit Draft Interim Report #1 for TAC review
- Conduct capacity and facility requirements
- Schedule next TAC meeting

Key Considerations

Some of the key considerations identified by attendees include the following:

- Housing Equipment:
  - United lacks storage space for their equipment
  - Equipment needs to be covered in winter conditions

- Reliability of current jet service:
  - More traffic from 50 to 70-year old's who are very excited about jet service, but do not like unreliability

  - Defense Finance and Accounting Service (DFAS), along with other corporations located in northern Maine, have a requirements that employees fly on jets and are not permitted to fly on turbo prop aircraft
  - EAS bids are currently out

- Terminal Capacity:
  - Terminal not designed for modern day passengers or airline/security operations (70 years old now, will be 90 at the end of the planning period)
  - The terminal works for now, but will not in the future
  - There are many limitations, including TSA set up where there is not enough space for TSA body scanners
  - Terminal has been updated as much as it can be, but by the end of the planning period will be very old since the terminal was built in the 1950's

- Solar Farms:
  - There has been interest expressed in adding solar farms on Airport deeded land
  - There is a state subsidy program to add solar farms
  - The Airport has already received very good proposals
  - There are 2 areas that are being considered. However, the Airport may also suggest additional potential solar farm locations
    - Old military hangar site
    - Panels can be in RPZ as long as they pass solar glare test
  - Airport, Industrial Council, and company who has sent solar farm proposal are in tune with FAA needs and standards
  - Lease agreements need to be written to account for future concerns. FAA does not want Airport to have any liability after the useful life of the solar panels at the end of the lease including clean-up and transformers.

- Crosswind runway turn around:
  - Adding a taxiway or turn-around will be considered in the alternatives for Runway 10-28
  - Airport and FAA agree that a full taxiway is not worth it, but are in favor of a "jug handle" turnaround on the Runway28 end

- Design Aircraft:
  - The design aircraft may change with the next EAS provider
  - Snow removal needs to be taken into consideration for the runway width and snow banks for the localizer equipment

- Obstructions and Approaches:
    - Airport should retire off Airport obstruction lights that aren't necessary (marking land forms, which is not a requirement of the FAA)
    - The Airport has issued an FAA Form 7460 to remove 1 of the 3 lights on the hill
    - FAA said that lights can be taken down without FAA Form 7460 form if they are not lights that were mandated by the FAA to put up
    - Hobbard Hill has easements. The Airport and FAA would prefer to eliminate any current easements associated with the Hobbard Hill obstructions lights if they are not necessary. These agreements can be reworked.

Attachments: Sign-in sheet, presentation slides

The meeting concluded at approximately 4:00 p.m.

PRESQUE ISLE
INTERNATIONAL AIRPORT
AÉROPORT INTERNATIONAL DE PRESQUE ISLE

Master Plan Update

Technical Advisory Committee Meeting #2&3
November 3, 2020

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AGENDA

- Introductions
- Master Plan Process
- Forecasts
- Airside Requirements
- Terminal Requirements
- GA and Support Facilities
- Alternatives
- Next Steps

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MASTER PLAN PROCESS

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WHAT IS A MASTER PLAN?

- What is a Master Plan?
  - Is the Official FAA Planning Document
  - Reflects the City of Presque Isle's Goals for the Airport
  - Depicts Future Airport Development Covering 20 Years
- What Generated the Need for the Master Plan Update?
  - FAA Airport Design Standard Changes
  - Changes in Activity and Facility Needs Since Last Master Plan
- Master Plan Goals
  - Meet the Aviation Needs of Citizens and Businesses in the Airport's Service Area
  - Maintain Safe and Efficient Airside Facilities Compliant with Airport Design Standards and FAA (Federal Aviation Administration) and MaineDOT (Department of Transportation) Guidance
  - Identify Opportunities for Economic Sustainability at the Airport as Required by Grant Assurances
  - Maintain Planning Flexibility for Future Changes in the Aviation Industry

MASTER PLAN PROCESS

1st Technical Advisory Committee Meeting
-Inventory, Forecast, and Environmental Overview

2nd Technical Advisory Committee Meeting
-Facility Requirements and Alternatives

1st Public Meeting

3rd Technical Advisory Committee Meeting
-Draft Plan

2nd Public Meeting

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GOALS AND OBJECTIVES

Goals:

- Meet the Aviation Needs of Citizens and Businesses in the Airport's Service Area
- Maintain Safe and Efficient Airside Facilities
- Identify Opportunities for Economic Sustainability
- Maintain Planning Flexibility for Future Changes
- Develop a Fee Structure for Non-aeronautical Use Property

Objectives:

- Develop a Flexible, Scenario-based Approach
- Develop a Plan to Meet the Growing Demands on the Airport
- Evaluate and Recommend Alternatives
- Engage the Public Through Participation in the Planning Process
- Obtain Approval from FAA of the Resulting ALP

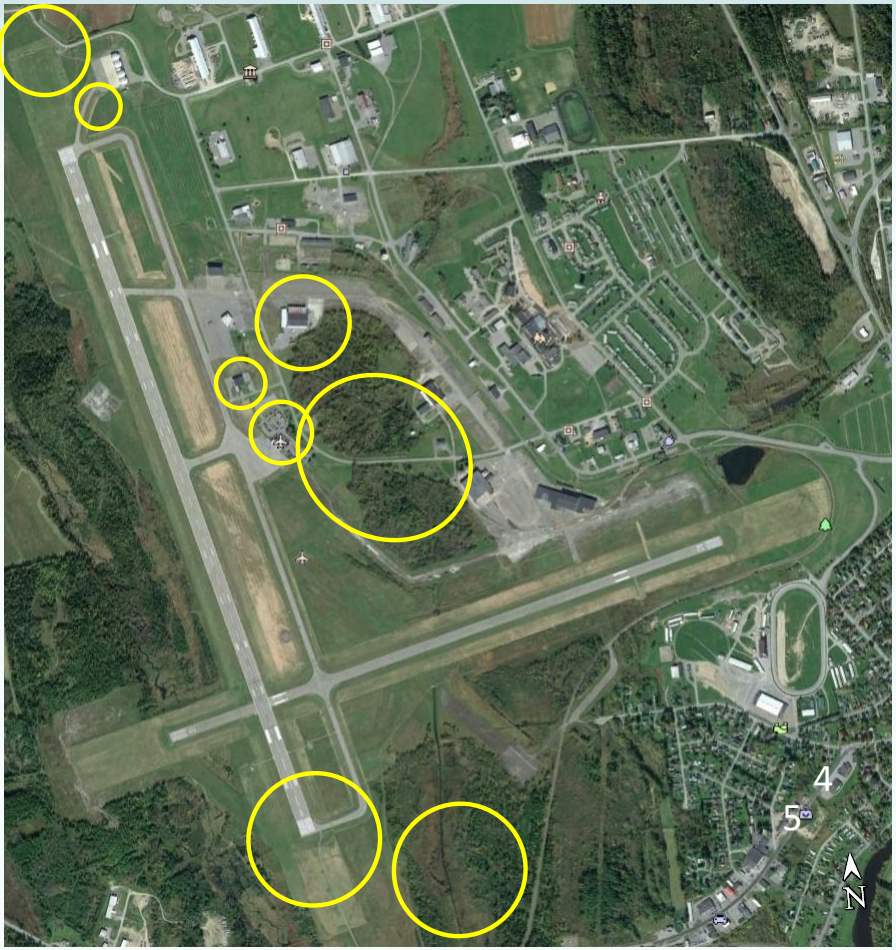
PUBLIC PARTICIPATION

- Technical Advisory Committee (3 meetings)
  - PQI, FAA, Maine DOT, City of Presque Isle, Stakeholders
- Public Information Meetings (2)
  - Informal, Open-house, Workshop (If Possible)

ROLE OF THE TAC

- Assists Project Team with Technical Expertise
- Acts as a ‘Sounding Board’ for Development and Analysis of Various Alternatives
- Provides Technical Input, Reviews Documents, and Provides Guidance
- Communicates Information to Constituents and the Planning Team

KEY CONSIDERATIONS



- Terminal Constraints
- Taxiway E Non-Standard Conditions (Direct Access)
- Runway Length (Contaminated Runway Scenario)
- Economic/Terminal Development Potential
- SRE/Maintenance Storage
- Obstructions & Terrain Runway 19 End
- Wetlands

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FORECASTS

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BASELINE FORECAST AND TAF

	Actual	Forecast			
	Baseline	2023	2028	2038	AAGR
FAA TAF					
Enplanements	11,038	11,286	11,486	12,000	0.42%
Total Operations	5,750	5,750	5,750	5,750	0.00%
Based Aircraft	25	27	27	27	0.41%
Master Plan Forecast					
Enplanements	11,974	16,948	19,974	26,027	3.96%
Total Operations	5,750	6,051	6,368	7,052	1.03%
Based Aircraft	25	26	28	31	1.03%
Pct. Difference From TAF					
Enplanements	8.48%	50.17%	73.90%	116.89%	-
Total Operations	0.00%	5.24%	10.74%	22.64%	-
Based Aircraft	0.00%	-2.56%	2.54%	13.56%	-

Short-Term Volatility with Solid, Stable Long-Term Market

CRITICAL AIRCRAFT

- **H.R.302 - FAA Reauthorization Act of 2018:** (h) Evaluation of Airport Master Plans [...] shall take into account (2) the role the airport plays with respect in emergency or disaster preparedness in the community served by the airport.

Existing and Future: C-II
Protect for C-III Standards

Runway 1-19 Critical Aircraft:
ERJ-145 (C-II)

Runway 10-28 Critical Aircraft:
Cessna 208 Caravan (B-II)

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AIRSIDE REQUIREMENTS

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AIRSIDE FACILITY REQUIREMENTS

- Determines What, if any, Additional Facilities will be Required
- Based on Most Demanding Aircraft Characteristics (Multiple Aircraft)
- Is Based on Existing and Forecast Activity
- Considers Peak Hour and Annual Demand
- Reviews the Following:
  - Runway Length
  - Runway Widths
  - Runway Strengths
  - Runway Orientation
  - Runway Design Surfaces (RSA, ROFA, OFZ, RPZ, etc.)
  - Markings, Lighting, and Signage
  - Taxiways
  - Apron/Ramp Areas (GA and Terminal)
  - Runway Geometry Standards
  - Visual Approach Aids

CAPACITY ANALYSIS

Year	Demand		Capacity			Percent Peak Hour		Percent ASV
	Annual	Peak Hour	ASV	Hourly VFR	Hourly IFR	VFR	IFR	
2019	5,750	3	200,000	77	57	3.9%	5.3%	**2.9%**
2023	6,051	3	200,000	77	57	3.9%	5.3%	**3.0%**
2028	6,368	3	200,000	77	57	3.9%	5.3%	**3.2%**
2038	**7,052**	**4**	**200,000**	**77**	**57**	**5.2%**	**7.0%**	**3.5%**

- Detailed Capacity Analysis Should be Conducted Once PQI Reaches Approximately 40%
- No Capacity Constraints are Anticipated in the Planning Period

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RUNWAY LENGTH

- Existing Runway Lengths
  - Runway 1-19: 7,441
  - Runway 10-28: 6,000

Runway Lengths Should be Retained or Extended

- Only Airport North of Bangor that can Accommodate Larger Aircraft
- Protect for Boeing 737/A320 – Type Aircraft

	ERJ-145	CRJ-200	B737	A320
Takeoff Distance (unadjusted)	6,700’	5,300’	6,200’ – **8,200’**	**7,500’**
Runway Elevation Difference	790’	790’	790’	790’
Takeoff Distance (adjusted)	**7,490’**	6,090’	6,990’ – **8,990’**	**8,290’**
Landing Distance (unadjusted)	4,800’	5,000’	5,800’	4,900’
Landing Distance (adjusted)	5,520’	5,750’	6,670’	5,635’

TAKE OFF AND LANDING PERFORMANCE ASSESSMENT (TALPA)

Assessment Criteria	
Runway Condition Description	**RwyCC**
• Dry	6
• Frost • Wet (Includes damp and 1/8 inch depth or less of water) ***1/8 inch (3mm) depth or less of:*** • Slush • Dry Snow • Wet Snow	5
-15°C and Colder outside air temperature: • Compacted Snow	4
• Slippery When Wet (wet runway) • Dry Snow or Wet Snow (any depth) over Compacted Snow ***Greater than 1/8 inch (3 mm) depth of:*** • Dry Snow • Wet Snow ***Warmer than -15°C outside air temperature:*** • Compacted Snow	3
Greater than 1/8 inch(3 mm) depth of: • Water • Slush	2
• Ice	1
• Wet Ice • Slush over Ice • Water over Compacted Snow • Dry Snow or Wet Snow over Ice	0

- Pre-TALPA the Airport was Closed 5 Hours/Year
- In 2019 the Airport was Closed 25.5 Hours
- Chemicals Wet the Runways, not Allowing Snow to Drift
- Greater than 1/8 Inch of Water, Snow, Slush, or Ice is Contaminated
- Aircraft Weight Restrictions Impact Takeoff and at RwyCC 5 or Lower
- Due to the Limited Schedule, Reliability Should Be Maximized

IMPROVE RELIABILITY OF SERVICE

- Improve the Runway 19 Approach/Reduce Minimums
- Extend Runway 1-19
- Groove Runway 1-19
- Maintain 150-foot Wide Runway

Runway 1-19

RUNWAY WIDTH

- Existing Runway Widths
  - Runway 1-19: 150 Feet Wide
  - Runway 10-28: 100 Feet Wide

Standard C-II 100’
Standard C-III 150’

- Unique Circumstances:
  - Only airport with a 6,000-foot runway north of Bangor
  - Designated FEMA Emergency Airport
  - Average High Temperature Below Freezing December Through February
  - November and March Have Average Highs Marginally Above Freezing
  - November Through March Snow: 99” (109”/Year) = 8’ Snow
- 150-foot Wide Runway Reduces Snow Removal by 10-15 Minutes Per Snow Removal Pass – Airport is Open Faster

Protect for C-III, 150’ width

RUNWAY STRENGTH

	ACN	Runway 1-19 PCN	Runway 10-28 PCN	Deficiency
Embraer 145	6-15	94/F/A/W/T	94/F/A/W/T	None
CRJ 200	8-16	94/F/A/W/T	94/F/A/W/T	None
Airbus 320	21-47	94/F/A/W/T	94/F/A/W/T	None
Cessna 208 Caravan	N/A	94/F/A/W/T	94/F/A/W/T	None

Runway Strength Meets Standards

CROSSWIND JUSTIFICATION

	All Weather Wind Coverage			IFR Wind Coverage			VFR Wind Coverage		
	10.5 Knot	13 Knot	16 Knot	10.5 Knot	13 Knot	16 Knot	10.5 Knot	13 Knot	16 Knot
Runway 1-19	**94.04%**	96.69%	99.04%	96.80%	98.21%	99.29%	**93.64%**	96.47%	99.01%
Runway 10-28	**88.98%**	**93.55%**	98.26%	**88.21%**	**92.92%**	97.74%	**89.15%**	**93.75%**	98.40%
Both	99.38%	99.89%	99.99%	99.48%	99.91%	99.99%	99.39%	99.90%	99.99%

- FAA Recommends 95% Wind Coverage
- Crosswind Runway 10-28 is Justified
- 3% of Wind Observations are High Wind Conditions
- In Strong Winds, ERJ-145 has Used Runway 10-28

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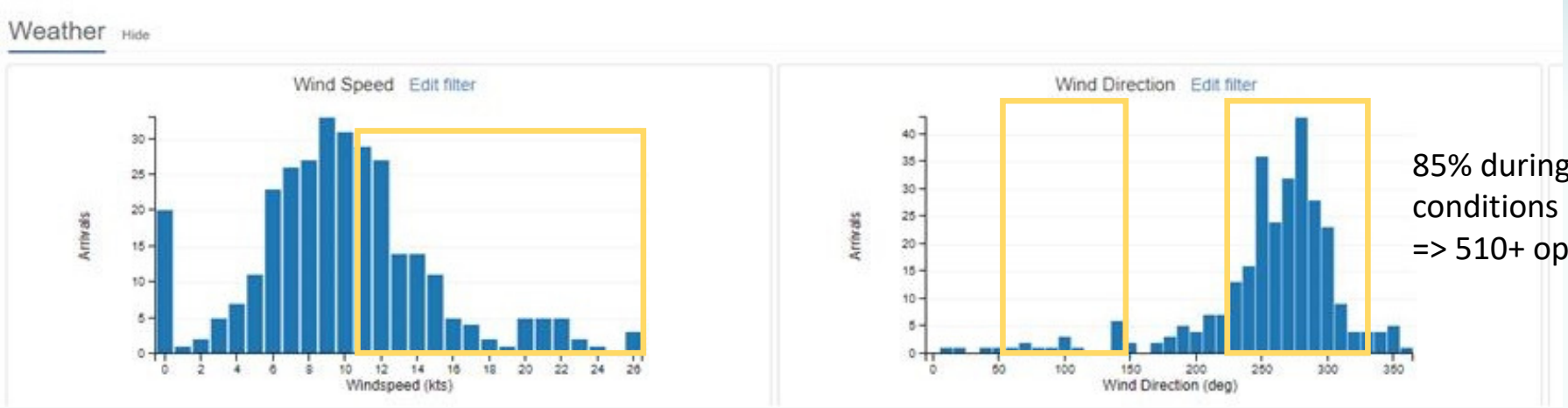
CROSSWIND JUSTIFICATION

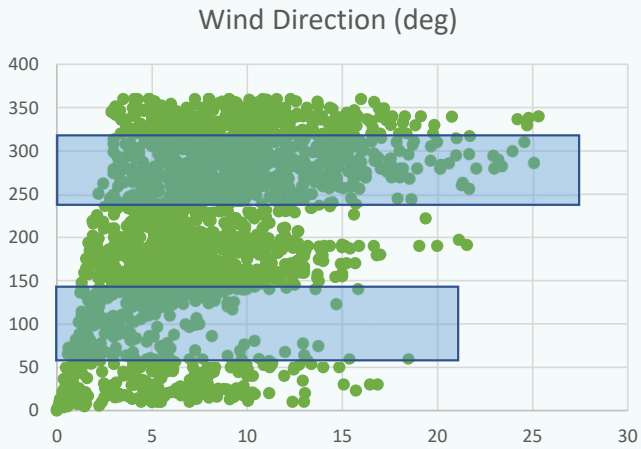


85% during crosswind conditions
=> 510+ operations

- Different Conditions Warrant Different Crosswind Limits
  - CRJ-200, -700, -900, ERJ-145: 10-30 knots
  - ERJ-175: 10-38 knots
- Reliable Schedule for EAS Airport – Only 2 Arrivals Per Day

CROSSWIND JUSTIFICATION

- ADS-B: 5,125 operations, GARD 9,996 operations
  - ADS-B A/B-I: 207 operations
  - E145 >= 10 knots crosswind: 18 ops (52 total)
  - Other operations during crosswind conditions
  - GARD A/B-I: 503 operations
  - **Total Eligible Crosswind: 728**
- Runway 1-19 benefits:
  - Longer Runway
  - Has a Better Approach
  - Full-length Taxiway / No Back-Taxi



Runway 10-28 is an Eligible Crosswind Runway

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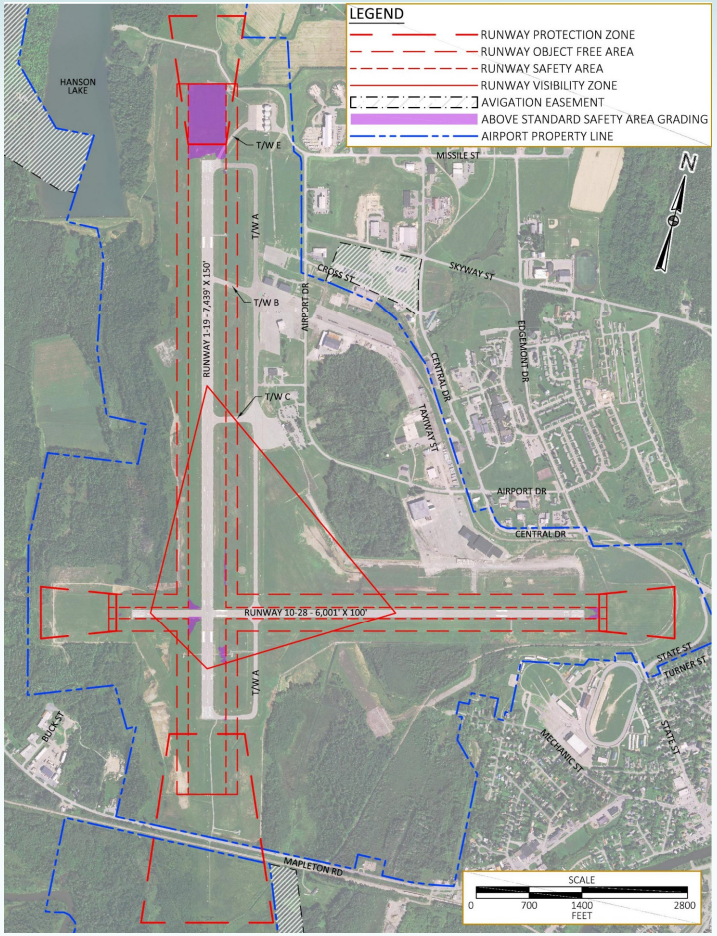
RUNWAY DESIGN SURFACES (RSA, ROFA, RPZ, RVZ)



- RSA: Runway 19 Grade
- RVZ: Perimeter Fence Does not Impede Visibility
- RPZ: future size may change

C-II and C-III have same RSA, ROFA, RPZ Standards

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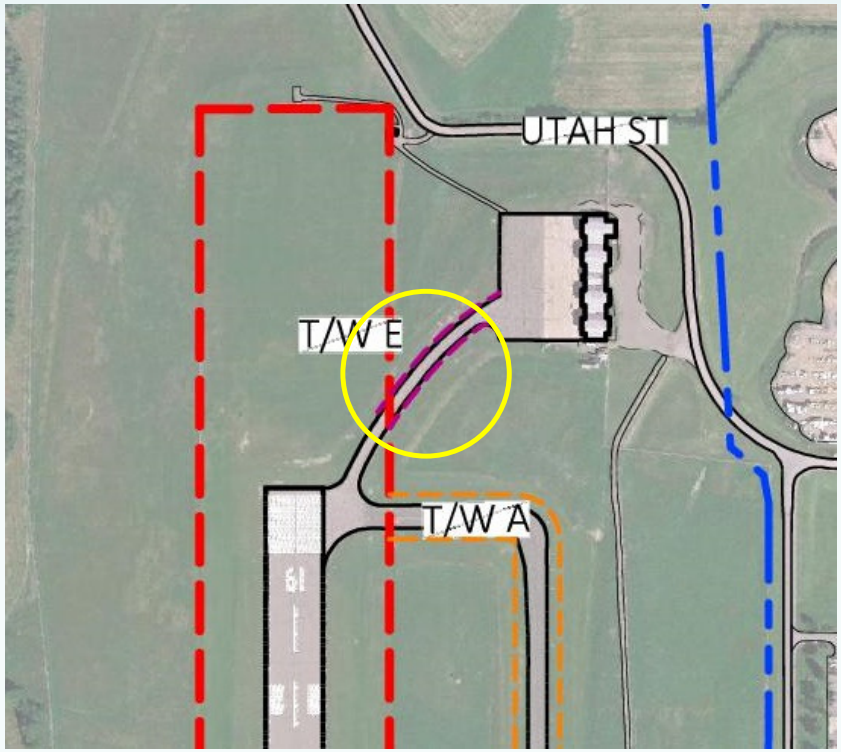
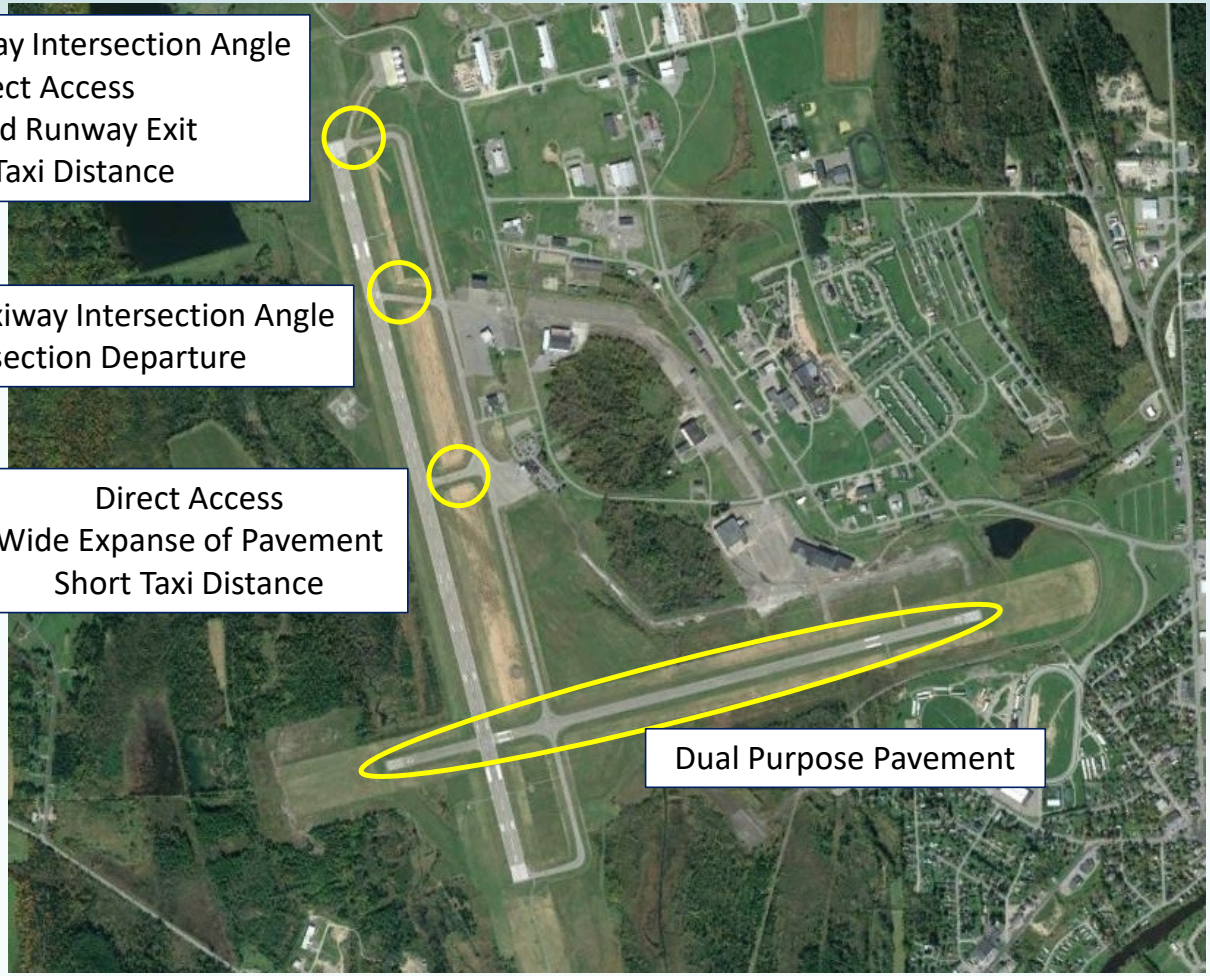
TAXIWAY SLOPE



- Longitudinal Grade of Taxiway E is 3.13%
- Max Grade for AAC A/B is 3% With an Ideal Max Grade of 2%

AIRFIELD GEOMETRY STANDARDS



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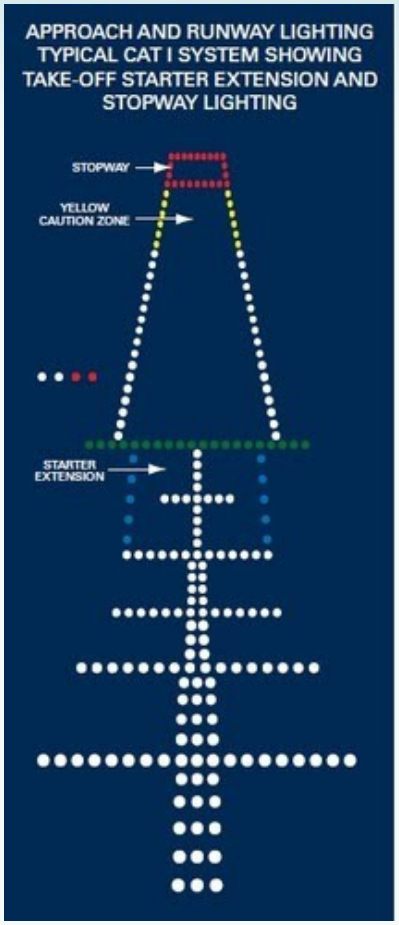
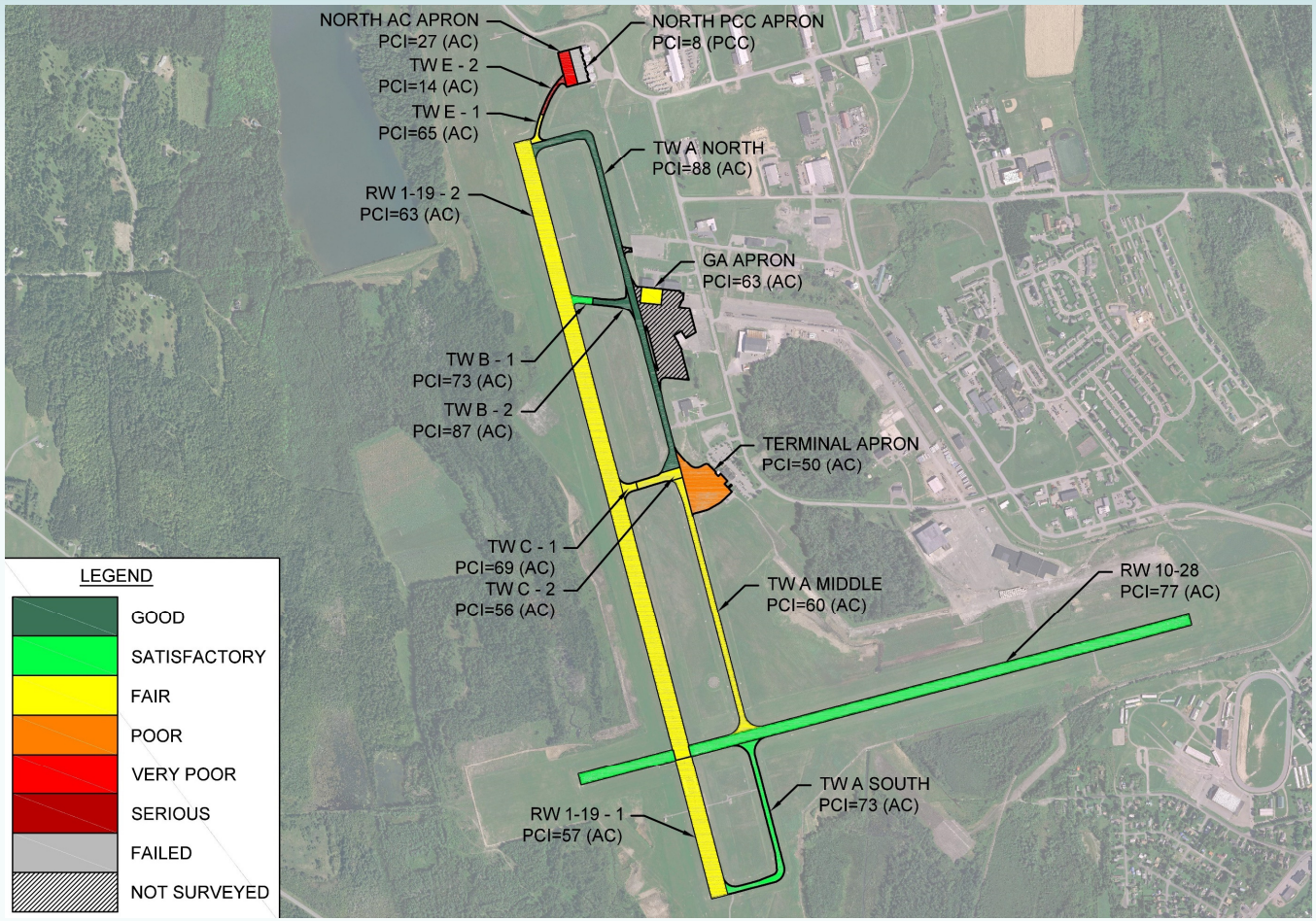
LIGHTING AND SIGNAGE / VISUAL AIDS



- Instrument Approach Aids
  - Runway 1 – MALSR (ILS CAT I)
- Lighting
  - Runway 1-19 – HIRLs
  - Runway 10-28 – MIRLs
  - Taxiways – MITLs
- Visual Approach Aids
  - Runway 19 – 4-Box PAPI (3.7 Degrees)
  - Runway 28 – 4-Box PAPI

Improve Runway 19 PAPI Angle
Consider CAT I Approach Lighting to Runway 19

PAVEMENT CONDITIONS



- Rehabilitation: PCI <70 (Fair)
- Reconstruction: PCI <55 (Poor)

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AIRSIDE FACILITY REQUIREMENTS SUMMARY

Item/Facility	Demand
Runways	Review Runway 1-19 for Additional Take-off Length
Markings	Both Runways Need to be Renumbered
Taxiways	Address Airfield Geometry Concerns and Meet FAA Standards Taxiway E Non-Standard Slope
Lighting	Improve Runway 19 Approach Remove Obstructions

TERMINAL AREA REQUIREMENTS

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TERMINAL AREA ANALYSIS

Due to the Impacts of COVID 19, Terminal Area Analysis Will Be Done Separately.

GENERAL AVIATION AND SUPPORT REQUIREMENTS

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BASED AIRCRAFT REQUIREMENTS

Based Aircraft	2038 Demand	Existing Provision	Shortage
Individual Hangars	6	5	1
Conventional Hangars	50,600 SF	37,643 SF	12,957 SF

Due to Weather Conditions in Northern Maine, it is Preferable that 100% of Aircraft Remain in Hangars.

Plan Additional ~14,200 SF Conventional Space to Accommodate for Shortages in Both Individual Hangars and Conventional Hangar Space

APRON REQUIREMENTS

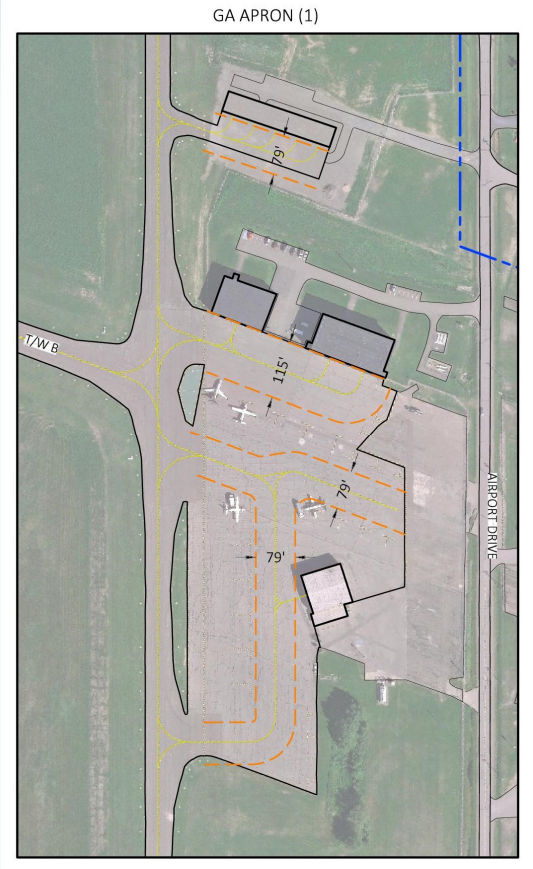
Assumptions:

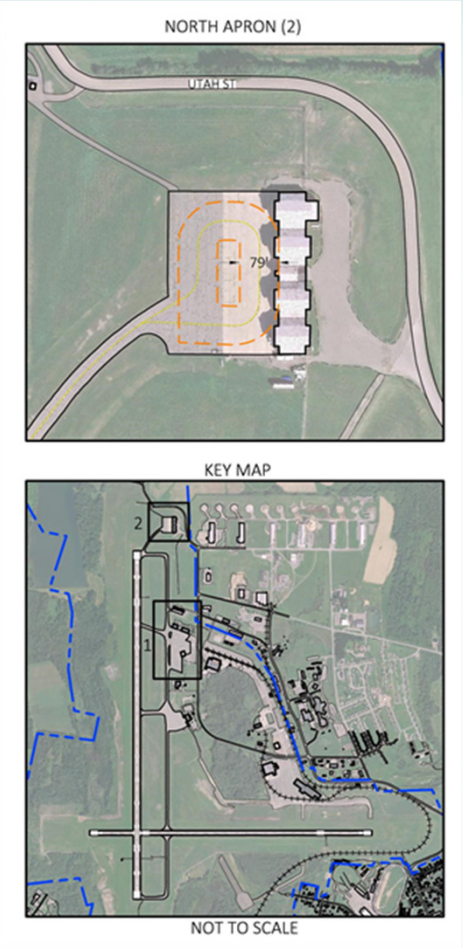
- All Based Aircraft are Parked in Hangars
- Apron Space is Primarily Used for Itinerant Aircraft Parking

Requirements:

- Existing Tie-Downs: 30
- Future Tie-Down Demand: 8
- Existing Apron Meets 2038 Facility Requirements

STAGING AND MANEUVERING





- North Apron ADG I
- GA Apron ADG I and II

LEGEND

TAXILANE OBJECT FREE AREA

AIRPORT PROPERTY BOUNDARY

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FUELING

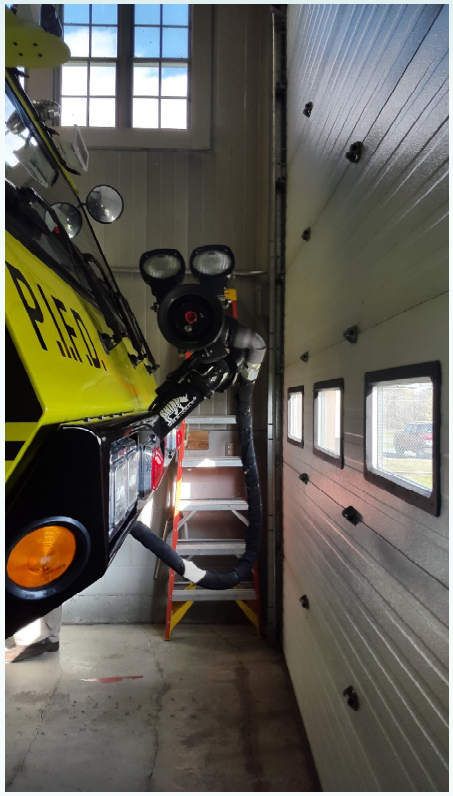
- 15,000-gallon Jet A Fuel Tank
- 5,000-gallon Jet A Truck
- 12,000 Avgas Fuel Tank
- 2,100 gallons Avgas Truck
- 10,000 Gallons Jet A Delivered Every 1.5 Weeks

Fuel	7-day Average Consumption
Jet A – Average Month	9,362.7 gallons
Jet A – Peak Month	13,294.5 gallons
Avgas – Peak Month	590.2 gallons

- Consider Adding 2nd Jet A Fuel Tank (Business Decision)
- Consider Increasing Delivery of Jet A During Peak Season

SUPPORT FACILITIES

- Aircraft Rescue and Firefighting
  - Expand Building to Accommodate Minimum Bay Clearances
- Airfield Maintenance and Snow Removal Equipment
  - Maintain and Replace Equipment as Needed
  - Expand Building to House All Vehicles



- Expand the ARFF Bay to Meet Clearances
- Expand the Maintenance/Support Portion of the Building to 9,500 - 10,600 SF
- Expand the SRE Portion of the Building to 12,600 SF

PERIMETER FENCE

- Fence:
  - North Side: 6-Foot Tall Fence to be Replaced in 2020
  - Remaining: 8-Foot Tall with Barbed Wire and Dirt Berm
- Frost Susceptible Ground
- Fence Lifts Up During Freezing Conditions

New Fence That is not Susceptible to Frost

UTILITIES

- Electric, Cellular Service, Internet and Propane Gas are Adequate for Airport Needs
- City Sewer Needed to Hangars and GA Terminal
- New Pump Station(s) or Extend the Sewer Line for GA Terminal and Corporate Hangars
- Existing Pump Station is Overwhelmed due to Airline Utilization
- Need Back-Up Generator(s)

- Build New Pump Station(s)
- Add Back Up Generators for Airfield and Terminal

LANDSIDE FACILITY REQUIREMENTS SUMMARY

Item/Facility	Demand
Airport Administration Offices	Expand Conference Room
Fuel	Additional Jet A Tank is a Business Decision
ARFF	Increase ARFF Bay Store Vehicles Indoors
SRE/Maintenance	Existing Size: 6,600 SF Demand: 22,100 – 23,200 SF
Utilities	Backup Generator for Airfield and Terminal New Pump Stations

ALTERNATIVES

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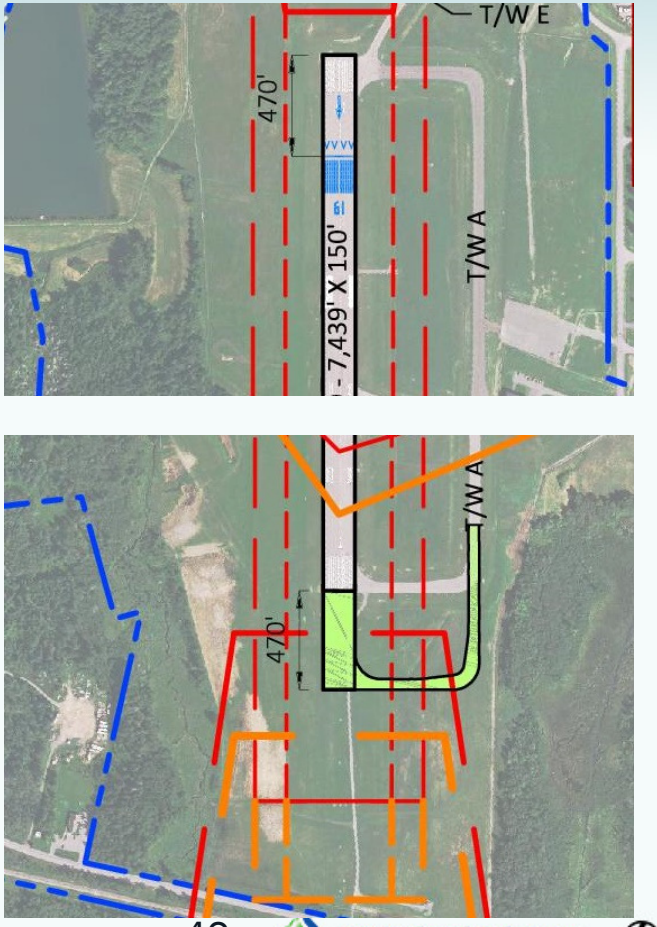
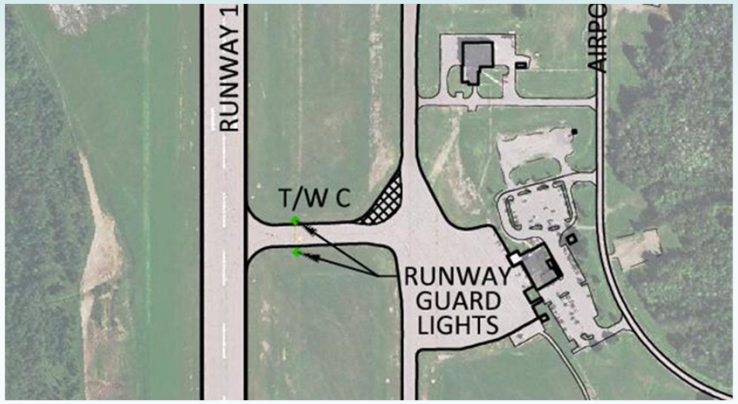
IMPROVE RUNWAY 19 APPROACH

- Add 470’ Displaced Threshold to Runway 19
- Construct 470’ Extension to Runway 1
- Maintain Existing Landing Length
- RSA/ROFA on Airport Property
- Improve Approach to Runway 19
- Increase Approach RPZ size to Runway 19



TAXIWAY C ALTERNATIVES



- Add Runway Guard Lights to Taxiway C
- Correct Fillets at Intersection of Taxiways C and A

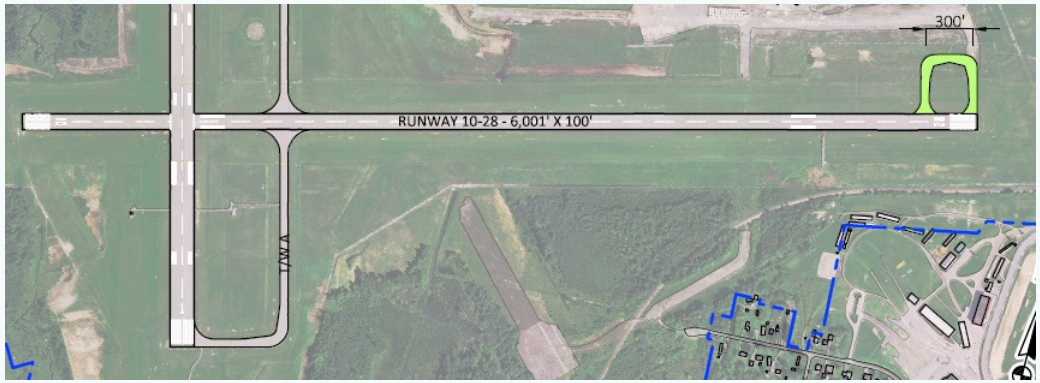
- Paint a No-Taxi Island
- Correct Fillets

TAXIWAY C ALTERNATIVES

- Shift Taxiway C to 400’ North of Runway 10-28
- Most Arrivals Runway 1
  - Single Engine
    - Existing 99%
    - Future 55%
  - Twin Engine
    - Existing 77%
    - Future 0%

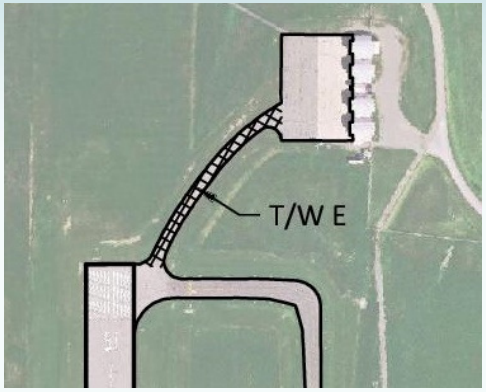
RUNWAY 10-28 DUAL PURPOSE ALTERNATIVES

- Construct New Partial Parallel Taxiway

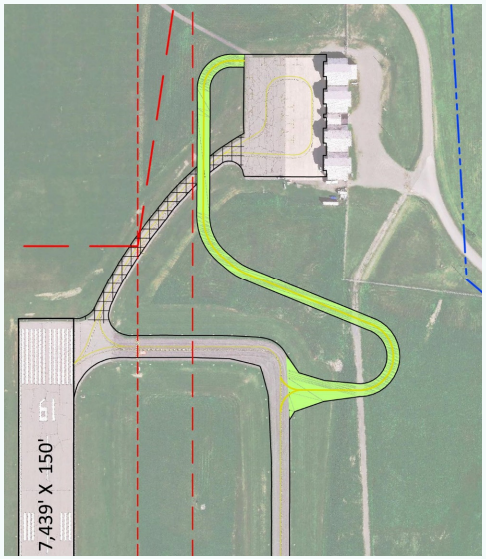


- Construct Turn-Around Taxiway

TAXIWAY E ALTERNATIVES



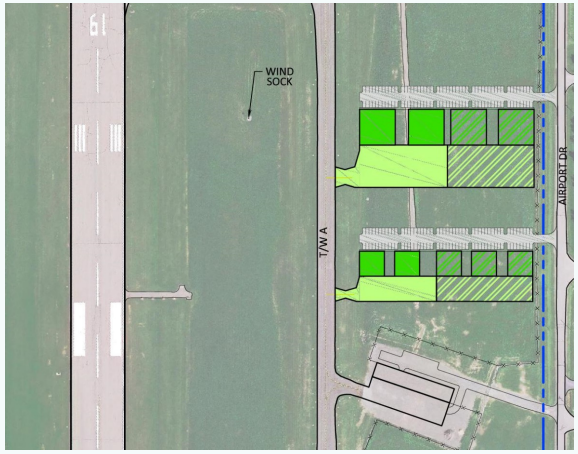
- Remove Taxiway E
- Repurpose North Apron for SRE/Maintenance Equipment Storage

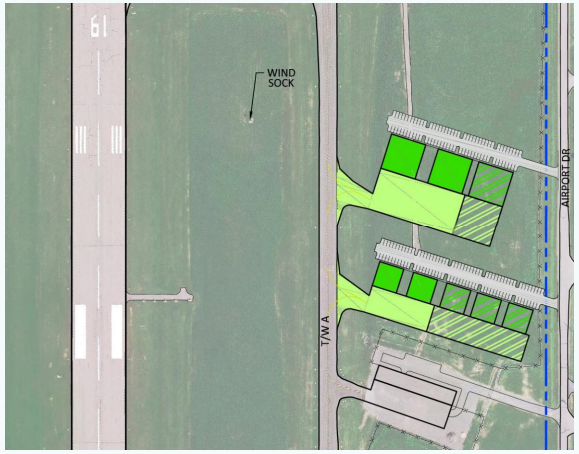


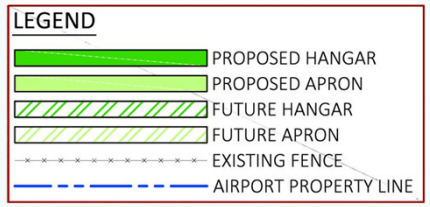
- Construct New Taxiway E
- Fixes Direct Access
- Fixes Short Taxi Distance

HANGAR ALTERNATIVES

- Construct 10,000 SF Hangars
- Construct 4,225 SF Hangars
- Protect for ADG II and ADG I Clearances
- Construct Auto Parking Lots







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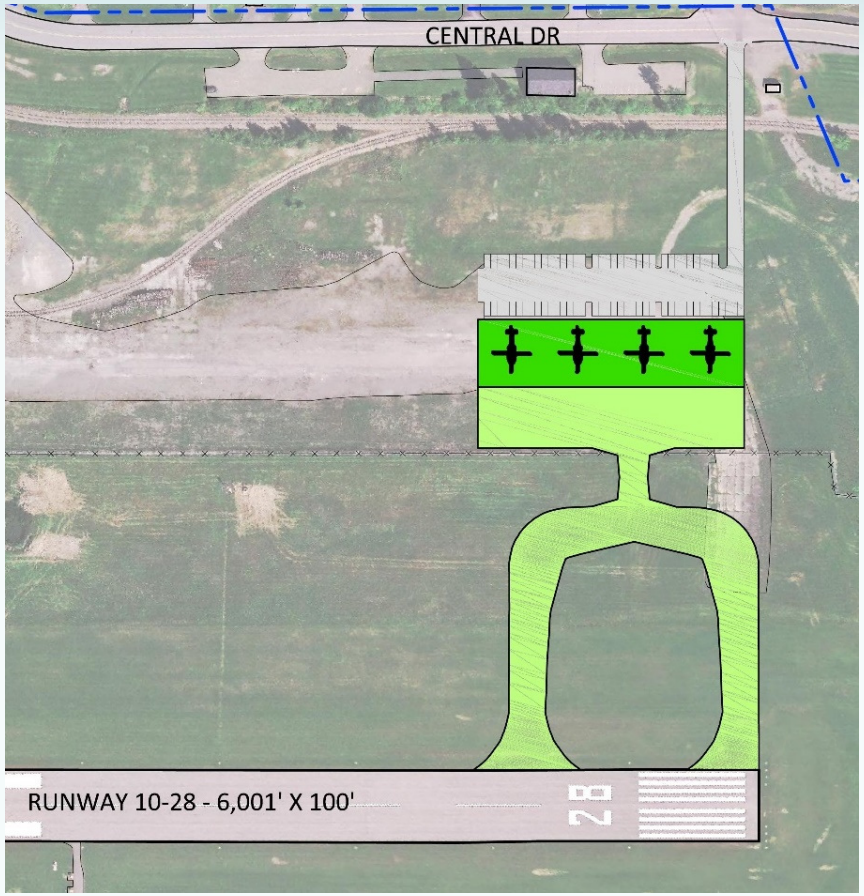
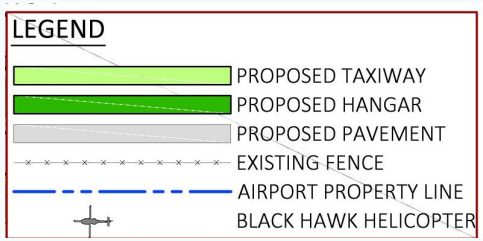
MILITARY HANGAR ALTERNATIVE



- Construct a 36,300 SF Hangar
- Construct a 32,600 SF Apron with Taxilane
- Construct a Vehicle Parking Lot
- Construct Access Road to from Parking Lot to Central Drive



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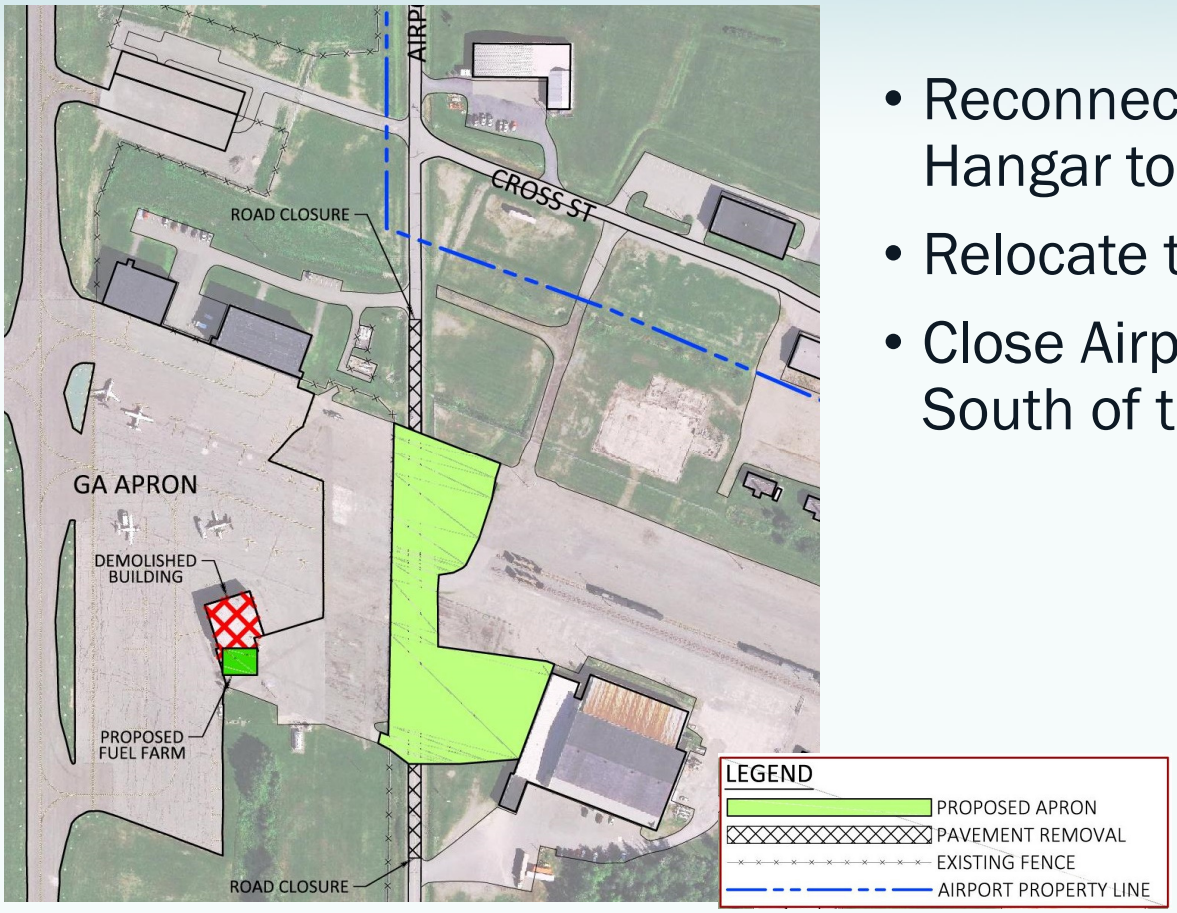
COCA-COLA HANGAR ALTERNATIVE



- Reconnect the Coca Cola Hangar to the Existing GA Apron
- Relocate the Existing Fuel Farm
- Close Airport Road North and South of the Proposed Apron

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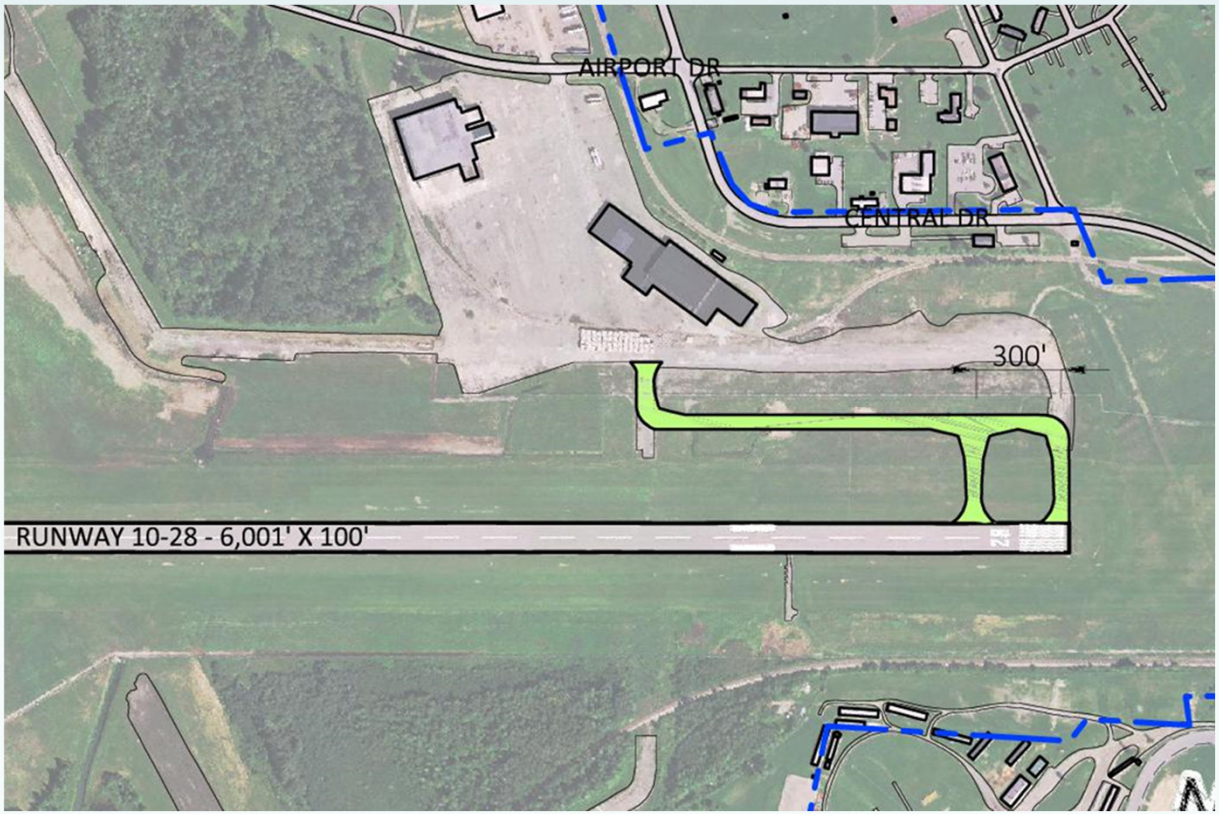
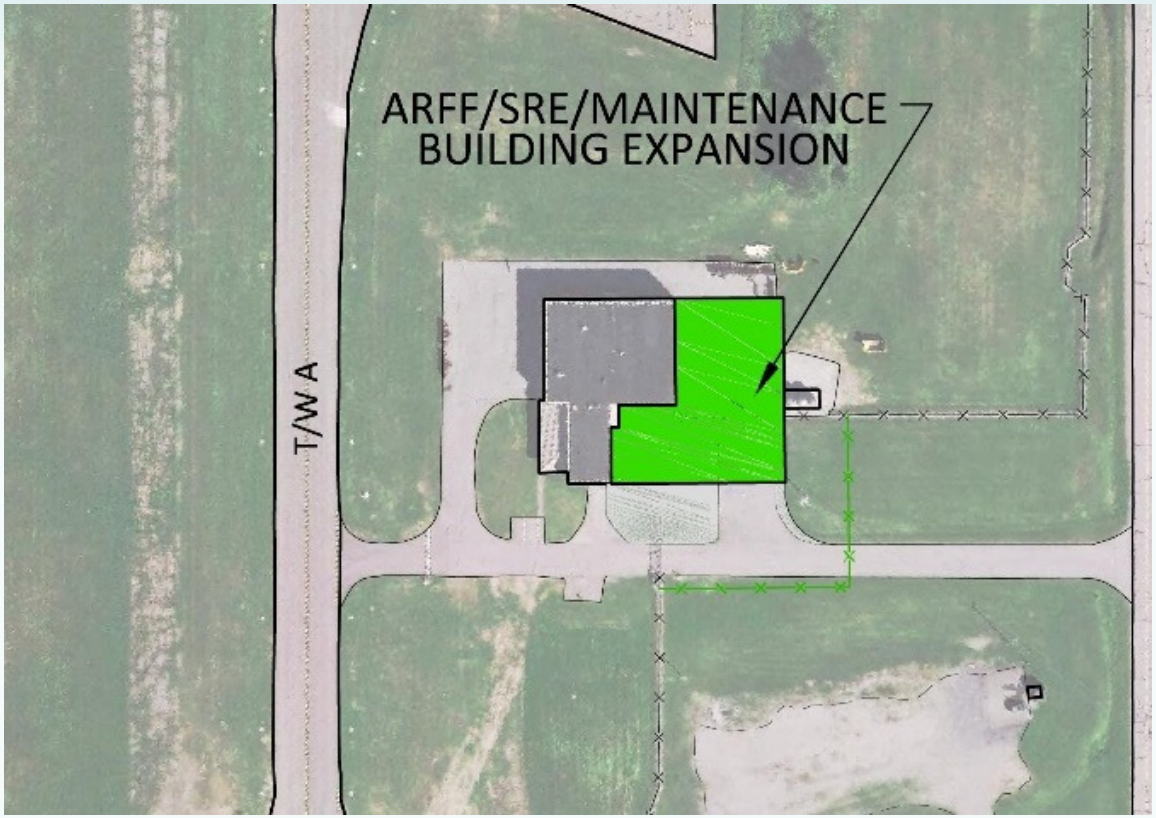
AIRPORT EXPANSION



- Reconnect the Industrial Council Hangar Complex Off the Runway 28 End

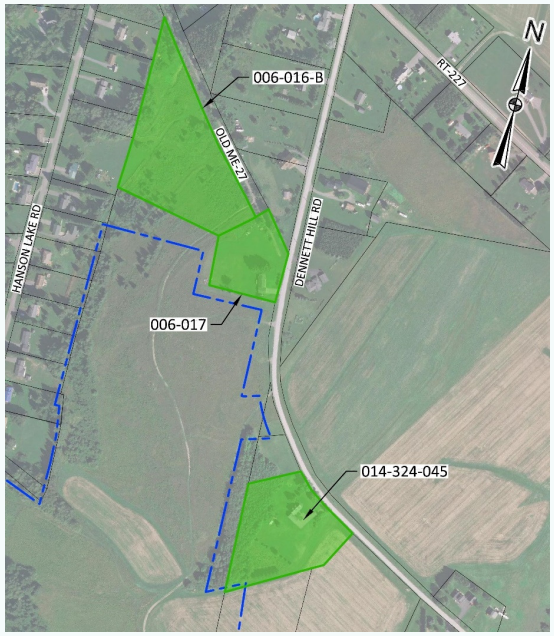
MAINTENANCE/SRE/ARFF

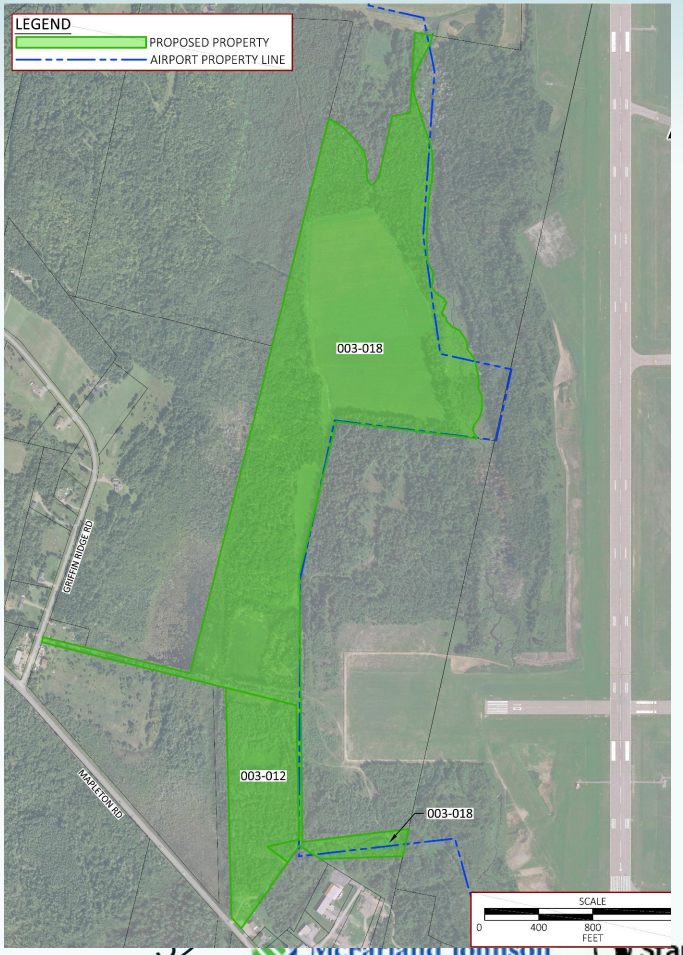


- South Facing Doors
- Total Area: 21,200 – 23,200 SF

OTHER ALTERNATIVES

- Renumbering Runways
- Remove Obstruction Lights?
- Land Acquisition





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NEXT STEPS

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WHAT'S NEXT?

- Public Meeting #1 (tonight)
- Recommended Alternative
- Implementation Plan
- Last TAC Meeting
- Airport Layout Plan (for FAA approval)

PROJECT CONTACTS

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THANK YOU!

QUESTIONS?

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Sign-in Sheet

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Scott Wardwell			
Megan Carter-Witt (Teams)			
Ralph Nicosia-Kusin (Teams)			
Bob Clark (Teams)			
Stacie Haskell (Teams)			
Kelli Heu (Teams)			

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Presque Isle International Airport Master Plan Update
Technical Advisory Committee 2 – Summary Notes
November 3, 2020

Meeting commenced at 8:30 a.m.

Introductions

Laura Canham (McFarland Johnson) opened the meeting by welcoming everyone and members of the Technical Advisory Committee (TAC) introduced themselves. The agenda for the meeting was introduced.

Review

L. Canham presented on and reviewed the Master Plan including the Master Plan process, goals and objectives, public participation, the role of the TAC, and key considerations of the Master Plan.

Forecasts

The forecasts have been approved by the Federal Aviation Administration (FAA). The critical aircraft for Runway 1-19 is the Embraer 145 being used by United (a C-II aircraft) and for Runway 10-28 is the Cessna 208 Caravan (a B-II aircraft). The Airport should also protect for C-III standards for Federal Emergency Management Agency (FEMA) emergency disaster response.

Airside Requirements

There are currently no capacity issues at the Airport.

The traditional FAA runway length analysis looks at the critical aircraft in the summer which shows the existing critical aircraft needs a takeoff runway length of 7,490 feet and higher for other ERJ-145 variants. However, with contaminated runways, airlines may have to restrict the weight that the aircraft can carry. Runway length should at a minimum be maintained, but ideally extended to accommodate the critical aircraft. The new takeoff and landing performance assessment (TALPA) replaced friction testing a few years ago. For takeoff operations, runway condition code (RwyCC) of 5 and lower force aircraft operators to take weight penalties.

The runway width of 150 feet is recommended to be maintained for the primary runway. Due to the snow accumulation during winter months at the Airport, snow clearing is quicker with the additional width.

The primary runway does not meet the required 95% wind coverage and therefore a crosswind runway is justified. During high wind conditions, the ERJ-145 uses the crosswind runway. Since the primary runway is the most preferable (longer runway length, better approach, wider runway, etc.), the ERJ-145 only uses the crosswind when necessary. Utilizing GARD and ADS-B data, it is determined that more than 500 A/B-I operations that cannot use the primary runway during winter contamination or strong crosswind conditions use Runway 10-28. Therefore, maintaining Runway 10-28 is justified and the runway is eligible for Airport Improvement Program (AIP) funding as a crosswind runway.

Runway design surfaces are the same for both C-II and C-III design groups. Changes in the approach to Runway 19 could increase the runway protection zone (RPZ). The Taxiway E slope is non-standard. If the approach surface is lowered and/or the RPZ gets larger, the Taxiway E location could cause further challenges when the taxiway is in use.

Airfield geometry standards were reviewed. It is recommended that all non-standard conditions be addressed.

Lighting and signage as well as visual aids were reviewed. A lower approach (CAT I) for Runway 19 is recommended. Additionally, a PAPI to Runway 1 has been requested by pilots.

A pavement conditions report will be included with the Master Plan as an appendix.

Terminal Area Requirements

Due to restrictions associated with COVID-19, evaluation of the terminal building has been delayed. It has been identified that the current facility is constrained and aging. Further analysis will be forthcoming.

GA and Support Requirements

Requirements for based aircraft storage include an additional 14,200 square feet. If the former military hangars are decommissioned, additional hangar space will be needed as well.

Apron space and staging and maneuvering areas were reviewed; the existing size meets future demand.

The Airport provides both Jet A and Avgas fuel. It is a business decision for the Airport if they want to add an additional Jet A fuel tank. Avgas fuel storage is appropriately sized for demand throughout the planning period.

The ARFF/SRE/maintenance building was reviewed. Currently, the building is not big enough to house all equipment and the ARFF bay is too small for the existing truck. Equipment is stored in cold storage buildings. It is recommended that the building be expanded to accommodate all equipment to extend their useful life.

The perimeter fence and utilities were reviewed. It is recommended that the Airport add back-up generators for the airfield and the terminal building. It is also recommended that additional sewer pump stations be constructed to reduce stress on the current pump stations.

The following discussion items came up:

- The facility requirements chapter requires much more scrutiny before moving into alternatives. In the future, materials should be submitted to FAA in advance for review.

- Runway length was not justified for crosswind aircraft as presented.
    - 5-10% of CommutAir / United Airlines flights use the crosswind runway. Since there are only up to 12 flights per week, reliability should be maximized. If Runway 10-28 were reduced in size to the FAA traditional runway length requirement, there would be a significant number of delays or cancellations.
- The FEMA emergency plan does not change FAA eligibility criteria. The 2018 Reauthorization Act allows for money to be used to plan for emergencies, but does not make these plans eligible for FAA AIP funding. The FAA states that would be local responsibility.
- The FAA would like to see more available data of impacts to the airline. PQI is a unique Airport. The impact on each flight is tremendous. However, due to the lack of operations, limited return is seen on substantial capital investments.
- TALPA has changed runway length requirements for northern hemisphere airports which is not reflected in the traditional FAA runway length analysis requirements. Pre-TALPA requirements, the airport was closed approximately 5 hours per year. 2019 was used for comparison as it provided a full calendar year of data – more than 5 times the annual average from previous years. 2020 numbers are even higher as by March 11th, the airport had been closed over 26 hours. The chapter report will identify further details on how many EAS flights were affected as provided by United.
    - What difference do these facilities make? Analysis needs to be more sophisticated to be able to determine what is FAA eligible and what benefits the Airport.
    - If a runway is being rehabilitated and not reconstructed, eligibility is not an issue until later.
- How many operations would benefit from a Runway 19 approach? This will be reviewed as part of the Facility Requirements chapter.
- How does a wider runway help with snow clearing time?
    - As part of snow clearing, the runway can be made available faster by sending the plows down the runway, having an aircraft land, and following up with the snow blower. If the runway were 100 feet wide, every pass would require snowplows and the snow blower to come through before an aircraft could land.

Alternatives

L. Canham presented the airside and landside alternatives including runway, taxiway, hangar, and apron alternatives.

One **runway alternative** was presented to improve the Runway 19 approach. Currently, the Runway 19 approach is obstructed by terrain. The existing 20:1 approach is clear, and all tree obstructions have been removed. The best way to approve the approach is to have a displaced threshold. To maintain both the landing length and improve the approach, a 470' displaced threshold as well as a 470' extension to the Runway 1 end are proposed as part of this alternative. The TAC agreed to further analyze this alternative.

Three build alternatives were presented to address non-standard conditions of **Taxiway C**. These alternatives include shifting Taxiway C, adding runway guard lights, and painting a no-taxi island. Taxiway C is primarily used as an exit taxiway. There are no intersection departures from Taxiway C.

FAA standards need to be addressed on the ALP. The TAC agreed to further analyze the alternatives to add runway guard lights and the painted no-taxi island.

Two build alternatives were presented to address the dual-purpose pavement on Runway 10-28. These alternatives include a partial parallel taxiway and a turnaround taxiway. Runway 10-28 does not qualify for a parallel taxiway and it would increase maintenance. There is not enough value out of a partial parallel taxiway to justify the required maintenance. The TAC agreed that the turn-around taxiway would be preferred over the partial parallel taxiway.

Two build alternatives were presented to address the non-standard conditions of Taxiway E. These alternatives include (1) removing Taxiway E or (2) reconstructing Taxiway E to connect to Taxiway A at the standard 2% grade. By removing Taxiway E, the Airport would lose the use of the military hangars on the North Apron and may lose tenants who would not want to pay the cost of newly constructed hangars. An additional alternative will be created that would look to improve the slope to Taxiway E but would be less costly than the presented alternative.

Three hangar alternatives were presented to address the need for additional aircraft storage. The TAC preferred hangars perpendicular to Taxiway A due to winds out of the west. They would also like to see an alternative that adds onto the exiting individual box hangars.

An alternative with a military facing component was presented. A military readiness facility is being constructed across from the airfield. The TAC agreed to show this as an ultimate (beyond the 20-year planning period) alterative.

An alternative showing the Coca-Cola facility being reconnected to the airfield was presented. This alternative would require closing a portion of Airport Road. The road closure may cause challenges to local businesses. This alternative helps the Airport to protect for economic development and adds land to build more hangars in line with the existing corporate hangars. The TAC agreed to show this as an ultimate alternative.

An alternative showing the reconnection of the Former Hangar complex was presented. The purpose is to show the Airport reconnecting to areas that previously had aviation activity. The TAC agreed to show this as an ultimate alternative.

The other alternatives that were agreed upon by the TAC were renumbering the runways, showing an expansion to the ARFF/SRE/maintenance building, and showing property acquisition.

The following discussion items came up:

- Pilots do not like the no-taxi island constructed.
- Consideration should be taken to add a new taxiway in addition to Taxiway C closer to the Runway 10-28 end for twin engine aircraft to use instead of using Runway 10-28 as a taxiway.
- The FAA noted that the Airport Layout Plan should show a build alternative instead of Modification of Design Standards documentation.
- The FAA would prefer evaluating the alternatives once costs have been analyzed. This TAC meeting was to get an initial assessment and identify non-starters before completing a more detailed analysis.
- If there is not a history of incursions via direct access from Taxiway C, is there a need to show any change? Unless aircraft are parking on the northside of the ramp, there is no direct access.

Currently with how aircraft operate on the terminal ramp, they would be required to make a turn before utilizing Taxiway C. FAA does not see any safety issues associated with Taxiway C and will report back to see if the no build alternative could be considered based on the operational use of that taxiway not showing direct access.

- Data from United Airlines will be obtained on flight cancellations due to weather. The airline has to make a decision about flying/canceling a flight based on forecast weather data before takeoff. Anecdotally, the first year of operations the Runway 19 high approach minimums were a big driver of cancellations/missed approaches. The airline does not keep a record of missed approaches.

Next Steps

The following next steps were identified:

- Public Meeting #1 at 6:00 p.m. on November 3, 2020
- Terminal Facility Requirements Analysis
- Recommended Alternative
- Implementation Plan
- Final TAC Meeting
- Airport Layout Plan (for FAA Approval)

Attachments: Sign-in sheet, presentation slides

The meeting concluded at approximately 11:15 a.m.

PRESQUE ISLE
INTERNATIONAL AIRPORT
AÉROPORT INTERNATIONAL DE PRESQUE ISLE

Master Plan Update

Public Meeting #1
November 3, 2020

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AGENDA

- Introductions
- Master Plan Process
- Forecasts
- Airside Requirements
- Terminal Requirements
- GA and Support Facilities
- Next Steps

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MASTER PLAN PROCESS

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WHAT IS A MASTER PLAN?

- What is a Master Plan?
  - Is the Official FAA Planning Document
  - Reflects the City of Presque Isle's Goals for the Airport
  - Depicts Future Airport Development Covering 20 Years
- What Generated the Need for the Master Plan Update?
  - FAA Airport Design Standard Changes
  - Changes in Activity and Facility Needs Since Last Master Plan
- Master Plan Goals
  - Meet the Aviation Needs of Citizens and Businesses in the Airport's Service Area
  - Maintain Safe and Efficient Airside Facilities Compliant with Airport Design Standards and FAA (Federal Aviation Administration) and MaineDOT (Department of Transportation) Guidance
  - Identify Opportunities for Economic Sustainability at the Airport as Required by Grant Assurances
  - Maintain Planning Flexibility for Future Changes in the Aviation Industry

MASTER PLAN PROCESS

1st Technical Advisory Committee Meeting
-Inventory, Forecast, and Environmental Overview

2nd Technical Advisory Committee Meeting
-Facility Requirements and Alternatives

1st Public Meeting

3rd Technical Advisory Committee Meeting
-Draft Plan

2nd Public Meeting

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GOALS AND OBJECTIVES

Goals:

- Meet the Aviation Needs of Citizens and Businesses in the Airport's Service Area
- Maintain Safe and Efficient Airside Facilities
- Identify Opportunities for Economic Sustainability
- Maintain Planning Flexibility for Future Changes
- Develop a Fee Structure for Non-aeronautical Use Property

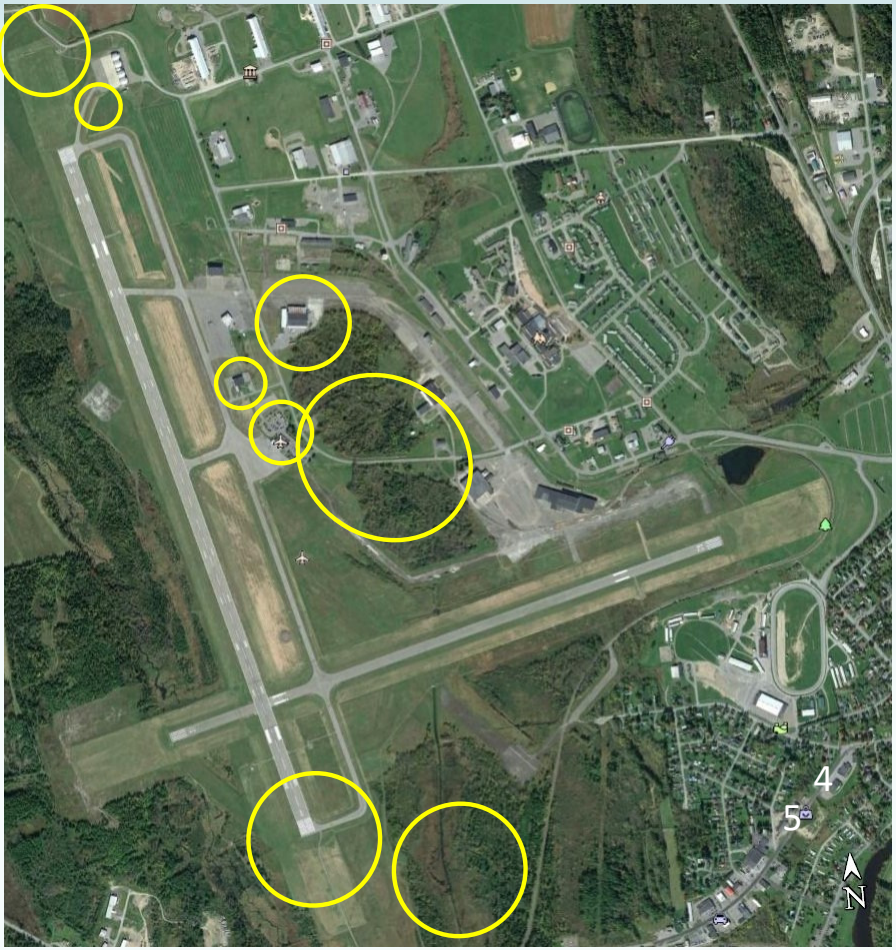
Objectives:

- Develop a Flexible, Scenario-based Approach
- Develop a Plan to Meet the Growing Demands on the Airport
- Evaluate and Recommend Alternatives
- Engage the Public Through Participation in the Planning Process
- Obtain Approval from FAA of the Resulting ALP

PUBLIC PARTICIPATION

- Technical Advisory Committee (3 meetings)
  - PQI, FAA, Maine DOT, City of Presque Isle, Stakeholders
- Public Information Meetings (2)
  - Informal, Open-house, Workshop (If Possible)

KEY CONSIDERATIONS



- Terminal Constraints
- Taxiway E Non-Standard Conditions (Direct Access)
- Runway Length (Contaminated Runway Scenario)
- Economic/Terminal Development Potential
- SRE/Maintenance Storage
- Obstructions & Terrain Runway 19 End
- Wetlands

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FORECASTS

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BASELINE FORECAST AND TAF

	Actual	Forecast			
	Baseline	2023	2028	2038	AAGR
FAA TAF					
Enplanements	11,038	11,286	11,486	12,000	0.42%
Total Operations	5,750	5,750	5,750	5,750	0.00%
Based Aircraft	25	27	27	27	0.41%
Master Plan Forecast					
Enplanements	11,974	16,948	19,974	26,027	3.96%
Total Operations	5,750	6,051	6,368	7,052	1.03%
Based Aircraft	25	26	28	31	1.03%
Pct. Difference From TAF					
Enplanements	8.48%	50.17%	73.90%	116.89%	-
Total Operations	0.00%	5.24%	10.74%	22.64%	-
Based Aircraft	0.00%	-2.56%	2.54%	13.56%	-

Short-Term Volatility with Solid, Stable Long-Term Market

CRITICAL AIRCRAFT

- **H.R.302 - FAA Reauthorization Act of 2018:** (h) Evaluation of Airport Master Plans [...] shall take into account (2) the role the airport plays with respect in emergency or disaster preparedness in the community served by the airport.

Existing and Future: C-II
Protect for C-III Standards

Runway 1-19 Critical Aircraft:
ERJ-145 (C-II)

Runway 10-28 Critical Aircraft:
Cessna 208 Caravan (B-II)

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AIRSIDE REQUIREMENTS

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AIRSIDE FACILITY REQUIREMENTS

- Determines What, if any, Additional Facilities will be Required
- Based on Most Demanding Aircraft Characteristics (Multiple Aircraft)
- Is Based on Existing and Forecast Activity
- Considers Peak Hour and Annual Demand
- Reviews the Following:
  - **Runway Length**
  - Runway Widths
  - Runway Strengths
  - Runway Orientation
  - **Runway Design Surfaces (RSA, ROFA, OFZ, RPZ, etc.)**
  - Markings, Lighting, and Signage
  - **Taxiways**
  - Apron/Ramp Areas (GA and Terminal)
  - **Runway Geometry Standards**
  - **Visual Approach Aids**

RUNWAY LENGTH

- Existing Runway Lengths
  - Runway 1-19: 7,441
  - Runway 10-28: 6,000

Runway Lengths Should be Retained or Extended

- Only Airport North of Bangor that can Accommodate Larger Aircraft
- Protect for Boeing 737/A320 – Type Aircraft

	ERJ-145	CRJ-200	B737	A320
Takeoff Distance (unadjusted)	6,700’	5,300’	6,200’ – **8,200’**	**7,500’**
Runway Elevation Difference	790’	790’	790’	790’
Takeoff Distance (adjusted)	**7,490’**	6,090’	6,990’ – **8,990’**	**8,290’**
Landing Distance (unadjusted)	4,800’	5,000’	5,800’	4,900’
Landing Distance (adjusted)	5,520’	5,750’	6,670’	5,635’

TAKE OFF AND LANDING PERFORMANCE ASSESSMENT (TALPA)

Assessment Criteria	
Runway Condition Description	**RwyCC**
• Dry	6
• Frost • Wet (Includes damp and 1/8 inch depth or less of water) ***1/8 inch (3mm) depth or less of:*** • Slush • Dry Snow • Wet Snow	5
-15°C and Colder outside air temperature: • Compacted Snow	4
• Slippery When Wet (wet runway) • Dry Snow or Wet Snow (any depth) over Compacted Snow ***Greater than 1/8 inch (3 mm) depth of:*** • Dry Snow • Wet Snow ***Warmer than -15°C outside air temperature:*** • Compacted Snow	3
Greater than 1/8 inch(3 mm) depth of: • Water • Slush	2
• Ice	1
• Wet Ice • Slush over Ice • Water over Compacted Snow • Dry Snow or Wet Snow over Ice	0

- Pre-TALPA the Airport was Closed 5 Hours/Year
- In 2019 the Airport was Closed 25.5 Hours
- Chemicals Wet the Runways, not Allowing Snow to Drift
- Greater than 1/8 Inch of Water, Snow, Slush, or Ice is Contaminated
- Aircraft Weight Restrictions Impact Takeoff and at RwyCC 5 or Lower
- Due to the Limited Schedule, Reliability Should Be Maximized

IMPROVE RELIABILITY OF SERVICE

- Improve the Runway 19 Approach/Reduce Minimums
- Extend Runway 1-19
- Groove Runway 1-19
- Maintain 150-foot Wide Runway

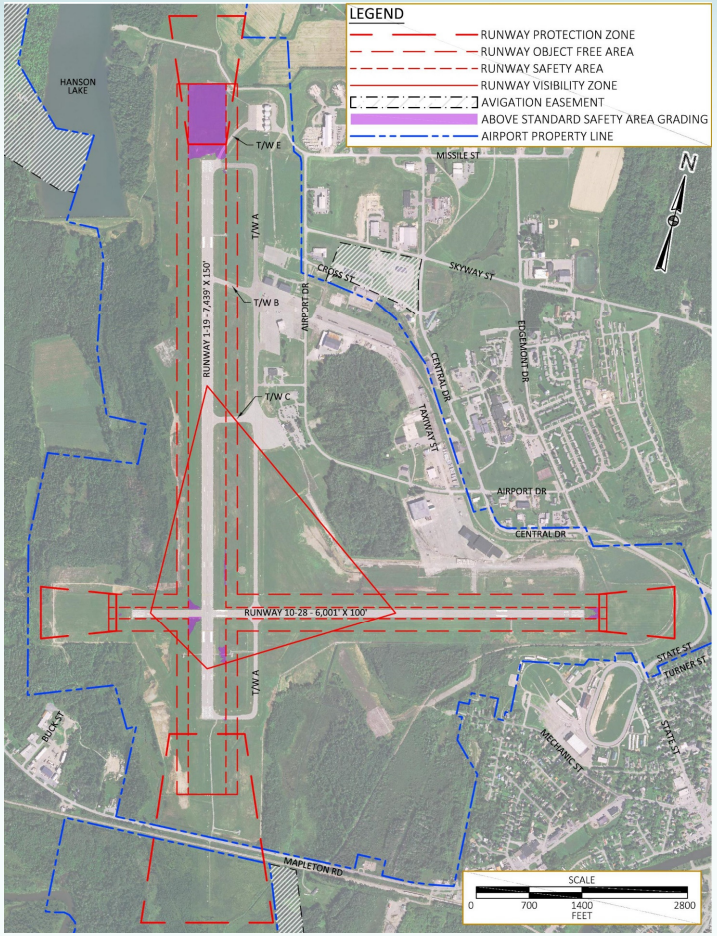
Runway 1-19

CROSSWIND JUSTIFICATION

	All Weather Wind Coverage			IFR Wind Coverage			VFR Wind Coverage		
	10.5 Knot	13 Knot	16 Knot	10.5 Knot	13 Knot	16 Knot	10.5 Knot	13 Knot	16 Knot
Runway 1-19	**94.04%**	96.69%	99.04%	96.80%	98.21%	99.29%	**93.64%**	96.47%	99.01%
Runway 10-28	**88.98%**	**93.55%**	98.26%	**88.21%**	**92.92%**	97.74%	**89.15%**	**93.75%**	98.40%
Both	99.38%	99.89%	99.99%	99.48%	99.91%	99.99%	99.39%	99.90%	99.99%

- FAA Recommends 95% Wind Coverage
- Crosswind Runway 10-28 is Justified
- 3% of Wind Observations are High Wind Conditions
- In Strong Winds, ERJ-145 has Used Runway 10-28

RUNWAY DESIGN SURFACES (RSA, ROFA, RPZ, RVZ)



- RSA: Runway 19 Grade
- RVZ: Perimeter Fence Does not Impede Visibility
- RPZ: future size may change

C-II and C-III have same RSA, ROFA, RPZ Standards

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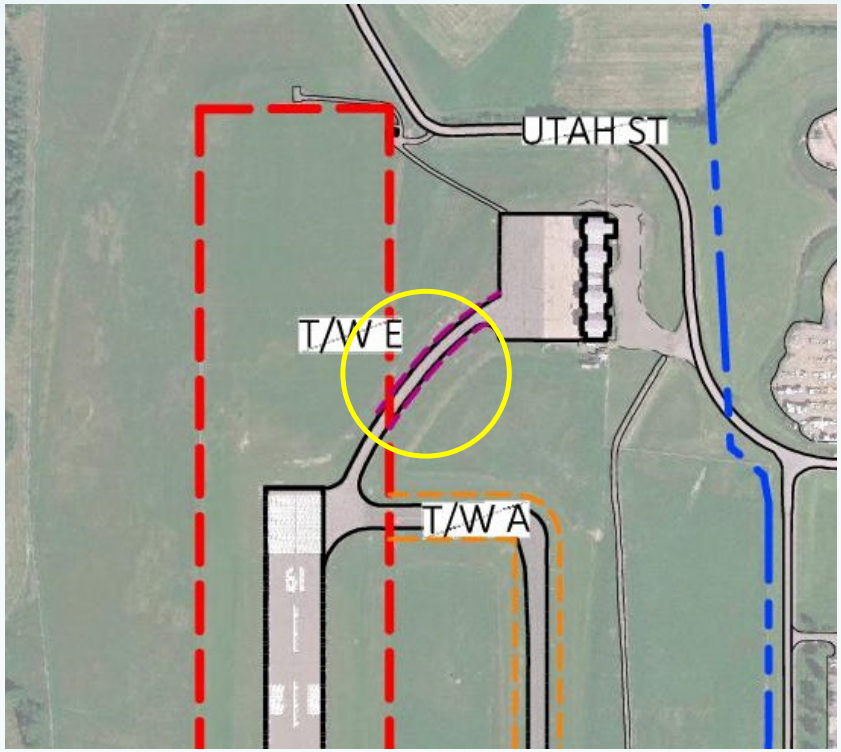
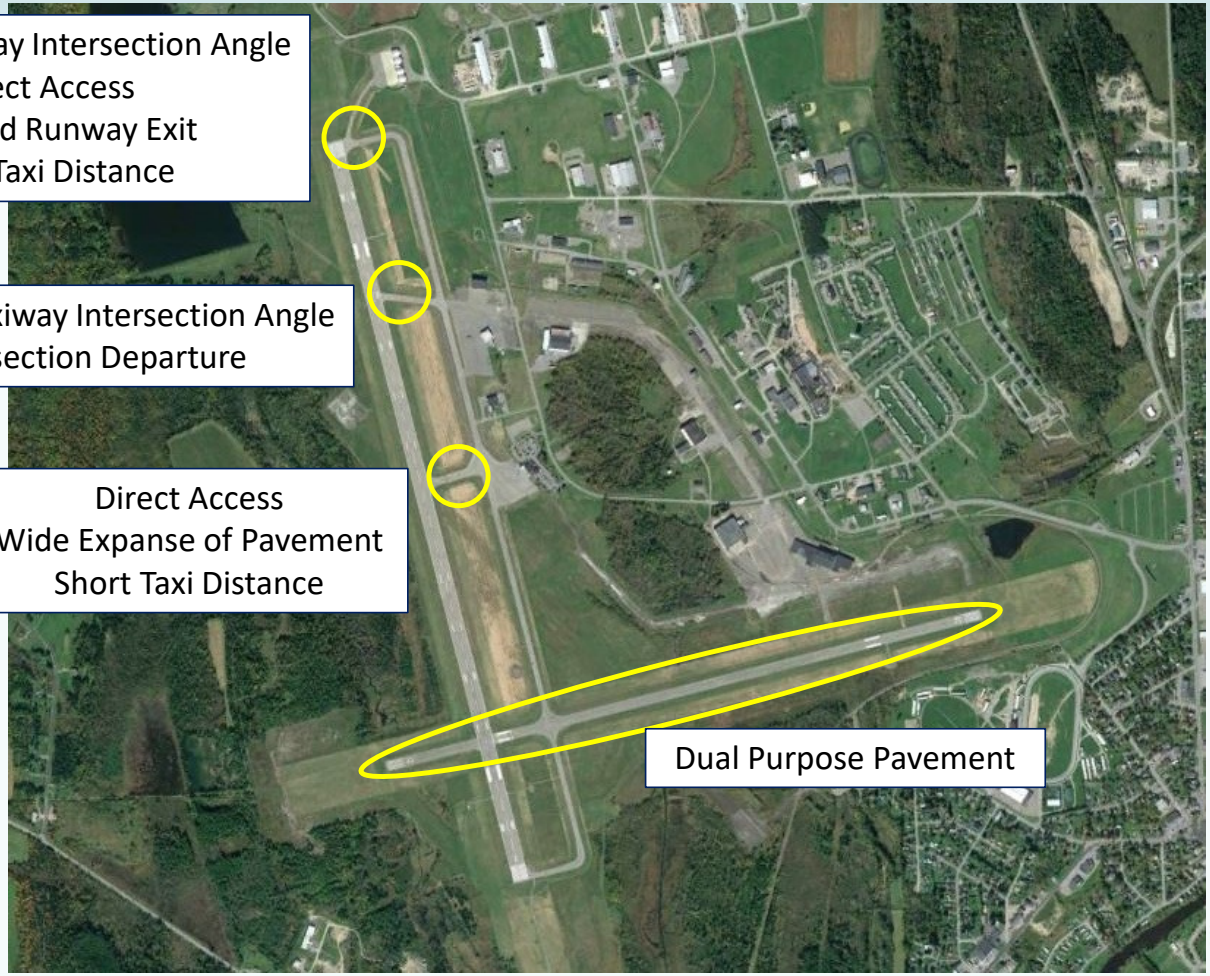
TAXIWAY SLOPE



- Longitudinal Grade of Taxiway E is 3.13%
- Max Grade for AAC A/B is 3% With an Ideal Max Grade of 2%

AIRFIELD GEOMETRY STANDARDS



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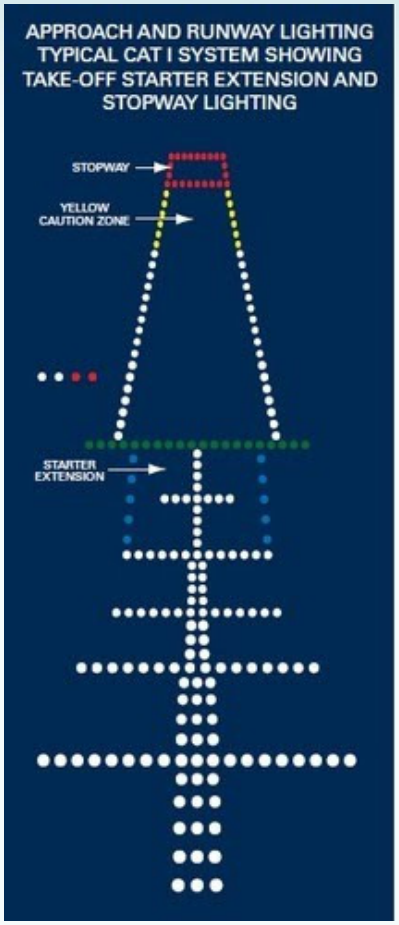
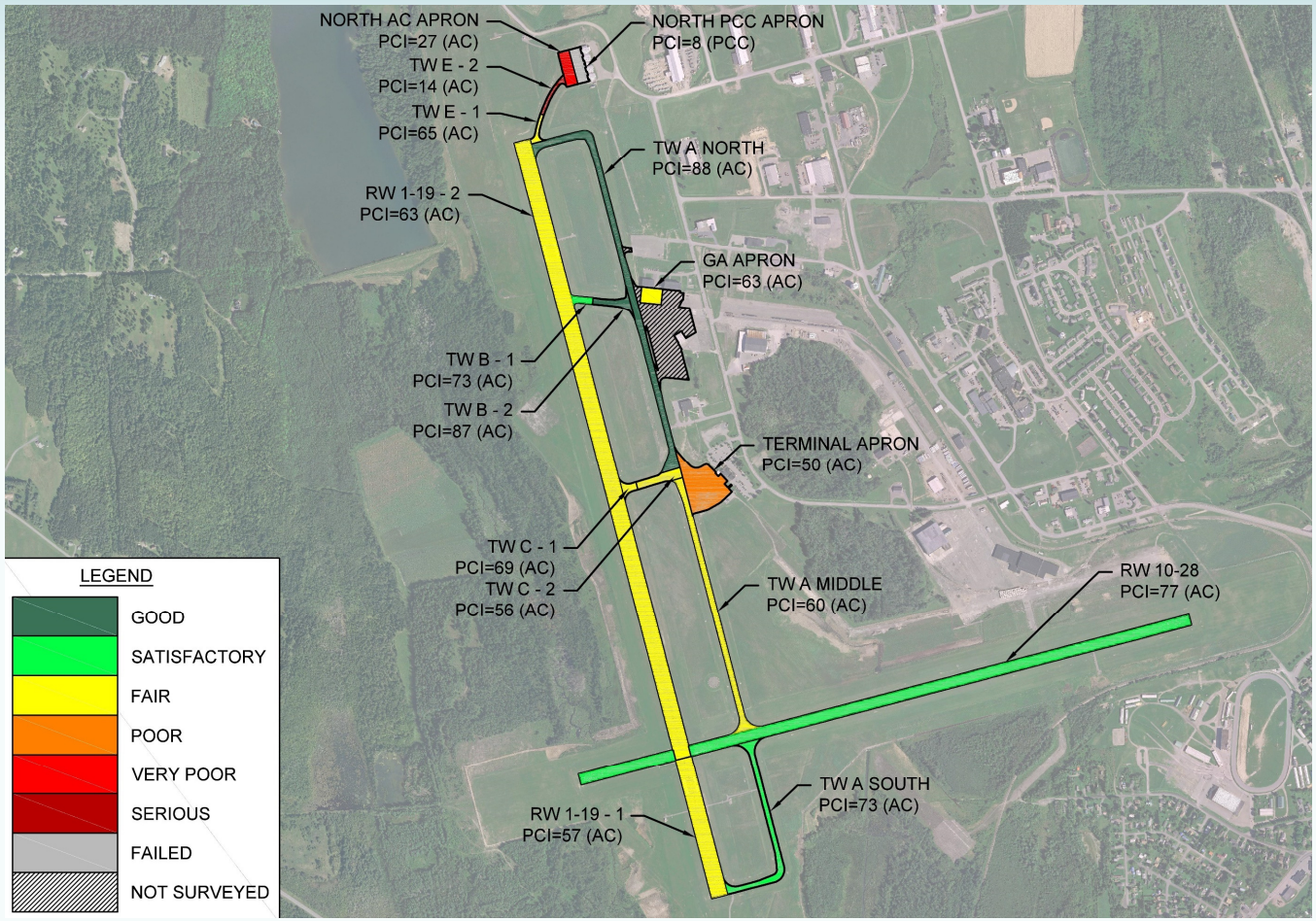
LIGHTING AND SIGNAGE / VISUAL AIDS



- Instrument Approach Aids
  - Runway 1 – MALSR (ILS CAT I)
- Lighting
  - Runway 1-19 – HIRLs
  - Runway 10-28 – MIRLs
  - Taxiways – MITLs
- Visual Approach Aids
  - Runway 19 – 4-Box PAPI (3.7 Degrees)
  - Runway 28 – 4-Box PAPI

Improve Runway 19 PAPI Angle
Consider CAT I Approach Lighting to Runway 19

PAVEMENT CONDITIONS



- Rehabilitation: PCI <70 (Fair)
- Reconstruction: PCI <55 (Poor)

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AIRSIDE FACILITY REQUIREMENTS SUMMARY

Item/Facility	Demand
Runways	Review Runway 1-19 for Additional Take-off Length
Markings	Both Runways Need to be Renumbered
Taxiways	Address Airfield Geometry Concerns and Meet FAA Standards Taxiway E Non-Standard Slope
Lighting	Improve Runway 19 Approach Improve PAPI slope Remove Obstructions

GENERAL AVIATION AND SUPPORT REQUIREMENTS

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BASED AIRCRAFT REQUIREMENTS

Based Aircraft	2038 Demand	Existing Provision	Shortage
Individual Hangars	6	5	1
Conventional Hangars	50,600 SF	37,643 SF	12,957 SF

Due to Weather Conditions in Northern Maine, it is Preferable that 100% of Aircraft Remain in Hangars.

Plan Additional ~14,200 SF Conventional Space to Accommodate for Shortages in Both Individual Hangars and Conventional Hangar Space

FUELING

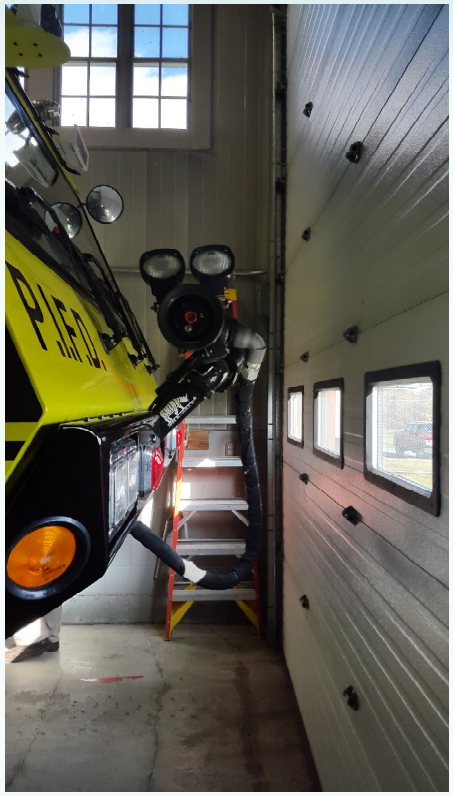
- 15,000-gallon Jet A Fuel Tank
- 5,000-gallon Jet A Truck
- 12,000 Avgas Fuel Tank
- 2,100 gallons Avgas Truck
- 10,000 Gallons Jet A Delivered Every 1.5 Weeks

Fuel	7-day Average Consumption
Jet A – Average Month	9,362.7 gallons
Jet A – Peak Month	13,294.5 gallons
Avgas – Peak Month	590.2 gallons

- Consider Adding 2nd Jet A Fuel Tank (Business Decision)
- Consider Increasing Delivery of Jet A During Peak Season

SUPPORT FACILITIES

- Aircraft Rescue and Firefighting
  - Expand Building to Accommodate Minimum Bay Clearances
- Airfield Maintenance and Snow Removal Equipment
  - Maintain and Replace Equipment as Needed
  - Expand Building to House All Vehicles



- Expand the ARFF Bay to Meet Clearances
- Expand the Maintenance/Support Portion of the Building to 9,500 - 10,600 SF
- Expand the SRE Portion of the Building to 12,600 SF

PERIMETER FENCE

- Fence:
  - North Side: 6-Foot Tall Fence to be Replaced in 2020
  - Remaining: 8-Foot Tall with Barbed Wire and Dirt Berm
- Frost Susceptible Ground
- Fence Lifts Up During Freezing Conditions

New Fence That is not Susceptible to Frost

UTILITIES

- Electric, Cellular Service, Internet and Propane Gas are Adequate for Airport Needs
- City Sewer Needed to Hangars and GA Terminal
- New Pump Station(s) or Extend the Sewer Line for GA Terminal and Corporate Hangars
- Existing Pump Station is Overwhelmed due to Airline Utilization
- Need Back-Up Generator(s)

- Build New Pump Station(s)
- Add Back Up Generators for Airfield and Terminal

LANDSIDE FACILITY REQUIREMENTS SUMMARY

Item/Facility	Demand
Airport Administration Offices	Expand Conference Room
Fuel	Additional Jet A Tank is a Business Decision
ARFF	Increase ARFF Bay Store Vehicles Indoors
SRE/Maintenance	Existing Size: 6,600 SF Demand: 22,100 – 23,200 SF
Utilities	Backup Generator for Airfield and Terminal New Pump Stations

NEXT STEPS

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WHAT'S NEXT?

- Alternatives (in progress)
- Recommended Alternative
- Last Public Meeting
- Implementation Plan
- Airport Layout Plan (for FAA approval)

PROJECT CONTACTS

- Scott Wardwell
  - Airport Manager
  - (207) 764-2550
  - swardwell@presqueisleme.us

- Laura Canham, MBA
  - Deputy Project Manager/Senior Airport Planner
  - (978) 692-0522
  - lcanham@mjinc.com

THANK YOU!

QUESTIONS?

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Sign-in Sheet

NAME	ORGANIZATION	PHONE	EMAIL
Laura Canham			
Bill Gerrish			
Scott Wardwell			

PRESQUE ISLE
INTERNATIONAL AIRPORT
AÉROPORT INTERNATIONAL DE PRESQUE ISLE

Master Plan Update

Final Technical Advisory Committee Meeting
February 16, 2022

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AGENDA

- Introductions
- Master Plan background
- Alternatives
  - Airside alternatives
  - Terminal area alternatives
  - General aviation, landside, and support alternatives
- Preferred Airport development alternative for the Airport Layout Plan
- Implementation plan
- Next steps
- Question

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MASTER PLAN BACKGROUND

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WHAT IS A MASTER PLAN?

- What is a Master Plan?
  - Is the official FAA planning document
  - Reflects the City of Presque Isle's goals for the airport
  - Depicts future airport development covering 20 years
- Master Plan Goals
  - Meet the aviation needs of citizens and businesses in the Airport's service area
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  - Identify opportunities for economic sustainability at the Airport as required by grant assurances
  - Maintain planning flexibility for future changes in the aviation industry

MASTER PLAN PROCESS

Technical Advisory Committee Meeting
-Inventory, Forecast, and Environmental Overview

Technical Advisory Committee Meeting
-Facility Requirements and Alternatives

Public Meeting

Final Technical Advisory Committee Meeting
-Draft Plan

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ALTERNATIVES

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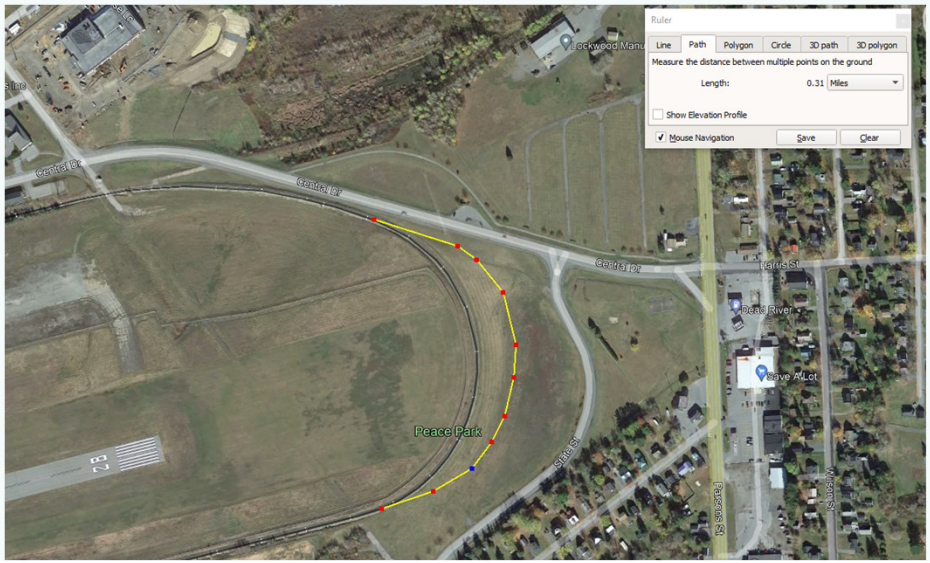
AIRSIDE FACILITY REQUIREMENTS SUMMARY

Item/Facility	Demand
Runways	Consider runway extension Review incremental ROFA improvements
Markings	Both runways need to be renumbered
Taxiways	Address airfield geometry concerns and meet FAA standards Taxiway E non-standard slope
Lighting	Improve Runway 19 approach Remove obstructions

CONSIDERED & DISMISSED ALTERNATIVES

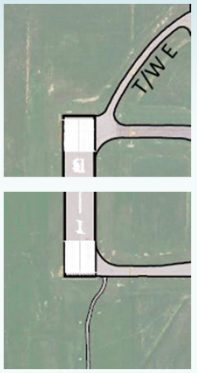
- Purpose of the Master Plan recommendation: Finding the balance between meeting FAA standards to the best extent possible, meeting facility requirements, and minimizing environmental and cost impacts.
- Railroad within the proposed ROFA: ~1/3 mile to relocate
  - Existing ROFA: dimensionally standard
  - Proposed ROFA: 98% clear and 560‘
  - Cost to resolve: $0.5M - $1M
- Extend Runway 1-19 north – added new obstructions
- Displace Runway 19 threshold

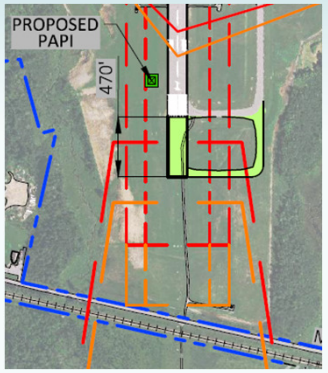


RUNWAY 1-19 LENGTH

Legend:

- ✔ Meets requirements/ standards
- ✘ Does not meet requirements/ standards





Evaluation Criteria	No Build	Extend Runway South
Meets Facility Requirements	✘	✔ - improves
Relative Environmental Impact	None	Moderate
Meets FAA Standards	✘	✔
Relative Cost	None	Medium
Relative Flexibility	✘	✔ - improves

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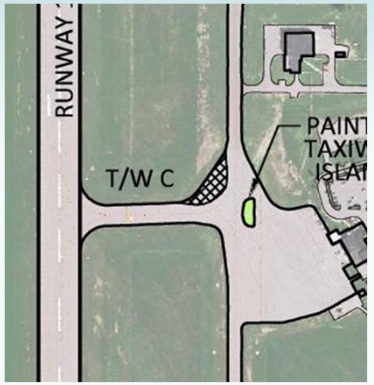
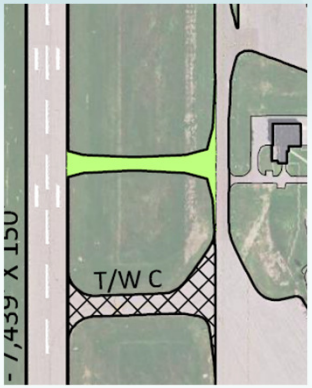
TAXIWAY C ALTERNATIVES

Legend:

- ✔ Meets requirements/ standards
- ✘ Does not meet requirements/ standards





Evaluation Criteria	No Build	Runway Guard Lights	No-Taxi Island	Relocate Taxiway
Meets Facility Requirements	✘	✘ - incremental improvement	✔	✔
Relative Environmental Impact	None	Minor	None	Moderate
Meets FAA Standards	✘	✔	✔	✔
Relative Cost	None	Medium	Low	High

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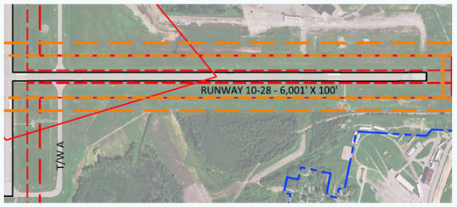
RUNWAY 10-28 BACK-TAXI ALTERNATIVES

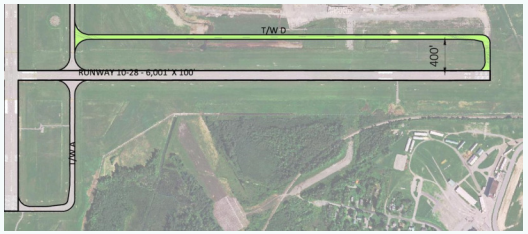
Legend:

- ✔ Meets requirements/ standards
- ✘ Does not meet requirements/ standards



Short-term

Trigger: Development



Evaluation Criteria	No Build	Turn-Around	Parallel
Meets Facility Requirements	✘	✘	✔
Relative Environmental Impact	None	Minor	Moderate
Meets FAA Standards	✘	✘	✔
Relative Cost	None	Low	High
Relative Flexibility	✘	✘	✔

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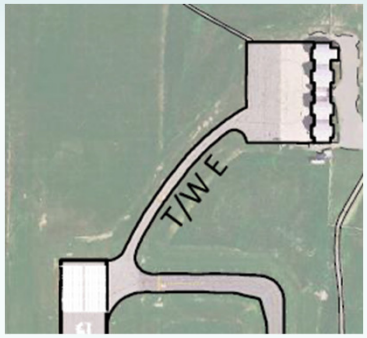
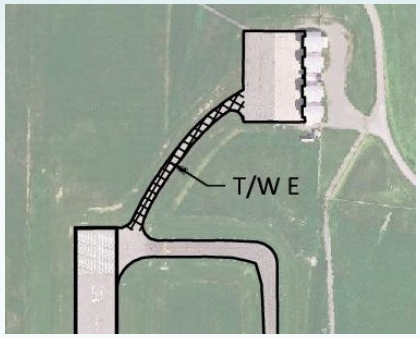
TAXIWAY E ALTERNATIVES

Legend:

- ✔ Meets requirements/ standards
- ✘ Does not meet requirements/ standards

FAA funding and MOS will likely change the recommended alternative

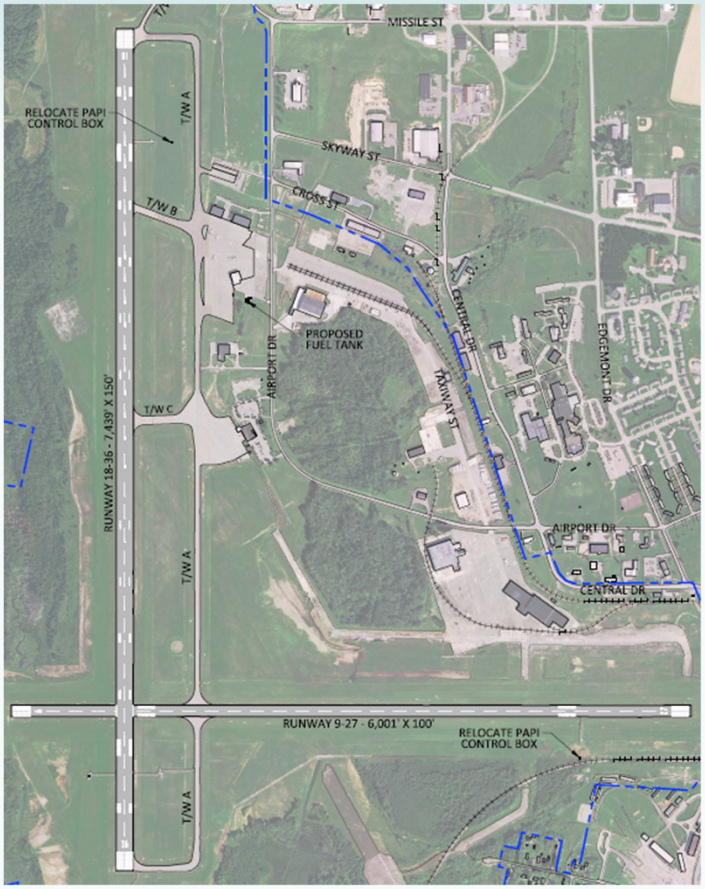




Evaluation Criteria	No Build	Remove Taxiway E	Reconstruct Taxiway E
Meets Facility Requirements	✘	✔	✔
Relative Environmental Impact	None	Moderate	Low
Meets FAA Standards	✘	✔	✔
Relative Cost	Low (crack sealing)	High (replace hangars)	Medium
Relative Flexibility	✔	✔	✔

ALTERNATIVES

- All build alternatives:
  - Renumber runways
  - Move PAPI control boxes out of ROFA (Runways 19 and 28)
  - Relocate Utah Street out of the ROFA
  - Acquire easement/fee
  - Protect for aeronautical development areas
  - Straighten Taxiway B



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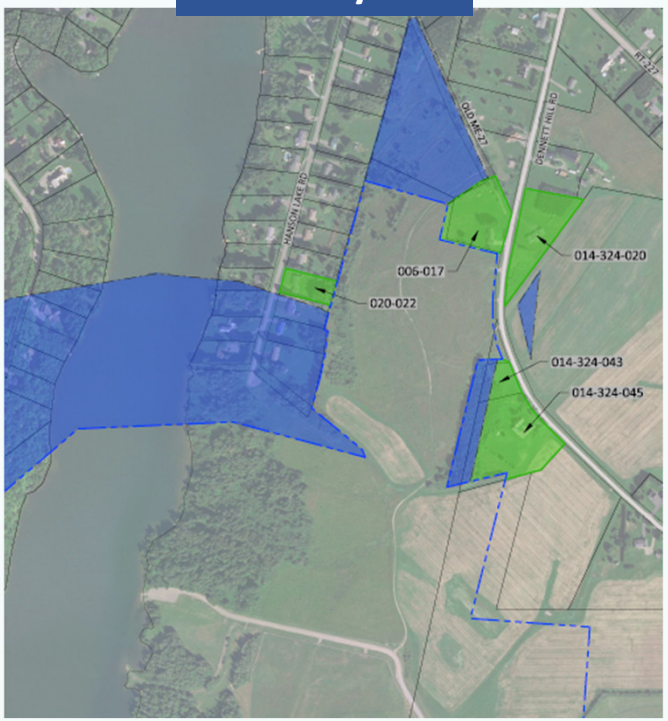
EASEMENT/FEE ACQUISITION

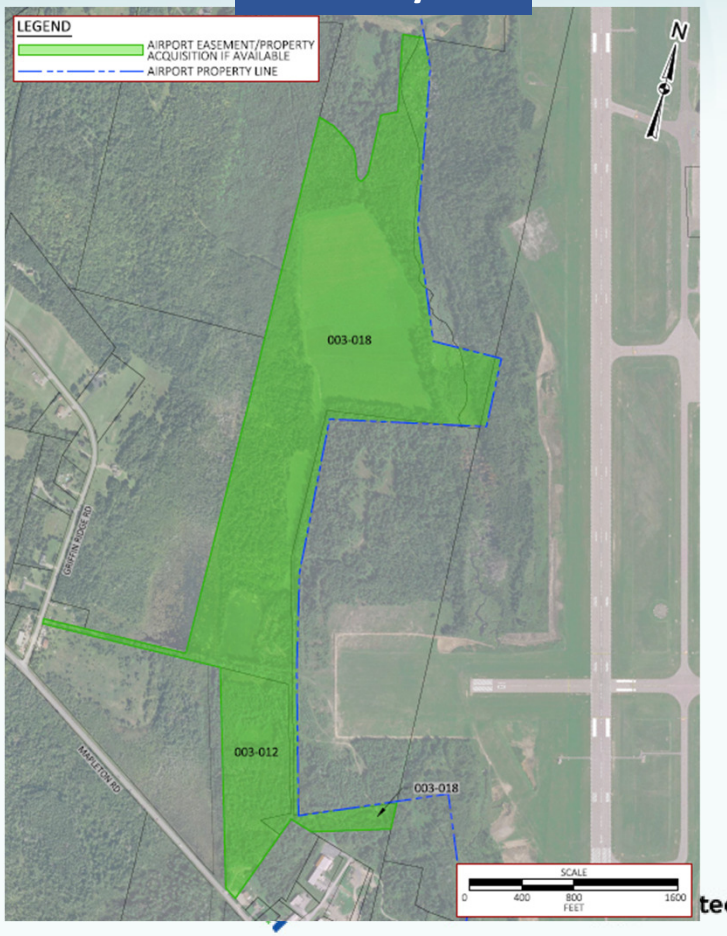
- As property becomes available – easement/fee acquisition areas

Runway 28

Runway 19



Runway 10



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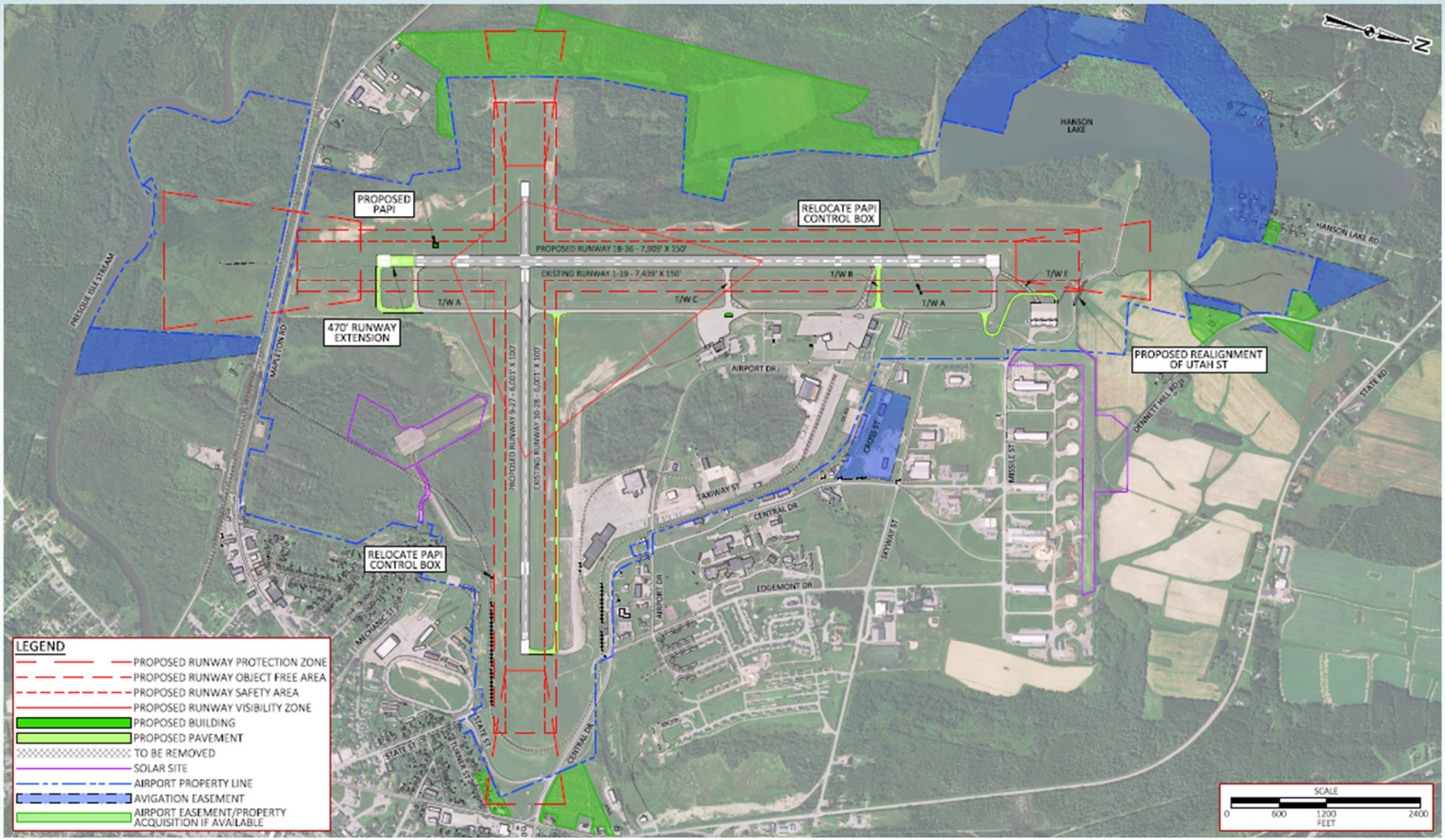
PREFERRED AIRSIDE ALTERNATIVE



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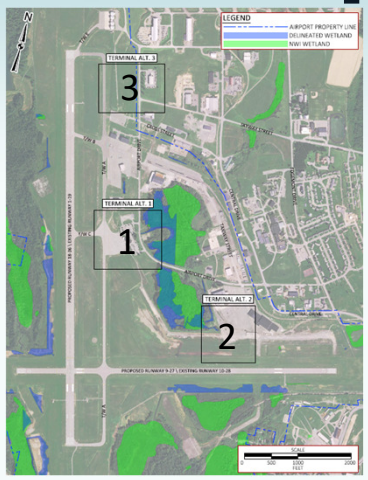
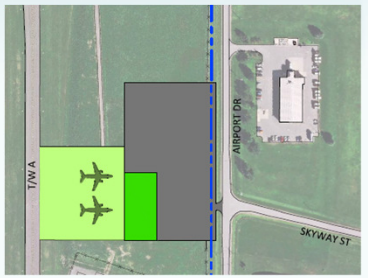
TERMINAL AREA ANALYSIS

Terminal Functional Area	Existing Provision (SF)	50 Peak Hour Passengers (SF)	100 Peak Hour Passengers (SF)	150 Peak Hour Passengers (SF)
Check-In /Ticketing	202	1,106	2,212	3,318
Outbound Baggage Screening & Makeup	476	3,613	5,557	5,557
Passenger Security Screening Checkpoint	868	2,523	2,908	3,293
Secure Holdrooms	488	4,373	6,536	8,700
Baggage Claim and Inbound Baggage Handling	1,857	4,694	5,845	6,996
Concessions	442	493	759	1,139
Other Functions/Tenants	6,369	5,665	7,770	9,922
Total	10,502	22,468	31,588	38,924
Passenger Terminal Requirement Range		20,000 – 25,000	30,000 – 35,000	35,000 – 40,000

TERMINAL ALTERNATIVES

Legend:
- ✔ Yes
- ✘ No





Evaluation Criteria	No Build	Terminal Alt 1	Terminal Alt 2	Terminal Alt 3
Potential for Expansion	✘	✔	✔	✔
Revenue Generation Capability	✘	✔	✔	✔
Land Use Compatibility	Most	Most	Most	All
Operational Efficiency	Poor	Excellent	Good	Fair
Development Costs	None	Low	High	Medium

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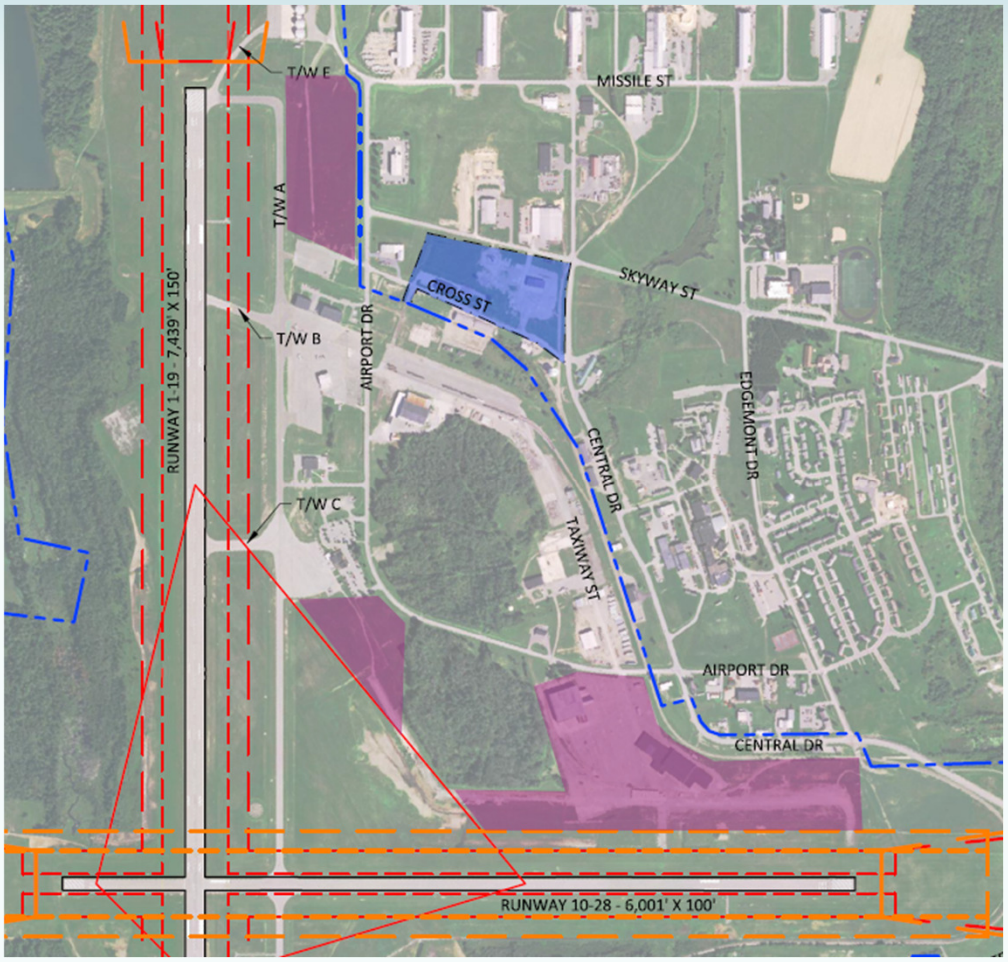
LANDSIDE FACILITY REQUIREMENTS SUMMARY

Item/Facility	Demand
Hangars	1 individual hangar 13,000 SF conventional hangar space
ARFF	Expand ARFF bay Store vehicles indoors
SRE/Maintenance	Existing size: 6,600 SF Demand: 22,100 – 23,200 SF
Fuel	Additional Jet A tank is a business decision
Perimeter Fence	Construct frost resistant fencing
Utilities	Backup generator for airfield and terminal New pump stations

AERONAUTICAL DEVELOPMENT AREAS



- Protect for aeronautical development

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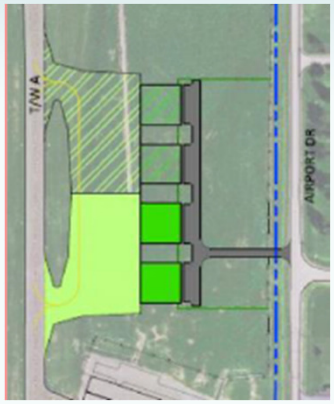
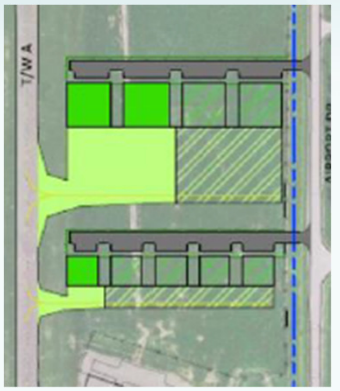
HANGAR ALTERNATIVES

Legend:

- ✔ Meets requirements/ standards or Yes
- ✘ Does not meet requirements/ standards or No

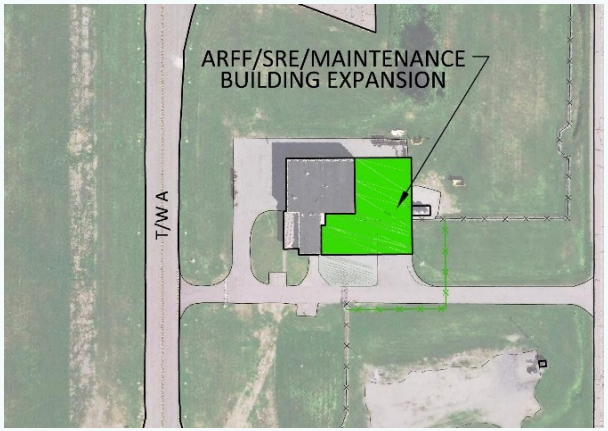




Evaluation Criteria	No Build	Hangar Alt 1	Hangar Alt 2	Hangar Alt 3
Meets Facility Requirements	✘	✔	✔	✔
Environmental and Cultural Effects	None	Minor	Minor	Minor
Potential for Expansion	✘	✔ - less flexibility	✔	✔
Operational Efficiency	None	Fair	Excellent	Good
Revenue Generation Capability	✘	✔	✔	✔

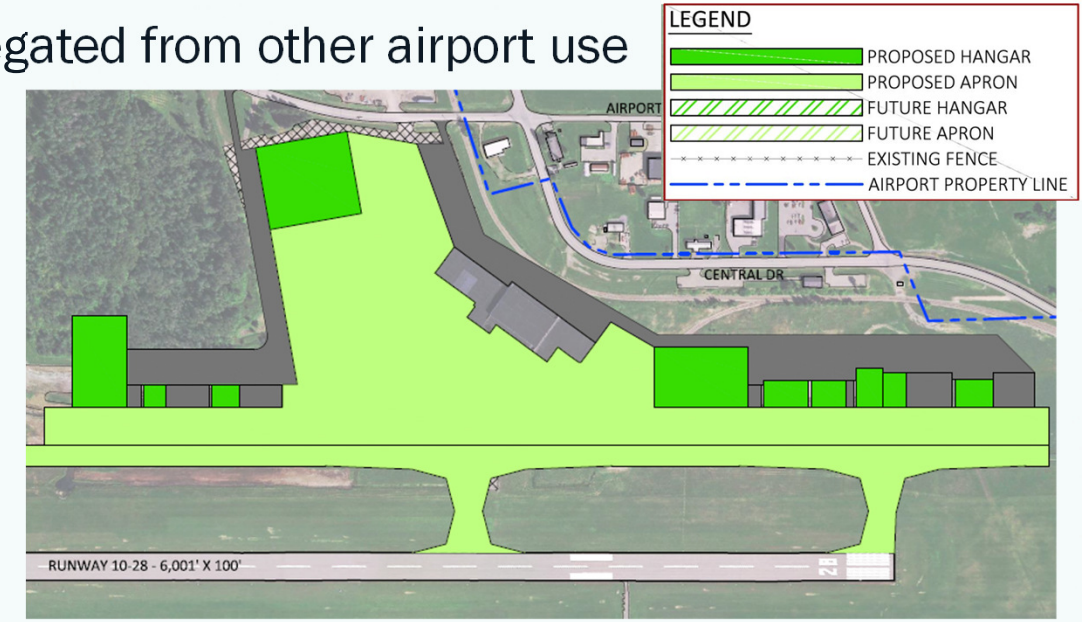
OTHER LANDSIDE ALTERNATIVES

- All build alternatives:
  - Maintenance/SRE/ARFF Building expansion
  - Aviation fuel storage (truck or fuel tank)
  - Perimeter fence frost resistant
  - Utility upgrades



SPECIAL AERONAUTICAL USE

- Unique factors:
  - Low population density
  - Less crowded airspace
  - Large area of land available segregated from other airport use
  - South facing hangars
- => Aerospace research facility



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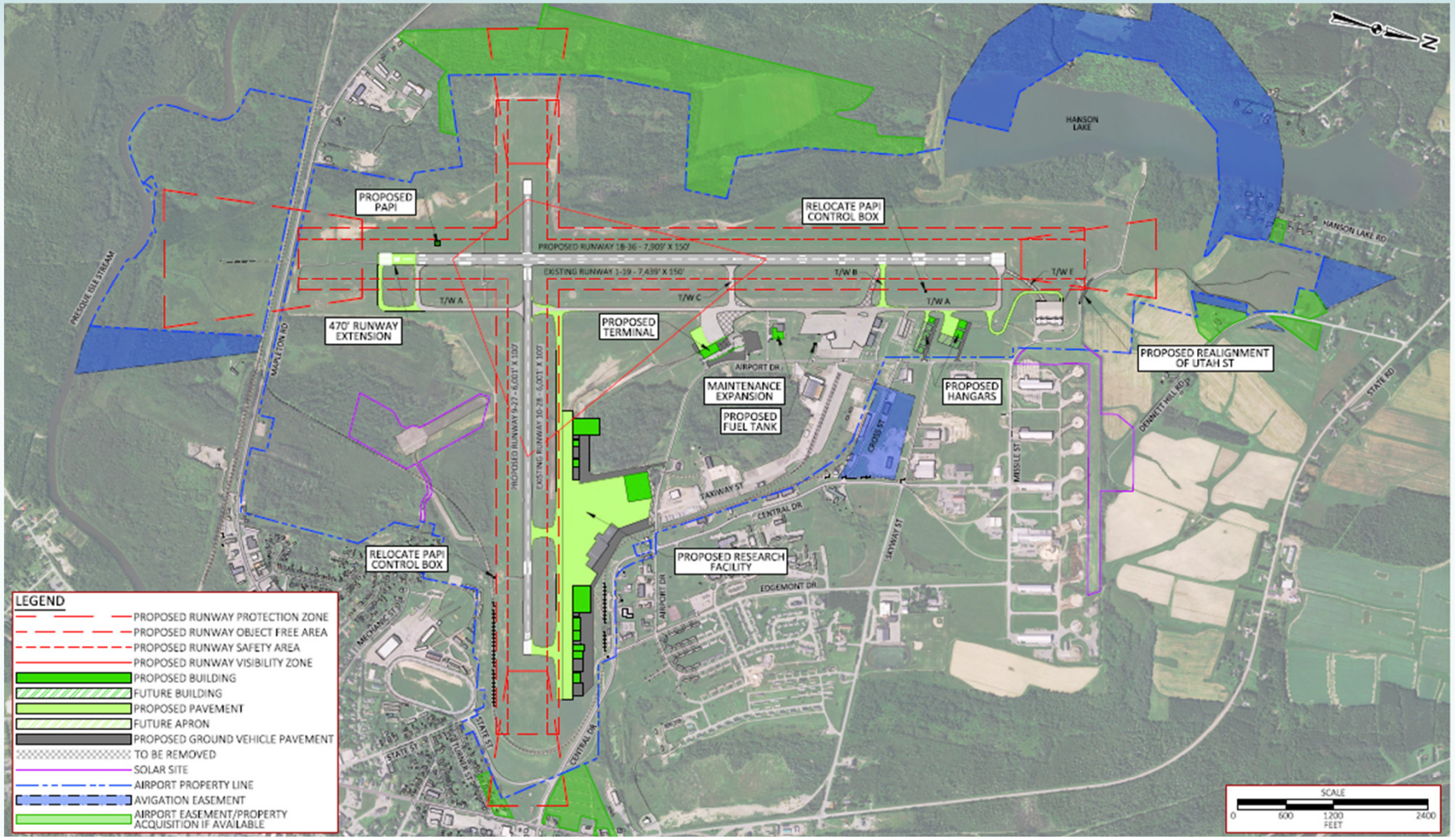
GREEN OPPORTUNITIES

- Solar Farms – already underway
- Electric aircraft charging stations
- Electric vehicle charting stations
- Solar panels on vehicle awnings and roof-mounted on hangars
- Guidelines on construction modified to include initiatives for green development

PREFERRED AIRPORT DEVELOPMENT FOR ALP



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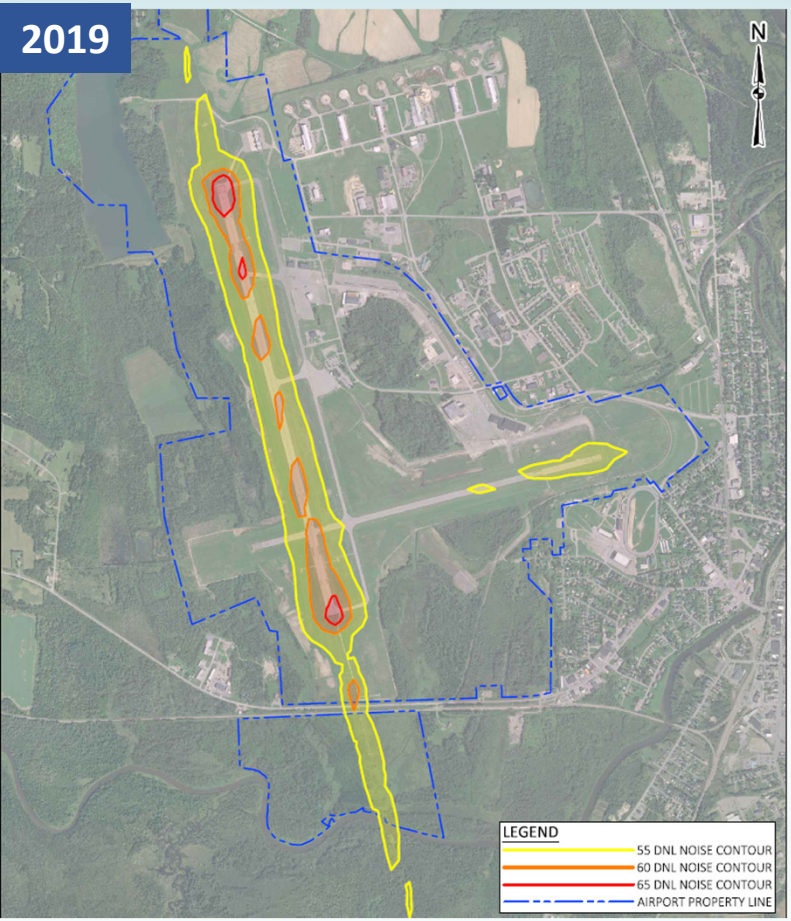
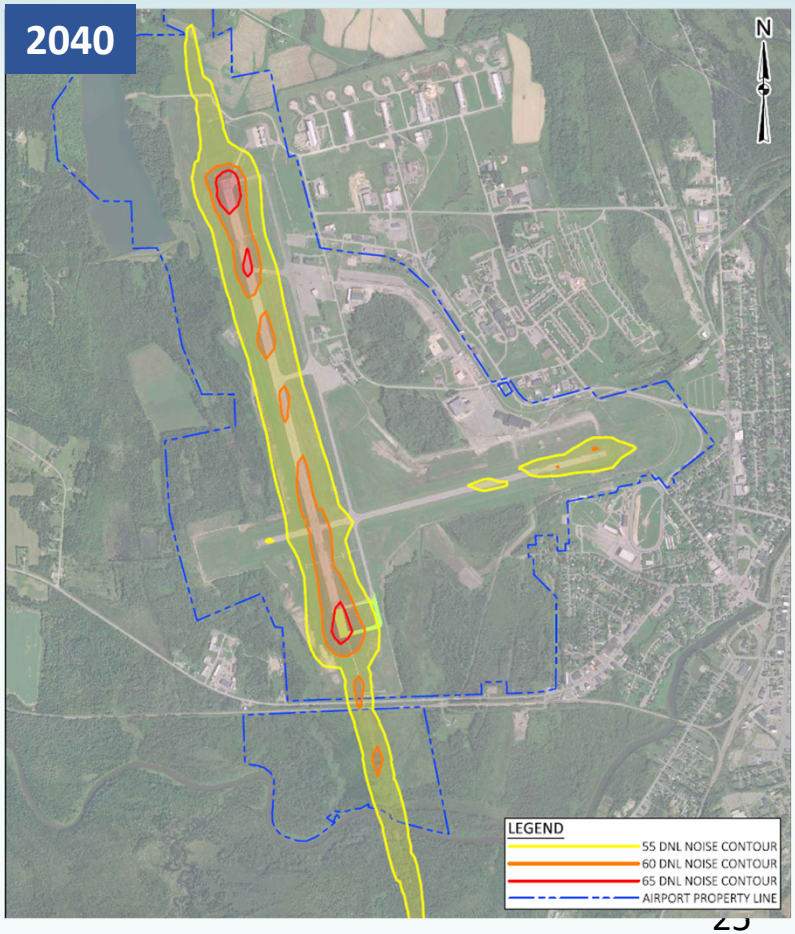
NOISE CONTOURS





- FAA requires annual average DNL for land use compatibility assessment – 65 dB threshold (red)
- DNL – day night average level
- Describes 24-hour average exposure
- Noise contours are compatible with FAA guidance

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IMPLEMENTATION PLAN

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CIP PROJECTS AND FUNDING SOURCES

- Phased project list
- Federal project funding:
  - 95% FAA
  - 2.5% State share
  - 2.5% Airport/local share
  - Examples: Runways, taxiways
- Non-AIP funded projects:
  - MaineDOT funds on case-by-case basis, remainder Airport/local share
  - Examples: Rates and charges study, other non-AIP eligible projects
- Revenue-producing projects:
  - Varies, but generally no/low FAA funding

NEXT STEPS

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WHAT'S NEXT?

- FAA approval of Airport Layout Plan
- Cost estimates for projects
- Financial and Implementation Plan

PROJECT CONTACTS

- Scott Wardwell
  - Airport Manager
  - (207) 764-2550
  - swardwell@presqueisleme.us

- Laura Canham, MBA
  - Project Manager
  - (978) 692-0522
  - lcanham@mjinc.com

THANK YOU!

QUESTIONS?

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Presque Isle International Airport Master Plan Update
Final Technical Advisory Committee Meeting – Summary Notes
February 16, 2022

Meeting commenced at 9:00 a.m.

Introductions

Laura Canham (McFarland Johnson) opened the meeting by welcoming everyone and members of the Technical Advisory Committee (TAC) introduced themselves. The agenda for the meeting was introduced.

Review

L. Canham presented on and reviewed the Master Plan including the Master Plan process and goals of the Master Plan.

Alternatives

L. Canham presented the airside, terminal, and landside alternatives including runway, taxiway, terminal, hangar, and apron alternatives.

Airside

L. Canham summarized the facility requirements identified for airside facilities.

- Considered and Dismissed - Three alternatives were considered and dismissed:
  - Moving the railroad and fence outside of the Runway 28 runway object free area (ROFA)
  - Extending Runway 1-19 to the north
  - Displacing the Runway 19 threshold

- Runway 1-19 Length – Runway 1-19 looked at both no build and southern extension alternatives. The recommended alternative for Runway 1-19 was an extension to the south. This was not extended to the full recommended length due to Mapleton Road and railroad tracks but to the maximum extent possible while the full runway safety area (RSA) and ROFA remain on Airport property. This resulted in a recommended full runway length of 7,909 feet.

Comments:

- Ralph Nicosia-Rusin – Have there been instances when seats have been penalized due to runway length?
- Scott Wardwell – Yes, when using the ERJ 145, due to weather, the aircraft either had to fill less seats or keep delaying flights. Watertown, NY is experiencing similar issues. The design Advisory Circular does not recognize the impact of contaminants. Realistically to assume an environment such as PQI can maintain less than 1/8 inch of contaminants is not realistic. The area receives 110" of snow fall on average per year. United is temporarily operating CRJ 550 which has dealt well with the runway limitations. With additional runway length, the Airport can make the runway more hospitable to the ERJ 145.
- R. Nicosia-Rusin – Are length concerned a winter storm related issue?
- S. Wardwell -Anytime it is less than 5-5-5, length is an issue.
- L. Canham – This has been addressed in the chapter and was sent last summer.
- R. Nicosia-Rusin – The no build does meet Federal Aviation Administration (FAA) standards and the extension would not be funded as the AC currently stands because the length concerns are an operator condition. It is fine to keep the extension on the Airport Layout Plan (ALP), but it does not warrant funding at this time.
- L. Canham – The No Build alternative does not address non-standard ROFA conditions. Therefore, it was designated as not meeting FAA standards.
- S. Wardwell – The new proposed length would be 7,909 feet. This is as long as the runway can go without moving Mapleton Rd and the railroad.

- Taxiway C – Three build and one no build alternatives were considered. The build alternatives included adding runway guard lights, painting a no-taxi island, and relocating Taxiway C to the north. The Master Plan recommendation is to add a no-taxi island to prevent direct access from the terminal ramp.

- Runway 10-28 Back-Taxi – Aircraft need to back-taxi across the entire runway to take off on Runway 10-28. The Master Plan looked at a no build, a taxi turn-around, and a partial parallel taxiway. It is identified that the partial parallel taxiway would be triggered by development on the north side of Runway 10-28 east of Taxiway A.

  Comments:

  - R. Nicosia-Rusin – A partial parallel taxiway would not be fundable at this time. Not having a parallel taxiway is not necessarily a requirement to meet FAA standards. Back-taxiing on a runway is safe depending on the type of operations happening on the Airport.
  - L. Canham -The adding of a partial parallel taxiway to the ALP is to protect for development in the 20-year plan and would be constructed based upon a development trigger.

- Taxiway E – The current taxiway does not meet standard slope requirements and provides direct access to Runway 19. Two build and one no build alternatives were reviewed. Removing

the taxiway completely was considered but replacing the hangars on the North Ramp has a high cost. The preferred alternative is to reconstruct Taxiway E. In a previous meeting, there was discussion to provide a modification to design standards (MOS) for a non-standard slope, as long as the aircraft using the ramp are able to operate on it. The master plan also noted that at the time of design, the MOS with a different Taxiway E layout as well as building new hangars for the existing tenants would be reviewed.

Comments:

- S. Wardwell – The Airport is charging $325 a month for new t-hangars. This payment is only covering the cost of the Airport investment into the building itself and is not necessarily making money for the Airport. The Airport got a grant both from the FAA and the Economic Development Administration (EDA) to cover part of the development. Even to minimize the cost, it is still substantially higher than what north ramp tenants are being charged, which is approximately $170 per month per hangar. Across the county, airports, states, and the FAA will consider getting rid of old hangars, but tenants will not want to pay the difference in rent. The general aviation (GA) community gets upset and convenes to combat the higher rent costs. It is better to keep using the existing hangars until they are beyond disrepair.

Other Alternatives:

- Renumber runways to 18-36 and 9-27 based on magnetic declination
- Move PAPI (precision approach path indicator) control boxes out of ROFA (19 and 28) the next time the PAPIs are updated
- Relocate Utah St out of the Runway 19 ROFA
- Acquire land within runway protection zones (RPZs) in fee/easement
  - Advisable that the Airport has control of the area within RPZ and obstruction areas
  - Currently showed in full parcels, but can be modified to be only part of a parcel
  - On a willing seller/as property becomes available basis
- Protect for aeronautical development areas
- Straighten Taxiway B

The preferred airside alternative was presented.

Terminal

L. Canham identified as part of the Master Plan the existing passenger load is 50 peak hour passengers. The terminal optimal size would be approximately 20,000-25,000 SF.

- Terminal Alternatives – Three build alternatives and one no build alternative were considered. Terminal Alternative 1 proposes building a new terminal next to the existing one and removing the old building for parking. Terminal Alternative 2 proposes building a new terminal and apron on the south side of the Airport, north of the proposed partial parallel taxiway to Runway 10-28. Terminal Alternative 3 proposes building a new terminal and apron north of the existing t-hangars along Taxiway A. Terminal Alternative 1 was deemed the preferred alternative. It uses the existing infrastructure and terminal apron. It has good operational efficiency for both runways and is the lowest cost besides no build.

Landside

L. Canham identified demand for hangar space, expanding the aircraft rescue and firefighting (ARFF) station and vehicle storage, snow removal equipment (SRE) and maintenance, additional Jet A fuel tank, frost resistant fencing, back-up generator, and new pump stations.

- Aeronautical Development Areas – Three areas were identified as areas to protect for future aeronautical development. The area adjacent to the existing terminal, outside of runway visibility zone (RVZ), is set aside for terminal development. The south side of the Airport is a good area for development, but would need a partial parallel taxiway, which is a high upfront cost. The north side of the Airport would be optimal to be developed first due to access to Taxiway A.

- Hangar Alternatives – Three build and one no build alternative were considered. Alternative 1 places the hangars and an apron parallel to Taxiway A. Alternative 2 places the hangars and apron on an angle in line with the existing hangars (south facing). Alternative 3 places the hangars and apron perpendicular to Taxiway A. Should demand grow faster than forecasted, these alternatives protect for additional hangars and therefore show the flexibility of the sites. Based on keeping parallel with existing hangars, constructing optimal south facing hangars, and providing increased flexibility, Alternative 2 was chosen as the recommended alternative.

Other:

- Expanding maintenance/SRE/ARFF building
- Aviation fuel storage (truck or fuel tank) based on being a business decision
- Perimeter fence being frost resistant – some have already taken place during the course of the Master Plan
- Utility upgrades

Special Aeronautical Use

Unique factors to Presque Isle include low population density, less crowded airspace, large area of land available segregated from other airport uses, and south facing hangar opportunities. This provides prime space for an aerospace research facility. A sample of what that might look like is included on the ALP.

Green Opportunities

Solar farms are already underway on airport property and immediately off Airport property. Other opportunities include electric aircraft charging stations, electric vehicle charging stations, roof-mounted solar panels on hangars or other Airport buildings, and green initiatives for construction.

Preferred Airport Development for ALP

L. Canham presented what is being proposed be sent to the FAA for approval.

Noise contours – Based on 2019 operations, the 65db areas are located only around the Runway 1 and 19 ends and on a small spot near the Taxiway B intersection with Runway 1-19. This is due to the larger aircraft typically using the primary runway. The 2040 noise contours include the proposed runway extension. Noise contours are compatible with FAA guidance.

Implementation Plan

Capital improvement program (CIP) projects and funding sources were presented. Federally funded projects are funded at 95% FAA, 2.5% State, and 2.5% local. Non-AIP funded project may receive funds from the State on a case-by-case basis. Revenue generating projects typically do not receive federal funding, but this does vary.

Next Steps

The following next steps were identified:

- FAA approval of the ALP
- Cost estimates for projects
- Financial and Implementation Plan

Comments/Discussion

- Off Airport Obstruction Lights
    - R. Nicosia-Rusin – Off airport obstruction lights require maintenance and are being removed across the county. Typically, these lights are most likely obstructions. These lights could be removed in the future as trees and no longer lit.
    - S. Wardwell – The Airports wants to remove as many obstruction lights as possible. The power, changing bulbs, and other associated cost would be preferable to eliminate. When having discussions about the Airport approaches with FAA flight procedures and when considering ways to improve the approach to Runway 19, someone stated that removing the light on Dennett Hill would require increased minimums. The Airport has approval to remove the lights but needs to make sure that as they are removed, the minimums to Runway 19 are not negatively impacted.
    - R. Nicosia-Rusin – He will further discuss with S. Wardwell.

- Easement Acquisition for Runway 10-28 RPZ
    - R. Nicosia-Rusin – The easement acquisition for Runway 10-28 is a gray area. The runway length may not be supported. He agreed to with protecting threshold as long as the Airport maintains pavement.
    - Janice Bland – The parcels are shown to help protect surfaces. The acquisition would be on a willing seller basis.

Attachments: Attendee list, presentation slides

The meeting concluded at approximately 10 a.m.

Attendee List

Scott Wardwell, Presque Isle International Airport
Ralph Nicosia-Rusin, Federal Aviation Administration
Martin Puckett, City of Presque Isle
John Contas, PQI Aviation Services/Northern Maine Flying Club
Kelli Heu, United Airlines
Robert Clark, Northern Maine Development Commission
Tom Powers, PQI Industrial Council
Janice Bland, Stantec
Katie Hogue, Stantec
Rick Lucas, McFarland Johnson
Laura Canham, McFarland Johnson
Megan Carter-Witt, McFarland Johnson