2. Inventory

2.1. INTRODUCTION

The inventory chapter provides an overview of the Greater Binghamton Airport (BGM or the Airport), including its location and ownership, history, catchment and service areas, socioeconomic data, 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 2017. Information was also obtained from available planning documents and studies concerning the Airport and surrounding areas. The information presented in this chapter serves as the basis for the development of aviation forecasts as well as the baseline data to be used in the Facility Requirements Chapter.

This chapter is organized into the following sections:

- Airport Background
- Airport Catchment/Service Areas
- Socioeconomic Data
- Airside Facilities
- Landside Facilities
- Support Facilities
- Airspace
- Air Traffic Control
- Land Use and Zoning

2.2. AIRPORT LOCATION

Greater Binghamton Airport is located approximately eight miles north of the city of Binghamton. Major access to the Airport is provided by Interstate Routes 81 and 88 and State Route 17 (Future Interstate 86) to County Route 69, known locally as Airport Road. The entire Airport property is located in the Town of Maine. **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 42˚ 12’ 30.39” North latitude and 75˚ 58’ 46.59” West longitude. The Airport is situated atop Mount Ettrick with an Airport elevation of 1,636 feet mean sea level (MSL). BGM occupies approximately 1,199 acres in a sparsely settled rural residential area.

In general, the climate of the Southern Tier can be described as “humid continental,” which is characterized by cold (usually not severe) winters and moderately warm summers, with considerable precipitation year-round. Records from the National Weather Service (1981-2010 data) indicate July is the hottest month of the year with an average maximum temperature of 77.8° F and January is the coldest month of the year with an average minimum temperature of 15.7° F.

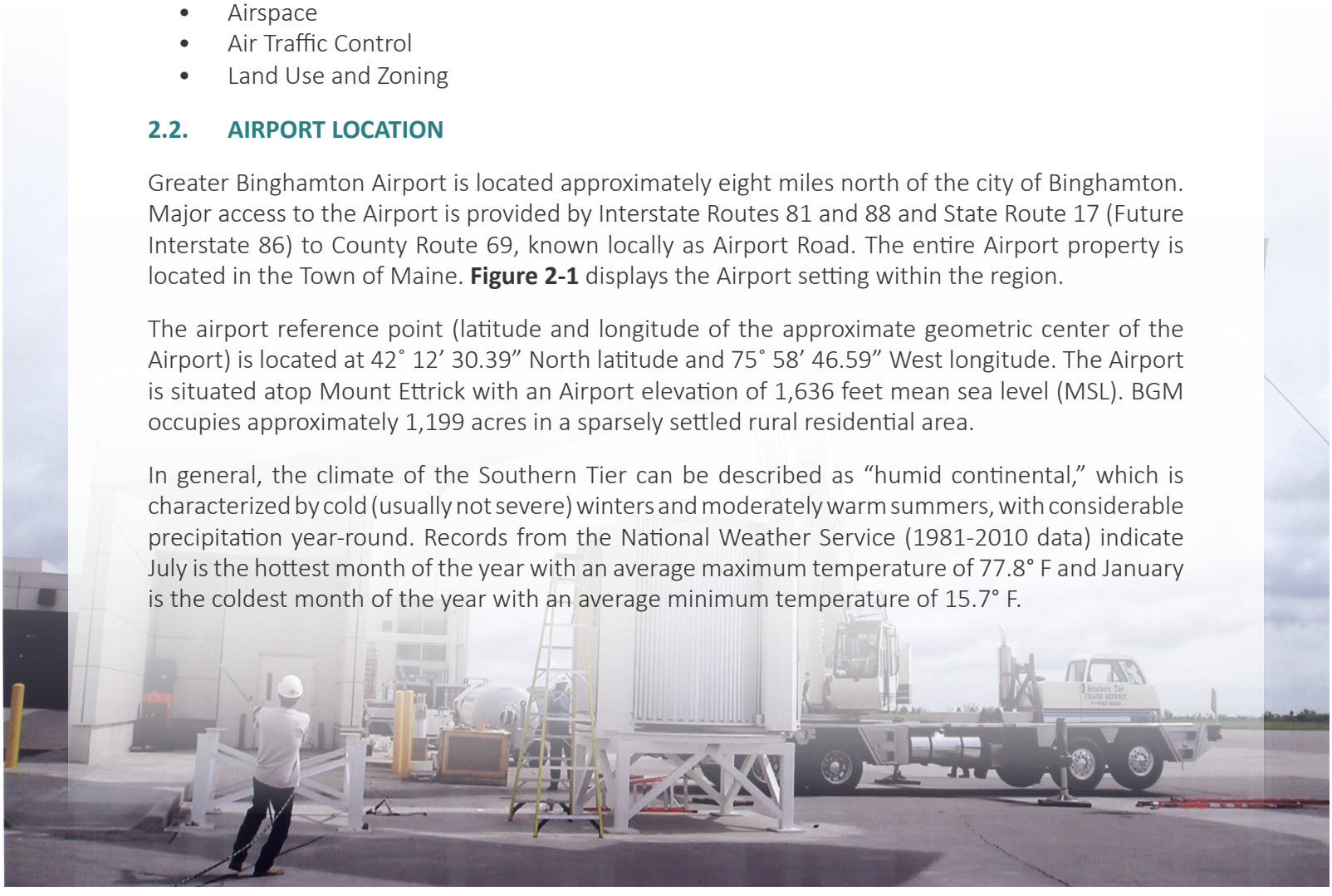
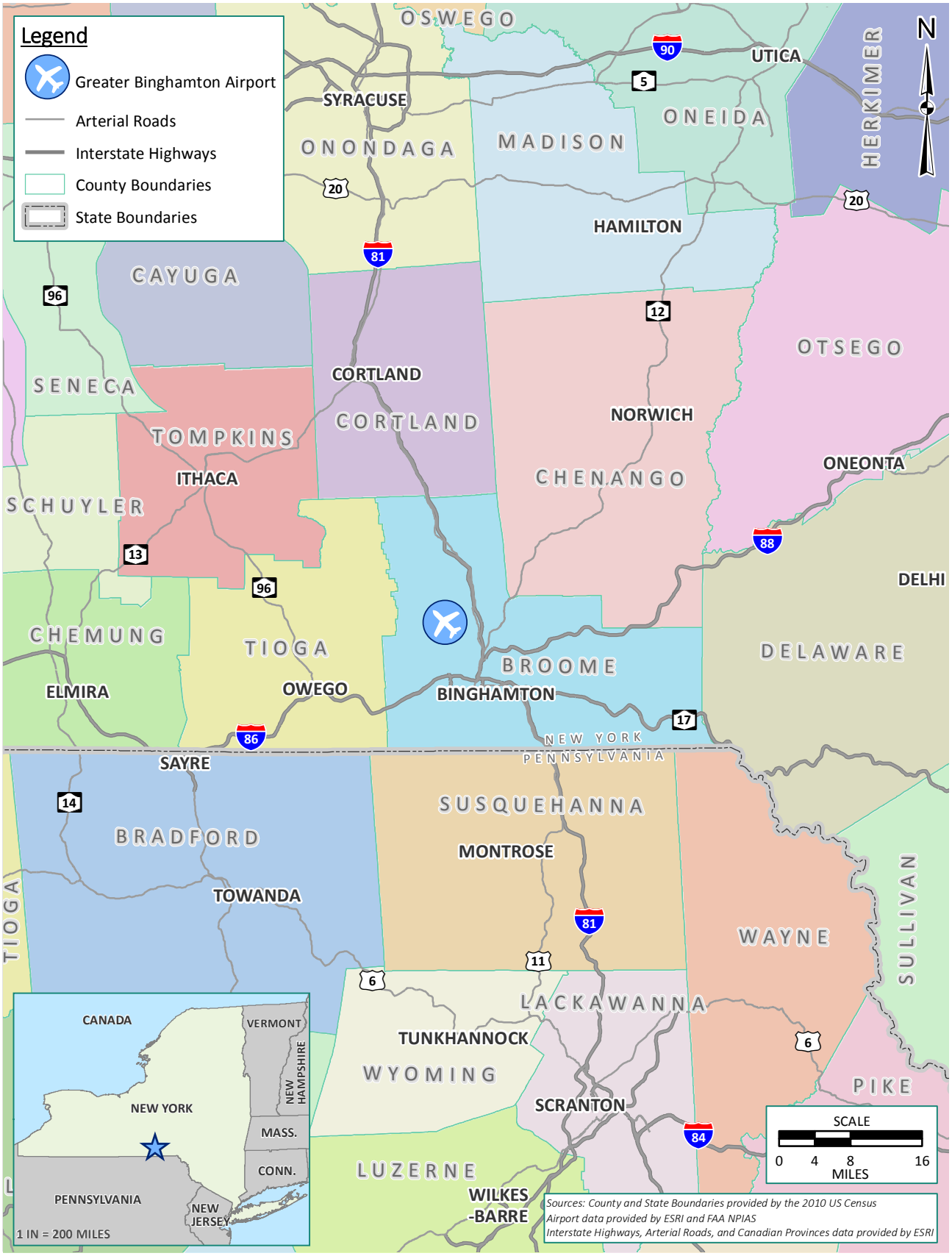


Figure 2-1: Airport Location Map



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2.3. AVIATION ACTIVITY

According to the Greater Binghamton Airport administrative staff, there are 34 aircraft based on the field, consisting of 24 single-engine aircraft, 6 multi engine aircraft, 3 jets, and 1 helicopter. The number of based aircraft has increased since the last iteration of the Airport Master Plan which reported there were 21 aircraft based on the field (15 single-engine, 5 multi-engine, and 1 jet aircraft) in 2006. Single-engine T-hangar tenants include three Mooney M20F aircraft, three Cessna 172 aircraft, two Cessna 150s, three Cessna 182s, a Cessna 210, four Piper Cherokees, two Piper Comanches, A Piper Tri-Pacer, a Piper Arrow, a Piper Dakota, a Bellanca 17, a Columbia 350, and an Evektor Sportstar Max.

Multi engine aircraft include a Piper Aztek, a Cessna 303, a Beechcraft Baron, and a Piper Seneca as well as two Super King Air 300's. There is a single Bell JetRanger helicopter and based jets include a Lear 45, a Hawker 800, and the largest jet aircraft currently based on the field is a Gulfstream 200.

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 15,616 annual operations over a 12-month period, ending on November 30, 2017. These operations were comprised of 19 air carrier, 3,331 air taxi, 2,953 general aviation (GA) local, 9,612 GA itinerant, and 97 military. The military operations can be attributed to practice approaches conducted by the Air National Guard and Navy.

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), the FAA, and the airport.

The FAA's Terminal Area Forecast (TAF) system is the official forecast of aviation activity at FAA facilities. 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 2003-2016 according to the U.S. DOT Bureau of Transportation Statistics.

Table 2-1: Historical Passenger Enplanements

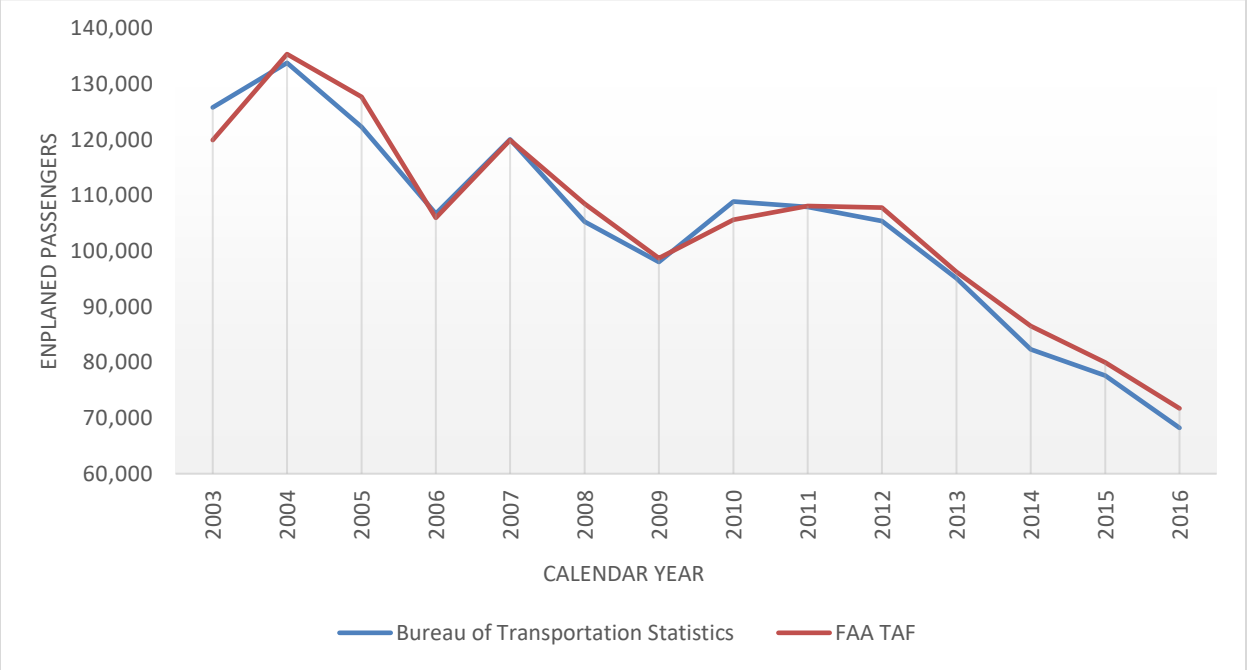
Year	Bureau of Transportation Statistics	FAA TAF
2003	125,834	119,987
2004	133,848	135,425
2005	122,332	127,719
2006	106,740	106,005
2007	120,109	119,948
2008	105,327	108,512

Year	Bureau of Transportation Statistics	FAA TAF
2009	98,040	98,722
2010	108,911	105,634
2011	107,975	108,133
2012	105,447	107,820
2013	95,150	96,252
2014	82,380	86,558
2015	77,632	79,987
2016	68,241	71,739

Source: Bureau of Transportation Statistics, 2017.

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

Figure 2-2: Historical Passenger Enplanements



Source: Bureau of Transportation Statistics, 2017.

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

Table 2-2: Airport Characteristics

Element	Airport Information
Owner	Broome County
Acreage	1,199
FAA Categories	Non-hub, 14 CFR Part 139 Class I, ARFF Index B
Based Aircraft	34 (24 single-engine, 6 multi-engine, 3 jets, and 1 helicopter)
Annual Operations	15,616

ARFF is defined as Aircraft Rescue and Fire Fighting.
Source: FAA Form 5010, Airport Master Record, Accessed June 19, 2018.

2.3.1. Recent Projects

The Airport has undergone several construction projects since the last master plan update in 2009. Some of the larger, more notable projects include:

Airside

- In 2013, the EMAS (engineered materials arresting system) on the Runway 34 end was replaced and improvements to the Runway Safety Area were constructed.
- In 2014, the heliport was constructed adjacent to the West Apron.
- In May 2017, the full 7,305-foot Runway 16-34 was rehabilitated, which grounded all commercial flight operations for one month.

Landside

- In 2011, the terminal apron was rehabilitated. As a part of the project, the Airport, in cooperation with Binghamton University and McFarland Johnson, designed and constructed a geothermal snowmelt slab as a prototype for research. The system is also used to cool the terminal building in the summer months.
- In 2013/2014, the West Apron, adjacent to the FBO and other GA facilities, was rehabilitated.
- In 2015/2016, the North Apron, adjacent to Hangar 1 and the T-Hangars, was rehabilitated, including the demolition of the former cargo building.
- In 2017, the Airport connected the existing deicing pad drainage system with the recently constructed sanitary sewer system along Airport Road.

Terminal

- In 2015, the Airport upgraded security features within the terminal and replaced the baggage carousel.
- In 2017, Binghamton Brewing Company constructed a new countertop for food and beverage service within the holdroom.

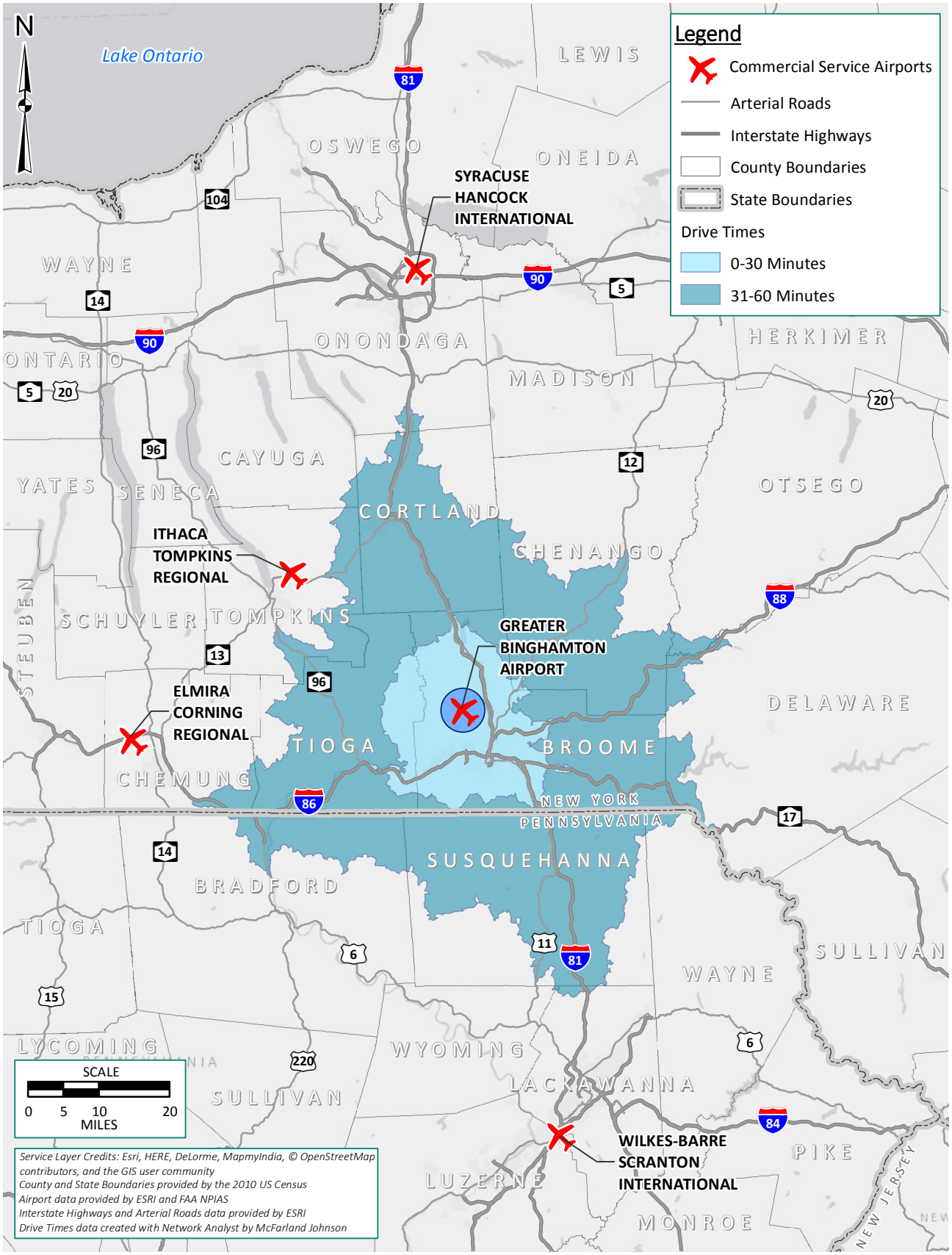
2.4. AIRPORT CATCHMENT/SERVICE AREA

2.4.1. Commercial Service Catchment Area

At commercial service airports such as BGM, 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. These areas are generally defined by a 30 and 60-minute uncongested drive-time isochrones which can be seen graphically in **Figure 2-3**.

As shown on this figure, the primary catchment area (0-30 minutes from BGM) is not a perfect circle, but rather, it encompasses a radius around the Airport extending approximately 10 miles to the east, approximately 12 miles to the west, approximately 12 miles to the north, and approximately 14 miles to the south. The primary catchment area includes a majority of Broome County (and the City of Binghamton) as well as a portion of Tioga County.

Figure 2-3: Commercial Service Airport Drive Time Map



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The secondary catchment area (31-60 minutes from BGM), as shown in **Figure 2-3**, represents a larger non-concentric isochrone around the Airport. The secondary catchment area extends approximately 32 miles to the east, approximately 29 miles to the west, approximately 37 miles to the north, and approximately 32 miles to the south. In addition to those counties previously identified in the primary catchment area, the secondary catchment area also includes portions of Otsego County, Tompkins County, Chenango County, Cortland County, and Delaware County in New York and portions of Bradford County, Susquehanna County, Lackawanna County, and Wayne County in Pennsylvania. There are no other commercial service airports within BGM's primary and secondary catchment area.

There are three commercial service airports that lie just outside of the Commercial Service Catchment Area, namely Ithaca Tompkins Regional, Elmira Corning Regional, and Wilkes-Barre/Scranton International. These airports are shown for comparison purposes in **Table 2-3** and are also identified in **Figure 2-3**.

Table 2-3: Proximate Commercial Service Airports

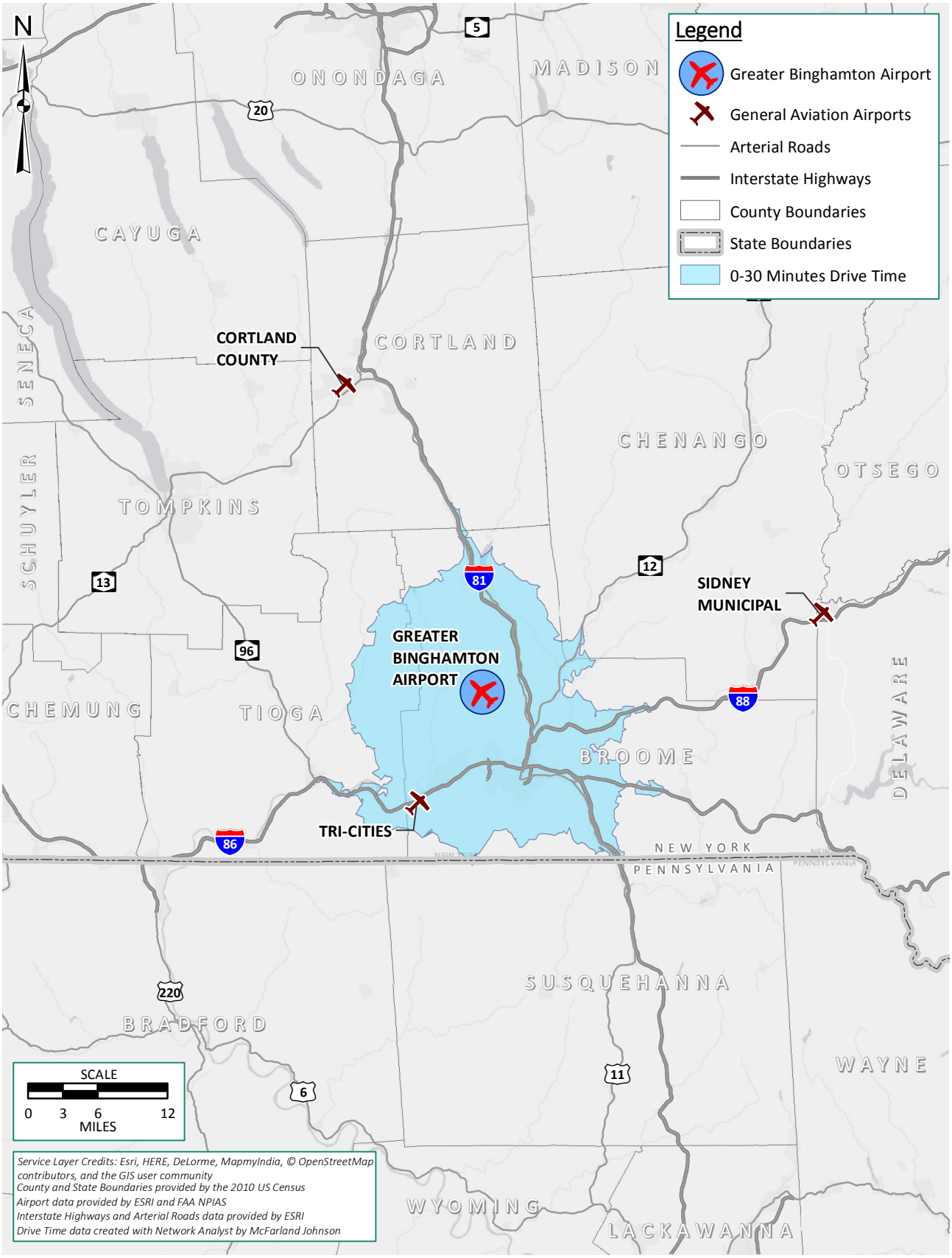
Airport	RWY	RWY Length & Width	Runway Surface	Based Aircraft	Instrument Approaches	Associated City	Distance from BGM (statute miles)
BGM	16-34 10-28	7,305' X 150' 5,001' X 150'	Asphalt/Grooved Asphalt/Grooved	37	Precision Non-Precision	Binghamton	----
Ithaca Tompkins	14-32 15-33	6,977' X 150' 2,018' X 50'	Asphalt/Grooved Turf	52	Precision None	Ithaca	31 NW
Elmira Corning Regional	6-24 10-28 5-23	8,001' X 150' 5,404' X 150' 2,017' X 150'	Asphalt/Grooved Asphalt/Grooved Turf	46	Precision Non-Precision None	Elmira/ Corning	47 W
Syracuse Hancock Int'l	10-28 15-33	9,003' X 150' 7,500' X 150'	Asphalt/Grooved Asphalt/Grooved	43	Precision Non-Precision	Syracuse	63 N
Wilkes-Barre Scranton Int'l	4-22 10-28	7,502' X 150' 4,300' X 150'	Asphalt/Grooved Asphalt/Grooved	42	Precision Non-Precision	Wilkes-Barre/ Scranton	61 S

Source: FAA Form 5010-1, January 23, 2018.

2.4.2. General Aviation Service Area

General aviation (GA) also plays a key role at BGM. For the purposes of GA, the areas from which tenants/users are most likely to be located is referred to as a service area. The BGM GA service area is approximately a 30-minute drive-time from the airport. The GA service area is shown in **Figure 2-4**. Included in the GA service area is Broome County as well as portions of Tioga County, Tompkins County, Cortland County, and Chenango County in New York and portions of Bradford County and Susquehanna County in Pennsylvania. Service area airports include Tri-Cities Airport, Cortland County Airport, and Sidney Municipal Airport.

Figure 2-4: General Aviation Airport Drive Time Map



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Details associated with these airports can be viewed in **Table 2-4.**

Table 2-4: Proximate GA Airports

Airport	RWY	RWY Length & Width	Runway Surface	Based Aircraft	Instrument Approaches	Associated City	Distance from BGM (statute miles)
BGM	16-34 10-28	7,305' X 150' 5,001' X 150'	Asphalt/ Grooved Asphalt/ Grooved	37	Precision Non-Precision	Binghamton	----
Tri-Cities	3-21	3,900' X 75'	Asphalt	42	Non-Precision	Endicott	11 SW
Cortland County	6-24	3,400' X 75'	Asphalt/ Grooved	45	Non-Precision	Cortland	29 NNE
Sidney Municipal	7-25	4,201' X 75'	Asphalt	24	Non-Precision	Sidney	30 WNW

Source: FAA Form 5010-1, Accessed June 19, 2018.

2.5. 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 New York, Broome County, and surrounding cities and towns that comprise the local area.

The total percent change in population from 2000 to 2016, shows that Greater Binghamton has not experienced a significant change in population. The only large municipality regionally that has increased in population is the city of Ithaca. While the U.S. and the State of New York have seen increases in population, Broome County, Binghamton, and Elmira have seen declines in population as shown in **Table 2-5**.

Table 2-5: Population Change 2000-2016

Area	2000 Population	2010 Population	2016 Population (Estimate)	Total % Population Change (2000-2016)
United States	281,421,906	308,745,538	323,127,513	14.82%
State of New York	18,976,457	19,378,102	19,745,289	4.05%
County of Broome	200,536	200,689	195,334	-2.59%
City of Binghamton	47,380	47,376	45,674	-3.60%
City of Elmira	30,940	29,354	27,962	-9.63%
City of Ithaca	29,287	29,774	30,763	5.04%

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

The majority of municipalities that surround the Airport are below the state and national unemployment and median household income rate, as shown in **Table 2-6**. Only the City of Binghamton has a higher unemployment rate than the nation and the state. Broome County and municipalities near Binghamton all have median household incomes lower than the state and the nation as a whole.

According to the 2015 American Community Survey provided by the U.S. Census American Fact Finder, the County of Broome major industries are educational services and health care and social services (29.9%), retail (12.6%), and manufacturing (10.3%). The top ten employers in the county include aerospace and defense, colleges/universities, medical service providers, hospitals, and retailers such as Walmart and Wegmans Food Markets.

Table 2-6: Employment and Income

Area	Unemployment Rate	Percent in Labor Force	Median Household Income
United States	5.2%	63.7%	$53,889
State of New York	5.2%	63.5%	$59,269
County of Broome	4.6%	58.7%	$46,261
City of Binghamton	6.1%	54.4%	$29,824
City of Elmira	4.3%	48.7%	$29,295
City of Ithaca	3.6%	46.7%	$30,436

Source: U.S. Census Bureau, American Fact Finder 2017 and New York Department of Labor.

2.6. AIRSIDE FACILITIES

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

- Runways
- Taxiways

The locations of the runways and taxiways are depicted in the BGM published airport diagram, Figure 2-5.

2.6.1. Runways

BGM has two runways which consist of a primary, Runway 16-34, and a crosswind, Runway 10-28. Additionally, the Airport has a heliport, H1, located southwest of the terminal building. Pertinent information regarding BGM's runways can be found in Table 2-7.

Analysis of wind data generated at the Airport indicates the Airport is operating in IMC (instrument meteorological conditions) 26.2% of the time, VMC (visual meteorological conditions) 67.3% of the time and is closed due to weather 6.5% of the time. Additionally, winds are reported as calm or 3 knots or less 7.0% of the time.

Runway 16-34

Runway 16-34 is the Airport's primary runway and measures 7,305 feet long by 150 feet wide. It is aligned in a northwest-southeast direction which is consistent with the prevailing wind conditions. The runway is grooved and in excellent condition with high intensity edge lights. Both runway ends are equipped with a medium intensity approach light system with runway alignment indicator lights (MALSR) and a 2-box precision approach path indicator (PAPI). Runway 16-34 has precision instrument markings in excellent condition.

EMAS beds were installed on both ends of the runway in 2002 and declared distances implemented to comply with FAA runway safety area (RSA) requirements, as steep drops on both ends of the runway preclude traditional graded RSA's. The EMAS bed on the south end of the runway is approximately 36,800 square feet (SF) and measures 162' wide by approximately 227' long. It was completely replaced in 2013 with a Zodiac Aerospace EMASMAX system.. The EMAS bed on the north end of the runway is approximately 50,000 SF and measures approximately 161 feet wide by 313 feet long. It was fitted with a new plastic lid in 2010 which greatly reduced the required regular maintenance. The EMAS system is capable of stopping a Dornier Dash 8, Canadair CRJ 200, Embraer 145, or a Beech 1900 at up to 70 knots, at maximum takeoff weight, or at 80% of maximum landing weight.

Runway 16-34 was originally constructed in 1951 with two major extensions of 700 feet and 1,100 feet completed in 1967 and 1989, respectively. There have been two asphalt overlays completed as well as a major runway rehabilitation in 2006. The full runway was rehabilitated again in mid-2017 at a cost of approximately $12 million. The most recent reconstruction occurred after a major pavement failure in September 2015 when a large portion of pavement in the Runway 34 touchdown zone delaminated, necessitating emergency repairs that closed the runway for nearly a week.

Runway 10-28

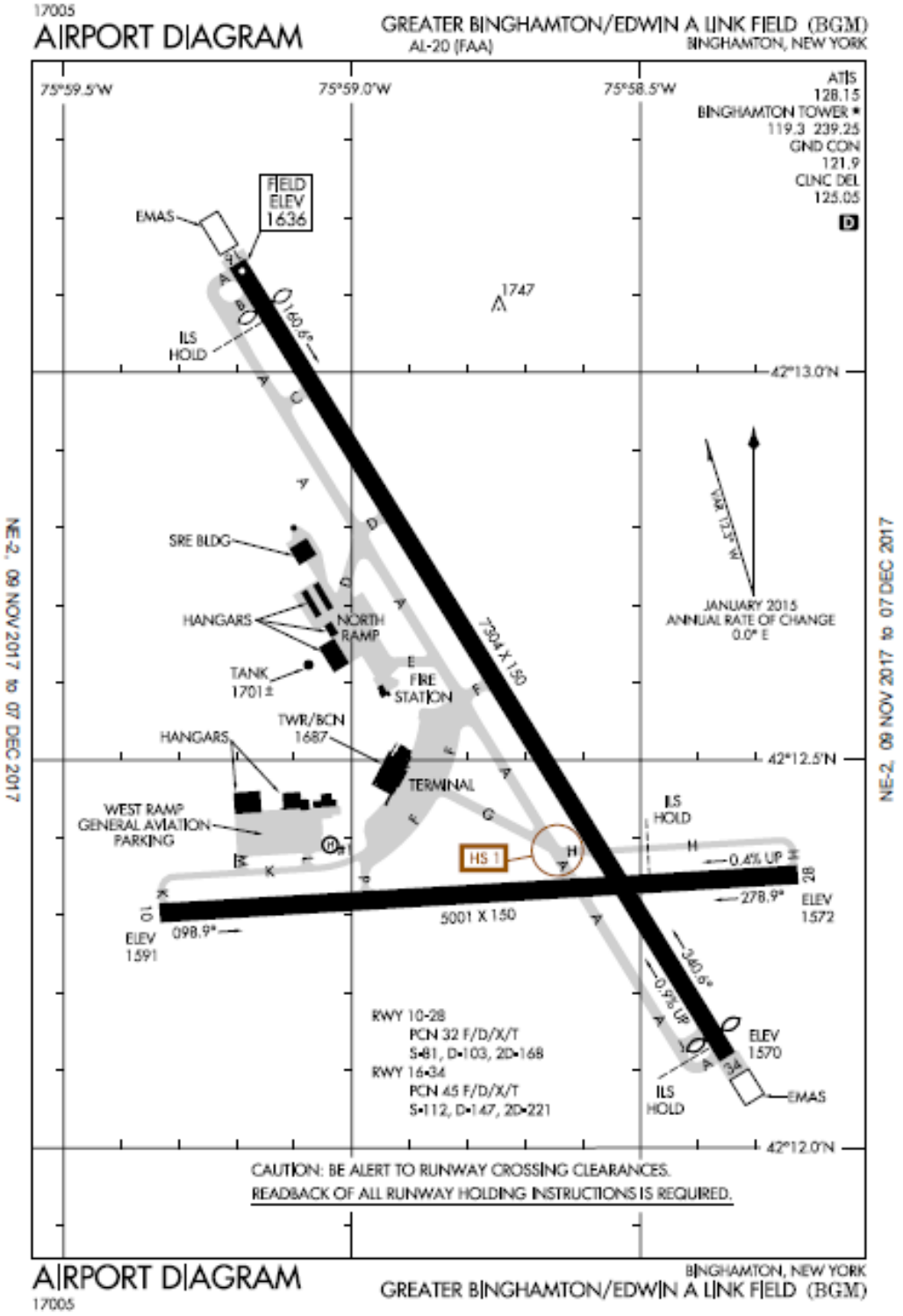
The Airport's crosswind runway measures 5,001 feet long by 150 feet wide. It is aligned in an east-west direction and is grooved in good condition as of the most recent inspection at the end of 2016. It has flashing runway end identifier lights (REIL) for pilots utilizing Runway 28 as well as medium intensity edge lights (MIRL). Both runway ends are served by a visual approach slope indicator (VASI).

Runway 10-28 has remained at its current length since initial construction and was last rehabilitated (mill and overlay) in 1998. Complete reconstruction of Runway 10-28 is currently in the design phase and anticipated for construction in 2019.

Heliport H1

Heliport H1 was constructed in 2014 and is located at the intersection of Taxiway L and the West Apron. The heliport is comprised of a 54-foot by 54-foot concrete touchdown and lift-off area and is encompassed by a 98 feet by 118 feet asphalt final approach and takeoff area. Heliport H1 was constructed due to an increase in helicopter traffic associated with manufacturing work at a nearby Lockheed Martin facility and activity in the natural gas exploration sector in Northern Pennsylvania.

Figure 2-5: BGM Airport Diagram



Source: FAA Airport Diagram, effective November 9 – December 7, 2017.

Table 2-7: Runway Data

Runway	16/34	10/28	H1
Surface	Grooved Asphalt	Grooved Asphalt	Portland Cement
Dimensions	7,305' by 150'	5,001' by 150'	54' by 54'
Pavement Condition	Excellent	Good	Good
Runway Design Code	C-III	B-II	
Critical Aircraft (per 2009 MPU)	Embraer 190	Saab 340	
Displaced Threshold	399' /205'	None	N/A
Markings	Precision Instrument	Non-precision Instrument	Basic
Lighting	HIRL	MIRL	Perimeter
End Elevation (MSL)	1,636' / 1,569'	1,591' / 1,572'	1,591'
Part 77 Approach Surface Slope	50:1-40:1 / 50:1-40:1	34:1 / 34:1	N/A
Approach Minimums	½ Mile / 2,400'	¾ Mile	N/A
Visual Approach Aids	MALSR, PAPI / MALSR, PAPI	VASI, REIL / VASI	N/A
Instrument Approach Aids	ILS, GPS / ILS, GPS, Transmissometer	VOR, GPS / VOR, DME, GPS	N/A
CFR Part 77 Category	Precision Instrument	Non-Precision Instrument	Visual
Declared Distances			
Takeoff Run Available	7,305'	5,001'	N/A
Takeoff Distance Available	7,305'	5,001'	N/A
Accelerate-Stop Distance Available	7,305'	5,001'	N/A
Landing Distance Available	6,905' / 7,099'	5,001'	N/A
Usable Runway Length	7,305'	5,001'	N/A
Pavement Strength (lbs.)			
Single Wheel	112,000	81,000	Unknown
Dual Wheel	147,000	103,000	Unknown
Tandem	221,000	168,000	Unknown
Runway Object Free Area (ROFA)			
Length Beyond Runway End	1,000'	300'	N/A
Width	800'	500'	N/A
Runway Safety Area (RSA)			
Length Prior to Landing Threshold	848' / 410'	300'	N/A
Length Beyond Runway	447'* / 410'*	300'	N/A
Width	500'	150'	N/A

*Mitigated by EMAS and declared distances

Source: 2009 Airport Master Plan Update, 2009 ALP, FAA Form 5010 (Feb. 1, 2018), FAA Digital Terminal Procedures Publication 01 FEB 2018 to 01 MAR 2018.

Taxiways

BGM has thirteen taxiways designated A through P (the letter "I" is not used to designate taxiways to avoid confusion with the number "1" and the letter "N" is not utilized). All of the taxiways are of asphalt construction and are equipped with blue, omnidirectional medium intensity taxiway lights (MITL).

Taxiway A is a parallel taxiway measuring 75 feet wide which runs full-length of Runway 16-34 including providing access to both runway thresholds.

Taxiway B is a bypass taxiway which measures 92 feet wide at its narrowest point and is near the Runway 16 threshold.

Taxiway C is a 75-foot-wide entrance taxiway approximately 730 feet south of the Runway 16 (displaced) threshold.

Taxiway D is a 75-foot-wide entrance taxiway approximately 1,880 feet south of the Runway 16 (displaced) threshold. Taxiway D intersects Taxiway A and provides access from Runway 16-34 to the North Ramp.

Taxiway E is a 75-foot-wide apron taxiway connecting Taxiway A with the south side of the North Ramp.

Taxiway F is a 75-foot-wide apron taxiway that originates/terminates at Runway 16-34. It intersects Taxiway A and then curves along the southwest side of the Terminal Apron where it originates/terminates on the south end at Taxiway P.

Taxiway G is 75 feet wide crossover taxiway and connects the Terminal Apron with Taxiway A. The intersection of Taxiways A, G, and H is a published hot spot.

Taxiway H is a partial parallel taxiway that parallels Runway 10-28 on east of Taxiway A. It connects the Runway 28 threshold with Taxiway A and intersects Runway 16-34. Taxiway H is 50 feet wide east of Runway 16-34 and 75 feet wide west of Runway 16-34. The intersection of Taxiways A, G, and H is a published hot spot.

Taxiway J is a crossover taxiway approximately 80 feet wide at its narrowest point. It is a stub taxiway that provides access to the Runway 34 displaced threshold and serves as a by-pass to Taxiway A. It remains outside of the instrument landing system (ILS) critical area.

Taxiway K is a 50 foot wide, partial parallel taxiway and connects the Runway 10 threshold with the south end of the Terminal Apron.

Taxiway L is 50 feet wide apron taxiway that connects Taxiway K and the West Ramp including Heliport H1.

Taxiway M is 50 feet wide apron taxiway that connects Taxiway K and the West Ramp.

Taxiway P is 50 feet wide and serves as a stub taxiway for Runway 10-28 approximately 1,620 feet from the Runway 10 threshold.

2.6.2. 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. All local traffic is controlled by the airport traffic control tower (ATCT), which is operational between 6:00 AM and 12:00 AM daily. BGM 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. Runways 16 and 34 are equipped with a MALSR. 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, 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.

RNAV (GPS) Approaches

Global positioning system (GPS) approaches utilize 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 BGM's GPS approaches.

Instrument Approach Procedures

There are six published instrument approach procedures at BGM, two of which utilize the ground-based components of the ILS; and the remainder utilize the space-based satellites of the GPS. The approach plates for use between December 7, 2017 and January 4, 2018 are shown in Figure 2-6 through Figure 2-11 below.

Figure 2-6: ILS or LOC Runway 16

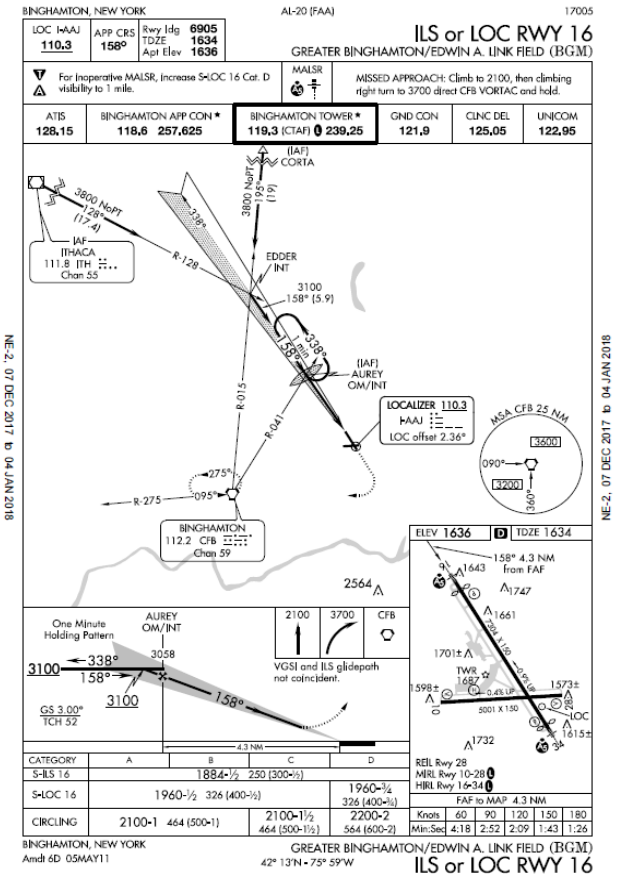
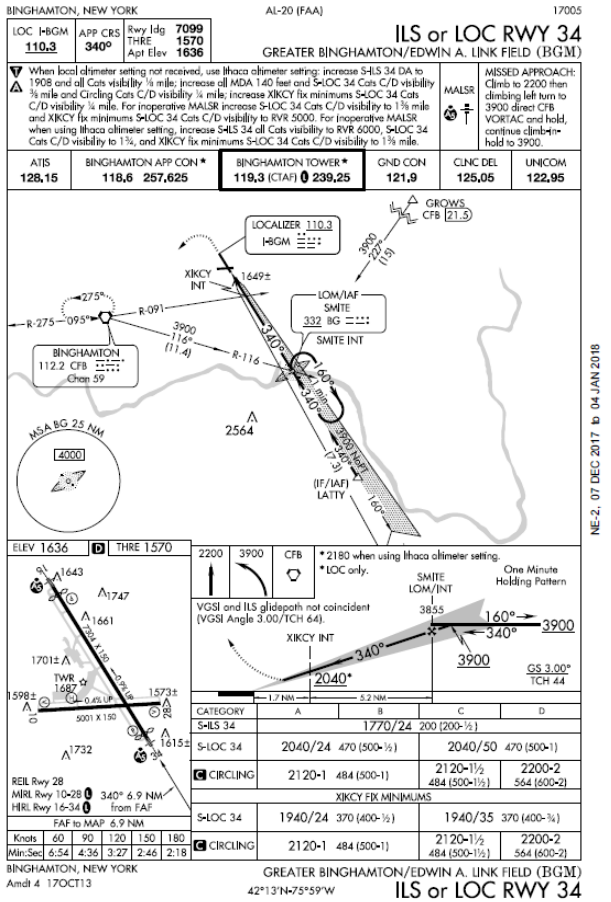


Figure 2-7: ILS or LOC Runway 34



Source: http://aeronav.faa.gov/, Accessed January 10, 2018.

Figure 2-8: RNAV (GPS) Runway 10

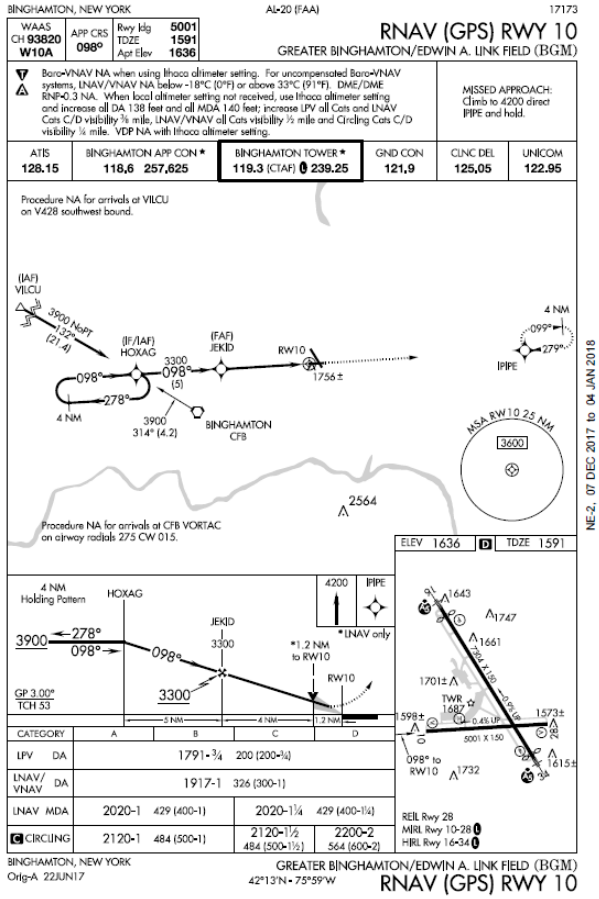
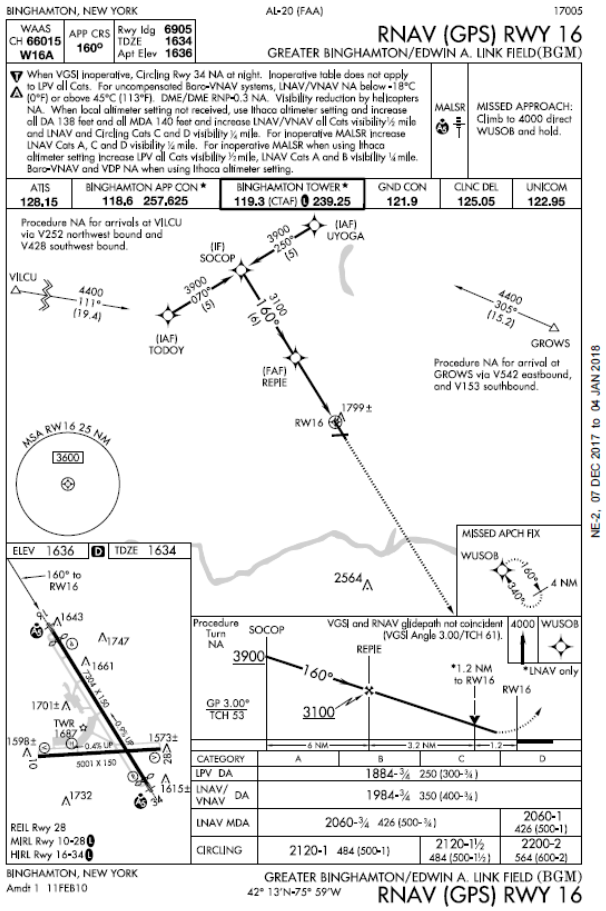


Figure 2-9: RNAV (GPS) Runway 16



Source: http://aeronav.faa.gov/, Accessed January 10, 2018.

Figure 2-10: RNAV (GPS) Runway 28

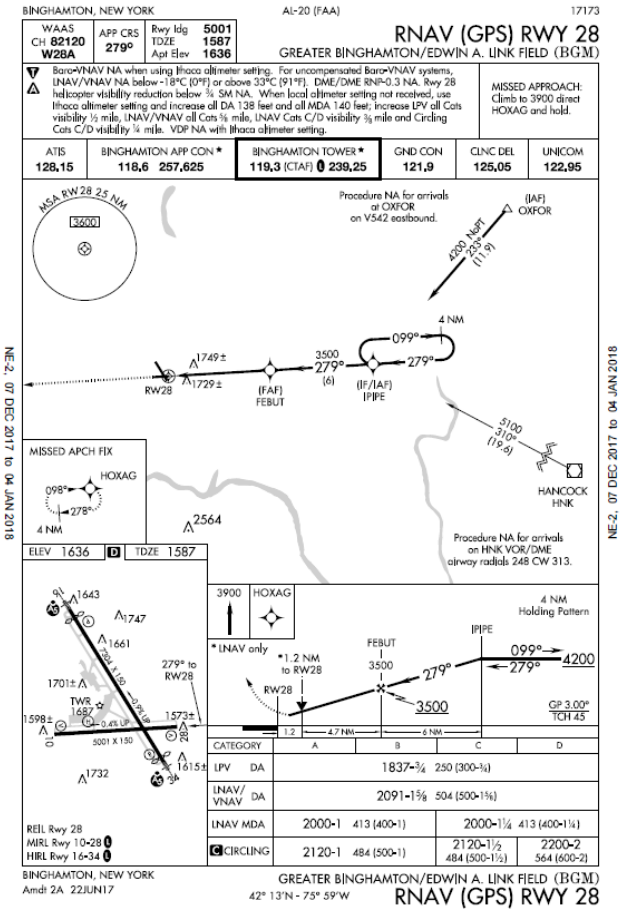
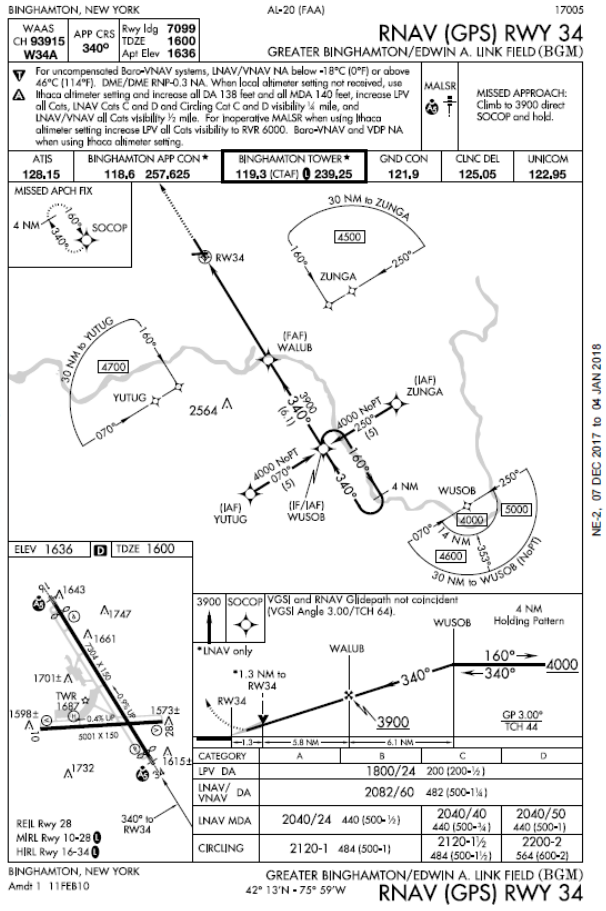


Figure 2-11: RNAV (GPS) Runway 34



Source: http://aeronav.faa.gov/, Accessed January 10, 2018.

2.6.3. Visual Approach Aids

Runway 16-34 is equipped with a MALSR and PAPI on both ends. Runway 10-28 has a VASI on both ends and a REIL on the Runway 10 approach end. A summary of instrument approach minima at BGM is shown in Table 2-8.

Table 2-8: BGM Instrument Approach Procedures Minima

Runway End	Type of Approach	Approach Minima (Ceiling-Visibility)
Runway 16	ILS or LOC	250’ Above Ground Level (AGL) – ½ Statute Mile
Runway 34	ILS or LOC	200’ AGL – 2,400 feet
Runway 10	RNAV (GPS) - LPV	200’ AGL – ¾ Statute Mile
Runway 16	RNAV (GPS) - LPV	250’ AGL – ¾ Statute Mile
Runway 28	RNAV (GPS) - LPV	250’ AGL – ¾ Statute Mile
Runway 34	RNAV (GPS) - LPV	200’ AGL – 2,400 feet

Source: FAA BGM Terminal Procedures, effective date: November 9 - December 7, 2017.

2.6.4. Airport Systems

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

Automated Surface Observing System (ASOS)

Weather reporting equipment at BGM consists of an ASOS accessible from Taxiway G and located between Taxiways D and F. An ASOS provides continuous minute-by-minute observations and performs basic observing functions necessary to generate an aviation routine weather report (METAR) and other aviation weather information. An ASOS has the capability to report altimeter setting, wind, temperature/dew point, density altitude, visibility, clouds/ceiling, precipitation, and remarks. It can be accessed by pilots via telephone at (607) 729-8335.

Wind Cones

There are lighted wind cone assemblies adjacent to the approach ends of Runway 16-34.

Airport Surveillance Radar (ASR)

Located on the north end of the Airport is an ASR-11 which is an integrated primary and secondary radar system. It is utilized to detect aircraft within 60 miles of the site, and can also provide weather service detection capabilities to provide increased situational awareness to controllers and pilots operating in the terminal area.

NEXRAD Weather Radar

While not owned, operated, or maintained by the Airport, located on Airport property is a NEXRAD (Next generation Radar) S-band Doppler weather radar station. The WSR 88-D (Weather Surveillance Radar, 1988 Doppler) is one of over 160 radar sites across the U.S. operated by the National Weather Service that provide high resolution weather data for researchers, media outlets, pilots, and private citizens[1].

Airfield Lighting

Airfield lighting for runways, taxiways, lighted directional signs, and other signage is powered from an electrical vault located east of the West Ramp, adjacent to the FirstAIR FBO and the Employee Parking Lot. A 100 Kw emergency generator with a 330-gallon diesel fuel capacity is located adjacent to the vault to provide emergency power.

[1] US Department of Commerce, NOAA, National Weather Service. "About our WSR 88-D Radar." National Weather Service, NOAA's National Weather Service, 23 Mar. 2015, www.weather.gov/iwx/wsr_88d.

Binghamton VORTAC

A combined very high frequency omnidirectional range (VOR) / tactical air navigation (TACAN), is known as a VORTAC. Three services are provided to aircraft from this single facility. The VOR is used by properly equipped aircraft to navigate. 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 TACAN is collocated with the VOR and is utilized by military aircraft for navigation, however a portion of the TACAN is available for public use. A distance measuring equipment (DME) can be utilized by properly equipped aircraft to give pilots an indication as to their relative distance to a particular VOR.

While not located on Airport property, the Binghamton VORTAC is a critical piece of infrastructure for pilots operating into the Airport environment and flying in the local area. The Binghamton VORTAC is located approximately nine miles southwest of the Airport, near Schneider Road in the Town of Owego. The Binghamton VORTAC is owned and operated by the FAA.

2.7. LANDSIDE FACILITIES

2.7.1. Airport Buildings

The existing conditions at BGM are depicted in **Figure 2-5** and show the general location of buildings, hangars, and other airport and tenant facilities.

T-Hangars

T-hangars are generally used for the storage of general aviation aircraft (typically based aircraft). At BGM, there are two, ten-unit T-hangars which were constructed in 2013 to replace three previous T-hangar buildings that had reached the end of their useful life. These hangars are owned and operated by Broome County. The T-hangars are located on the North Apron south of the Runway 16 threshold and can be accessed via Taxiways D or E. Concurrent with the construction of the T-hangars, the pavement surrounding the new structures was replaced as well. There are 10 individual units in the two T-hangars which are approximately 80 percent full.

Conventional Hangars

Hangar 1 was constructed on the North Apron in 1994. The hangar measures approximately 28,000 square feet with approximately 7,000 square feet of attached office space. The hangar is owned by the County and has recently been leased to Evolution Jets, an aircraft charter company.

Hangar 2 was constructed in the late 1950's at the western end of the West Apron. It is owned by the County and is used by FirstAIR for aircraft storage. There are additional tenants in Hangar 2 as discussed in **Section 2.7.4**.

Hangar 3 houses the GA terminal building as well as the offices of FirstAIR, BGM's FBO. The building is County owned and was constructed in 1981, comprising approximately 21,670 SF of space. Approximately 16,500 SF is hangar space and the remainder is the GA terminal building.

Rental Car Service Facility

In 2015, a rental car service facility was constructed between Dawes Drive and Knapp Road. The project consisted of construction of a 900-foot long public access road, named Shea Drive, a 16,000-square foot parking lot, a wash bay, service bays, offices, and fueling infrastructure. The facility was constructed by the county utilizing Customer Facility Charges (CFC) to be leased out to the rental car companies based at the Airport.

2.7.2. 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 first floor encompasses approximately 51,700 SF, of which approximately 21,500 SF is considered sterile, or behind the passenger screening checkpoint. The remaining approximately 30,000 SF is public or before the passenger screening checkpoint. The sterile areas are only accessible to ticketed passengers and/or appropriately badged employees. The breakdown of these areas is depicted on Figure 2-12.

The second floor (approximately 13,171 SF) is made up almost entirely of office space as shown on Figure 2-13. Second floor tenants include the Broome County Department of Aviation, the FAA, Customs and Border Protection (CBP), SkyWest Airlines, Civil Air Patrol, and the Transportation Security Administration (TSA). A four-story ATCT sits atop the terminal building.

The Airport's original terminal building opened in 1950 but has undergone several expansion and renovation projects. The most recent terminal renovation/expansion was in 2014 and consisted of building security upgrades and replacement of the inbound baggage carousel. Specifically, the terminal building access control system was upgraded to tie in additional Airport owned buildings and replace several access-controlled doors. The existing security cameras were replaced with digital units and additional cameras were installed. All of the cameras were tied into the Airport security system.

In 2012, the terminal restrooms were upgraded, and upgrades added to the TSA screening check point.

In 1999, major passenger facility renovations were necessary to address critical life, safety and building code requirements; address handicap access; and enhance terminal capacity and safety. The project was also necessary to provide needed improvements to the then 50-year-old building's systems, including renovation, replacement, and upgrading of the facility's mechanical and electrical systems.

The 1999 passenger facility renovations were consistent with the preferred terminal concept included in the 1997 Master Plan Update and shown on the Airport's current FAA approved Airport Layout Plan (ALP). According to the Engineer's Design Report (January 6, 1999), the major

items that were included in the terminal renovation project were as follows:

- Expansion and consolidation of ticket counters and airline ticket offices on the south side of the terminal to provide maximum flexibility to accommodate changing airline requirements.
- New baggage claim located on the north side of the terminal to separate enplaning and deplaning passenger flows.
- Consolidated rental car spaces conveniently located opposite the baggage claim area.
- Expanded and dedicated outbound baggage area.
- New and expanded departure lounge.
- New sterile area and non-sterile area restrooms.
- New entry/exit vestibule provided opposite the new baggage claim to enhance vehicular distribution at the curb.
- Relocated restaurant and gift shop to a more visible and centralized location.
- Separate enplaning and deplaning passenger flows, with enhanced enplaning passenger flow through security into the departure lounge.
- Renovated second floor spaces to meet Americans with Disabilities Act (ADA) standards, and satisfy fire exiting and code requirements.
- Provision of a new second floor observation deck at the north end of the building.
- Provision of a new first floor business/conference center.

Careful staging/phasing was needed to ensure that all of the terminal building's functions remained operational to the maximum extent practical during the construction.

Passenger Flow

Enplaning passengers are screened at a centralized security checkpoint and held in a common hold room historically shared by all airlines serving the Airport. The Airport's six aircraft gates are located off an approximately 330-foot long linear concourse along the east side of the building. As of 2018, there are four passenger boarding bridges. Gate 5 is presently utilized by SkyWest Airlines (Delta), while the remaining gates are utilized on an as-needed basis. Deplaning passengers exit the concourse into the lobby and proceed to the baggage claim area, where they can retrieve their luggage on a flat-plate continuous loop claim device.

In front of the terminal building, an approximately 300-foot long covered walkway parallels a multi-lane roadway. Public parking across the roadway to the west is accessible to and from the terminal building by at-grade pedestrian crossings.

Vehicle Parking Facilities

The existing parking lots can be seen in **Figure 2-14**. There are a total of 889 vehicle parking spots available for employees and passengers and rental car agencies. The breakdown is as follows:

- Long-Term Parking: 486
- Short-Term Parking: 125
- Rental Car Lot: 137

Figure 2-12: Terminal Building First Floor

TENANT	SYMBOL	SQUARE FEET
STERILE AREA		
DEPARTURE LOUNGE (WITH GATES)		7,528
RESTROOMS		800
SECURITY SCREENING / TSA OFFICE		475
SECURE AREA		
ATO		1,080
ATO		312
ATO		189
ATO		403
OUTBOUND BAGGAGE		4,370
INBOUND BAGGAGE		2,945

TENANT	SYMBOL	SQUARE FEET
PUBLIC AREA		
TICKETING LOBBY		5,392
MAIN LOBBY / SEATING / DISPLAY		5,444
BAGGAGE CLAIM		4,900
RESTAURANT / LOUNGE / GIFT SHOP		2,322
CONFERENCE ROOM		460
BUSINESS CENTER		202
VISITORS CENTER		151
UTILITY ROOM / CUSTODIAL CLOSET		168
RESTROOMS		800
STORAGE		75

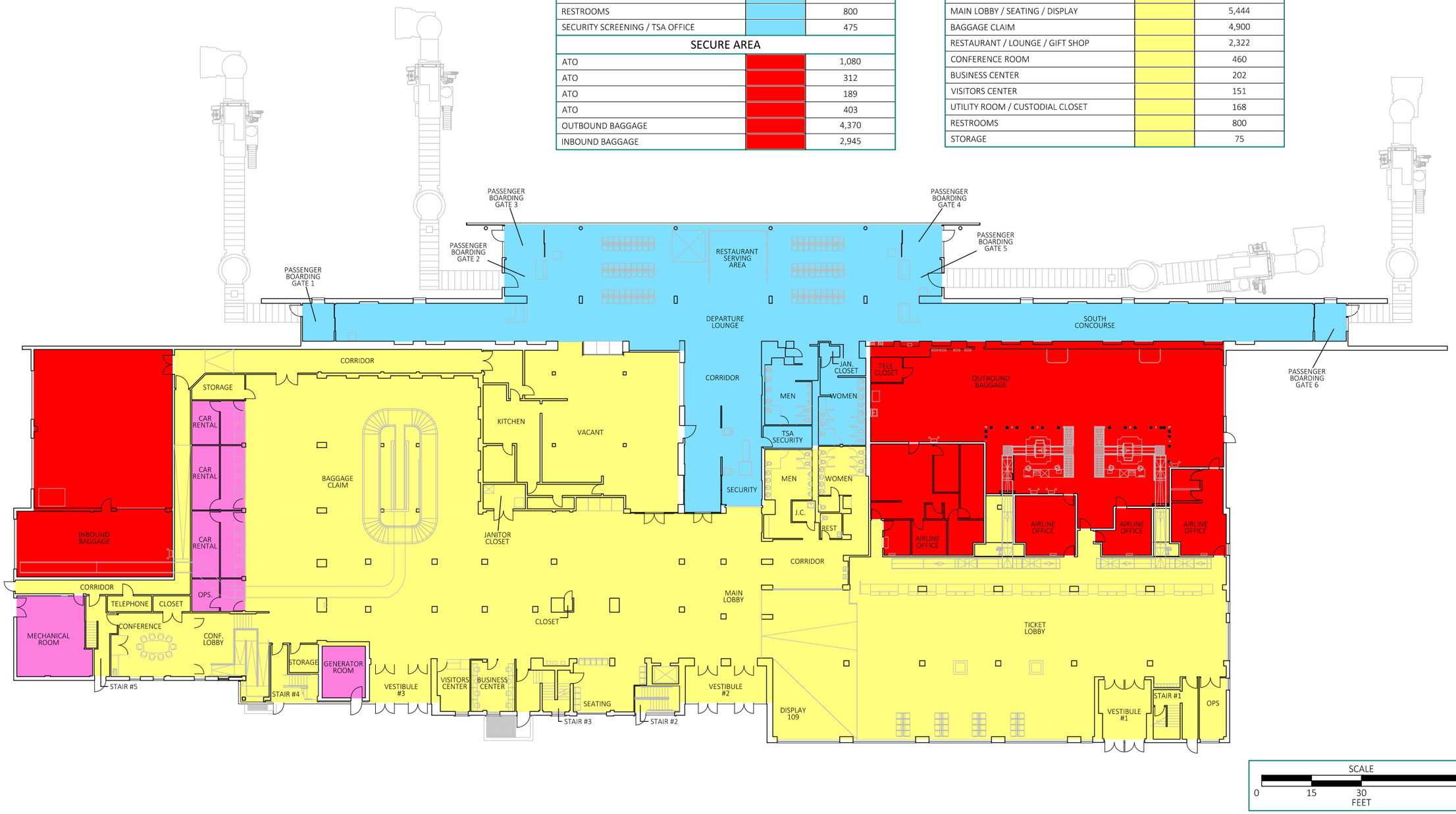


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Figure 2-13: Terminal Building Second Floor

TENANT	SYMBOL	SQUARE FEET
DEPARTMENT OF AVIATION		2,725
FEDERAL AVIATION ADMINISTRATION		4,628
CUSTOMS AND BORDER PATROL		530
MECHANICAL SPACES		1,870
VACANT AREAS		1,853
CIVIL AIR PATROL		792
TRANSPORTATION SECURITY ADMINISTRATION		773
TENANT (1st FLOOR)		867

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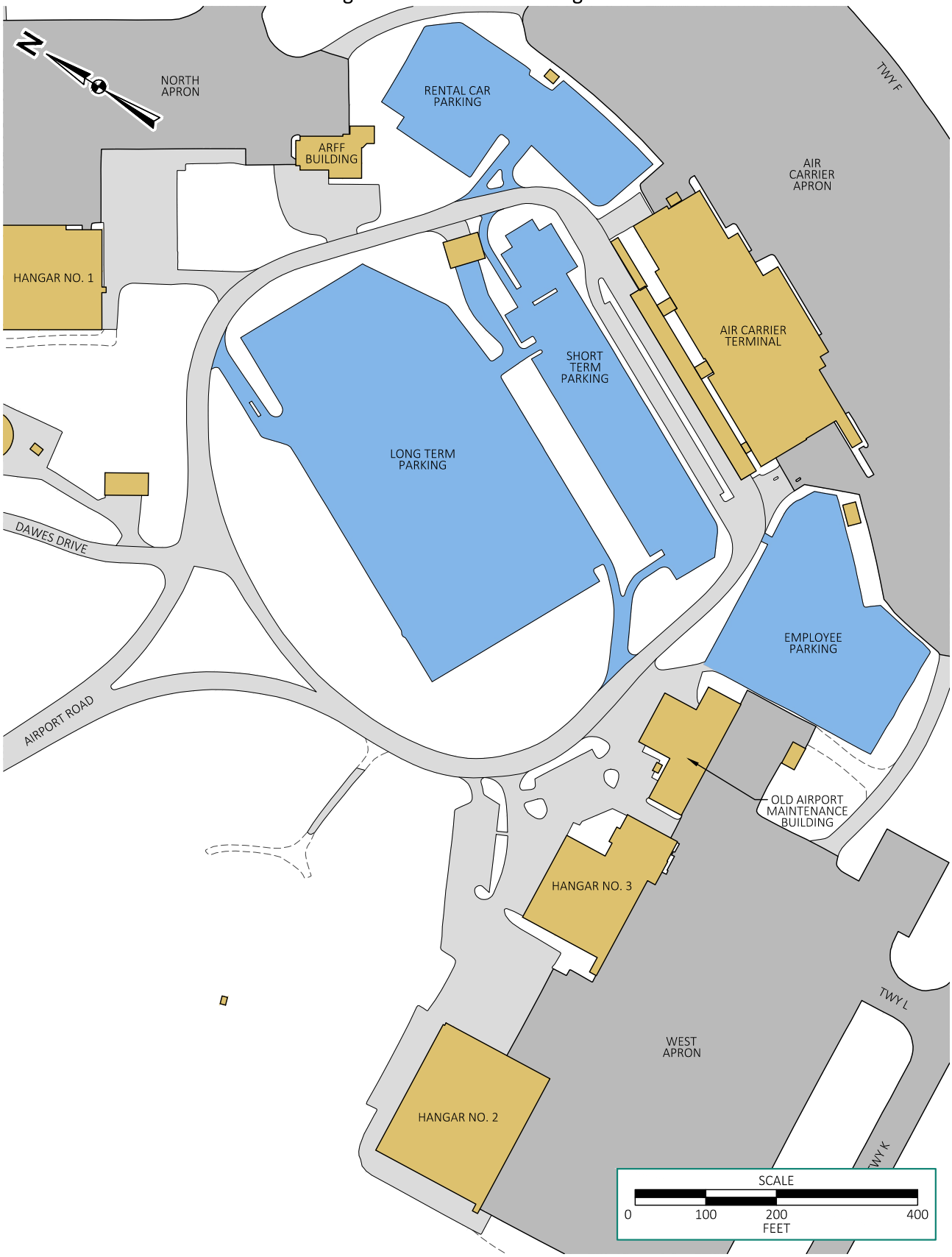
Figure 2-14: Vehicle Parking Lots



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- Employee Lot: 141

Automatic parking revenue collecting equipment is in place for both the long and short-term parking lots. Additionally, there are two lanes including one with an attended booth and one with a self-serve machine.

Ground Access and Circulation

Airport Road, which provides access to the terminal building, makes a continuous loop around the long-term and short-term parking lots as well as provides access to adjacent GA areas. At the Airport entrance, the road splits into two-lane, one-way traffic. Arriving vehicles are directed to either turn right for GA hangars or employee parking or to align properly for short-term parking, long-term parking, or curbside pick-up and drop-off.

Vehicles that pass along the front of the terminal building have the option to access the rental car lot directly adjacent to, and just beyond the terminal building.

Crosswalks from the short-term and long-term parking lots provide pedestrian access to the terminal building. The entrance road was last rehabilitated in 2017 as part of a larger project completed by Broome County to resurface Airport Road.

Ground Transportation

There is currently no public transportation to and from the Airport. Several private companies and Transportation Network Companies, including Uber and Lyft, provide 24-hour shuttle and limousine services on demand. Broome County currently has a user agreement in place with Lyft and continues to negotiate an agreement with Uber. Taxis and limousines are licensed by Broome County through its Department of Security and must adhere to all local regulations. Several hotels also offer shuttle service to the Airport.

Rental cars are currently available at BGM, with vehicles available through Hertz, Avis, and Budget. Rental car counter hours vary but are typically open during the period of air carrier operations at BGM.

Terminal Apron

The Terminal Apron comprises approximately 33,300 square yards of pavement. The majority of the pavement is comprised of Portland Cement Concrete pavement (PCC). There are nine painted aircraft parking positions, all with a northwest orientation which can be utilized by the four passenger bridges, or lower-level gates that enable passengers to walk out onto the apron to board aircraft. In 2010, the Terminal Apron was rehabilitated.

Source: McFarland Johnson 2012.

In the spring of 2011, in collaboration with Binghamton University and McFarland Johnson, Inc., the Airport installed a geothermal slab adjacent to the terminal building. The project was the culmination of students and professors from Binghamton University who submitted the project into the FAA Design Competition for Universities 2008-2009. The project won first place and was subsequently designed and installed using FAA research grants and New York State grant funding. The system absorbs underground heat/energy utilizing geothermal heat pump technology and then pumps heated glycol through embedded tubing installed beneath a portion of concrete on the apron. The tubing warms approximately 356 square yards of pavement and a 225-square foot pedestrian walkway to above freezing temperatures to preclude snow and ice accumulation. In the summer months, the glycol flow can be reversed and used to cool the terminal building. Research and monitoring of the system is scheduled to continue into 2018.

2.7.3. Airport Security

Airport security for both passengers and the Airport itself is regulated by Title 49 CFR (Code of Federal Regulations) 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, BGM 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 aren't carrying any dangerous or prohibited items.

The ASP also identifies how the Airport will comply with other requirements of Part 1542 such as training requirements, law enforcement support of TSA screening operations, recordkeeping, 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. Patrols by law enforcement also help to maintain a secure environment.

Security services in support of TSA screening operations are provided by the Broome County Government Security Division. According to the Broome County website, the division provides security services for County owned facilities and special events. They have arrest powers and law enforcement authority under the New York State Criminal Procedure and Penal Law.

An additional security measure at the Airport includes CBP. The primary mission of CBP is to prevent terrorists and terrorist weapons from entering the United States. CPB is also responsible for apprehending individuals attempting to enter the United States illegally; stemming the flow of illegal drugs; protecting agricultural and economic interests from harmful pests and diseases; protecting American businesses from theft of their intellectual property rights; regulating and facilitating international trade; collecting import duties; and enforcing U.S. trade laws.

The CBP office at BGM has been open since August 1997 with the designation of BGM as a User Fee Airport (UFA). UFA's are smaller airports that are approved by CBP, after a request by the State Governor, that receive the services of a CBP officer. Unlike a Port of Entry, UFA's are required to pay a fee for this service, typically approximately $123,000 per year for the placement of a CBP officer, and a minimum of approximately $14,000 for automatic data processing machines. The Airport is also required to provide space for the office. Once an airport workload reaches a certain level, such as 15,000 international air passengers, 2,000 scheduled international arrivals, or 2,500 consumption entries (each valued over $2,000), transition to a Port of Entry can occur, when CBP will absorb the necessary costs to operate the office. The CBP office is open Monday through Friday from 9:00 AM to 5:00 PM but services must be requested 24 hours in advance.

Passenger Screening

All departing passengers are required to pass through the security screening checkpoint located in the center of the passenger terminal. Passengers are screened with either a magnetometer or Advanced Imaging Technology machines. All carry-on baggage is screened through an enhanced imaging x-ray device. Restrictions on what may be transported by passengers through the checkpoint such as liquids, gels, and aerosols are subject to change; a list of the most current restrictions can be found on the TSA website.

Baggage Screening

Baggage screening is conducted on the first level of the terminal in the area behind the airline ticketing counters. All baggage is screened by TSA prior to being loaded on to aircraft.

2.7.4. General Aviation

GA landside facilities support both based and itinerant aircraft operations at BGM. Components of general aviation landside facilities include FBO services, conventional and T-hangars, apron areas, and automobile parking areas.

GA is comprised of all flying with the exception of military and commercial service. GA users at BGM include individuals flying for business or personal reasons, as well as flight training activities.

FBO Services

FirstAIR Group, Inc. is the current FBO at BGM and provides the following services:

- 100LL/Jet A Fuel
- Ground Handling
- Third Party Aircraft Maintenance
- Aircraft Parking/Tie Downs
- Heated Hangar
- Hangar Leasing/Sales
- Pilot Lounge with Shower and Sleep Room
- Ground Power unit (GPU)/Power Cart
- Flight Planning Room with WSI Weather Brief
- Lavatory Service
- On Site Customs
- Deicing (types 1 & 4)
- Conference Room
- Aerial Tours/Aerial Sightseeing

The majority of FirstAIR's hangar space is used for the storage of aircraft. It operates out of Hangars 1, 2 and 3, which are located on the Airport's West Apron. These hangars are leased to the FBO by the County. Hangar 2, which is located northeast of the Runway 10 threshold, is an approximately 34,000 square foot conventional truss hangar, with approximately 26,000 SF of maintenance space and approximately 8,000 SF of office space. Hangar 3, which is located adjacent to Hangar 2, has approximately 22,100 SF of space, including approximately 17,000 SF of hangar space and approximately 5,100 SF of general aviation terminal/office space. The general aviation terminal includes a pilot's lounge, kitchen, weather information room, research offices, and a conference room. This hangar also houses deicing equipment.

Airport Tenants

Goodrich Aviation occupies space in Hangar 3 and is described on the BGM website as a, "multifaceted aviation services company offering flight training and aircraft rental, aircraft sales, and aviation maintenance services."

Aero Techniques provides flight instruction, also out of Hangar 3. They have been offering flight instruction since 1981, beginning at Tri-Cities Airport and relocating to BGM in 2001.

National Weather Service has a 5,100 SF facility, which was constructed in 1993, and is located at the north end of Dawes Drive. The facility uses Doppler weather radar equipment to identify wind shears and other severe weather conditions. The Doppler equipment is located on the southern portion of Airport property, near Commercial Drive (NYS Route 112), and is equipped with an obstruction light.

The National Weather Service (NWS) is a component of the National Oceanic and Atmospheric Administration (NOAA). The NWS provides weather, hydrologic, and climate forecasts and warnings for the United States, its territories, adjacent waters and ocean areas, for the protection of life and property and the enhancement of the national economy. NWS data and

products form a national information database and infrastructure which can be used by other governmental agencies, the private sector, the public, and the global community.

Aprons

There are two aircraft parking aprons used for parking general aviation aircraft. The West Apron, which measures approximately 17,000 square yards is comprised of asphalt and is considered the itinerant apron. The Airport's FBO facilities are located on the West Apron, making this the ideal location for transient aircraft. The North Apron measures approximately 20,000 square yards and is also comprised of asphalt. This apron is used for parking based aircraft. The T-hangars which are used primarily for the storage of based aircraft are also located adjacent to the North Apron.

2.8. SUPPORT FACILITIES

2.8.1. Aviation Fueling Facilities

Broome County owns the Airport's aviation fuel facilities. FirstAIR pays a fuel flowage fee to the County for use of their fuel facilities. In 1996, the current fuel farm was constructed immediately north of the T-hangars. This fuel farm contains three tanks including two 25,000-gallon Jet A tanks and one 10,000-gallon tank for Avgas. This fuel farm replaced the Airport's previous fuel facility, which was located near the Airport's former maintenance building. All aircraft at BGM are fueled by trucks which carry the fuel from the aboveground storage tanks to the aircraft.

A second fuel farm (also constructed in 1996) is located on the West Apron. This fuel farm contains two 5,000-gallon tanks for diesel and unleaded gasoline, which is used for airport ground vehicles and equipment.

2.8.2. Aircraft Rescue and Fire Fighting (ARFF)

ARFF equipment/facilities and Airport operations at BGM are housed in the Crash Fire Rescue (CFR) building located on the North Apron between the rental car parking lot and Hangar 1. The CFR building was constructed in 1986 under an FAA Airport Improvement Program (AIP) grant. At that time, the building measured 5,100 square feet and contained two bays for ARFF vehicles, an alert room, two restrooms, kitchen, training room, storage areas, and a mechanical room. In 2004, the CFR building was renovated. The renovations increased the overall building size from 5,100 SF to its current 5,340 SF. The building is currently in satisfactory condition.

BGM's ARFF team consists of thirteen staff members, five airport operations specialists, seven maintenance personnel, and one supervisor. Staffing is provided 24 hours a day, seven days a week, 365 days a year; however, ARFF services are only advertised from 15 minutes before the first scheduled airline flight until 15 minutes after the last scheduled airline flight. All of the Airport operations personnel are cross-trained to become proficient in CFR techniques and procedures. The ARFF staff is equipped and trained to handle the primary response to almost any call; however, they also rely on the support of local fire departments and Broome County Emergency Services. Specifically, Maine, East Maine, and Choconut Center Volunteer Fire Departments provide mutual aid support to the Airport. Response times vary between 12 – 20

minutes depending on which of these locations the emergency response team is coming from and the availability of firefighters.

Federal Aviation Regulation (FAR) 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 FAR 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 B includes aircraft that are at least 90 feet, but less than 126 feet in length. According to Section 139.315, if there are five or more daily departures or 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. BGM was designated with an ARFF Index B in its most recent Airport Certification Manual based on the operations completed by the Bombardier CRJ200 regional jet, as well as other aircraft previously operated at the Airport.

According to FAR Part 139 Section 139.317, *Aircraft Rescue and Firefighting: Equipment and Agents*, Index B requires either:

- One vehicle carrying at least 500 pounds of sodium-based dry chemical or halon 1211, 1,500 gallons of water, and Aqueous Film-Forming Foams (AFFF) OR
- One vehicle carrying 500 pounds of sodium-based dry chemical or halon 1211 or 450 pounds of potassium-based dry chemical and water with a commensurate quantity of AFFF to total 100 gallons AND one vehicle carrying water and AFFF so that the total quantity of foam production carried by both vehicles is at least 1,500 gallons.

In 2004 BGM received a new (2002) Oshkosh rapid response vehicle which holds 1,500 gallons of water, 200 gallons of firefighting foam concentrate and 500 pounds of dry chemical agent for an initial attack on fire emergencies. This self-contained vehicle can be operated by just one firefighter. The Airport is waiting on the delivery of a Rosenbauer Panther 4x4 ARFF response vehicle with water capacity and AFFF agent capacities to match their current index. Upon delivery, the 2002 Oshkosh TI-1,500 will remain in service as a reserve vehicle to ensure continuous ARFF index capability.

A complete list of equipment owned by the Airport can be found under the subheading Airfield Maintenance of this chapter.

Deicing

At BGM, the airlines are responsible for deicing their respective aircraft. The FBO provides deicing for other than airline aircraft. The deicing area is located on the North Apron between the T-hangars, Hangar 1, and Runway 16-34. In 1994, a containment area (glycol recovery system) was installed on the North Apron to ensure compliance with State Pollutant Discharge Elimination System (SPDES) permit requirements. In addition, deicing operations are also conducted on the West Apron, which contains a glycol containment area. The deicing area on the North Apron has electrically controlled valves and the deicing area on the West Apron has

manual valves. The deicing area on the West Apron primarily serves as a reliever for the primary deicing area on the North Apron. In 2017, the County connected the containment area adjacent to the North Apron with the recently installed sanitary sewer line serving BGM. This connection will eliminate the requirement for the County to store and truck the spent fluid to a local sewage treatment plant for disposal.

2.8.3. Airfield Maintenance

There are two structures for the storage and maintenance of airfield equipment. The, "old maintenance" building as it is referred to is located between Hangar 3 and the passenger terminal. It is in very poor condition. Construction of the Airport's existing airfield maintenance/snow removal equipment (SRE) storage building, or the, "new maintenance" building as it is known, was completed in 2002. This building measures approximately 25,000 SF and is located at the northernmost corner of the North Apron adjacent to the fuel farm and is in fair condition. The building provides room for vehicle storage as well as a modern maintenance/service area for the Airport's snow removal vehicles, materials, and equipment. Conversations with airport management indicate it is undersized for the current Airport fleet of vehicles and equipment.

The Airport owns multiple pieces of snow removal equipment, including sanders, sweepers, blowers, and plows. A complete list of equipment owned by the Airport can be found in **Table 2-9**. Dawes Drive was extended past the National Weather Service building to the entrance of the SRE building to provide landside access to the facility.

Table 2-9: Full List of Equipment

Vehicle Number	Year	Make/Model	Description	Condition
2	1997	John Deere 544G	Wheel Loader	Good
4	2007	Chevrolet	3/4 Ton Truck with Plow	Fair
5	2002	Chevrolet	Truck with Plow	Poor
6	1998	Oshkosh	Dump, Rollover Plow, Wings & Sander	Fair
7	2005	Chevrolet	Passenger Van	Fair/ good
8	2008	Ford F-250	Truck	Fair
9	1997	Oshkosh	Dump Body Truck, Rollover Plow & 2 Wings	Fair
11	2003	International	Broom Truck	Fair/ poor
12	1998	International	Broom Truck (Parts)	Unusable
13			1998 International Broom Truck (Parts)	Unusable
14	2005	Oshkosh	Plow Truck with Sander	Good
15	1998	Stewart & Stevenson	Rotary Plow Truck	Fair
17	2009	Oshkosh	Plow Truck with Sweeper	Good
18	1997	Stewart & Stevenson	Rotary Plow Truck	Fair
19	2013	MB	Rotary Sweeper	Good
62	2011	Ford Expedition	Operations Vehicle	Fair

Vehicle Number	Year	Make/Model	Description	Condition
Tractor 1	2007	John Deere	Tractor with Plow	Fair/ Poor
Tractor 2	2007	John Deere	Tractor with Blower	Fair/ Poor
Skid Steer	1998	Bobcat	Skid Steer with Bucket/Sweeper	Fair
T2	2010	John Deere 6330	Tractor with Deice Trailer	Good
E 3	2002	Oshkosh TI-1500	ARFF Response Vehicle	Fair
E 1	1992	Oshkosh TA-1500	ARFF Response Vehicle	Fair/ Poor
County Car	2003	Chevy	Airport Administrative Transportation	Poor
	1990	Jacobsen	Mower	Poor
	1995	Case 821	Tractor	Fair
	2007	Case	Front Loader with Plow	Good
			Airless Paint Striper	Fair
			Airless Paint Striper	Poor
	1997	Tennant	Sweeper	Poor
	1997	Lift-a-Loft	Passenger Boarding Ramp	Poor
			Batwing Mower – Tow behind	Fair/ Good
		Wausau Everest TAD-1100	Runway Deice Trailer	Good

Source: Greater Binghamton Airport, 2018.

Additionally, there is a sand dome located north of the maintenance facility of approximately 2,000 SF. The sand dome is used to store FAA grade sand which can be used to increase runway friction during winter icing conditions.

Airport Utilities

The Airport's utilities infrastructure including electric, fuel oil, water/sewer, and telephone/cable/internet, were reviewed as part of this Master Plan Update. A comprehensive utility study is included as **Appendix A**.

2.9. 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 2-15**. 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 Greater Binghamton Airport, refer to **Figure 2-16**.

2.9.1. Controlled Airspace Classes

- **Class A:** Covers all US airspace above 18,000 feet MSL where high altitude airways and jet routes occur. While flying in Class A airspace, aircraft must operate under IFR.

Figure 2-15: Airspace Classifications

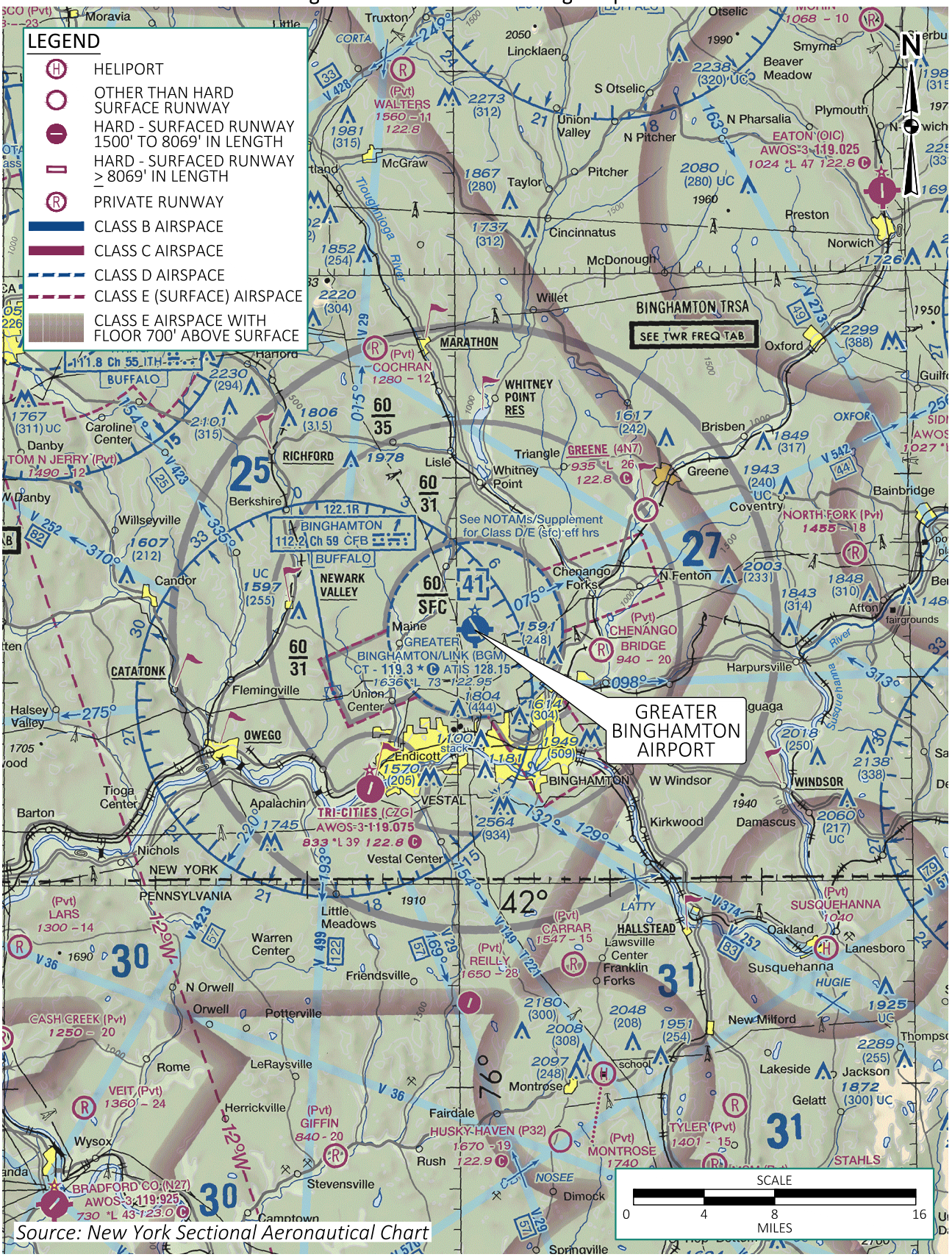
Source: FAA Pilot's Handbook of Aeronautical Knowledge.

- **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. Boston Logan International (BOS), John F. Kennedy International (JFK), and LaGuardia (LGA) are the closest airports to BGM with Class B airspace surrounding them.
- **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 starts at 4,000 feet MSL and has two tiers, the top cylinder has a radius of 10 nautical miles and the bottom cylinder has a radius of five nautical miles. The Greater Rochester International Airport (ROC), Syracuse Hancock International (SYR), and Albany International (ALB) are nearby commercial airports surrounded by Class C airspace.
- **Class D:** Extends upward to an altitude of 2,500 feet MSL and is within a five-statute mile radius. Aircraft must maintain two-way radio communication with the control facility while operating in this airspace. The Greater Binghamton Airport is surrounded by Class D airspace while the ATCT is in operation which is currently from 6:00 AM until 12:00 AM daily. During the hours the ATCT is closed, the surrounding airspace converts to Class E.
- **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. The general and enroute airspace that begins at the surface when the ATCT is not in operation at the Greater Binghamton Airport is Class E airspace.

2.9.2. 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. When the ATCT is not in operation, Class G airspace is located adjacent to the Airport outside of the five-mile

Figure 2-16: BGM Surrounding Airspace



Source: New York Sectional Aeronautical Chart

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radius and outside of the three extensions that accommodate the Airport's instrument approaches.

2.9.3. Special Use Airspace

- **Special Use Airspace:** Consists of prohibited, restricted, warning, alert, controlled firing, and military operation areas (MOA). Pilots are cautioned to be extra vigilant when transitioning through MOA's; however, restricted airspace is off limits when in use by a controlling agency such as the U.S. military. There are several MOA's adjacent to BGM, including parachute drop zones. The closest restricted airspace is located above Lake Ontario.

2.9.4. 14 CFR Part 77 Surfaces

The intent of 14 CFR Part 77, *Safe, Efficient Use, and Preservation of the Navigable Airspace,* is to establish standards and notification requirements for objects that could potentially affect flight operations at an airport. It does so through the implementation of a number of surfaces above and around that particular airport, commonly referred to as imaginary surfaces.

If an object or a proposed object or structure penetrates an imaginary surface, an aeronautical study typically must be performed to determine the potential hazard the proposed construction or alteration might have on air navigation. In conducting this study, the FAA can identify mitigating measures to enhance and preserve safe air navigation.

For reference, the Airport's CFR Part 77 surfaces are shown in **Figure 2-17** and can be seen in greater detail in the Airport Layout Plan (ALP) which will be updated as a part of this Master Plan Update.

2.10. AIR TRAFFIC CONTROL

While the ATCT is in operation, aircraft operating within BGM's Class D airspace are provided radar services below 4,100 feet MSL. Prior to operating in BGM's airspace, pilots must establish two-way radio communication with the ATCT and be cleared by the ATCT to enter the Class D airspace. The ATCT at BGM is operated by the FAA and is open each day for 18 hours beginning at 6:00 AM. The facility is split between a local ATCT, responsible for operations into and out of the Airport, and a Terminal Radar Approach Control (TRACON) which guides aircraft within a 30 to 50-mile radius of the Airport, up to 10,000 feet MSL.

2.1. LAND USE AND ZONING

2.1.1. Land Use

BGM is located in the town of Maine, in Broome County, New York and the area surrounding BGM is generally rural residential and agricultural. Most of the Airport property is designed as within the Public Services zone, which include water, communication, transportation and electric/gas services. According to the *Town of Maine 2017 Comprehensive Plan Update*, Transportation uses account for 80% of the public service land. Land use surrounding BGM can be seen in **Figure 2-18.**

Figure 2-17: Airport Part 77 Map

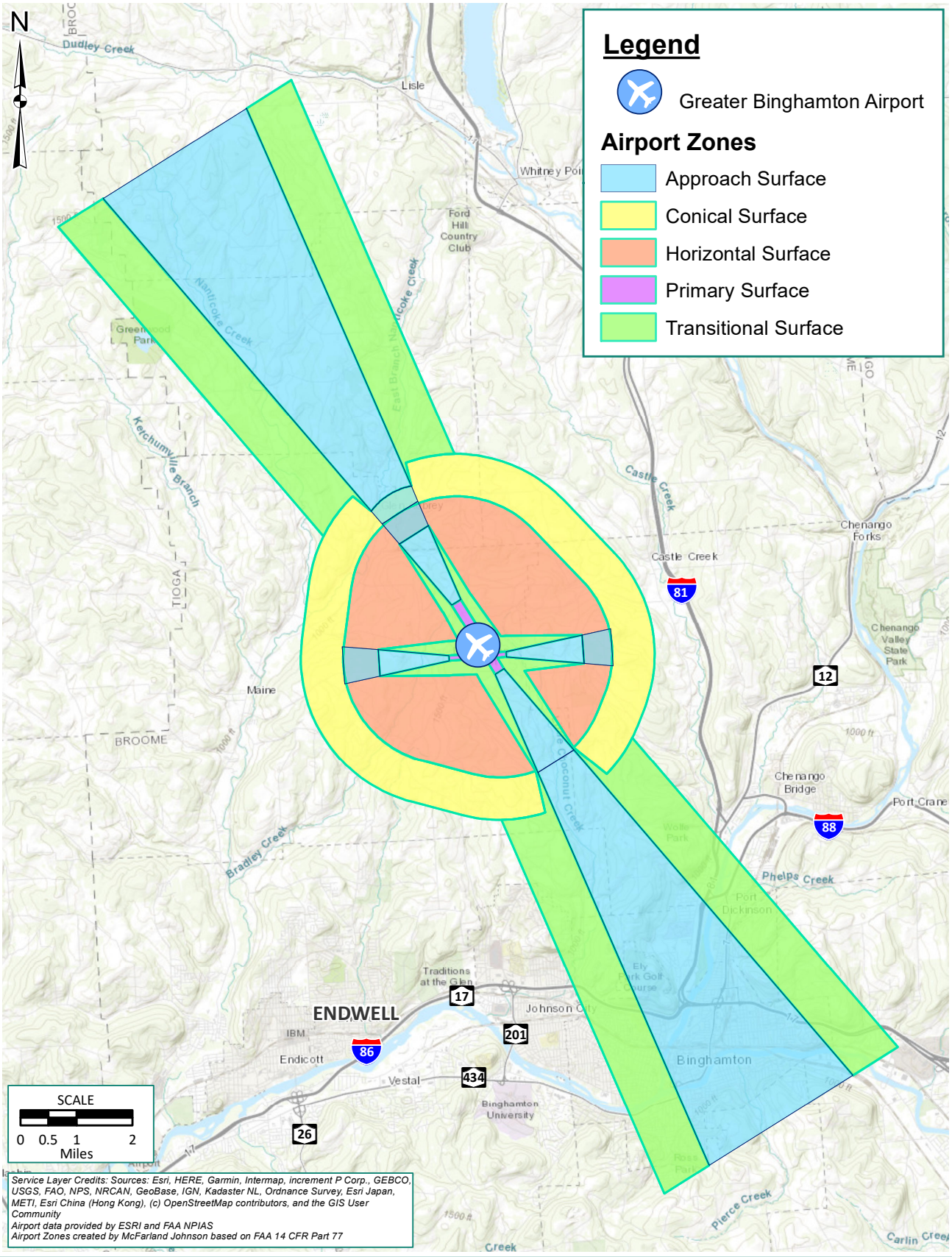

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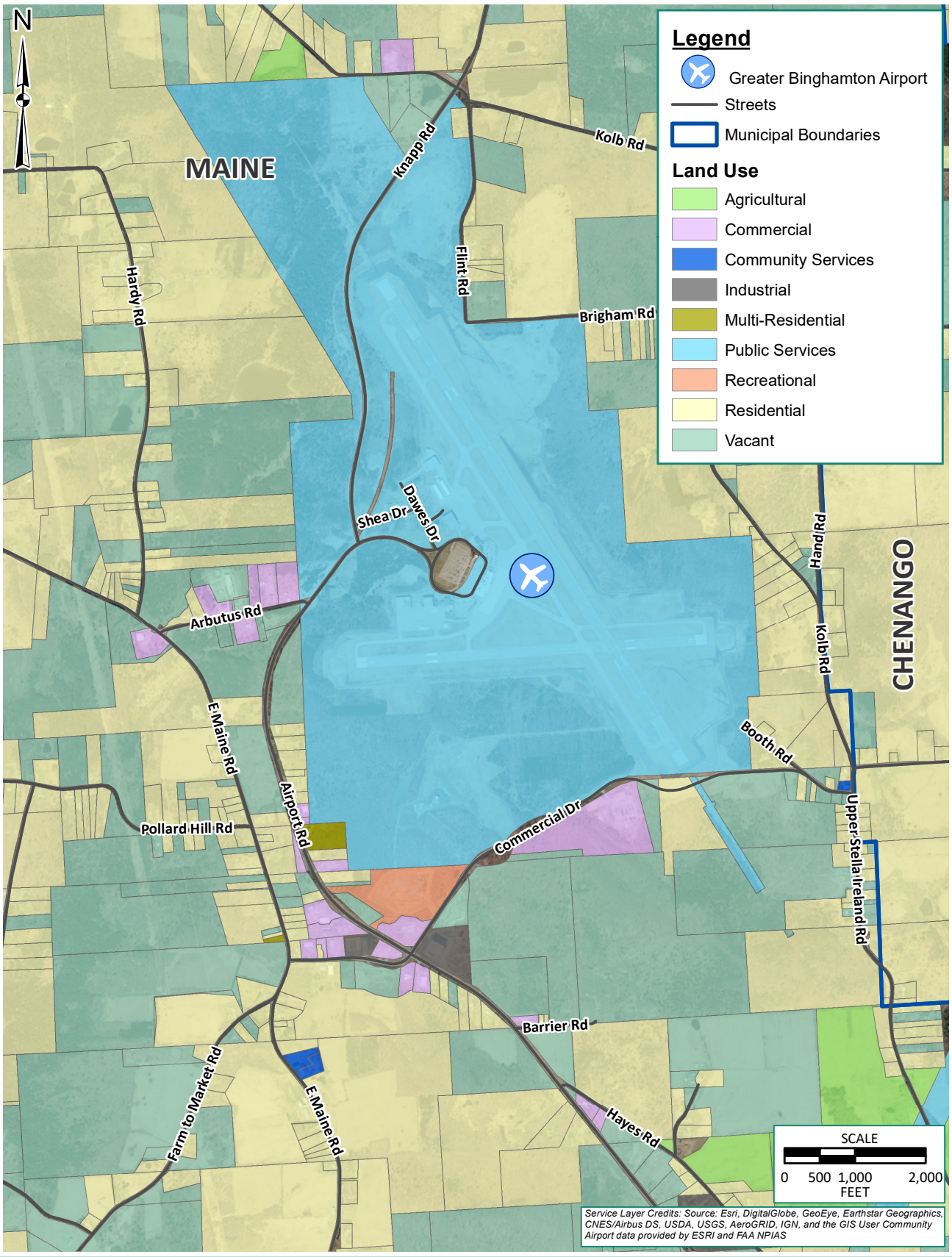
Figure 2-18: Land Use Map



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2.1.2. Zoning

The Airport property is currently zoned as Industrial (ID) as can be seen in Figure 2-19.

In addition to the zoning ordinances at and around the Airport, Broome County has also implemented a zoning overlay that can be seen in Figure 2-20. According to the Town of Maine, NY Codes, *Part II: General Legislation*, *Chapter 450: Zoning*, the ID industrial district in Maine "is

to provide for specific areas in the Town of Maine where those industrial uses needed and beneficial to a community may locate within an environment intended and designed for their use. In promoting the general purpose of this chapter, the specific intent of this section is:

(1) To encourage the development of areas within the Town of Maine where the industry beneficial to and needed in the community may develop.

(2) To permit and encourage industrial uses to develop in a manner compatible with surrounding areas and compatible with the general quality of environment found in the Town of Maine.

(3) To ensure an environment for development which will be free of encumbrances for industrial operations insomuch as such industrial operations do not endanger the public health, safety, welfare, or visual environment of the Town of Maine."

The other zoning classifications bordering BGM are defined by the Town of Maine Zoning Ordinance as follows:

R-R, Rural Residential: The Rural Residential District has been established, "to provide for areas in the Town of Maine where low density residential development, agricultural land uses, and general open space land uses can be established in harmony with one another."

R-1, Residential: The R-1 Residential District has been established, "to provide for areas within the Town of Maine where the living environment associated with single-family and two-family residential development and their related facilities can be preserved and/or where the development of such an environment is encouraged."

R-2, Residential: The R-2 Residential District is intended primarily, "to provide for areas within the Town of Maine where one-, two-, three- and four-family dwelling units with their related facilities can be developed in harmony with one another."

B-1, Business: The B-1 Business District is intended to, "provide for areas in the Town of Maine where business and commercial land uses can be developed to a level sufficient to serve the needs of the Town."

The Town of Maine has codified language (§450-25 Airport Zones – AZ) which implements a zoning overlay to restrict building, structures, and trees within various zones adjacent to the Airport. The requirements for development in this area are designed to protect the imaginary surfaces outlined in 14 CFR Part 77, as discussed above. There are also use restrictions imposed so as to preclude any electrical or radio interference with Airport operations.

Figure 2-19: BGM Zoning Map

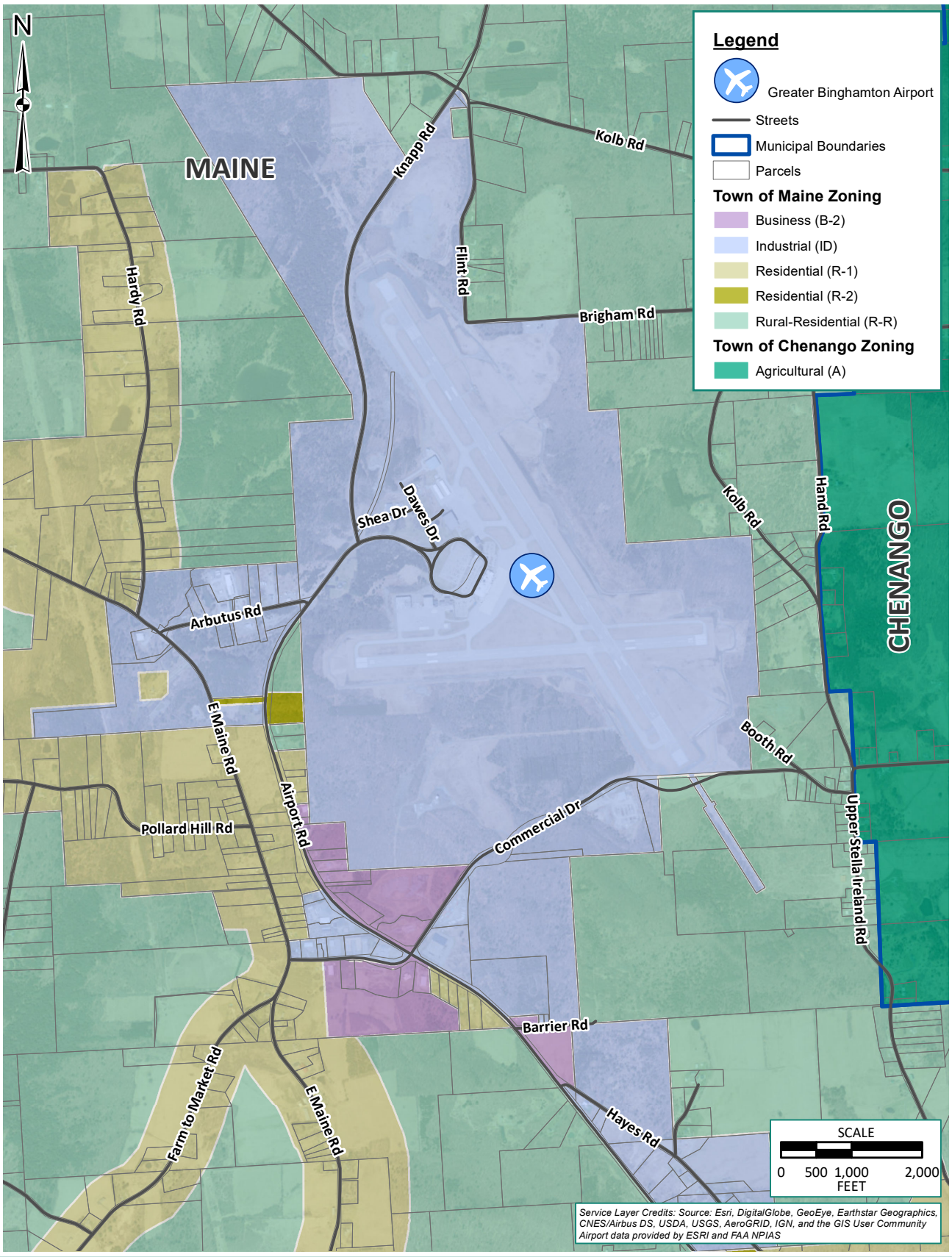

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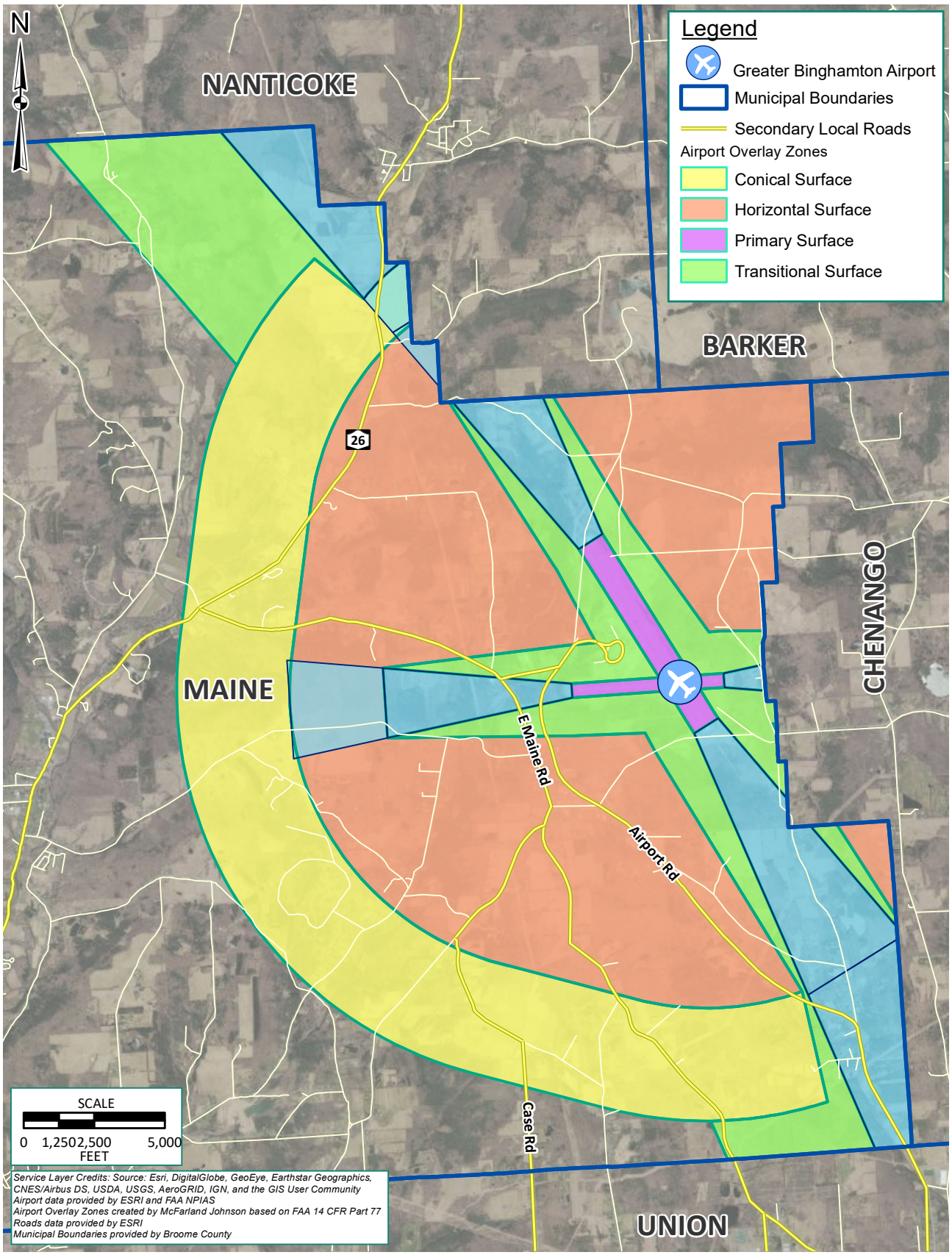
Figure 2-20: Airport Overlay Zones Map



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