CHAPTER 1

# Inventory

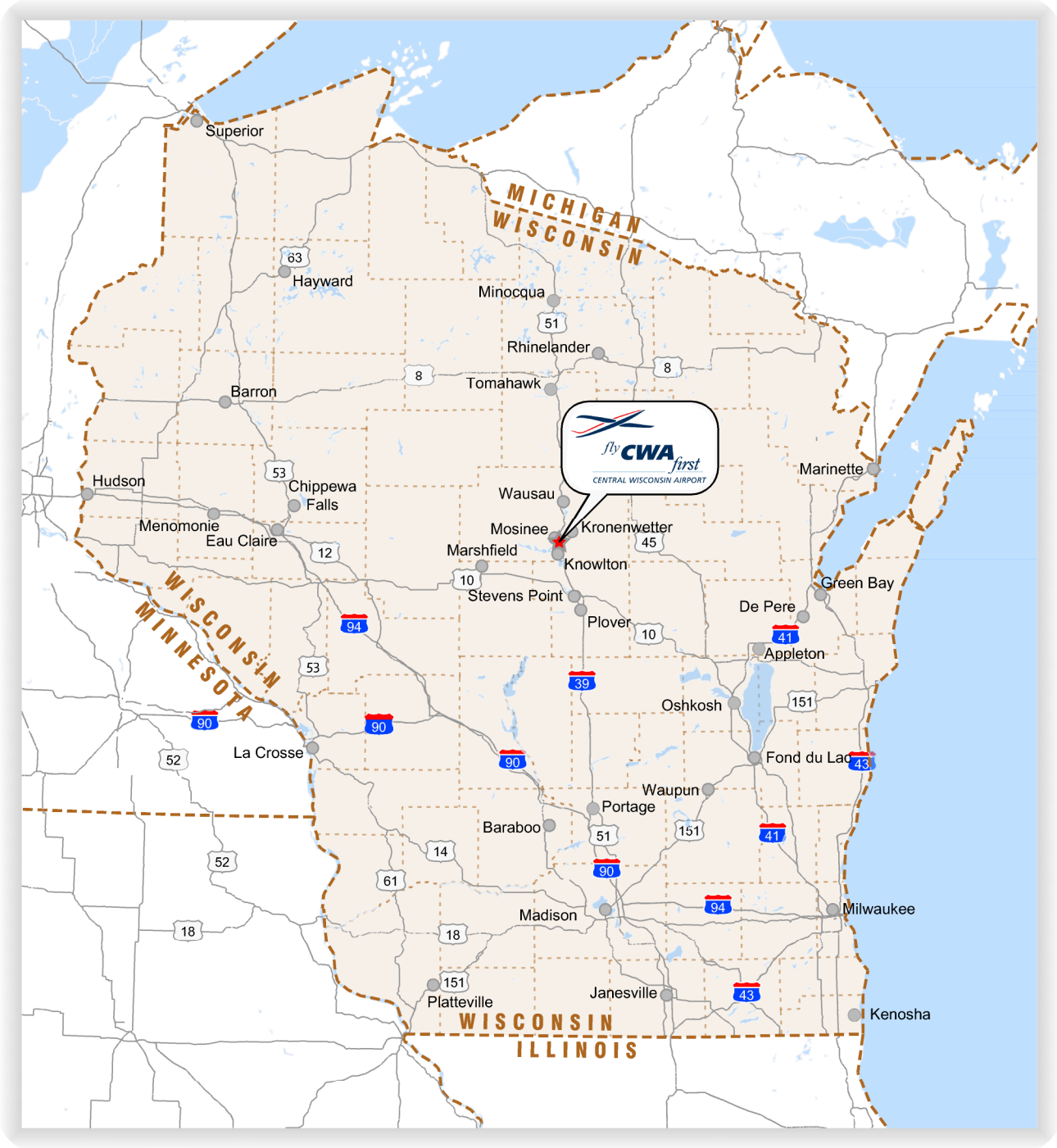
The purpose of the initial chapter of an airport master plan is to establish an understanding of the existing facilities and conditions for use as a planning baseline. This chapter presents information regarding the Central Wisconsin Airport (CWA or the Airport), including historical information, airport activity, environmental resources and local socioeconomic factors, in the following sections:

- Airport Background
- Federal, State & Local Airport-Related Plans
- Airport Zoning & Existing Land Use
- Airside Facilities
- Landside Facilities
- Airspace
- Local Socioeconomic Trends
- Inventory Summary

## 1.1 Airport Background

### 1.1.1 Airport Location & History

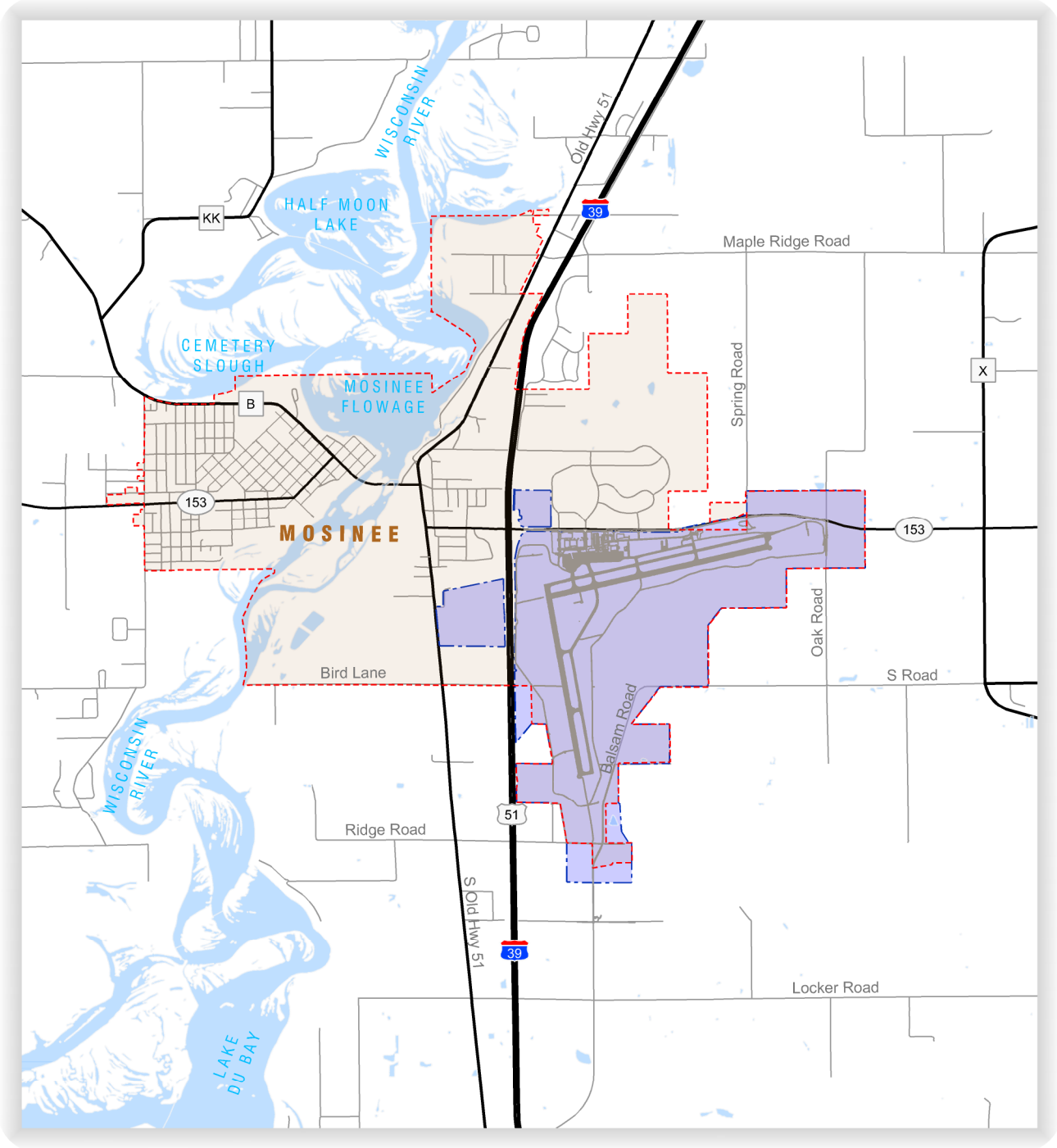
CWA is located within Marathon County on the east side of the City of Mosinee, approximately 2 miles from the city center, as shown in **Figure 1-1** and **Figure 1-2**. CWA first opened in October of 1969 and was dedicated in May of 1970 with a single, 6,700-foot runway. The Airport grew rapidly during the 1970s: the original runway was expanded, a second runway was added, and general aviation facilities were constructed. Since that time, development has continued, and CWA is now home to several businesses, a fixed-base operator (FBO), and a renovated terminal area with separate rental car facilities. The Airport is currently served by three airlines: Delta Air Lines, serving Minneapolis and Detroit, and American Airlines and United Airlines, both serving Chicago O'Hare. As airport activity can be impacted by surrounding airports, **Table 1-1** shows nearby airports that offer commercial service including approximate distances and driving times. **Figure 1-3** shows airport locations**.**




0 25 50 75
Graphic Scale in Miles

Figure 1-1: **Airport Location Map**

**Source:** *ArcGIS*

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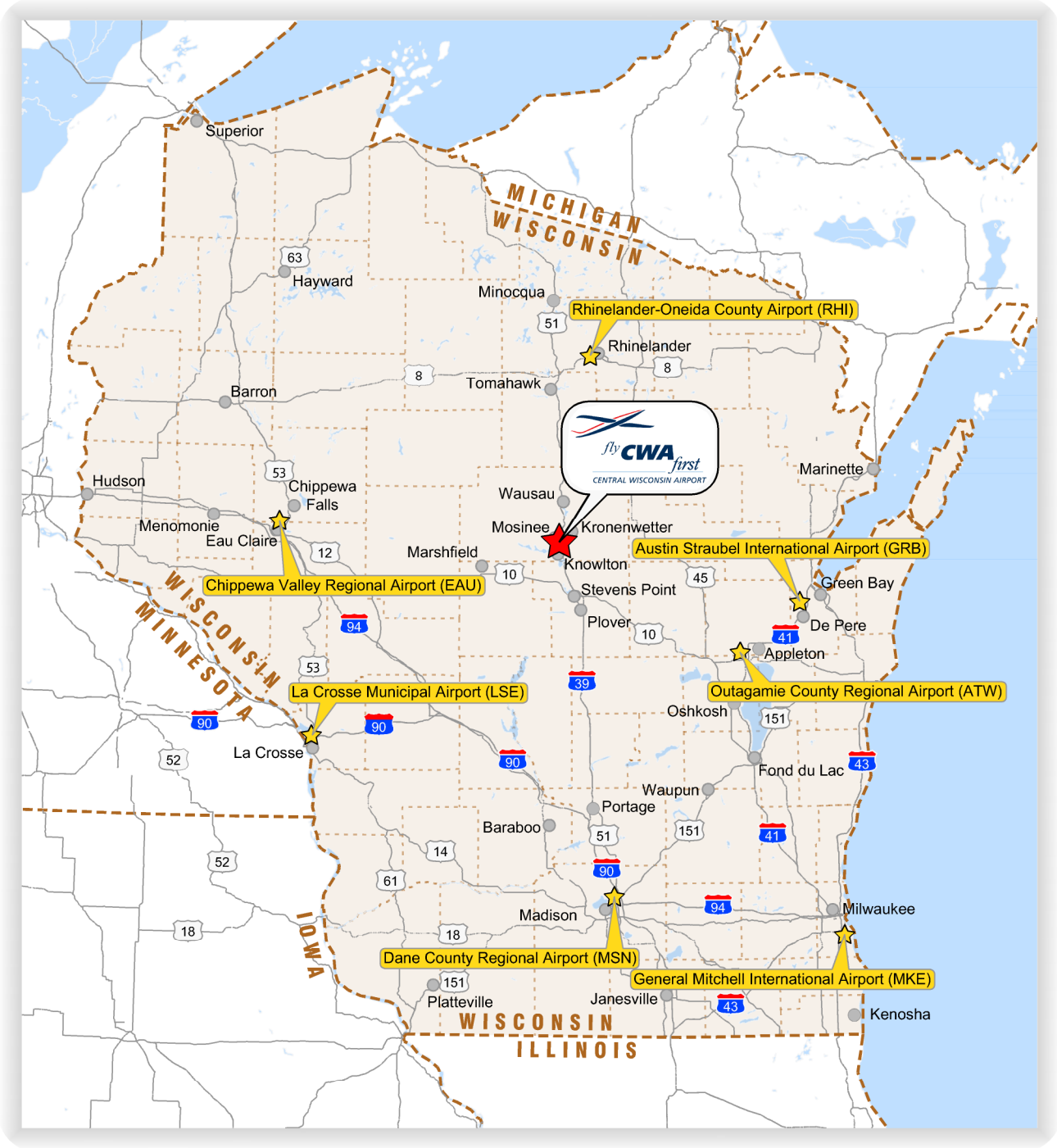
Graphic Scale in Miles

Figure 1-2: **Vicinity Map**

**Source:** *ArcGIS*




0 25 50 75
Graphic Scale in Miles

Figure 1-3: **Nearby Airports**

**Source:** *ArcGIS*

**Table 1-1: Nearby Commercial Service Airports**

| Airport | Distance (Miles) | Driving Time (Minutes) |
|---|---|---|
| General Mitchell International (MKE) | 155 | 164 |
| Dane County Regional (MSN) | 115 | 111 |
| La Crosse Regional (LSE) | 101 | 138 |
| Chippewa Valley Regional (EAU) | 84 | 101 |
| Austin Straubel International (GRB) | 79 | 93 |
| Appleton International (ATW) | 68 | 82 |
| Rhinelander/Oneida County (RHI) | 60 | 67 |

*Source: Google Earth*

### 1.1.2 Climate, Topography and Natural Resources

Over the past five years precipitation at CWA has averaged 36.4 inches with the most rainfall usually occurring in the fall. The field elevation for CWA is 1,277 feet above mean sea level (MSL), which occurs at the Runway 17 threshold. CWA is located between the Wisconsin River, approximately 1.5 miles to the west, and Peplin Creek, approximately 1/2 mile to the east. Topography does not inhibit instrument approaches, and, due to the water in the area, wetlands are common on Airport property, although most are congregated on the south and west sides of the Airport.

CWA is located in a region of many lakes, rivers, and natural resources. Although there are natural areas in the vicinity, including the Leather Camp Forest Area, Nine Mile Recreation Area, and the George W. Mead Wildlife Area, all of these areas are between 4 and 6 miles away, and therefore, have no impact on airport operations.

The Airport maintains a Wildlife Hazard Management Plan (WHMP) and is currently conducting an update to its Wildlife Hazard Assessment (WHA). A WHMP identifies the specific actions an airport will take to mitigate the risk of wildlife strikes on or near the airport, while a WHA observes and records wildlife presence surrounding the airport and recommended strategies for mitigating potential impacts to airport operations. Findings from the CWA WHA will be included in the final Master Plan report.

### 1.1.3 Airport Management and Operations

CWA is owned by Marathon and Portage Counties and governed by a seven-member Central Wisconsin Joint Airport Board. Marathon County supplies four members, and Portage County supplies three. Chair and vice chair positions rotate between the two counties. Marathon County provides additional support through legal and human resources services. Approximately 100 people are employed on the Airport grounds including airport, airline, and tenant staff. Airport employees provide maintenance, operational, Aircraft Rescue and Firefighting (ARFF), and security services for the Airport with support from the Mosinee Police Department.

## 1.2 Federal, State & Local Airport-Related Plans

Source documents that were surveyed are summarized in this section and include the following:

- *National Plan of Integrated Airport Systems*
- *Wisconsin State Airport System Plan*
- *Wisconsin State Freight Plan*
- *Marathon County Comprehensive Plan*
- North Central Wisconsin Regional Planning Commission *Comprehensive Economic Development Strategy*

### 1.2.1 National Plan of Integrated Airport Systems (NPIAS)

The *National Plan of Integrated Airport Systems* (NPIAS) is a Federal Aviation Administration (FAA) report issued every two years that identifies airports that are integral to the national air transportation network. An airport must meet a set of criteria (such as based aircraft counts and locational requirements) in order to be included in the NPIAS. Airports in the NPIAS are eligible for development grants under the FAA's Airport Improvement Program (AIP). Of the 19,536 airports in the United States, 5,136 are publicly owned, and of those, only 3,332 are included in the NPIAS as of 2017.

CWA is currently listed as a Primary Commercial Service airport in the NPIAS. Primary Commercial Service airports are defined as public airports receiving scheduled passenger service and having 10,000 or more enplaned passengers per year. There are 382 airports nationwide that are considered Primary Commercial.

CWA is also currently listed as a Nonhub airport in the NPIAS. Of the 382 nationwide Primary Commercial Service airports, 249 are considered Nonhub airports. Together, these airports account for 3% of nationwide passenger enplanements. The determination of hub status for an airport is made by dividing the number of annual enplanements at that airport by the number of nationwide annual enplanements. Based on the resulting percentage, that airport may be categorized as a Large Hub, Medium Hub, Small Hub, or Nonhub. CWA is classified as Nonhub as its annual passenger enplanements comprise less than 0.05% of all U.S. enplanements. The NPIAS indicates that Primary Nonhub Commercial Service Airports are also heavily used by general aviation aircraft.

The NPIAS provides estimated five-year costs for airport improvements, which are eligible for federal development grants under the AIP. The NPIAS lists an estimated five-year total development cost of approximately $14.8 million for CWA for FY 2017 - 2021.

### 1.2.2 Wisconsin State Airport System Plan

The Wisconsin State Airport System Plan (SASP) was adopted on February 19, 2015, and provides an inventory and evaluation of the Wisconsin Airport System's 98 airports and implementation strategies to meet the goals and objectives established by the plan. The SASP is developed by of the Wisconsin Department of Transportation Bureau of Aeronautics. The SASP classifies CWA as a commercial service airport, which is defined as an airport that supports regularly scheduled year-round commercial airline service and supports the full range of General Aviation (GA) activity to domestic and international destinations. Based on the SASP, the three counties surrounding CWA (Marathon, Portage, and Wood) were expected to grow in population between 0.6% and 1.0% per year through 2035. Passenger enplanements were anticipated to increase 0.7% at CWA from 2010 to 2030, slightly above the average of 0.5% for all commercial enplanements in Wisconsin.

Excluding MKE, total enplanements in Wisconsin were projected to grow from 1.7 million in 2010 to 2.2 million in 2030. The SASP states that additional flights are often added once passenger load factors reach the 74% to 80% range, but expects that enplanements will grow faster than commercial operations as airlines keep tight control on capacity increases. These factors will be discussed in more detail in the following chapter.

### 1.2.3 Wisconsin State Freight Plan

Wisconsin DOT is in the process of developing a State Freight Plan. A draft version was released on September 29, 2016. According to the plan, almost 105,000 tons of air freight cargo was loaded in Wisconsin in 2013, with a total value of over $10 billion. Air freight consists largely of shipments that are time-sensitive, highly specialized, high value, or bulk items. The plan states that nearly 70% of the State's total air cargo in 2013 was handled at Milwaukee Mitchell International Airport (MKE), while nearly all the remaining 30% is moved through Madison and Appleton. Based on T100 Data, CWA air cargo is largely directed to/from MKE and Madison, as discussed in **Section 1.5.8.**

### 1.2.4 Marathon County Comprehensive Plan

Marathon County is home to 41 towns, 15 villages, and six cities. The 2016 Marathon County Comprehensive Plan (MCCP) provides guidance to County decision makers on a wide array of issues over the next twenty years for the 135,000 residents of the County. The mission of Marathon County is as follows:

> *"Marathon County government serves people by leading, coordinating and providing county, regional, and statewide initiatives. It directly, or in* cooperation with other public and private partners, provides opportunities that make the Marathon County area *a preferred place to live, work, visit and do business."*

The MCCP lists CWA as essential to the continued economic competitiveness of Marathon County. While the MCCP acknowledges that airports throughout the country often struggle in the current economy, the MCCP recognizes that CWA provides connectivity for both businesses and residents in Marathon County. Therefore, CWA should remain a viable provider of air transportation and continue to provide a link from the county to other markets. One of the economic development goals listed in the MCCP is to support CWA by maintaining the existing partnership between Portage and Marathon Counties.

### 1.2.5 North Central Wisconsin Regional Planning Commission *Comprehensive Economic Development Strategy*

The North Central Wisconsin Comprehensive Economic Development Strategy (CEDS) is published by the North Central Wisconsin Regional Planning Commission (NCWRPC). The NCWRPC was created in 1973 under Wisconsin State Statute 66.0309, *Creation, Organization, Powers and Duties of Regional Planning Commissions*. The NCWRPC is designated as an Economic Development District by the US Department of Commerce and includes all of Adams, Forest, Juneau, Langlade, Lincoln, Marathon, Oneida, and Vilas Counties, and parts of Portage and Wood Counties. The CEDS is designed to provide baseline information on demographics and economic data. The NCWRPC aims to aid the development of strategies and identify potential projects within the Economic Development District. This region contains two commercial service airports, CWA and Rhinelander-Oneida County Airport (RHI). In order to meet business infrastructure needs

the NCWRPC seeks to expand cargo and passenger service in the region as a whole through continued cooperation with the airports.

## 1.3 Airport Zoning & Existing Land Use

CWA is located in the southeast corner of the Mosinee city limits. Due the Airport's location on the edge of the city, it is surrounded by several municipalities and associated zoning districts. This section identifies each of these districts as they pertain to the Airport. A combined zoning map of land surrounding CWA is shown in **Figure 1-4**. The City of Mosinee limits structure heights surrounding the Airport under City Ordinance Section 42-708, *Height regulations in the vicinity of airports*. However, as this regulation mainly supports other federal, state, and local guidance, **Section 1.4.5**, *Design Surfaces,* discusses airspace surfaces at CWA.

### 1.3.1 City of Mosinee

The Airport is located within the City of Mosinee Zone M-1 (Limited Industrial). Zone M-1 is designed to provide an environment suitable for industrial activities that do not create appreciable nuisances or hazards, or that require a pleasant, hazard and nuisance free environment. Immediately north of the Airport on the opposite side of Highway 153 are Zones IP-B (Industrial Park Business) and M-2 (General Industrial). This area is occupied by manufacturing and various other businesses. Generally, residential areas are separated from the Airport. However, to the west of Runway 08 is Zone R-4 (General Multi-Family), but the nearest residential developments are approximately 3/4 miles from the Runway 08 threshold. Potential noise impacts will be evaluated in a subsequent chapter of the Master Plan.

### 1.3.2 Town of Knowlton

The Town of Knowlton is located to the south of the Airport. Although the majority of the Town near the Airport is zoned G-A (General Agriculture), there are isolated areas of Zones R-E (Rural Estate), R-R (Rural Residential), and L-D-R (Low Density Residential). These residential areas are less than 1 mile to the southeast of the Runway 26. Despite the proximity, these homes are not located in the approach area and generally are not exposed to overflight noise and land use compatibility concerns. Surrounding Peplin Creek, approximately 5 miles to the south of the Airport, is an area categorized as Zone C-V/R-C (Conservancy & Recreation). However, this area is not associated with any Wisconsin Department of Natural Resource areas, and the distance from the Airport eliminates the likelihood of noise or wildlife impacts.

### 1.3.3 Village of Kronenwetter

The Village of Kronenwetter borders CWA to the northeast and east. The Village recently updated its zoning ordinance and the new code went into effect on July 1, 2016. Parcels northeast of the Airport are largely occupied by Holland Trucking Company, which is Zone M-1 (Limited Industrial) and Zone M-2 (General Industrial). Zone M-1 is intended to accommodate primarily light industrial, storage, office, and other compatible businesses and support uses. Zone M-2 is similar, though it may have significant off-site impacts such as noise, heavy traffic, or odors. The remainder of Kronenwetter adjacent to the Airport is zoned for residential or agricultural use. Zone RR-2 and RR-5 are Rural Residential and intended mainly for single-family, detached residential development on large rural lots. Additionally, sections of Zone SF (Single Family Residential) are located sporadically in isolated areas near the Airport. Generally, the area northeast of the Airport is sparsely populated.

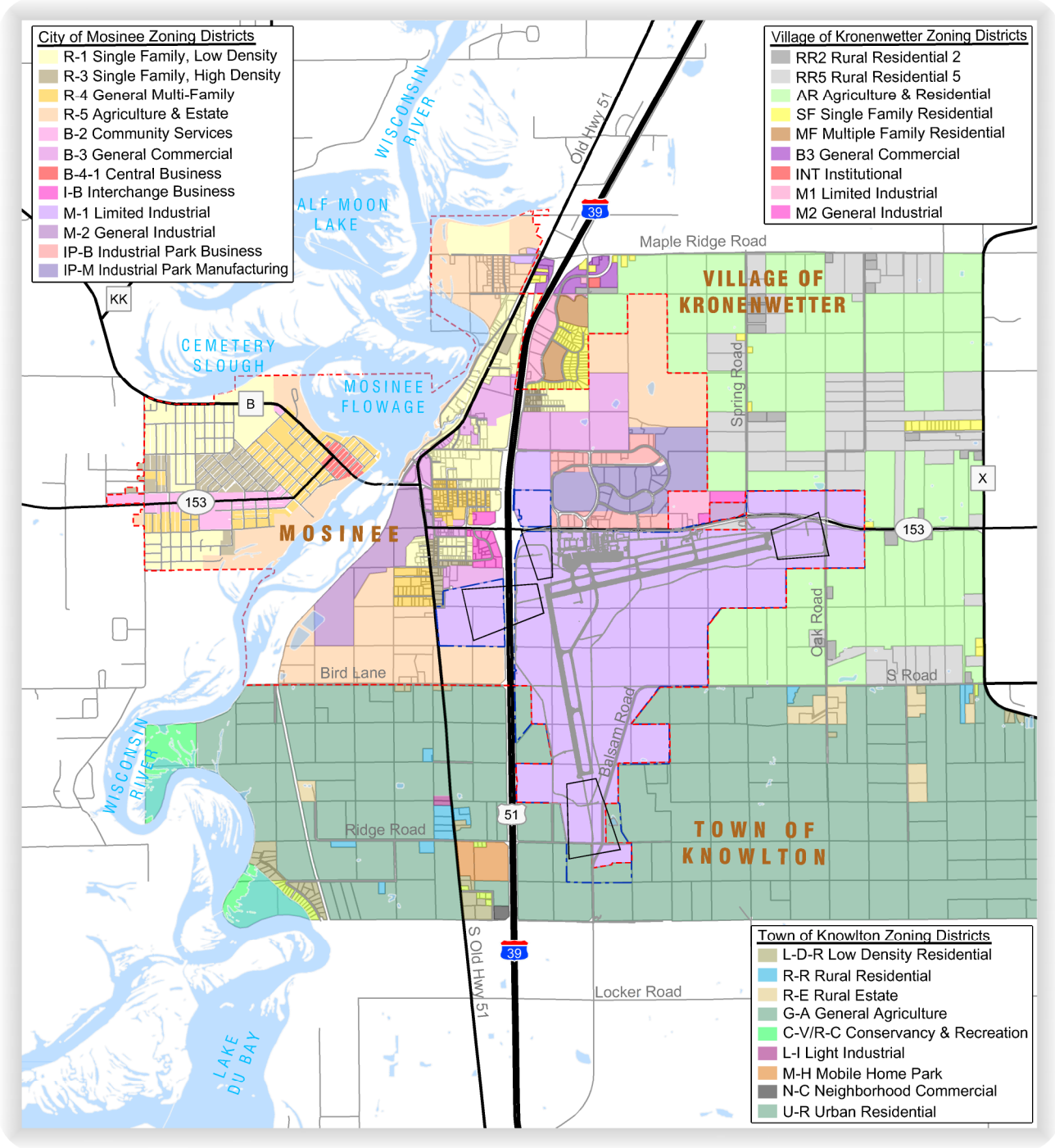



Figure 1-4: **Zoning Map**

**Source:** *ArcGIS, NCWRPC, Marathon County Conservation, Planning & Zoning Dept., Village of Kronenwetter*

***Runway Protection Zones***

A Runway Protection Zone (RPZ) is a trapezoidal area centered about the extended runway centerline. The RPZ serves to protect people and property on the ground, and to this end, airport ownership of this area is encouraged by the FAA. Land uses that require coordination with the FAA when there is an airfield project or change in the RPZ include the following:

- Buildings and structures
- Recreational land use
- Transportation facilities
- Fuel storage facilities
- Hazardous material storage
- Wastewater treatment facilities
- Above ground utility infrastructure

At CWA, several roads are within the RPZs. The Runway 26 and 17 RPZs overlap Wisconsin State Highway 153; the Runway 08 RPZ overlaps Interstate 39; and the Runway 35 RPZ overlaps several low volume rural roads to the south. The RPZ dimensions for each runway, which are determined by the Runway Design Code (RDC) are shown in **Table 1-2**.

**Table 1-2: RPZ Dimensions**

| Runway | Length | Inner Width | Outer Width |
|---|---|---|---|
| Runway 08 and 35 | 2,500 feet | 1,000 feet | 1,750 feet |
| Runway 26 | 1,700 feet | 1,000 feet | 1,510 feet |
| Runway 17 | 1,700 feet | 500 feet | 1,010 feet |

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

***Conclusion***

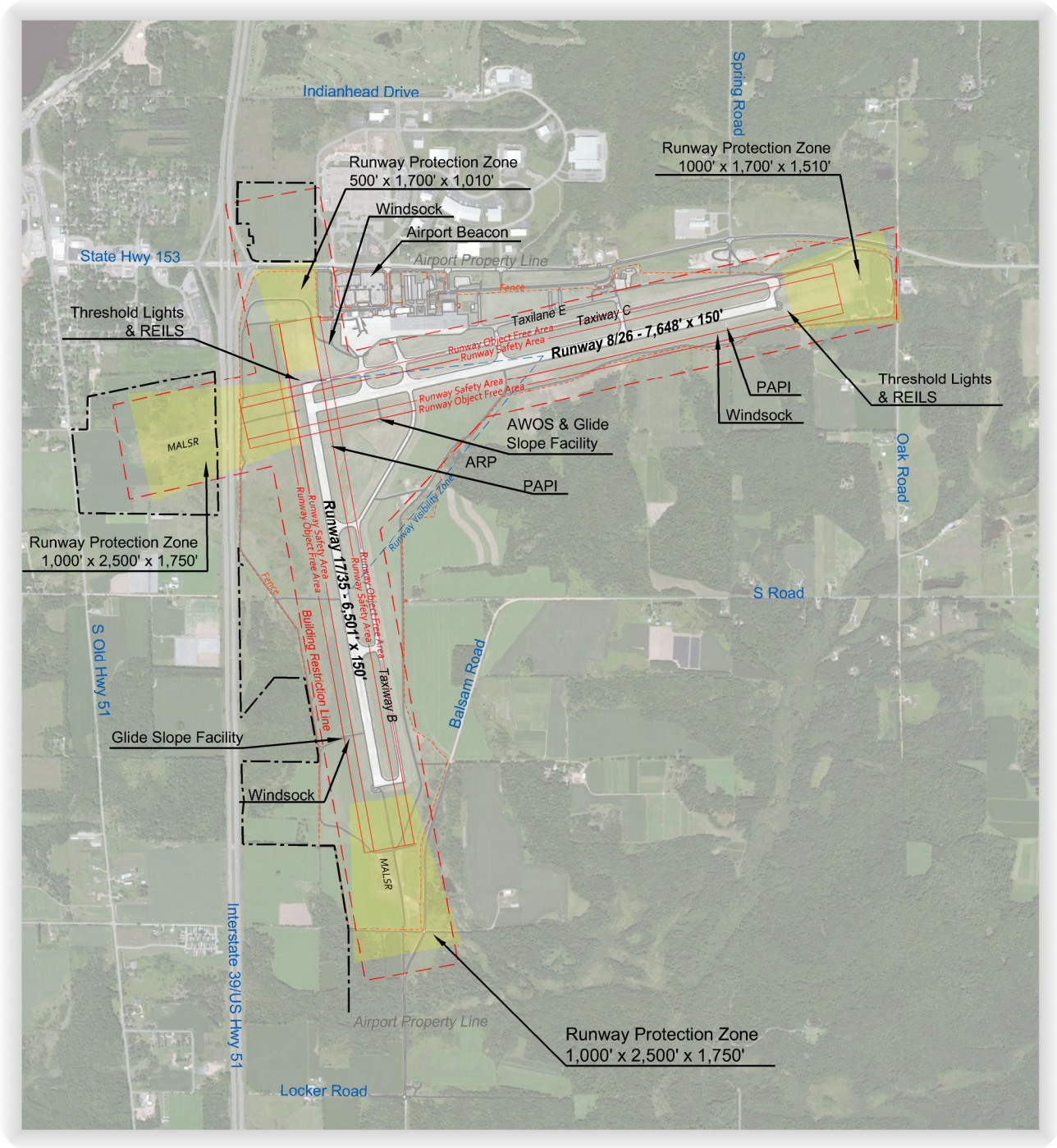
Land uses around the Airport do not present any major conflicts although Airport RPZs coincide with several nearby roads. Much of the land surrounding the Airport is in either industrial or agricultural use, and residential areas in the immediate vicinity are scarce. Land use and potential noise impacts will be further evaluated in a subsequent chapter of the Master Plan.

## 1.4 Airside Facilities

This section discusses the various airside facilities on the Airport. For orientation, **Figure 1-5** provides an overview of airside facilities and primary associated design standards.

### 1.4.1 Aircraft Categories

As many of the restrictions for airport facilities are based on the characteristics of a specific aircraft, it is necessary to establish how aircraft are categorized. These categories will be used throughout this Master Plan when discussing existing restrictions and determining the future critical aircraft. In order to identify the appropriate design parameters for a runway and many associated facilities, aircraft are categorized by dimensions and performance, criteria that form part of the RDC. In turn, the RDC determines the design standards to which the runway is to be built.




0 1,250 2,500 3,750
Graphic Scale in Feet

Figure 1-5: **Airport Facilities**

**Source:** *USGS Earthstar Geographics, 2016 Becher-Hoppe Airport Layout Base Map*

The RDC is broken into three separate parts. The first component is the Aircraft Approach Category (AAC) and is designated by a letter that corresponds to the approach speed of an aircraft. AAC categories are shown by the relevant approach speeds in **Table 1-3**. The second component is the Aircraft Design Group (ADG) represented by a roman numeral dependent on the aircraft tail height and wingspan. In the instance there is a conflict between the tail height and the wingspan, the more restrictive or higher group identifier is used. Specific ADG dimensions are shown in **Table 1-4**. Finally, visibility minimums are expressed as the runway visual range (RVR) in feet equal to quarter mile increments, although this last component is not descriptive of aircraft characteristics. The two most frequent commercial aircraft currently operating at CWA are the CRJ 200 and ERJ 145 (C-II), while the most demanding commercial aircraft is the Boeing 737-800 (C-III). C-III is the RDC for both runways according to the current Airport Layout Plan (ALP).

**Table 1-3: Aircraft Approach Category (AAC)**

| AAC | Vref / Approach Speed |
|---|---|
| A | Less than 91 knots |
| B | 91 knots or more, but less than 121 knots |
| C | 121 knots or more, but less than 141 knots |
| D | 141 knots or more, but less than 166 knots |
| E | 166 knots or more |

*Source: FAA Advisory Circular 150/5300-13A, Airport Design*

**Table 1-4: Airplane Design Groups (ADG)**

| ADG | Tail Height | Wingspan |
|---|---|---|
| I | Less than 20 feet | Less than 49 feet |
| II | 20 – 29 feet | 49 – 78 feet |
| III | 30 – 44 feet | 79 – 117 feet |
| IV | 45 – 59 feet | 118 – 170 feet |
| V | 60 – 65 feet | 171 – 213 feet |
| VI | 66 – 79 feet | 214 – 261 feet |

*Source: FAA Advisory Circular 150/5300-13A, Airport Design*

### 1.4.2 Runways and Taxiways

The airfield at CWA consists primarily of two runways and a system of supporting taxiways. Runway 08/26, 7,648 feet long and 150 feet wide, is the primary runway and is supported by Taxiway C, a full parallel taxiway. Runway 17/35, 6,501 feet long and 150 feet wide, is served by Taxiway B. Taxiway A, B, D and E connect the primary runway to the landside north of the airfield. Taxilane E parallels a portion of Taxiway C to provide an alternative route for aircraft, which aids with circulation and provides access to potential future development areas. Additional information for each runway is summarized in **Table 1-5**.

**Table 1-5: Existing Runway Data**

| Criteria | Runway | | | |
|---|---|---|---|---|
| | 08/26 | | 17/35 | |
| Runway Length (feet) | 7,648 | | 6,501 | |
| Runway Width (feet) | 150 | | 150 | |
| Runway Lighting | MALSR[1] | REIL, PAPI | REIL, PAPI | MALSR |
| Weight Bearing Capacity | S -120,000 lbs<br>D – 227,000 lbs<br>2S – 175,000 lbs | | S – 120,000 lbs<br>D – 204,000 lbs<br>2S – 133,000 lbs | |
| PCN | 67 R/B/W/T[2] | | 59 R/B/W/T[2] | |

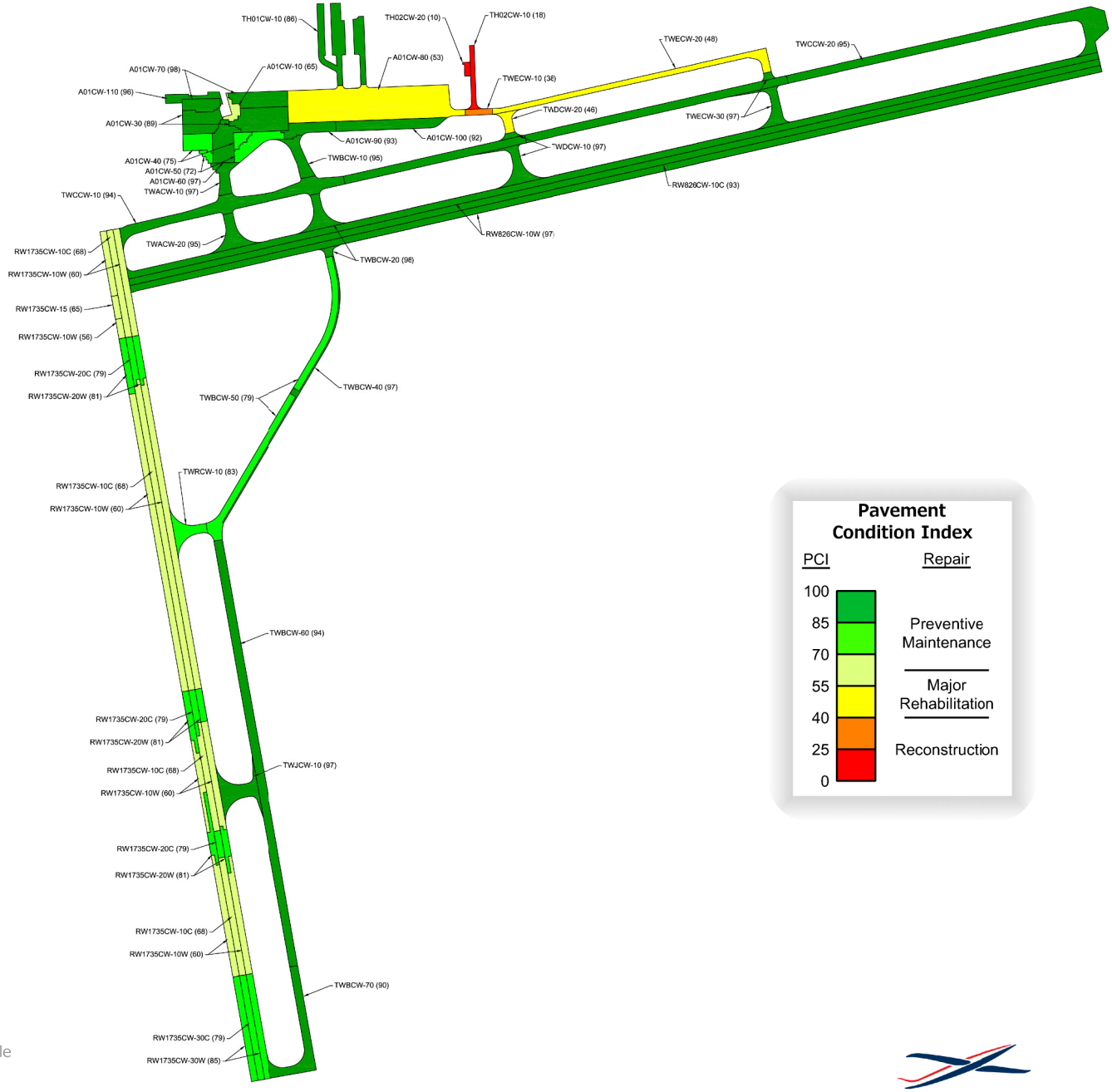
*Key: S: Single wheel type landing gear*
*D: Dual wheel type landing gear*
*2S: Two single wheels in tandem type landing gear*
*PCN: Pavement Classification Number*
*Notes: 1 Runway 08 MALSR is inoperative*
*2 See Table 1-8 for explanation of terms*
*Source: Airport Master Record*

### *Pavement Conditions*

According to AC 150/5380-7A, *Airport Pavement Management Program,* maintaining a pavement in good condition over its life cycle is four to five time less expensive than periodically rehabilitating a pavement in poor condition. Based upon a visual inspection by experienced engineers, a pavement condition index (PCI) rating is assigned to a particular piece of pavement but does not necessarily reflect its structural integrity. The PCI rating is scored on a scale of 1-100, where 100 indicates the pavement is in perfect condition, and a score of 60 or less indicates a need for rehabilitation. All PCI (see **Figure 1-6**) are discussed below.

A 2015 Pavement Condition Report indicates Runway 08/26 is generally in excellent condition. The center pavement was rated a PCI of 93, and the outer edges of the runway, rated 97. However, joint sealing was completed in June of 2016, after the pavement assessment, up to the hold short line for Runway 17/35. The Runway 17/35 PCI varies between a high of 81 near the 17 threshold and center of the runway, to lows of 56 and 60 near the touchdown zones of Runway 17 and 35, respectively. As Runway 17/35 is generally near or below the PCI benchmark of 60, potential refurbishment or reconstruction should be conducted within five years as planned.

Taxiways at CWA are generally in good condition. Taxiway B and Taxiway C generally have a PCI of 90 or greater. The one exception is a section of Taxiway B that runs diagonal to the runway and has a PCI of 79. Connecting taxiways, Taxiways A and B, are in excellent condition. However, Taxilane E and a portion of Taxiway D need refurbishment or reconstruction, with PCIs of 48 and 46, respectively. The lowest PCI on the Airport, a PCI of 10, is located near the private hangar to the east of the terminal area. Ideally, refurbishment or reconstruction for all areas would be done in association with other projects or improvements in order to best meet future Airport needs. Further analysis and potential options for runway and taxiways will be further discussed in Chapter 3, *Facility Requirements*, and Chapter 4, *Alternatives*.




Not to Scale

Figure 1-6: **Pavement Conditions**

**Source:** *2015 Pavement Conditions Index Map by Applied Pavement Technology*

### *Approach and Departure Codes*

The approach reference code (APRC) and departure reference code (DPRC) determine aircraft takeoff and landing restrictions for a specific runway. Like the RDC, the APRC is composed of three components: AAC, ADG, and visibility minimums. The DPRC is dependent on runway and taxiway separation and represents those aircraft that can take off from a runway at the same time that other aircraft are present on adjacent taxiways under certain meteorological conditions. The APRC determines the size of aircraft able to land at a runway, and the DPRC determines what aircraft can takeoff when multiple aircraft are present. Due to the low visibility restrictions and large distances between the runways and associated parallel taxiways at CWA, there are very few restrictions on aircraft operations, as determined by the APRC and DPRC. As noted in the table below, limitations for AAC D aircraft apply to both D and E aircraft. Therefore, aircraft with a tail height greater than 66 feet or a wingspan larger than 214 feet would not be able to use the Airport with the existing codes. The ultimate APRC and DPRC will be verified as part of this Master Plan Update. Existing codes are shown in **Table 1-6**.

**Table 1-6: Existing APRC and DPRC**

| Runway | Runway to Taxiway Separation | Visibility Minimums | Existing |
|---|---|---|---|
| ***Runway 08/26*** | | | |
| APRC | 400 feet | 1/2 Mile | D/IV/2400<br>D/V/2400 |
| DPRC | 400 feet | N/A | D/IV<br>D/V |
| ***Runway 17/35*** | | | |
| APRC | 400 feet | 1/2 Mile | D/IV/2400<br>D/V/2400 |
| DPRC | 400 feet | N/A | D/IV<br>D/V |

*Notes: Entries for Aircraft Approach Category (AAC) D also apply to AAC E. However, there are no AAC E aircraft currently in the national civil fleet.*

### *Runway Pavement Strength*

The strength and composition of a runway can be described in multiple ways. Two of the main methods are the Aircraft Classification Number (ACN) and Pavement Classification Number (PCN). The ACN-PCN is an International Civil Aviation Organization standard that expresses the effect of an individual aircraft on different pavement through a number that is dependent on aircraft weight and configuration (such as tire pressure, gear geometry, etc.). These two numbers correspond so that a runway with a given PCN can support an aircraft with an equal or lesser ACN. The ACN varies based on specific aircraft characteristics, such as the weight of the aircraft and tire pressures. Maximum ACNs for aircraft that frequent CWA vary, from the more demanding B737-800 (55) to the CRJ 200 (18). In the pavements' current condition, operations by these aircraft may continue unrestricted. Chapter 3, *Facility Requirements*, will discuss maintenance and refurbishments necessary to allow continued operations. The PCN is associated with a string of codes that gives further details of the runway's construction and strength. The PCN designation for Runway 08/26 is 67, and for Runway 17/35 is 59. In addition, Runway 08/26 has a prepared substructure

already in place to extend the runway to a length of 8,000 feet on its eastern end. **Table 1-7** provides an explanation of methods used to determine the PCN.

**Table 1-7: PCN Code Definition**

| Code | Description | Expanded Explanation |
|---|---|---|
| R | Rigid Pavement | Rigid Pavement employs a single structural layer to support pavement loads and distribute loads over large areas of the subgrade. |
| B | Medium Strength Subgrade | Indicates the strength of the subgrade used for a runway. |
| W | No Tire Pressure Limit | Shows the limitation for the runway based on tire pressure of the aircraft. |
| T | Technical Study | PCN has been obtained by a technical evaluation. |

### 1.4.3 Aprons and Ramp Area

Aprons allow transition from the landside to airside by providing an area for aircraft to park and maneuver. CWA is served by a single continuous apron extending across the terminal area. The western half of the apron is utilized by the commercial terminal, accommodates four jet bridges, and is approximately 260,000 square feet. The eastern portion of the apron is utilized by based and transient GA aircraft and is approximately 300,000 square feet. The GA apron has tie downs for 25 aircraft and taxilanes transiting through the apron to connect to the hangars located to the north.

***Pavement Conditions***

Aprons at CWA are generally in good condition. The air carrier apron PCI is generally around 90, although the outer sections of the apron are 72 and 75. The section immediately east of the terminal area is rated 65 and is expected to require refurbishment by 2020. Otherwise, only preventive maintenance will likely be required for the air carrier apron. The GA apron is in general need of refurbishment as its entire surface is rated at a PCI of 53.

### 1.4.4 Perimeter Road and Fence

The airside of the Airport is enclosed by a security/wildlife fence. A network of perimeter roads approximately 7 miles long follows the interior of the fence line to provide inspection and access to the gates. The perimeter road also provides a connection to various Airport equipment on the airfield and outdoor storage.

### 1.4.5 Design Surfaces

The most critical design standards to consider during design of airfield facilities include the runway safety area, runway object free area, Federal Aviation Regulations (FAR) Part 77 approach surface, and the threshold siting surface. **Table 1-8** applies these design standards to the runways at CWA based on existing RDCs, as identified by the current ALP and FAA terminal procedure publications.

**Table 1-8: Existing Runway Design Surfaces**

| RW | Surface | Dimensions | Description |
|---|---|---|---|
| 08 | Runway Safety Area | 500’ wide x 1,000’ beyond runway end | C-III-2400 |
| | Runway Object Free Area | 800’ wide x 1,000’ beyond runway end | C-III-2400 |
| | FAR Part 77 Approach Surface | 1,000’ (primary surface width), 50:1 slope | Precision Instrument Runway (PIR) |
| | Threshold Siting Surface | 800' (inner width) x 10,000' (length) x 3,800’ (outer width), 34:1 slope | Type 7 |
| 26 | Runway Safety Area | 500’ wide x 1,000 beyond runway end | C-III-4000 |
| | Runway Object Free Area | 800’ wide x 1,000’ beyond runway end | C-III-4000 |
| | FAR Part 77 Approach Surface | 1,000’ (primary surface width), 34:1 slope | Other than utility runway with a non-precision approach having visibility minimums less than or equal to 3/4 mile (D) |
| | Threshold Siting Surface | 800' (inner width) x 10,000' (length) x 3,800’ (outer width), 20:1 slope | Type 6 |
| 17 | Runway Safety Area | 500’ wide x 1,000’ beyond runway end | C-III-5000 |
| | Runway Object Free Area | 800’ wide x 1,000’ beyond runway end | C-III-5000 |
| | FAR Part 77 Approach Surface | 500’ (primary surface width), 34:1 | Other than utility runway with a non-precision approach having visibility minimums greater than 3/4 mile (C) |
| | Threshold Siting Surface | 800' (inner width) x 10,000' (length) x 3,800’ (outer width), 20:1 slope | Type 5 |
| 35 | Runway Safety Area | 500’ wide x 1,000’ beyond runway end | C-III-2400 |
| | Runway Object Free Area | 800’ wide x 1,000’ beyond runway end | C-III-2400 |
| | FAR Part 77 Approach Surface | 1,000’ (primary surface width), 50:1 | Precision Instrument Runway (PIR) |
| | Threshold Siting Surface | 800' (inner width) x 10,000' (length) x 3,800’ (outer width), 34:1 slope | Type 7 |

*Sources: Airport Layout Plan, Advisory Circular 150/5300-13A, FAR Part 77*

### 1.4.6 Visual Navigation Aids

This section summarizes the visual navigational aid (NAVAID) facilities and roles that they serve on CWA.

**Rotating Beacon** – The rotating beacon helps pilots locate and identify the Airport during nighttime hours, when visibility is less than 3 miles, and/or when ceilings are less than 1,000 feet. The beacon alternates green and white in 360 degrees, as is standard for civilian airports, and is located in the main parking lot approximately 500 feet north of the passenger terminal.

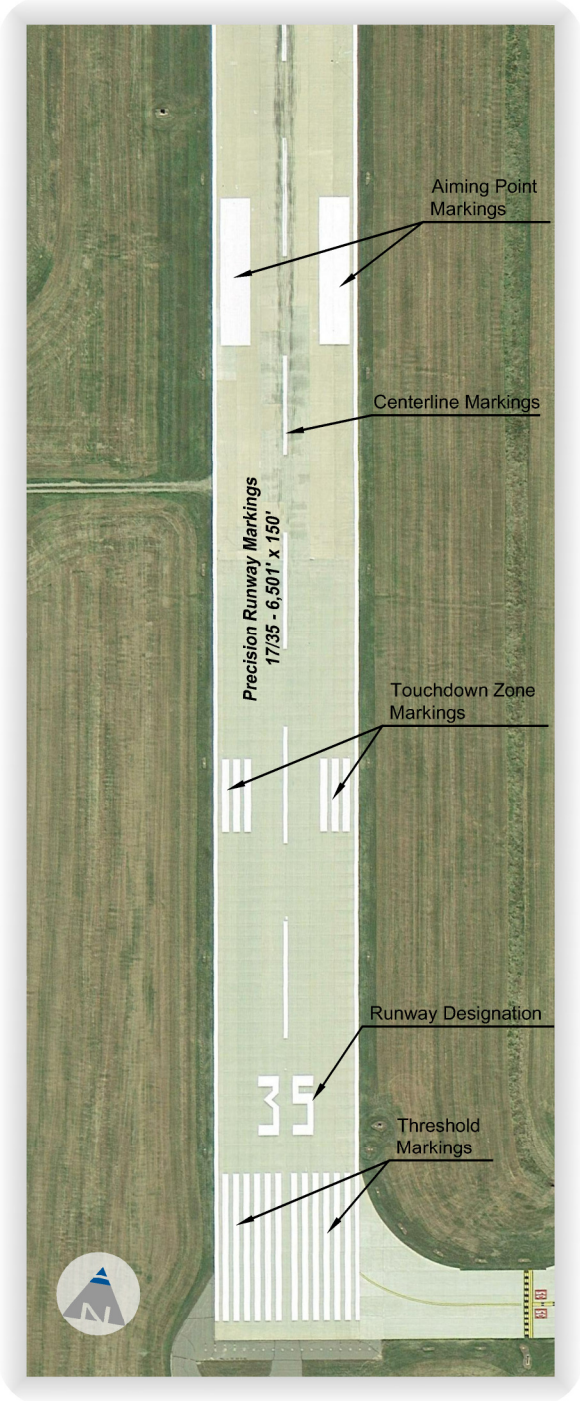
**Precision Approach Path Indicator (PAPI)** – PAPIs are lighting systems that indicate to pilots the necessary height corrections when approaching to land on a runway. This is achieved through either a two or four light configuration in which the lights are used to indicate a pilot's position relative to the prescribed glideslope angle. Four light PAPI units are located at the approach ends of Runway 26 and 17. A PAPI is intended to be visible up to 5 miles from the threshold during the day and 20 miles at night within 10 degrees of the approach path. The PAPI for Runway 26 is unusable beyond 6 degrees right of course.

**Runway Pavement Markings** – Although not always considered a NAVAID, runway pavement markings provide orientation and identification of areas on a runway surface. Runways with precision instrument approaches have threshold, runway designation, touchdown zone, aiming point, centerline, and edge markings. Runways 08 and 35 have precision runway markings, and Runways 17 and 26 have non-precision markings. The difference between these two marking patterns is shown in **Figure 1-7**. Taxiway B also has a threshold lighting system and markings previously used for C-130 touch and go operations, but they are no longer operational. The Taxiway B markings consist of two opposing white lines perpendicular to the taxiway with accompanying lights. These markings are positioned every 400 feet. However, C-130s no longer conduct touch and go operations at CWA, so this system is no longer used.

**Airfield Signage –** Airfield signage identifies the locations of runways, taxiways, and aprons, and provides noise abatement instructions and other airfield information to pilots. Airfield signage at the Airport includes runway distance remaining signs, directional signs, runway holding signs, and surface-painted hold signs.

**MALSR –** A Medium Intensity Approach Lighting System with Runway alignment Indicator Lights (MALSR) provides visual confirmation of the runway centerline for pilots on approach to the runway. MALSRs are typically equipped with a series of light bars preceded by a series of sequenced flashing lights. MALSRs are often used in poor visibility, such as at night and during inclement weather, to help pilots identify and align with the runway. Although there are two MALSRs installed at CWA, only one is operational. The Runway 35 MALSR is fully functional, but the Runway 08 MALSR is not operational. As a result, aircraft within Category C and D are limited to 1-mile visibility when using the localizer only approach on Runway 08. In addition, Code of Federal Regulations (CFR) 91.175, *Takeoff and Landing under IFR*, states that flight below the minimum descent altitude may not occur unless certain attributes of the runway environment are visually identified, such as selected runway markings or the visual approach slope indicator. As lights are generally easier to identify in poor visibility than runway markings, and Runway 08 does not have a PAPI, an inoperative MALSR makes it more difficult for a pilot to correctly identify the runway and continue their approach below the minimum descent altitude during poor visibility conditions.

**REIL –** Runway End Identifier Lights (REIL) consist of a synchronized pair of flashing lights. REILs are particularly helpful when artificial light in the vicinity may confuse the pilot, and during poor visibility conditions. Runways 26 and 17 both have REILs.





0 100 200 300
Graphic Scale in Feet

Figure 1-7: **Runway Markings**

**Source:** *Google Earth, 2016 Becher-Hoppe Airport Layout Base Map*

**Wind Indicators** – Also known as windsocks or wind cones, wind indicators aid operations by indicating surface wind strength and direction. Wind indicators are typically located approximately 1,000 feet from the end of runways if serving air carrier operations and lighted if an airport is open to commercial air carriers at night. CWA has three lighted wind cones. The primary wind cone is 900 feet to the north of the Runway 08 threshold. Two lighted wind cones are located approximately 300 feet to the west of the Runway 35 threshold and approximately 250 feet to the south of the Runway 26 threshold.

### 1.4.7 Electronic Navigation Aids

**Instrument Landing System –** Four components comprise an instrument landing system (ILS): a localizer, glide slope antenna, marker beacon, and approach lights. The approach lights were discussed in the Visual NAVAIDs section above. Runways 08 and 35 at CWA are both equipped with a Category I (CAT I) ILS, which permits approach and landing at or above a 200-foot cloud ceiling and 1/2-mile visibility. The localizer is an antenna array placed at the departure end of the runway and provides horizontal guidance along the extended centerline of the runway. The glide slope antenna is positioned near the aiming point marking at the approach end of a runway and provides vertical guidance to align aircraft with the correct landing descent path, usually at a 3-degree slope. Finally, the ILS Runway 08 and 35 marker beacons are located approximately 5 miles to the west and south of the Airport, respectively. These beacons alert pilots to their position when on the approach. Each beacon consists of a non-directional beacon (NDB) and outer marker. The outer markers are owned by the FAA and are expected to be decommissioned in the near future, leaving only the NDBs. The Airport owns the Runway 35 NDB, but the FAA owns the Runway 17 NDB.

**Global Positioning System (GPS) –** GPS is a satellite-based navigational system that transmits location signals to properly equipped aircraft so that location, altitude, direction of travel, and speed can be determined. GPS offers the ability for aircraft to conduct non-precision approaches to runways not equipped with ground based navigational equipment. At CWA, Area Navigation (RNAV) and localizer performance with vertical guidance GPS approaches can be conducted to all runways, although visibility and ceiling limitations vary. Additional information on the approaches at CWA is shown in **Table 1-9**.

**Very High Frequency Omni-directional Radio Range (VOR) –** The VOR is the primary NAVAID used by civil aviation within the National Airspace System other than GPS. The Wausau and Stevens Point VOR is used to navigate around the CWA vicinity, and several approaches, such as the ILS or LOC Runway 08 approach, use the Stevens Points VOR to help pilot orient themselves while conducting the approach. However, the Stevens Point VOR is scheduled for decommissioning during Phase I (2016 - 2020) of the FAA's transition to performance-based navigation, as part of NextGen (proposed under 76 FR 77939). The Wausau VOR, which is currently experiencing reliability issues for several radials, is slated to be decommissioned during Phase 2 (2021 - 2025) of the process. While the FAA has completed its circularization of public notice for the Steven's Point VOR, the process for the Wausau VOR is ongoing.

### 1.4.8 Weather Observation Equipment

Weather reporting at CWA is provided by an Airport-owned Automated Weather Observation System (AWOS) located south of the Runway 08 threshold. The particular AWOS type at CWA (AWOS-3) provides altimeter settings, wind, temperature, dew point, density altitude, visibility, and cloud or ceiling information to the FAA Flight Service Station and National Oceanic and Atmospheric Administration. This information is then provided to pilots operating in the area and is archived as an historic record of weather conditions.

**Table 1-9: Instrument Approach Procedures**

| Approach Name | TCH (feet) | GSA (degrees) | Visibility Minimum (statute miles) | Decision Height (feet AGL) |
|---|---|---|---|---|
| ILS OR LOC RWY 08 | 56 | 3.00 | 1/2 | 200 |
| ILS OR LOC RWY 35 | 50 | 3.00 | 1/2 | 200 |
| RNAV (GPS) RWY 08 | 56 | 3.00 | 1/2 | 200 |
| RNAV (GPS) RWY 35 | 50 | 3.00 | 1/2 | 200 |
| RNAV (GPS) RWY 17 | 45 | 3.00 | 1 | 257 |
| RNAV (GPS) RWY 26 | 45 | 3.00 | 3/4 | 250 |

*Notes: Alternative minimums may apply under instrument meteorological conditions (IMC).*
*Minimums listed are for Category C aircraft. Minimums may be lower for smaller aircraft or higher for larger aircraft, and procedures may not be available for use by larger aircraft.*
*ILS: Instrument Landing System*
*LOC: Localizer*
*RNAV: Area Navigation*
*TCH: Threshold Crossing Height*
*GSA: Glideslope Angle*
*AGL: Above Ground Level*
*Source: FAA Terminal Procedures September 15 – October 12, 2016*

## 1.5 Landside Facilities

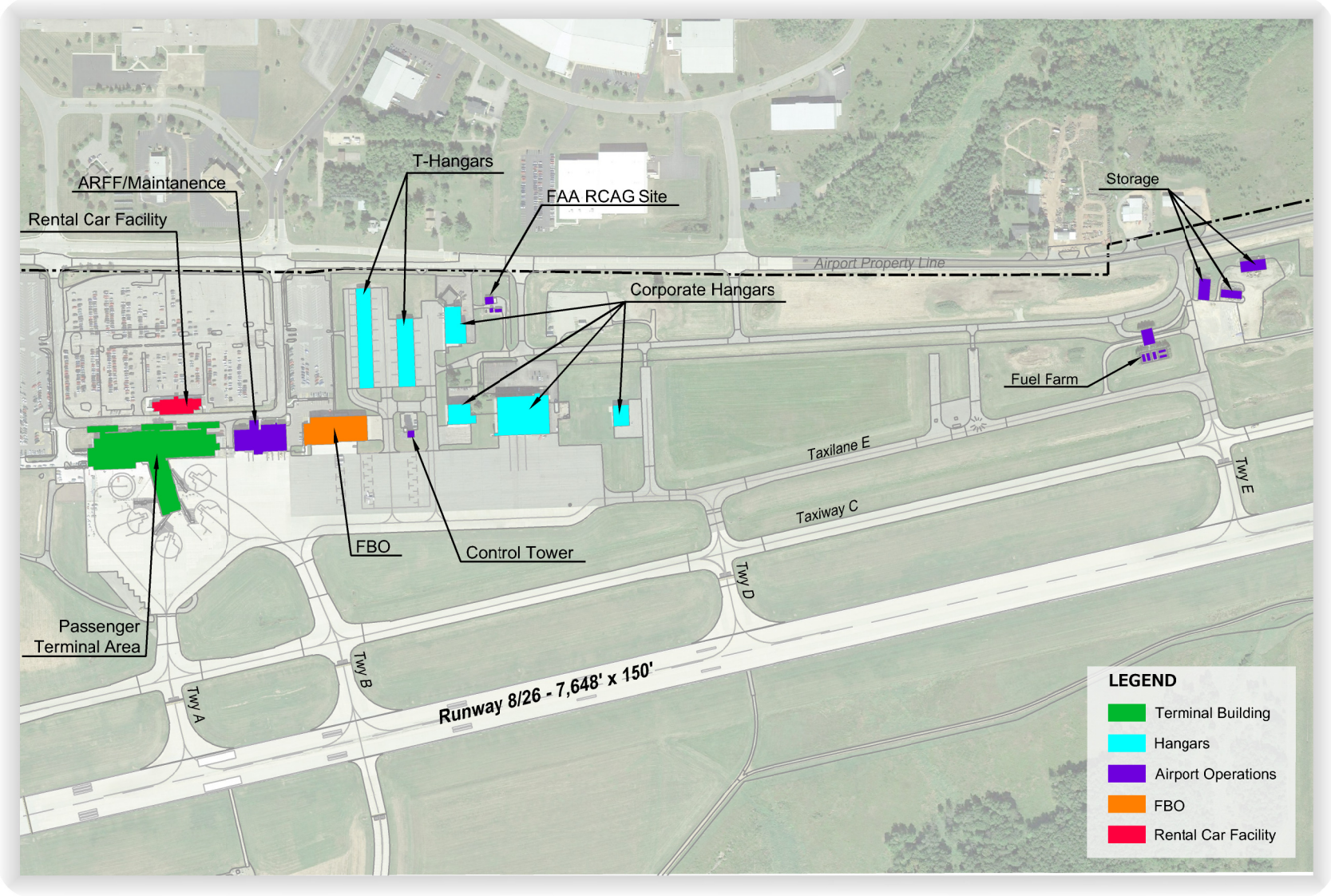
This section discusses the various airside facilities on the Airport. For orientation, **Figure 1-8** provides an overview of the terminal area.

### 1.5.1 Air Traffic Control Tower (ATCT)

An ATCT controls traffic on the “movement” side of airports, which includes taxiways, runways, and some apron areas. Non-movement and movement areas are divided by a double line, dashed on one side and solid on the other. The CWA ATCT is positioned adjacent to the GA apron approximately 850 feet to the east of the passenger terminal. Generally, controllers in the ATCT can maintain visual contact with all movement areas on the Airport.

### 1.5.2 Fixed-Based Operator (FBO)

FBO services at CWA are provided by Central Wisconsin Aviation, a full service FBO. The FBO is located approximately 500 feet to the east of the passenger terminal and provides aircraft maintenance, inspections, fueling and deicing, flight training, and a pilot lounge. However, the buildings utilized by the FBO are aging and facilities such as the pilot’s lounge and crew rest area are limited. Additional, or improved, facilities and staffing would aid the functionality of the FBO. Although GA operations have decreased in recent years, the corporate presence on the Airport may benefit from an enhanced FBO. Chapter 3, *Facility Requirements*, will further consider FBO needs.




0 300 600 900
Graphic Scale in Feet

Figure 1-8: **Terminal Area**

**Source:** *Google Earth, 2016 Becher-Hoppe Airport Layout Base Map*

### 1.5.3 Passenger Terminal Building

The passenger terminal building was originally built in 1969, and a concourse was constructed in 1998 that equipped the Airport with five departure gates and four boarding bridges. More recently, a 2006 Terminal Area Master Plan made a series of recommendations to improve the terminal. Following completion of the Terminal Area Master Plan, a second renovation was completed in June 2016, which increased operational space, expanded the security checkpoint, relocated car rentals agencies to their own facility, and expanded parking. The early stages of expansion included a new rental car facility that freed space in the terminal for baggage claim and expanded passenger areas. Additionally, a new geothermal system provides cooling in the summer and heat during the transition months surrounding winter.

The current terminal floorplan is shown in **Figure 1-9**. Air carrier flights occasionally overlap so that all four jet bridges are used when passengers arrive in the early evening. However, Delta Air Lines will often house their aircraft overnight at Endeavor, which provides an available jet bridge for charters that may arrive later in the evening or overnight. Peak operations and potential future terminal needs will be examined in subsequent chapters.

### 1.5.4 Ground Access, Circulation and Parking

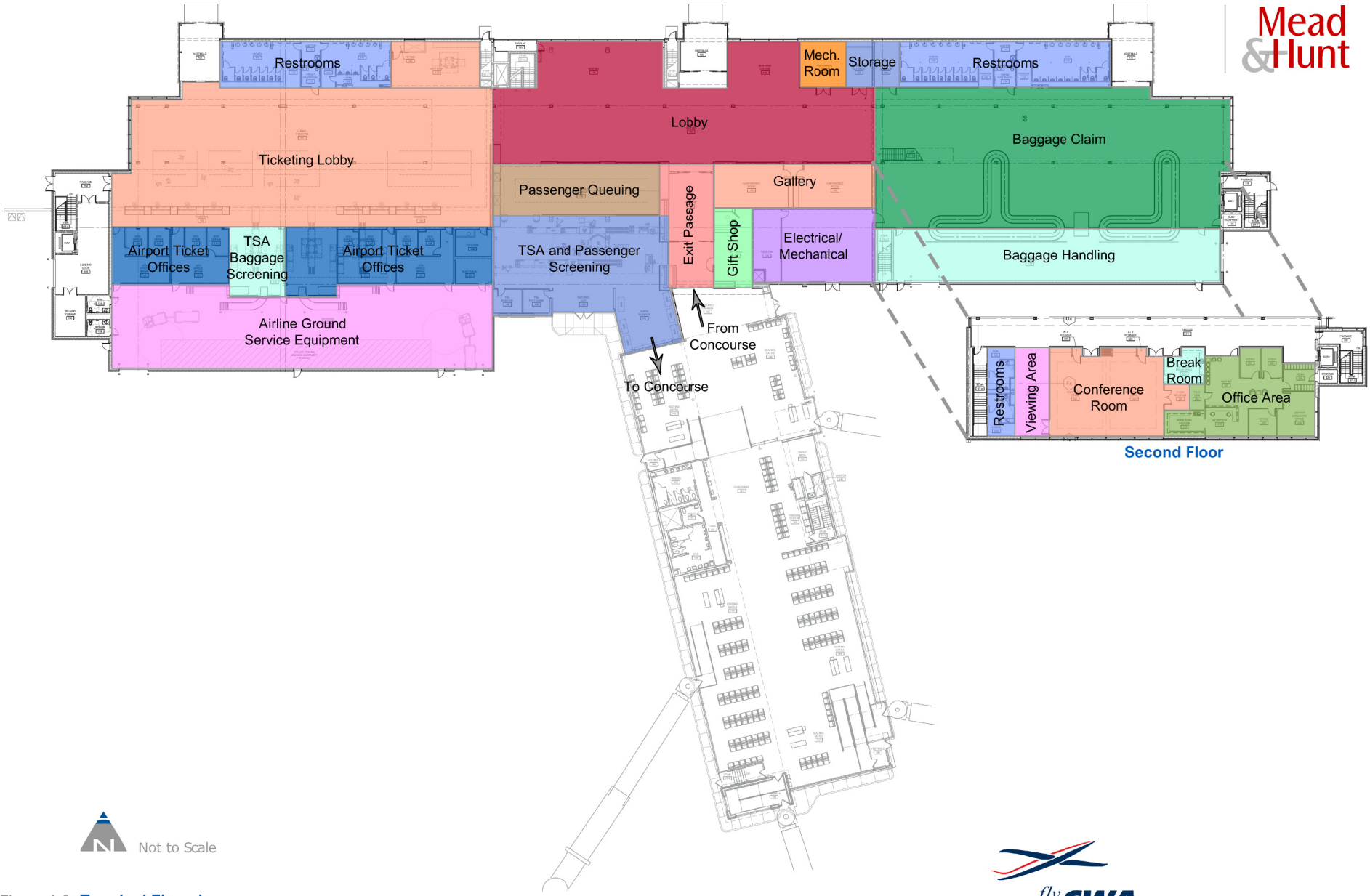
CWA Drive provides one-way access and circulation to the parking lots and passenger terminal. In association with the recent terminal project, additional parking spaces were added to the west and east of the main parking lot, along with an expanded rental car area. Existing parking spaces are summarized in **Table 1-10**. These numbers do not include additional localized parking for the FBO, maintenance facility, and tenants.

**Table 1-10: Public Parking Spaces**

| Parking Lot | Parking Spaces |
|---|---|
| West Parking Lot | 422 |
| North Center Parking Lot | 477 |
| South Center Parking Lot | 373 |
| East Parking Lot | 204 |
| **Total Public** | **1,476** |
| Rental Car | 195 |
| ***Grand Total*** | ***1,671*** |

### 1.5.5 Hangars

Hangars at CWA are located south of State Highway 153 and east of the passenger terminal. There are two T-hangar buildings with a total of 28 units. T-hangars units are available in two sizes at CWA, with 10 large units and 18 smaller units. Collectively, these 28 units provide approximately 33,600 square feet of hangar space. Five box hangars to the east of the terminal area house private GA aircraft and corporate tenants, including Freight Runners, Five Whiskey Papa LLC, R&D Cervenka LLC, and Endeavor Air.




Not to Scale

Figure 1-9: **Terminal Floorplan**

**Source:** *Mead & Hunt*

### 1.5.6 Air Rescue and Firefighting (ARFF) Facility

The ARFF index at an airport is determined by the length of the largest air carrier aircraft with at least five average daily departures in a single index group. **Table 1-11** shows the ARFF index categories as determined by aircraft length. The longest regularly scheduled aircraft at CWA is the ERJ 145, which is 98 feet long, and therefore, belongs to Index B; and the longest commercial aircraft operating at CWA is the Boeing 737-800, which is 130 feet long, and belongs to Index C. However, as both of these aircraft currently average less than five daily departures, CWA defaults to the next lower index group, Index A. Index A airports are obligated by CFR 139.317, *Aircraft rescue and firefighting: Equipment and agents*, to provide one vehicle carrying at least 500 pounds of sodium-based dry chemical, halon 1211, or clean agent, or 450 pounds of potassium-based dry chemical and water with a commensurate quantity of Aqueous Film-Forming Form (AFFF) to total 100 gallons for simultaneous dry chemical and AFFF application. Two ARFF Striker vehicles are used to meet these requirements. Although one vehicle can satisfy the Index A requirement, the second vehicle not only provides redundancy but also allows the Airport to meet Index B requirements when the vehicles are considered together.

**Table 1-11: ARFF Index Determination**

| Index | Aircraft Length |
|---|---|
| A | Less than 90 feet |
| B | At least 90 feet but less than 126 feet |
| C | At least 126 feet but less than 159 feet |
| D | At least 159 feet but less than 200 feet |
| E | At least 200 feet |

*Source: CFR 139.315*

Snow removal equipment, ARFF, and maintenance vehicles are stored in two areas. The main facility is approximately 200 feet to the east of the terminal. This facility houses the ARFF Emergency Operations Center and a large portion of the snow removal equipment, ARFF, and maintenance vehicles. This provides a central location for ARFF response with an unobstructed view of the airfield. The second area, cold storage, is located to the north of Taxiway E and consists of three buildings of approximately 3,000 square feet each.

### 1.5.7 Fuel Storage and Dispensing Facility

The fuel farm is located east of the terminal area near the end of Taxilane E. Highway 153 allows ground vehicle access from the non-secure side, and Taxiway E provides access from the secure side. The fuel farm consists of two, 20,000-gallon tanks Jet A fuel; one 20,000-gallon tank 100 low lead (LL) Aviation Gas (Avgas); one 10,000-gallon tank unleaded gasoline; and one 10,000-gallon tank diesel fuel. All five tanks are above ground. The fuel farm location enables fueling operations to take place removed from the terminal area, improving efficiency and safety.

### 1.5.8 Air Cargo Operations

Air cargo operations have undergone a series of changes at CWA in recent years. FedEx and Empire Airlines formerly performed cargo operations at CWA, but Empire Airlines discontinued operations in 2007, and FedEx discontinued direct flights from CWA to its Memphis hub in 2010. Currently, cargo operations

are conducted to and from local destinations such as Milwaukee and Madison by Freight Runners (under contract with UPS) using the Beech 99 Airliner and by CSA Air (under contract with FedEx) using the Cessna Caravan. Although most cargo operations are conducted by dedicated cargo carriers, passenger airlines also carry cargo. However, this has become less prominent at CWA since 2008.

## 1.6 Airspace

As surrounding structures or land uses may affect navigable airspace, it is important to consider how CWA operations may be impacted by such structures and uses. **Figure 1-10** shows airspace in the Central Wisconsin region. This section describes each airspace classification.

### 1.6.1 Controlled Airspace

Controlled airspace is a term that applies to all airspace in which FAA Air Traffic Control (ATC) service is provided. This does not mean, however, that controlled airspace must have a control tower in its immediate vicinity, but instead that some type of ATC authority is extended to the airspace.

***Class A Airspace***

Class A airspace generally begins at 18,000 feet MSL up to 60,000 feet MSL throughout the United States and 12 nautical miles beyond each coast. This airspace requires an instrument flight rules (IFR) flight plan and ATC approval to enter. Class A airspace does not have a direct effect on CWA.

***Class B Airspace***

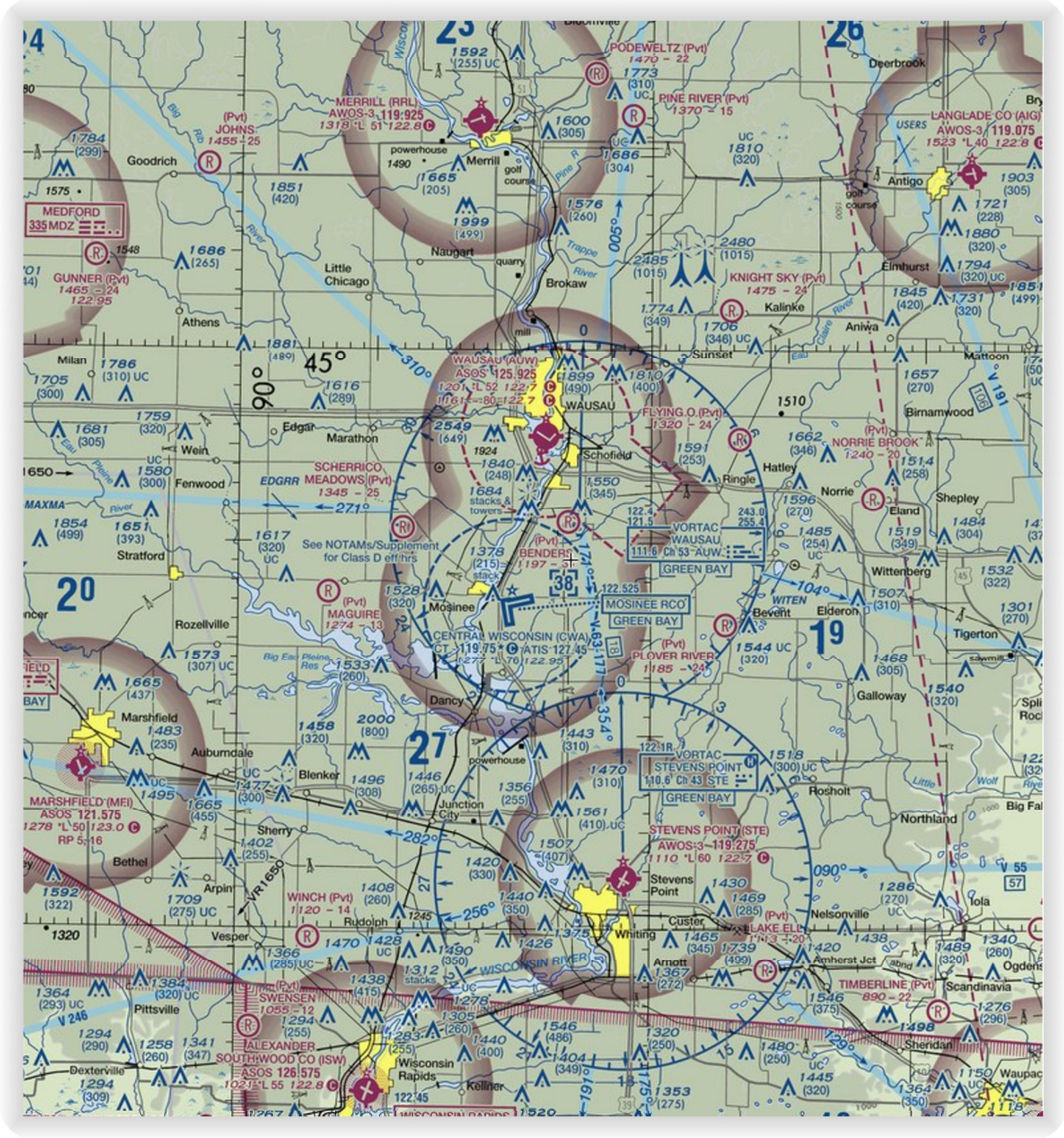
Class B airspace often surrounds the nation's busiest airports and extends from the surface to 10,000 feet MSL in multiple tiers of various dimensions. This classification design is intended to incorporate all instrument approaches into an airport. Class B is one of the most restrictive airspace classifications, requiring additional equipment on the aircraft and express permission from ATC to enter. There is no Class B airspace in the vicinity of CWA.

***Class C Airspace***

Class C airspace is designed for airports with a control tower and radar approach control, but has fewer restrictions than Class B. This airspace generally extends from the surface to 4,000 feet above the airport elevation. The dimensions of Class C airspace are tailored to the specific airport but usually consist of an inner 5-mile section surrounding the airport with an outer circle that begins at 1,200 feet above the airport elevation with a total diameter of 20 nautical miles. The nearest airport with Class C airspace is Austin Straubel International Airport.

***Class D Airspace***

Class D airspace generally extends from the surface to 2,500 feet above the airport elevation and is used for airports with a control tower but not necessarily radar capacity. Similar to other airspace classes, Class D airspace is usually tailored to accommodate published instrument approaches at an airport. Class D airspace with a radius of 5 statute miles surrounds CWA. In order for aircraft to penetrate Class D airspace, contact must be established and maintained with the controlling agency, which in this case is the CWA ATCT. Two miles to the east of CWA is a small private field, Jaks Field (56WI). As this field is located within CWA airspace, aircraft operating from that field must first receive clearance from CWA ATCT when the ATCT is in operation.




0 5 10 15

Graphic Scale in Miles

Figure 1-10: **Surrounding Airspace**

**Source:** *Sky Vector Aeronautical Charts (https://skyvector.com/)*

***Class E Airspace***

By default, if airspace is controlled but not Class A, B, C, or D, then it is Class E airspace. Class E is unique in that it is a multifaceted airspace that is used in a variety of situations. Class E often begins at 1,200 feet above the airport elevation and is used at many of the smaller airports surrounding CWA. While the tower is in operation the Airport is Class D; however, the tower is closed from 10:00 P.M. to 6:00 A.M. and the Airport reverts to Class E airspace during that time.

### 1.6.2 Uncontrolled Airspace

Uncontrolled airspace is any airspace that is not class A, B, C, D, or E, and is known as Class G airspace. Class G airspace is the only uncontrolled airspace in the National Airspace System. ATC does not possess responsibility or authority to control air traffic, but there are VFR minimums that apply to pilots operating in this area. Class G is common in low population areas where air traffic is sparse.

### 1.6.3 Special Use Airspace

Special use airspace designates areas in which certain activities are confined and additional limitations may be imposed on entering aircraft. While restrictions in these areas vary according to their use, some present hazards, and pilots are advised to maintain awareness. While there are several types of special use airspace types – including prohibited, restricted, warning, military operations, alert, and controlled firing areas – only that airspace within 30 miles of CWA is discussed below. The restricted and military operations areas (MOAs) discussed below are generally associated with Fort McCoy and Volk Field, located approximately 70 miles to the southwest of CWA.

***Military Operations Area***

MOAs are established for the purpose of separating certain military training activities from IFR traffic. Examples of these activities are air combat tactics, air intercepts, aerobatics, formation training, and low-altitude tactics. When a MOA is active, IFR traffic may be cleared if separation can be provided. VFR pilots are advised to exercise extreme caution and contact any Flight Service Stations within 100 miles of the area to obtain accurate real-time information concerning the MOA hours of operation. Several MOAs are located to the south and west of CWA. The Falls 2 MOA begins at 500 feet above the ground level (AGL) and is approximately 30 miles to the southwest. Volk West and Volk East are located approximately 20 miles to the south. Volk West begins 100 feet AGL, and Volk East begins at 8,000 feet AGL. All of these MOAs are active intermittently from 0800-1600 Tuesday through Saturday. Due to their distance from CWA and allowable IFR traffic routing, these areas do not have a significant impact on Airport operations.

***Restricted Airspace***

Although flights within restricted areas are not expressly prohibited, hazards often invisible to aircraft are present in these areas. Restricted areas R-6904A and R-6904B are located approximately 45 miles to the south of CWA. R-6904A begins 150 feet AGL, and R-6904B begins at the surface, and both of these restricted areas extend to 23,000 feet MSL. Both of these areas are active from 0800-1600 Tuesday through Saturday and are controlled by the Minneapolis Air Route Traffic Control Center.

### 1.6.4 Other Airspace

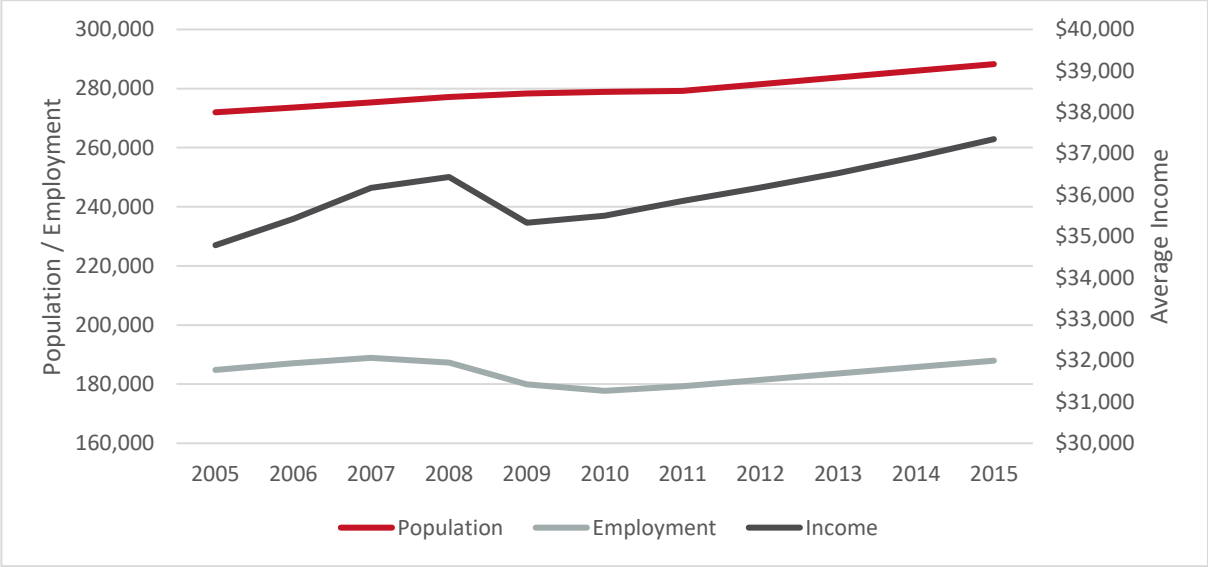
The majority of airspace not covered by the above three sections includes military training routes, parachute jump aircraft operations, and other similar areas. No airspace under this classification exists within 30 miles

of CWA. Temporary Flight Restrictions may be enacted to keep traffic out of the area in the event of emergency.

## 1.7 Local Socioeconomic Trends

As CWA is located near the intersection of Marathon, Portage, and Wood Counties, this section considers socioeconomic trends within these three counties as a whole. Historical population, employment, and income are summarized in **Figure 1-11** and **Table 1-12**.

**Figure 1-11: Local Socioeconomic Trends in Marathon, Portage, and Wood Counties**




*Source: Woods and Poole, Inc.*

**Table 1-12: Local Socioeconomic Trends in Marathon, Portage, and Wood Counties**

| Year | Population | Employment | Income |
|---|---|---|---|
| 2005 | 271,984 | 184,852 | $34,787 |
| 2006 | 273,600 | 187,128 | $35,424 |
| 2007 | 275,371 | 188,903 | $36,173 |
| 2008 | 277,196 | 187,288 | $36,435 |
| 2009 | 278,296 | 179,961 | $35,329 |
| 2010 | 278,944 | 177,749 | $35,502 |
| 2011 | 279,269 | 179,266 | $35,859 |
| 2012 | 281,474 | 181,407 | $36,183 |
| 2013 | 283,720 | 183,573 | $36,530 |
| 2014 | 285,996 | 185,757 | $36,923 |
| 2015 | 288,276 | 187,953 | $37,350 |
| ***CAGR*** | ***0.58%*** | ***0.17%*** | ***0.71%*** |

*Source: Woods and Poole, Inc.*
*CAGR: Compound Annual Growth Rate*

Population has grown modestly over the past 10 years. Both employment and income declined during the recent recession but recovered in 2009 and 2010 and have surpassed pre-recession levels. The relationship between local socioeconomic factors and Airport activity will be examined in Chapter 2, *Aviation Activity Forecast*.

**Table 1-13** shows the major industries for these three counties as expressed by the number of employees and percentage of the total workforce. Collectively, these industries make up 57.6% of the workforce.

**Table 1-13: Employment by Industry**

| Industry | Employees | Percentage of Total Workforce |
|---|---|---|
| Health Care and Social Assistance | 28,906 | 15.4% |
| Manufacturing | 25,270 | 13.4% |
| Retail Trade | 22,654 | 12.1% |
| State and Local Government | 18,121 | 9.6% |
| Finance and Insurance | 13,369 | 7.1% |

*Source: Woods and Poole, Inc.*

## 1.8 Inventory Summary

The goal of this chapter is to develop an understanding of existing facilities at the Airport. Information presented in this chapter will be investigated in subsequent chapters to determine potential changes needed to meet future demand over the next 20 years. This Master Plan will serve as a guide for CWA to provide consistent passenger, cargo, and general aviation service so that it may continue to be an economic driver for the region.