Airport Master Plan

Hawley Municipal Airport (04Y)
Hawley, Minnesota

October 2014

Submitted by:
Bolton & Menk, Inc.
12224 Nicollet Avenue
Burnsville, MN 55337
P: 952-890-0509

Airport Sponsor:
City of Hawley
PO Box 69
Hawley, MN 56549
P: 218-483-3331

BOLTON & MENK, INC.
Consulting Engineers & Surveyors

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF APPENDICES

EXECUTIVE SUMMARY

The Airport Master Plan for the Hawley Municipal Airport (04Y) evaluates the needs of the existing and future users of the airport over the next 20 years. The Airport Layout Plan (ALP) was last updated in 2009. This Airport Master Plan will update operations and based aircraft projections so that airport development plans can meet the needs of the public utilizing the Hawley Municipal Airport while maintaining compatibility with community land use plans.

The Airport Master Plan is a joint effort between the Hawley Airport Commission, Hawley City Council, Clay County, Hawley Township, Cromwell Township, Federal Aviation Administration (FAA), and MnDOT Office of Aeronautics (MnDOT). An Airport Master Plan includes discussion of the existing inventory at the airport, the results of the user survey submitted to the service area around the airport, the forecasts of aircraft activity including based aircraft and operations, the facility recommendations to meet the forecasted needs of the users of the airport, alternatives of the recommended facilities, and the implementation plan.

The City of Hawley is located 20 miles east of Moorhead Minnesota along the Buffalo River, U.S. Highway 10, and the Burlington Northern Railroad. The airport is west of the City at the U.S. Highway 10 and 215th Street North intersection. The airport is a general aviation facility serving primarily business owners, agricultural sprayers, and recreational pilots that use single-engine and multi-engine propeller driven aircraft.

There are currently 33 based aircraft at the airport. There is an Arrival/Departure (A/D) building, four public T-hangars for based aircraft storage, one private hangar, and five tie-downs available for aircraft parking. There is an automobile parking lot located near the A/D building and 100LL fuel is available for aircraft.

The airport has one runway. The primary runway, Runway 16/34, is a bituminous runway 3,398 feet long by 75 feet wide. There is a Global Positioning System (GPS) approach to Runway 34 and a connector taxiway which connects the runway to the building area.

The aviation forecasts show growth in based aircraft over the next 20 years to 46 aircraft in 2033, which represents a growth of 13 aircraft. The annual operations are estimated to be 9,340 growing to 13,907 over the next 20 years.

Based on the 20 year forecasts, facility recommendations were developed. According to the FAA Advisory Circular (AC) titled *Runway Length Requirements for Airport Design,* the existing runway length of 3,398 feet meets the needs of 95% of small airplanes (airplanes less than 12,500 pounds). However, through user surveys and discussions with aircraft operators, the runway length is not adequate to meet the needs of the business operators currently using and proposed to use the airport. The City of Hawley has seen a significant increase in commercial and industrial development within City limits. These businesses recommend a runway length of 4,500 feet to meet their needs. Alternatives were analyzed for extending the runway to meet the needs of the existing and future users at 04Y. The selected alternative extends the runway 1,102 feet to the northwest for a total runway length of 4,500 feet. Other airside facility requirements include constructing a full parallel taxiway to each runway end.

Additional needs addressed in the user survey and activity forecasts included additional hangar space for private hangar development, additional T-hangar space for the increase in based aircraft, and an expanded apron area to accommodate additional tie-down spaces and adequate space for fueling aircraft.

The final chapter of the Airport Master Plan takes a look at the timing and funding necessary to develop the facilities recommended to accommodate the existing and future users of the airport. Further discussion of the facility requirements, project impacts, and details of the forecast analysis for the Hawley Municipal Airport can be found within the Airport Master Plan document.

1. INTRODUCTION

1.1. PURPOSE

An Airport Master Plan is a comprehensive study of an airport and describes the short (0-5 year), mid (5-10 year), and long-term (10-20 year) development plans to meet existing and future aviation demand based on identified airport safety, facility, and aviation system needs. The Airport Master Plan will provide direction and guidance to the airport owner, the City of Hawley, regarding future airport preservation and development priorities for the Hawley Municipal Airport (FAA identifier: 04Y). It will become the City's realistic strategy for the development of the airport considering financial, environmental, and socioeconomic factors. The Federal Aviation Administration (FAA) outlines the requirements and process to prepare an Airport Master Plan through Advisory Circular (AC) 150/5070-6B, *Airport Master Plans*.

1.2. BACKGROUND

The City of Hawley last completed an update to the Airport Layout Plan (ALP) in July 2009. This Airport Master Plan will update operations and based aircraft projections so that airport development plans can meet the needs of the public utilizing the Hawley Municipal Airport while maintaining compatibility with community land use plans.

1.3. AREAS OF EMPHASIS

An Airport Master Plan process evaluates many aspects of an airport facility. The following areas of emphasis have been specifically identified by the City of Hawley and will be reviewed in greater detail for 04Y in this Airport Master Plan.

Runway 16/34 Expansion Feasibility

The current ALP shows a future planned runway extension of 600 feet to the northwest for a total primary runway length of 4,000 feet. The project will evaluate the runway length justified to meet future needs at 04Y. Runway development options will be explored considering local zoning implications, compatibility with community plans, operational effects, airspace obstructions, environmental impacts, and cost.

Building Area Development

The existing building area has four T-hangars that are at capacity with four additional aircraft owners on a waiting list to base their aircraft at 04Y. This Airport Master Plan will evaluate the existing building area and the potential for both T-hangar and conventional hangar development to meet the needs of the users of the airport.

Fuel Facility Location

The existing fueling facility is located east of the Arrival/Departure (A/D) building and north of an existing T-hangar. The location is not ideal for aircraft attempting to access their T-hangar while another aircraft is fueling due to the extra taxi time required to get around the south side of the T-hangar. The Airport Master Plan will evaluate the layout of the building area around the existing apron to determine if there is a better location for the fueling system.

Land Use Planning

Runway development options will have an effect on surrounding local land use. The Airport Master Plan will evaluate runway options and coordinate with local planning staff to ensure that off-airport impacts are acceptable and follow community planning needs and airport zoning requirements.

Obstruction Analysis

Airspace obstructions exist for Runway 16/34. The Airport Layout Plan will complete a comprehensive airspace obstruction analysis for the existing and planned future airport configuration to best determine the disposition of any airspace obstructions.

1.4. STRUCTURE OF AN AIRPORT MASTER PLAN

- Existing airport inventory
- Environmental overview
- Aviation activity forecasts
- Capacity and demand analysis
- Facility requirements including alternative analysis
- Implementation plan

1.5. PUBLIC & AGENCY OUTREACH

Outreach is an important part of the Airport Master Plan process to solicit input and foster support for the vision of the airport over the next 20 years. The Airport Master Plan is to be used as a guide for decision makers when evaluating existing and future needs of the airport and implementing improvements. Although more detailed justification and funding of individual projects are key components before any development can occur, the Airport Master Plan recognizes the "big picture" potential of the airport and puts an overall plan in place for the future.

A Master Plan Advisory Group (MPAG) was formed to aid in the development of the Airport Master Plan. The group met five times throughout the Airport Master Plan process to provide input on the issues, needs, and development for the airport over the next 20 years. The MPAG consisted of members from the Airport Commission as well as FAA and MnDOT Aeronautics staff.

The first outreach was the user survey. The Airport Commission reached out to local businesses to attain a better understanding of their use of the airport. Several project meetings were held to discuss use at the airport, the forecasts, and potential airport alternatives.

Based on the results of the user survey and aviation forecasts, it was determined a runway extension to 4,500 feet was necessary to accommodate the existing and future needs of the users of the airport. As runway extension alternatives were developed, the MPAG members determined the impacts being analyzed were impacting other communities which warranted the inclusion of members from Hawley and Cromwell Townships, as well as Clay County staff. The group discussed roadway alternatives in association with the runway extension.

After the inventory, forecast, and alternatives portions of the Airport Master Plan were developed, a public open house was held to inform the public of the 20 year plan for airport. Approximately 23 people from the surrounding communities were in attendance. A formal presentation on the Airport Master Plan process was given in addition to an opportunity for all in attendance to ask questions about the project or the airport in general. The public was concerned about the roadway alternatives associated with the runway extension. The final preferred alternative was developed in conjunction with the comments from the open house.

A final MPAG meeting will be held to select the preferred alternatives to be used for the Airport Layout Plan and review the implementation chapter. The final Airport Master Plan was developed based on the support, comments, ideas, and suggestions from all members of the MPAG and is supported by those involved in the process.

2. AIRPORT INVENTORY

The existing facilities and conditions at the airport provide the baseline for comparison to the improvements determined necessary to implement future safety and capacity airport improvements. This will result in a plan for the future development of the airport. Collection of both on-airport and off-airport background information is important so the development of the future facilities can be accomplished in partnership with the surrounding community.

2.1. LOCATION

Hawley is located approximately 20 miles east of Moorhead in Clay County, Minnesota. The City is located along the Buffalo River, U.S. Highway 10, and the Burlington Northern Railroad. **Figure 2-1**, at the end of this chapter, shows the regional location of Hawley.

The Hawley Municipal Airport (FAA identifier: 04Y) is located west of City limits at the U.S. Highway 10 and 215th Street North intersection. The main airport access road is located along 215th Street North. The airport property is located in Hawley Township. **Figure 2-2** at the end of this chapter, shows the local airport location.

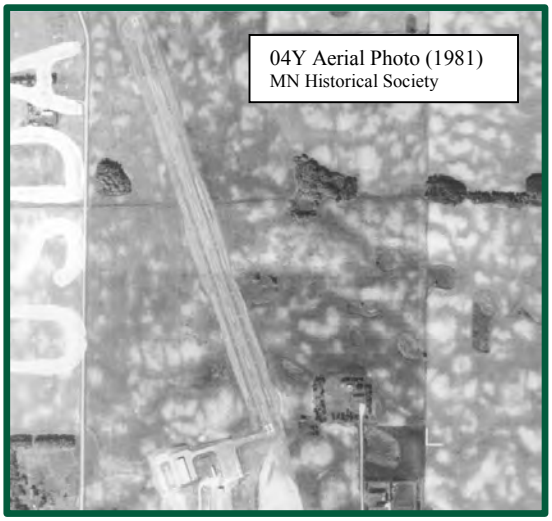
Airport property consists of 102 acres, owned and operated by the airport sponsor, the City of Hawley. Field elevation for the airport is 1,208 feet above mean sea level (MSL). The airport's official location is defined by the Airport Reference Point (ARP), which marks the center area of the useable runways at the airport. The ARP for 04Y is N 46°53'01.63", W 96°21'02.19".

2.2. HISTORY

The Hawley Municipal Airport is a public use airport constructed in the early 1970's and dedicated on June 1, 1975. The airport consisted of one main, paved north-south runway (originally Runway 15/33). Some of the major milestones in the history of the airport's development are documented below:

1971:	Acquisition of land and construction of a landing strip
1972:	Pave runway and install lights
1973:	T-Hangar construction
1975:	Arrival/Departure (A/D) building construction
1978:	Seal coat, land acquisition and hangar site preperation
1990:	Bituminous overlay and reconstruction

1993:	Asphalt crack repair, sealcoat and airport signing
1995:	Fuel tank replacement and installation of pilot controlled lighting equipment
2001:	Beacon replacement
2005:	Runway overlay
2006:	Replaced fuel pump and card reader
2008:	Replaced A/D building



2.3. SURROUNDING DEVELOPMENT

The City of Hawley is located in an agricultural area with rolling hills in west central Minnesota. The City is adjacent to the Red River Valley with gradually rising terrain to the east. Numerous lakes and wetlands make up the landscape as well.

04Y is predominately surrounded by agricultural land uses. A few rural residential properties are located near the airport. U.S. Highway 10 is south of the airport, 15th Avenue North is to the north, 215th Street North is to the west and the City of Hawley is to the east. In the area surrounding the airport, the comprehensive plan for the City of Hawley identifies commercial development along U.S Highway 10 and residential development west of City limits.

Clay County has land use authority within Cromwell and Hawley Townships. The area surrounding the airport is zoned for agricultural preservation. A landing field overlay zoning has been enacted to protect the airport from incompatible land uses.

2.4. SOCIOECONOMIC

Socioeconomic information provides background on area population, employment, and income. These measures indirectly identify trends in the airport service area which may contribute to changes in airport activity. Long-term, steady growth of population, employment, and personal income in the airport service area is generally an indication of a healthy local economy and increased aviation demands.

2.4.1. POPULATION

The City of Hawley has seen an increasing population growth of 24% since 1990 (or 1.2% per year). The proximity to the Fargo-Moorhead metropolitan area and access to U.S. Highway 10 have been identified as major reasons for increasing development and population in the City of Hawley. Clay County has also seen strong population growth of 17% since 1990 (see **Table 2-1**). Increasing population trends are expected to continue.

Table 2-1
Local and Regional Existing and Forecasted Population

Year	City of Hawley	Clay County
1990	1,665	50,422
2000	1,882	51,229
2010	2,067	58,999
2020	2,308	63,020
2030	2,529	66,910
Historical Trend (Yearly)	**24.14%** (1.09%)	**17.01%** (0.79%)
Forecast Trend (Yearly)	**22.35%** (1.01%)	**13.41%** (0.63%)

Source: U.S. Census Bureau, Minnesota State Demographic Center

2.4.2. EMPLOYMENT

Employment is another socioeconomic measure of the vitality of a regional economy and associated demand for aviation. The largest employment sectors in Clay County include: manufacturing, wholesale, retail, health care, arts/entertainment, and accommodation or food service. The unemployment rate for the City of Hawley at the time of the 2010 U.S. Census was 4.2%, which is lower than the United States average of 7.8%. Employment is anticipated to continue to grow consistent with the projected population growth referenced above. Additional discussion on the growing employment rate and economic development within the City of Hawley can be found in **Chapter 3.0**, Aviation Forecasts.

2.4.3. INCOME

Income is another socioeconomic measurement tool which can provide assumptions into new businesses and development. Generally, higher income levels translate to greater demand for aviation activities.

Using 2011 U.S. Census Bureau data, median household income for Clay County is $52,108 which is lower than the state average of $58,476 and the United States average of $52,763. Minnesota has a per capita personal income of $30,310 compared to $27,915 in the United States. Clay County, defined as the airport service area, has a per capita personal income of $23,771.

Although the numbers for Clay County are lower than the average for both Minnesota and the United States, the economic growth occurring in North Dakota has had an effect on northwestern Minnesota and the City of Hawley over the last couple of years.

2.5. AIRPORT ROLE

2.5.1. FEDERAL NPIAS

The National Plan of Integrated Airport Systems (NPIAS) is made up of 3,330 airports that are open for public use. These airports are considered significant to the national air transportation system and are eligible for Federal funding. Airports within the NPIAS are classified as commercial service (primary, non-primary), cargo service, reliever airports, or other general aviation airports.

The Hawley Municipal Airport is classified by the Federal Aviation Administration (FAA) as a general aviation airport. Over 2,900 airports are classified as general aviation airports nationwide. General aviation airports economically support local businesses, provide critical community access, allow for

emergency response, and provide other specific aviation functions. In 2012, a study was completed by the FAA in an effort to classify general aviation facilities titled General Aviation Airports: A National Asset. These airports have been further broken down by the FAA as national, regional, local, or basic facilities within the NPIAS system. 04Y is classified as local general aviation airport. There are 1,236 local general aviation airports in the national system.

> **Local** – These airports are typically located near larger population centers, but not necessarily in metropolitan or micropolitan areas. Most of the flying is by piston aircraft in support of business and personal needs. In addition, these airports typically accommodate flight training, emergency services, and charter passenger service. The flying tends to be within a state or immediate region.

2.5.2. STATE SYSTEM PLAN

Each state is responsible for developing a more detailed system plan with development objectives. MnDOT Office of Aeronautics (MnDOT) classifies airports as key airports, intermediate airports or landing strips. 04Y is classified as an Intermediate airport in the 2012 Minnesota State Aviation System Plan (SASP).

> **Intermediate Airport** – These airports have paved and lighted primary runways that are less than 5,000 feet long. Intermediate Airports can accommodate all single engine aircraft, some multi-engine aircraft, and some corporate jets. There are 83 intermediate airports in Minnesota.

The SASP identifies projected airport development facility needs for each airport based on its classification. The SASP has identified the following anticipated needs for 04Y: apron expansion, enhanced non-precision instrument procedure with vertical guidance, and additional automobile parking. Facility requirements will be discussed in further detail in **Chapter 4.0**.

2.6. AIRPORT MANAGEMENT

The Hawley Municipal Airport is owned and operated by the City of Hawley, the airport sponsor. The City Clerk/Treasurer is in charge of managing the airport. The City of Hawley completes airport maintenance activities including snow removal, grass mowing, building maintenance, pavement repairs, and overall maintenance on the airfield. The Hawley City Council in consultation with the Airport Commission makes decisions on the management, budgeting, operations, maintenance, and development needs at 04Y.

2.7. AVIATION ACTIVITY

Aviation activity provides measurement of the number and type of based aircraft and operations at an airport facility.

2.7.1. BASED AIRCRAFT

Based aircraft are aircraft that are stored at an airport for the majority of the year. They are typically classified by type of aircraft, including single and multi-engine piston aircraft, jet, and ultralight aircraft. Sources of historical and current based aircraft data include the FAA Terminal Area Forecast (TAF), Airport 5010 Master Record, Minnesota SASP, as well as local verified records and counts. The FAA TAF does not break down the total number of based aircraft by aircraft type.

Table 2-2 shows current based aircraft estimates from existing sources. The number of based aircraft ranges from 13 to 33.

Table 2-2
Based Aircraft – Existing Sources

Source	Single-Engine	Multi-Engine	Jets	Other	Total
FAA TAF	N/A	N/A	N/A	N/A	13
FAA 5010 Report	28	2	0	0	30
SASP (2010)	26	1	0	4	31
MnDOT Aeronautics Aircraft Registration (2013)	16	0	0	0	16
Local Count (2013)	29	0	0	4	33

Source: FAA, MnDOT Office of Aeronautics, City of Hawley
N/A = Not Available

Based on field inventory conducted by the City of Hawley in 2013, the confirmed number of based aircraft at 04Y is 33, this includes 29 single-engine aircraft and four other aircraft including gliders and experimental aircraft. Four people are on a waiting list to base their aircraft at the airport.

2.7.2. AIRCRAFT OPERATIONS

An operation is classified as either a takeoff or a landing. Touch and go training operations count as two operations. Airport operations are typically split into local and itinerant operations. Local operations are defined in the FAA's *Forecasting Activity by Airport* as "aircraft operating in the traffic pattern or aircraft known to be departing or arriving from flight in local practice areas, or aircraft executing practice instrument approaches at the airport." Itinerant operations are "aircraft operations other than local operations." Aircraft operations are also categorized by the use of the aircraft operating at the airport. Examples of this include commercial, general aviation, and military operations. Sources of historical and current airport operational data include the FAA TAF, Airport 5010 Master Record, and the Minnesota SASP.

Table 2-3 lists the current airport operations estimates from existing sources. There are approximately 8,600 operations per year.

Table 2-3
Annual Operations – Existing Sources

Source	Itinerant Operations				Local Operations		Total
	Air Carrier	Commercial	General Aviation	Military	General Aviation	Military	
FAA TAF	0	0	4,000	0	4,600	0	8,600
FAA 5010 Report	0	0	4,000	30	4,600	0	8,600
SASP (2010)	N/A	N/A	3,956	N/A	4,644	0	8,600

Source: FAA, MnDOT Office of Aeronautics
N/A = Not Available

The FAA TAF projects annual operations will grow an average of 1.1% annually through 2040 and the SASP forecasted a 2.0% annual growth rate through 2030.

2.8. AIRPORT DESIGN STANDARDS

FAA airport design standards are based on two key components. The first component is based on the critical aircraft family currently using the airport or proposed to use the airport at least 250 times (500 operations) per year within the next five years. The second component is based on the type of approach developed for each runway end. Both the critical aircraft and the approach type are discussed in the next two sections to determine the design standards to be followed when planning future development at 04Y.

2.8.1. CRITICAL DESIGN AIRCRAFT

Airport Reference Code (ARC)
Development of the existing and future facilities at an airport relies upon the identification of the most demanding aircraft type currently utilizing or projected to utilize the airport. The FAA defines the critical aircraft as an aircraft or a family of aircraft that is expected to conduct at least 500 annual itinerant operations at the airport (one takeoff and one landing is considered two operations).

The Airport Reference Code (ARC) translates the operational and physical characteristics of the critical design aircraft intended to operate at the airport to FAA airport design criteria. The ARC is based on three components which include approach speed, wingspan, and tail height. The approach speeds are divided into four categories and are defined in **Table 2-4**. The wingspan and tail heights are divided into six Airport Design Groups (ADG) and are defined in **Table 2-5**.

Table 2-4
FAA Aircraft Approach Category

Category	Approach Speed (knots)	Example Aircraft Type
A	< 91	Cessna 172, Piper Warrior
B	91 - < 121	Beech King Air, Cessna Citation I & II
C	121 - < 141	Learjet 35, Gulfstream 550, B-737
D	141 - < 166	B-757, B-747, B-777

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

Table 2-5
FAA Aircraft Design Group (ADG)

Group	Wingspan (feet)	Tail Height (feet)	Example Aircraft Type
I	< 49	< 20	Beech Baron 58, Cessna 172
II	49 - < 79	20 - < 30	Beech King Air, Cessna Citation Series
III	79 - < 118	30 - < 45	B-737, DC-9, CRJ-900
IV	118 - < 171	45 - < 60	A-300, B-757, B-767
V	171 - < 197	60 - < 66	B-747, B-777
VI	197 - < 262	66 - < 80	Lockheed C-5A, A-380

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

According to FAA AC 150/5300-13A, *Airport Design*, the ARC does not restrict the type of aircraft that can safely use the airport; the ARC is for planning and design purposes only. The existing ARC for the runway at 04Y is A-I.

Approach Reference Code (APRC) & Departure Reference Code (DPRC)

An Approach Reference Code (APRC) system is used to determine the current operational capabilities of a runway and associated parallel taxiway with regard to landing operations. An APRC identifies the operational capabilities of a runway using the ARC (aircraft approach category, airplane design group) with planned runway approach visibility minimums to establish design standards. Visibility minimums are expressed in Runway Visual Range (RVR) values, in feet, as defined in **Table 2-6**.

The Departure Reference Code (DPRC) describes the current operational capabilities of a runway and associated parallel taxiway with regard to takeoff operations. It is similar to the APRC and is composed of the airport approach category and the airplane design group, however, not visibility minimums. In addition, a runway may have more than one DPRC designation.

Table 2-6
Runway Visual Range (RVR) values

RVR (feet)	Approach Type	Visibility Minimums
VIS	Visual – no instrument approach	Not applicable
5000	Non-Precision Approach or Approach with Vertical Guidance	No lower than 1 mile
4000	Approach with Vertical Guidance	Lower than 1 mile but not lower than ¾ mile
2400	Precision Approach (Category I)	Lower than ¾ mile but not lower than ½ mile
1600	Precision Approach (Category II)	Lower than ½ mile but not lower than ¼ mile
1200	Precision Approach (Category III)	Lower than ¼ mile

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

The existing APRC for Runway 16 is A-I-VIS, and the APRC for Runway 34 is A-I-5000. The DPRC for Runway 16/34 is B-I. Both the APRC and DPRC may change over time as improvements are made to each runway end, such as lower visibility minimums obtained.

Runway Design Code (RDC)

The Runway Design Code (RDC) signifies the design standards to which the runway is to be built. The RDC is composed of the same three components as the APRC. However, the RDC is based on planned development for each runway and does not have any operational application for the current runway configuration as with the APRC and the DPRC. The RDC will be discussed in greater detail at the end of **Chapter 3.0** to determine the runway design standards to be used for the critical aircraft proposed to use the airport over the next 20 years.

2.8.2. APPROACH TYPES

Instrument approach procedures provide arriving pilots with guidance to the airport runway environment during periods of low visibility. FAA publishes instrument approach procedures defining the horizontal and vertical flight path to land at an airport. Flight visibility and cloud ceiling height minimums are established for each instrument approach procedure based on available navigational aids, airspace obstructions, aircraft equipment, and pilot certification. Weather minimums change as the approach speed of an aircraft increases. Visual approaches to a runway have no instrument approach procedure nor do they require additional equipment in the aircraft or on the ground. There are three types of instrument approaches:

- Non-Precision Approach – A standard instrument approach procedure with horizontal guidance but no vertical descent guidance. Types of non-precision approaches include localizer, RNAV/GPS (area navigation/global positioning system), RNAV/RNP (area navigation/required navigation), NDB (non-directional beacon), and VOR/TVOR (very high frequency omni-directional range/terminal very high frequency omni-directional range). These type of approaches require additional equipment in the aircraft but no additional ground-based equipment is needed.

- Approach with Vertical Guidance – An instrument approach procedure providing electronic course and vertical descent guidance. These approaches usually require additional aircraft equipment. These approaches can utilize ground-based navigational aids such as a glide slope or can be accomplished with only a satellite based navigational aid such as a Localizer Performance with Vertical Guidance (LPV).

- Precision Approach – An instrument approach procedure with both vertical descent guidance and horizontal guidance to the runway. These type of approaches utilize ground based equipment such as an Instrument Landing System (ILS).

Currently Runway 16/34 has an RNAV (GPS) approach to the Runway 34 end. The non-precision approach has one-mile visibility minimums. In addition there is a VOR approach to the airport with one-mile visibility minimums. The Runway 16 end has a visual approach.

The nearest precision approach is available at the Hector International Airport (FAR) located 19 miles west of 04Y in Fargo, North Dakota. An ILS approach procedure is available on both ends of Runway 18/36. The approach minimums are 200 foot cloud ceiling and ½ mile visibility. This approach is a good alternate if weather conditions are below instrument approach minimums at 04Y. This occurs 4.98% of the time based on weather data from Detroit Lakes.

2.9. CLIMATE

Climate considerations for airport planning include wind, temperature, precipitation, cloud cover and visibility. West central Minnesota, including the City of Hawley, experiences a humid continental climate characterized by large seasonal temperature differences. This climate experiences frigid winters and warm summers. Precipitation is generally distributed year-round.

Wind data is important as it helps define runway characteristics at an airport. Aircraft are designed to take off and land into the wind. Crosswinds and tailwinds can create a hazardous situation for pilots, particularly those flying smaller aircraft. Wind data defines prevailing winds and crosswind components at the airport.

The National Climatic Data Center in Ashville, North Carolina collects wind data through an Automated Weather Observation System (AWOS) at the airport. The FAA recommends ten years of wind data be collected at the airport site or the closest airport site where data is available. An AWOS does not exist at 04Y. The closest observation station is at the Moorhead Municipal Airport (JKJ) which is 13 nautical miles west of 04Y; however, at the time of the wind analysis, there was not ten years of data available at JKJ. Therefore, the closest station with ten years of historical data was the Detroit Lakes Municipal Airport (DTL), 19 nautical miles to the east. The DTL data used includes hourly wind direction and speed observations for the period from January 1, 2003 through December 31, 2012.

The existing wind coverage for the runway at 04Y is summarized in **Table 2-7**. The FAA recommends a particular runway orientation provide 95 percent wind coverage. When this is not achieved, a crosswind runway may be needed. The allowable crosswind component per Runway Design Code (RDC) is 10.5 knots for RDC A-I and B-I, **13 knots for RDC A-II and B-II**, 16 knots for RDC A-III, B-III, C-I through C-III, and D-I through D-III, and 20 knots for RDC A-IV and B-IV, C-IV through C-VI, D-IV through D-VI, and E-I through E-VI.

Table 2-7
All-Weather Wind Coverage

Wind Data from the Detroit Lakes AWOS		
Runway	Crosswind Component	
	10.5 knots	13.0 knots
16/34	95.02%	97.85%

Source: National Climatic Data Center for Detroit Lakes, MN (2003-2012)

Since the beginning of the research for the Airport Master Plan inventory, the AWOS at JKJ reached ten years of wind data. Therefore, a comparison analysis was done based on data from JKJ. The wind coverage is shown in **Table 2-8**.

Table 2-8
All-Weather Wind Coverage

Wind Data from the Moorhead AWOS		
Runway	Crosswind Component	
	10.5 knots	13.0 knots
16/34	94.99%	97.47%

Source: National Climatic Data Center for Moorhead, MN (2004 – 2013)

The data from both AWOS locations is similar. The primary runway at 04Y meets the FAA recommended 95 percent wind coverage for B-II aircraft and also for smaller A-I aircraft.

Temperature is important in determining airfield facility requirements because it is a critical factor in calculating required runway length. Warm temperatures cause the air to become less dense, thus requiring aircraft to use longer runway lengths for takeoff. Precipitation also causes contamination of the runway

leading to longer required runway lengths. Cloud cover and visibility influence the need for navigational aids and approach procedures to runways.

The mean maximum temperature in the hottest month (July) for the City of Hawley is 82 degrees Fahrenheit. The average total annual precipitation is 24.8 inches, with a maximum of 4.1 inches in June. The average annual snowfall is 41.7 inches occurring between October and April.

2.10. AIRSIDE FACILITIES

The existing airside facilities are defined as airport features that support aircraft operations. These include runways, taxiways, aprons, navigational aids, and visual aids. **Figure 2-3** at the end of this chapter depicts the existing facilities at the airport.

2.10.1. RUNWAYS

Runway 16/34

The primary runway at the airport, Runway 16/34, is 3,398 feet in length, 75 feet in width, and is a paved bituminous surface. Runway 16/34 is marked with non-precision runway markings delineating the centerline and threshold location for each runway end. The runway is lit with Medium Intensity Runway Lights (MIRLs) for better visibility of the pavement edge during night operations or times of inclement weather. The runway accommodates a GPS non-precision instrument approach to Runway 34. The runway is relatively flat with an effective gradient, (a measure of elevation change), of 0.4%. The published pavement strength is 12,500 pounds or less in a single-wheel landing gear configuration. A runway with this pavement strength is considered a utility runway.

The runway is designed to B-II-5000 standards. This signifies the current operational capability of accommodating aircraft with approach speeds up to 121 knots, wingspans up to 79 feet, and runway approaches as low as one mile visibility.

2.10.2. AIRPORT VISUAL AIDS

Airport visual aids are important features that provide airport visual references to pilots, especially during low visibility or night operations. The following is a summary of the visual aids available at 04Y.

Rotating Beacon: A rotating beacon identifies the location of an airport facility to pilots in the air. Most civilian general aviation airports alternate white and green lights from dusk until dawn, and during instrument flight rules (IFR) conditions during the day. The rotating beacon is located near the airport access road on airport property (see **Figure 2-3**). The beacon was replaced in 2001 and is in good condition. A picture of the rotating beacon is located on the right hand side of this page.

Runway Edge and Threshold Lighting: Runway edge and threshold lights are installed to outline the edges of runways and its ends in low-light and restricted visibility conditions. White lights identify the runway edge, while red/green lights identify the runway threshold at each end. Runway lighting systems

have three different intensity levels; low, medium, and high depending on the classification of the runway. 04Y has Medium Intensity Runway Lights (MIRL) installed along Runway 16/34. The runway is lit from dusk until dawn. The lights are stake-mounted and in fair condition.

Taxiway Edge Lighting/Marking: Taxiway edge lights or markers outline the edges of taxiways. Taxiway lights are blue and have the same intensity systems available as runway lights. Retro-reflective markers, using reflective blue tape mounted on a pole, may be used in lieu of taxiway lighting as a low cost alternative. 04Y has taxiway edge lighting installed along the connecting taxiway leading to the apron. A picture of a taxiway light is located on the right hand side of this page.

Runway Markings: Runway markings are installed for visual identification of a paved runway during all weather conditions. Markings vary in complexity based on the type of approach for a runway; visual, non-precision instrument, and precision instrument. Runway 16/34 at 04Y has non-precision runway markings delineating the runway centerline and threshold. The runway markings are in good condition.

Guidance Signs: Guidance signs provide location, direction, and guidance information to pilots. Mandatory signs are to be placed at intersections with runways to indicate critical holding areas. Guidance signs have been installed at 04Y and are in good condition. A picture of a guidance sign is located on the right hand side of this page.

Runway End Identifier Lights (REILs): REILs are installed to provide rapid and positive identification of the approach end of a runway during night and low visibility conditions. REILs consist of two synchronized flashing white strobe lights, located laterally on each side of the runway facing the approach path. 04Y does not have REILs installed at either end of Runway 16/34.

Visual Glide Slope Indicators (VGSI): VGSI provide vertical guidance to the runway to ensure the proper glide path is maintained for landing. Short Approach Visual Approach Slope Indicator (SVASI), Visual Approach Slope Indicator (VASI), and Precision Approach Path Indicator (PAPI) lights are types of visual aids installed to provide guidance information. 04Y has 2-light PAPIs installed for Runway 16/34 (see **Figure 2-3**).

2.10.3. NAVIGATIONAL AIDS

Instrument navigation aids are satellite or ground based equipment established to provide pilots with critical guidance information to the airport environment. With the proper equipment and procedures developed, pilots can use the instrument navigational aids for horizontal and/or vertical guidance to a waypoint or a runway. Instrument-based navigation, including approaches to airport runways, is required for flight in Instrument Meteorological Conditions (IMC). These navigational aids include:

Very-high frequency Omni-directional Range (VOR): Ground-based facilities that provide distance and radial information used for non-precision en-route and terminal navigation. A VOR station is located 10 miles south of Hector International Airport in Fargo, North Dakota. This facility also has Distance Measuring Equipment (DME) to provide distance information to pilots.

Instrument Landing System (ILS): Ground-based facilities (localizer antenna, glide slope antenna, approach lighting system) that provide distance, horizontal and vertical guidance information to capable airport runways. The closest ILS capable runway is at Hector International Airport in Fargo, North Dakota, 19 nautical miles west of 04Y.

Global Positioning System (GPS): Equipment and satellites that enable pilots to navigate to a waypoint without the need for ground-based equipment. GPS provides horizontal guidance, but can also provide vertical guidance for instrument approaches with published procedures. GPS with vertical guidance is called a Localizer Performance with Vertical Guidance (LPV) procedure. A straight-in GPS approach procedure to Runway 34 end has been developed at 04Y. This procedure does not have LPV capability. A straight-in GPS approach to Runway 16 has not been developed. The nearest LPV-capable runway is at the Moorhead Municipal Airport (JKJ) with weather minimums of 250 feet and 7/8 mile visibility.

2.10.4. METEOROLOGICAL FACILITIES

Timely weather information is important to the safety of aircraft operations. Pilots can locally obtain weather information from the following sources:

Wind Cone: The wind cone is used to indicate wind direction at 04Y. The wind cone is located east of Runway 16/34 towards the middle of the runway (see **Figure 2-3**). The wind cone is visible to pilots from either runway end. A picture of the wind cone is located on the right hand side of the page.

Automated Weather Observation System (AWOS): An AWOS measures critical meteorological data on-site at airports including wind speed, wind direction, temperature, dew point, cloud coverage and ceiling, visibility, precipitation, and barometric pressure. 04Y does not have an AWOS facility on site. Both Moorhead Municipal Airport and Detroit Lakes Airport-Wething Field have an AWOS.

2.10.5. TAXIWAYS AND TAXILANES

A taxiway system at an airport provides access to and from the runways, aircraft apron, and hangar facilities. Taxiways are constructed for safety purposes to expedite the flow of departing and arriving aircraft from the runway. A taxiway system consists of parallel taxiways and/or connecting taxiways.

There is no parallel taxiway for Runway 16/34. There is a connector taxiway which connects the Runway 34 end to the building area (see **Figure 2-3**).

A turnaround on the Runway 16 end allows aircraft to turn around and taxi back to the building area. This turnaround is too small and is not capable of holding aircraft at a safe distance from the runway while other aircraft are on the runway. This airfield configuration will be evaluated in **Chapter 4.0** to determine the appropriate solution.

Taxilanes are used within the building area to provide access from the apron to the hangars. There are three taxilanes providing access to the existing T-hangars at 04Y.

2.10.6. APRON

The aircraft apron provides an area for aircraft parking, aircraft storage, aircraft movements, fueling operations, and access to the arrival/departure building and other hangars. The existing apron is approximately 5,650 square yards and is located to the southwest of the runway (see **Figure 2-3**). The apron was constructed in 2010 and is in excellent condition. There are five in-pavement tie-downs available for aircraft parking.

2.10.7. PAVEMENT CONDITION

In order to continue to receive federal funding, all airports must implement a pavement maintenance program for any pavement constructed or repaired with federal money. MnDOT Office of Aeronautics helps airports with this grant assurance by having a research company prepare pavement evaluation reports. All airports within Minnesota are evaluated on a three year cycle. An evaluation update was completed for 04Y in 2011. The evaluation report identifies the Pavement Condition Index (PCI) for each pavement section at the airport. The rating is used to identify pavement improvement needs based on FAA AC 150/5380-6B, *Guidelines and Procedures for Maintenance of Airport Pavements,* and American Society for Testing and Materials (ASTM) D5340. The pavement ratings are shown in **Table 2-9**.

Table 2-9
Pavement Condition Index (PCI) Ratings

Rating	PCI Rating	Work Repair Levels
Excellent	86 – 100	Preventive Maintenance
Very Good	71 – 85	
Good	56 – 70	Major Rehabilitation
Fair	41 – 55	
Poor	26 – 40	Reconstruction
Very Poor	11 – 25	
Failed	0 – 10	

Source: Minnesota Airport System Pavement Evaluation 2011 Update for 04Y

Periodic pavement rehabilitation projects have been completed at the airport in recent years. **Table 2-10** summarizes the PCI rating for each major pavement section at 04Y. These areas are graphically represented in **Figure 2-4** at the end of this chapter.

Table 2-10
Pavement Condition

Pavement Area	Last Construction Date(s)	2011 PCI	Drop in PCI/year*
Runway 16/34	2004	70	4.3
Apron	2010	93	7
Connecting Taxiway	2010	96	4
Taxilane (Original Hangar Area/A/D building)	1973	45	1.4
Taxilane (North Hangar Area)	2010	96	4
Taxilane (South Hangar Area)	2010	100	0
Taxilane (Hangar Area)	2010	100	0

Source: 04Y Pavement Evaluation Report (2011), MnDOT Aeronautics
*Drop in PCI in three year period from 2008 to 2011

The pavement at 04Y ranges from excellent to fair condition. The original hangar on the south end of the building area and the pavement near the A/D building are in the poorest condition. These areas will require major rehabilitation and possibly reconstruction in the near-term.

2.11. LANDSIDE FACILITIES

2.11.1. ARRIVAL/DEPARTURE (A/D) BUILDING

An Arrival/Departure (A/D) building is utilized at a general aviation airport to provide an area for local and transient pilots and passengers to transition to and from the aircraft operations area. The A/D building at 04Y was constructed in 2008 (see the picture located on the right hand side of this page). The facility is approximately 620 square feet and includes a restroom, conference table, office, and lounge space for local and transient pilots, and computer access for flight planning. The building is located in close proximity to the hangar and apron area. (See **Figure 2-5**, at the end of this chapter, for a detailed layout of the building area).

2.11.2. AUTOMOBILE ACCESS & PARKING

Access to the airport is available from 215th Street North. The access road is a bituminous surface and is owned by the airport. Two non-aeronautical businesses utilize the access road, and help fund maintenance of the road. There is no controlled access to the airport.

The airport has 10 automobile parking spaces in immediate proximity to the A/D building. The parking lot is commonly used by airport business employees, visitors, and transient passengers. Airport tenants commonly park their vehicles adjacent to their aircraft storage hangar (see **Figure 2-5**).

2.11.3. AIRCRAFT STORAGE

Aircraft storage hangars provide indoor storage for aircraft and aircraft tie-downs provide outdoor storage. Hangar facilities at 04Y are located west of the runway and apron area. There are four 8-unit T-hangars at 04Y. In 1986 the airport constructed a 4-unit carousel hangar. Currently there are four people on a waiting list to rent hangar space.

Through-the-Fence

The City of Hawley has granted through-the-fence access to an adjoining landowner. FAA defines through-the-fence as a federally obligated, public airfield granting airfield access to a private, corporate property or property zoned for corporate or commercial use. There is an existing easement agreement from 1983 between the City of Hawley and the adjacent corporation for ingress and egress access between airport property and the corporation's property. The existing corporation does not engage in commercial aeronautical activity or have self-fuel on their property. The corporation takes care of all snow removal and maintenance of the paved access area and purchases fuel from 04Y.

2.11.4. AIRPORT FUEL SYSTEM

The City of Hawley owns and operates the airport fuel facility located on the west side of the main apron (see **Figure 2-5**). The facility includes one 3,000 gallon 100LL (100 octane low lead) aboveground fuel tank. The fuel tank was replaced in 1995. A credit card reader was installed in 2006 and allows for 24-hour self-fueling operations.

The fuel pump is currently located within the taxilane safety area for the south T-hangar which forces aircraft to taxi around the east side of the hangar instead of using the available taxilane. The pumps and

tank also provide poor visibility from the A/D building to the fueling facility, see **Figure 2-5**. A new fuel pump location will be discussed in **Chapter 4.0**.

2.11.5. FIXED BASE OPERATOR (FBO)

A common airport tenant is a fixed based operator (FBO). An FBO is a commercial business providing one or more aviation-related services to the general flying public. Examples of these services include aircraft maintenance, flight instruction, charter services, aircraft fueling, aircraft parking, and hangar storage. Currently there is no FBO at 04Y.

2.11.6. AIRPORT MAINTENANCE

The City of Hawley is responsible for monitoring the condition of the airport, completing snow removal activities, and mowing around the airfield. City staff also monitors building repair needs and the overall maintenance of the airfield.

The City of Hawley owns one piece of dedicated snow removal equipment. The piece of equipment is located off-site in downtown Hawley. The reason for storage off site is due to the proximity to fuel for the truck and the storage hangar in the City is heated. This allows for easy access for City staff to conduct snow removal operations at the airport.

2.11.7. UTILITIES & DRAINAGE

The Hawley Municipal Airport is not connected to City sewer and water and utilizes a well and septic systems. Electrical service is available at all buildings at the airport. Telephone and internet service is also available from local phone, cable, and satellite companies.

Culverts and swales divert water from the building area, runways, and taxiways to the natural discharge points of local wetlands for groundwater infiltration. No stormwater filtration basins are on-site.

2.11.8. AIRPORT PROPERTY

Airport property consists of 101.7 acres, owned in fee title by the City of Hawley. The City has also acquired 44.2 acres in easement in the approaches of the runway to protect airport airspace and land use compatibility interests. See **Figure 2-3** at the end of this chapter.

2.11.9. FENCING & SECURITY

Airport fencing is installed to deter or prevent unauthorized access by persons, vehicles, or animals onto airport property. Fencing is typically installed for wildlife protection, as well as to define airport property boundaries. The existing airport property is not fenced, and access from the parking lot to the airfield is uncontrolled.

2.12. LAND USE AND DEVELOPMENT

FAA and MnDOT Office of Aeronautics strongly recommend airport sponsors maintain airspace and land uses compatible with airport operations. Airport land use compatibility means planning and controlling land uses in and around airports to promote use and development that does not create restrictions to the airport, or hazards to persons or property on the ground and the flying public. Maintaining compatible land use is an FAA grant assurance and is driven by the design standards for the airport. Land uses should be controlled within the airport, runway protection zones, approach areas, and the general vicinity of the airport.

Minnesota State Statue Chapter 360 requires owners of public airports to enact airport land use and airspace safety zoning standards. The Minnesota Airport Land Use Compatibility Manual published in 2006 provides more background and resources on this topic.

2.12.1. LAND USE PLANS

Land uses within airport property are to be protected for aeronautical purposes. Examples include runways, hangars, and required protection areas. Protection areas can be open space or agricultural land uses where allowed. The existing airport property complies with these standards and consists of land used for aeronautical, agricultural, and drainage purposes, in addition to open space protection.

The airport access road is used by two off-airport non-aeronautical businesses prior to accessing the airport. These businesses assist the City of Hawley in the maintenance of the road.

Land uses off-airport must also be compatible with existing and future airport operations. 04Y is located north of U.S. Highway 10 outside of City limits. The land use surrounding the airport is predominately agricultural. Existing generalized land uses are shown in **Figure 2-6**, at the end of this chapter.

Both the Clay County Comprehensive Plan and the City of Hawley Comprehensive Plan identify agricultural land uses to remain adjacent to airport property. There is some development pressure for land north and south along U.S. Highway 10 for future general commercial and single family development. These types of uses may be incompatible with airport operations, airport zoning, and Runway Protection Zone (RPZ) requirements. Careful planning must be used when considering future land uses along U.S. Highway 10 near the airport.

To support compatible land uses adjacent to the airport, the Clay County Zoning Map identifies an airport landing field overlay district. This area also protects the airport from airspace obstructions within the approach surfaces. The overlay landing field zoning district applies where it is more restrictive than the agricultural designation.

The City of Hawley also adopted an Airport Zoning Ordinance in 1984 that follows state statutes and MnDOT Office of Aeronautics rules in regards to land use and height restriction zoning around an airport. The adopted 1984 zoning ordinance protects for a crosswind runway (see **Figure 2-7** at the end of this chapter). This zoning ordinance is not reflected on County and Township zoning maps and should be integrated into the County's zoning process for continued implementation.

The most significant land use constraints to any runway expansion projects are roadways. U.S. Highway 10 is approximately 800 feet south of Runway 34 and is within the RPZ. Approximately 1,200 feet north of Runway 16 is 15th Avenue. There is a small portion of the northeast corner of the Runway 16 RPZ that passes through 15th Avenue. Along the west side of the airport is 215th Street North. The need to continue to protect for a crosswind runway will be discussed in **Chapter 4.0**, Facility Requirements.

Other than roadways, there do not appear to be current incompatible land uses surrounding the airport. The closest residential development is 1/8 of a mile east of Runway 34. The closest cemetery is

approximately ¾ miles to the east and the closest park is Westgate Park approximately one mile east (see **Figure 2-8** at the end of this chapter).

2.12.2. RUNWAY PROTECTION ZONE (RPZ) & MNDOT CLEAR ZONE

FAA has established land use standards in the form of a Runway Protection Zone (RPZ). An RPZ area is designed to enhance protection of persons and property on the ground in the vicinity of the runway. An RPZ has a trapezoidal shape centered along the runway centerline and begins 200 feet beyond the end of each specially prepared hard surfaced runway. The FAA prefers the RPZ be clear of structures including roadways, and purchased in fee whenever practicable. RPZ dimensions are based on the runway design and approach types established for a runway.

According to the FAA, land uses prohibited in the RPZ include buildings, residences, and places of public assembly (i.e. churches, schools, hospitals, office buildings, shopping centers, and other uses with similar concentrations of persons). The FAA, in 2012, published interim guidance about land uses within RPZs. There are currently incompatible land uses within existing RPZs across the country. However, for future projects, if the RPZ dimensions or location change, or if there is a local development proposal through an RPZ, FAA requires the RPZ to be clear of the following land uses:

- Building and structures
- Recreational land uses
- Transportation facilities (including public roads/highways, vehicular parking facilities)
- Fuel Storage facilities
- Hazardous material storage
- Wastewater treatment facilities
- Above-ground utility infrastructure

If clearing the RPZ of the above mentioned land uses is not economically feasible or no proposed alternative is reasonable to other surrounding entities such as County or State officials, coordination with the FAA is required. An alternative analysis must be performed prior to development to avoid, at all possible, any incompatible land use development within the RPZ. The intent is to mitigate risk to people and property on the ground. **Table 2-11** lists the dimensions of the RPZs for each runway end at 04Y.

MnDOT Office of Aeronautics has developed Clear Zone standards which have similar goals as the RPZ, to protect people and property on the ground. The Clear Zone dimensions follow the sides of the approach surface and may be larger than the RPZ areas defined by FAA (see **Figure 2-9** at the end of this chapter).

MnDOT requires the Clear Zone to be acquired in fee to continue to receive airport development funding. Similar to the RPZ, dimensions for the Clear Zones are defined by runway classification, instrument approach type, and instrument approach minimums. **Table 2-11** lists the existing MnDOT Clear Zone dimensions at 04Y.

Table 2-11
FAA RPZ & MnDOT Clear Zone Dimensions

Runway	RPZ Dimensions (Inner width x length x outer width)	Clear Zone Dimensions (Inner width x length x outer width)
16	500’ x 1,000’ x 700’	500’ x 1,000’ x 650’
34	500’ x 1,000’ x 700’	500’ x 1,000’ x 800’

Source: FAA AC/150 5300-13A, *Airport Design;* MnDOT Office of Aeronautics, Planning & Zoning (2006)

The City of Hawley owns the majority of the Runway 16 RPZ and Clear Zone in fee. A small flare on each side of the RPZ is not currently owned as represented in **Figure 2-9**. The City also owns half of the

Runway 34 RPZ and Clear Zone in fee. In addition to fee, the City owns air avigation easements over portions of the approach to each runway end. This allows for airspace protection and restricts the height of objects in these areas (see **Figure 2-9**). Due to the close proximity of 15th Avenue and U.S. Highway 10, additional analysis will need to be completed and evaluated prior to any runway expansion project.

2.12.3. STATE AIRPORT ZONING

The State of Minnesota under Minnesota Statute Chapter 360 requires public airports to enact an overlay airport zoning ordinance to:

- Protect the airport from incompatible land uses that could interfere with the safe operation of the airport.
- Protect public safety by reducing the potential for fatalities, property damage, or noise complaints within the vicinity of the airport.
- Protect the public investment made by taxpayers in the airport and maintain the economic benefits it provides to the region.

MnDOT airport zoning requirements are defined below:

- Safety Zone A extends outward from the end of the primary surface on the extended runway centerline a distance equal to two-thirds of the runway length or planned runway length. This zone does not allow buildings, temporary structures, uses that create wildlife hazards, or similar land use structural hazards and should be restricted from uses that would create, attract, or bring together an assembly of people. Typical allowed land uses in Safety Zone A include agriculture, cemetery, and automobile parking.
- Safety Zone B extends farther outward from Safety Zone A, a distance equal to one-third the runway length or the planned runway length. This safety zone allows buildings on sites that encompass three or more acres; actual allowable building site area depends on the size of the parcel. Safety Zone B should not create, attract, or bring together an assembly of people that would exceed 15 times the size of the parcel. Safety Zone B cannot have more than one building plot area on which numerous structures can be constructed.
- Safety Zone C encompasses all of the land enclosed within the perimeter of the FAA horizontal surface that is not included in Safety Zone A or Safety Zone B. Safety Zone C shall not contain land uses that create or cause interference with the operation of radio or electronic communications between the airport and aircraft, make it difficult for pilots to distinguish between airport lights and other lights, result in glare, impair visibility of the airport vicinity, or endanger aircraft operations.

A multi-jurisdictional Hawley Municipal Airport Zoning Ordinance was adopted in 1984 by the Hawley Municipal Airport Zoning Board consisting of representatives from the City of Hawley, Clay County, Cromwell Township and Hawley Township pursuant to the provisions and authority of Minnesota Statutes 360.063. The Airport Zoning Ordinance was enacted to project for the future airport configuration to meet minimum State standards. The Zoning Ordinance plans for a 302-foot runway extension to the north. The multi-jurisdictional zoning ordinance is administered by the City of Hawley and Clay County. **Figure 2-7**, at the end of this chapter, shows the existing zoning at 04Y.

2.13. ENVIRONMENTAL OVERVIEW

The purpose of this section is to provide a general overview of environmental features which should be considered in the future development of the airport. The intent is not to perform detailed analysis, but rather to assemble readily available information. More comprehensive environmental analysis will be

performed during the National Environmental Policy Act (NEPA) process when a future project becomes justified and triggers this type of review.

Following FAA guidance, the discussion of existing environmental conditions and considerations are provided in the following sections. **Figure 2-8, 2-10, and 2-11**, at the end of this chapter, depict important environmental considerations in and around 04Y.

2.13.1. AIR QUALITY CLASSIFICATION

The Clean Air Act (CAA) established National Ambient Air Quality Standards (NAAQS) for six pollutants (particulate matter, ground-level ozone, carbon monoxide, sulfur oxides, nitrogen oxides, and lead) termed "criteria pollutants." They are called "criteria" air pollutants because the Environmental Protection Agency sets human health-based and environmentally-based criteria for setting limits on the amounts of these pollutants that are permissible in the ambient air. Primary standards are human health-based and secondary standards are environmentally-based, having to do with prevention from damage to crops, animals, vegetation, and buildings. There are no non-attainment areas in Clay County. General conformity regulations do not apply to a Federal action in an area that is designated attainment for all six criteria pollutants.

2.13.2. AQUATIC CONCERNS

Airport Drainage

Drainage from the airport is via overland flow. Runway drainage is generally south to landlocked wetland areas on the west and east sides of the runway. Much of the building area of the airport drains to low wetland area directly southwest of the western-most hangar. The grassed area directly south of Runway 34 drains to the U.S. Highway 10 ditch system. As discussed under the Soils heading below, the soils in the area are well drained. Given the drainage patters summarized above, and the well-drained soils, a relatively small percentage of the airport runoff leaves airport property.

Rivers

The closest river to the airport is the Buffalo River (see **Figure 2-8**). At its closest point, the Buffalo Highway 10 and the City of Hawley. The Buffalo River has been classified as an Impaired Water by the Minnesota Pollution Control Agency. This elevates the water quality treatment requirements for new impervious surfaces of one acre or greater at the airport. This should not be a factor for airport projects due to the fact that little airport drainage travels far from airport property and it would not reach the Buffalo River.

Wetlands

The National Wetland Inventory (NWI) wetlands on and in the vicinity of airport property are depicted on **Figure 2-10.** There are a number of landlocked wetland habitats on the sides of the runway as well as one southwest of the building River is approximately 1.6 miles east-southeast of the airport. It is separated from the airport by U.S.

area. These areas receive most of the drainage from the airport pervious and impervious surfaces after overland flow.

The Clean Water Act affords protection for wetlands by the U.S. Army Corps of Engineers (USACE) under Section 404 and by the Clay County Soil and Water Conservation District as the local administrator of the Minnesota Wetland Conservation Act (WCA). The Minnesota Pollution Control Agency provides water quality review and certification related to USACE permitting under Section 401 of the Clean Water Act. Projects that result in wetland impacts are required to demonstrate wetland impact avoidance and minimization in a permit application. The WCA and federal Clean Water Act have an established sequencing process for avoidance and minimization of impacts. Wetland impacts that cannot be feasibly

avoided or minimized must be replaced by compensatory mitigation.

Floodplains

Floodplains are defined in Executive Order 11988, *Floodplain Management*, as:

> "…the lowland and relatively flat areas adjoining inland and coastal waters including flood prone areas of offshore islands; including, at a minimum, that area subject to a one percent or greater chance of flooding in any given year."

This definition refers to any area that would be inundated with floodwaters from a 100-year flood.

To meet Executive Order 11988, federally approved actions must avoid the floodplain, if a practicable alternative exists. If no practicable alternative exists, actions in a floodplain must be designed to minimize adverse impact to the floodplain's natural and beneficial values. The design must also minimize the potential risks for flood-related property loss and impacts on human safety, health, and welfare.

The Hawley Municipal Airport is not in or in proximity to FEMA floodplain areas.

2.13.3. TERRESTRIAL CONCERNS

Soils

A soils map is provided as **Figure 2-11.** The predominant soils present at the airport are Bames-Langhei loams (1-6 percent slopes). Also present are Langhei-Bames loams (6-12 and 12-percent slopes, both eroded). Small areas exist of Quam clay loam, Damen loam, and Barnes loam (2-6 percent slopes, eroded). With the exception of Quam clay loam, all of the soils present are Group B soils in the US Department of Agriculture hydrologic classification system. This classification system ranges from A through D, with A having the highest infiltration rates, and D the lowest. Thus, the soils at the airport site are generally well drained. This is desirable in an airport setting to limit the potential for standing water and the potential for wildlife hazards.

Prime and Unique Farmlands

The Farmland Protection Act of 1984 creates the statutory framework for considering important farmlands in Federal decisions (e.g. projects with federal funding). Important farmlands can include all pasturelands, croplands, and forests considered to be prime, unique, or statewide or locally important lands. Coordination with the Natural Resource Conservation Service (NRCS) of the US Department of Agriculture (USDA) is required to determine if impacts will be significant. It can be seen from **Figure 2-11** that most of the areas on and adjacent to the airport are either prime farmlands or farmlands of statewide importance.

Contaminated Areas

Federal, State, and local laws regulate hazardous materials use, storage, transport, or disposal. These laws may extend liability to past and future landowners of properties containing these materials. In addition, disrupting sites containing hazardous materials or contaminants may cause significant impacts to soil, surface water, groundwater, air quality, and the organisms using these resources.

A search of the Minnesota Pollution Control Agency database did not identify any contaminated sites on or in proximity to the airport. Information is provided that underground fuel tanks have been removed from the site and that one 3,000 gallon above ground storage tank remains. The MPCA report identifies there have been no compliance or enforcement actions associated with fuel tanks at the airport.

Habitat-Endangered/Threatened Species

Information from the US Fish and Wildlife Service (USFWS) website indicates that there are three candidate species and one threatened species in Clay County as shown in **Table 2-12**.

Table 2-12
Local Endangered/Threatened Species

Species	General Description	Status	Habitat
Sprague's pipit (Anthus pragueii)	Small bird (3.9-5.9" in length)	Candidate species	Large (>350 acres) patches of grassland
Dakota skipper (Hesperia dacotae)	Small- to mid-sized butterfly	Candidate species	Native prairie
Poweshiek skipperling (Oarisma poweshiek)	Small moth-like butterfly	Candidate species	Native prairie
Western prairie fringed orchid (Platanthera praeclara)	Long-stalked flower	Threatened species	Wet prairies and sedge meadow.

Given the habitat conditions associated with these species, it is unlikely that they would be impacted by Hawley Municipal Airport improvement projects. The airport is surrounded primarily by fields in agricultural production with a major highway to the south.

2.13.4. CULTURAL RESOURCES

Residential, Parks, and other Potentially Noise Sensitive Areas

The closest residences to the airport are agricultural and rural residential. The closest urban residential areas are approximately 1/8 of a mile directly east of Runway 34. The closest park is Westgate Park, which is approximately one mile east of Runway 34. Westgate Park provides playground equipment, picnic shelters, a roller blading/biking/walking patch, as well as a winter ice skating rink and warming house. The closest church is St. Andrews Catholic Church, which is approximately ¾ miles east-southeast of Runway 34. Hawley Sr. High School is approximately 1.3 miles east-northeast of Runway 34.

Historic and Archaeological

The State Historic Preservation Office (SHPO) database of known historic and archaeological sites was queried in November 2013 for any known cultural resources within one mile of the airport. The SHPO database contains no known cultural resources within this search area.

This review is only preliminary. As part of future NEPA review for specific projects advanced on the basis of this Master Plan, more detailed historic and archeological review including site review and field sampling may be required. However, there are no known historic or archeological resources that would factor into the review of project alternatives in this Airport Master Plan.

Wildlife Areas

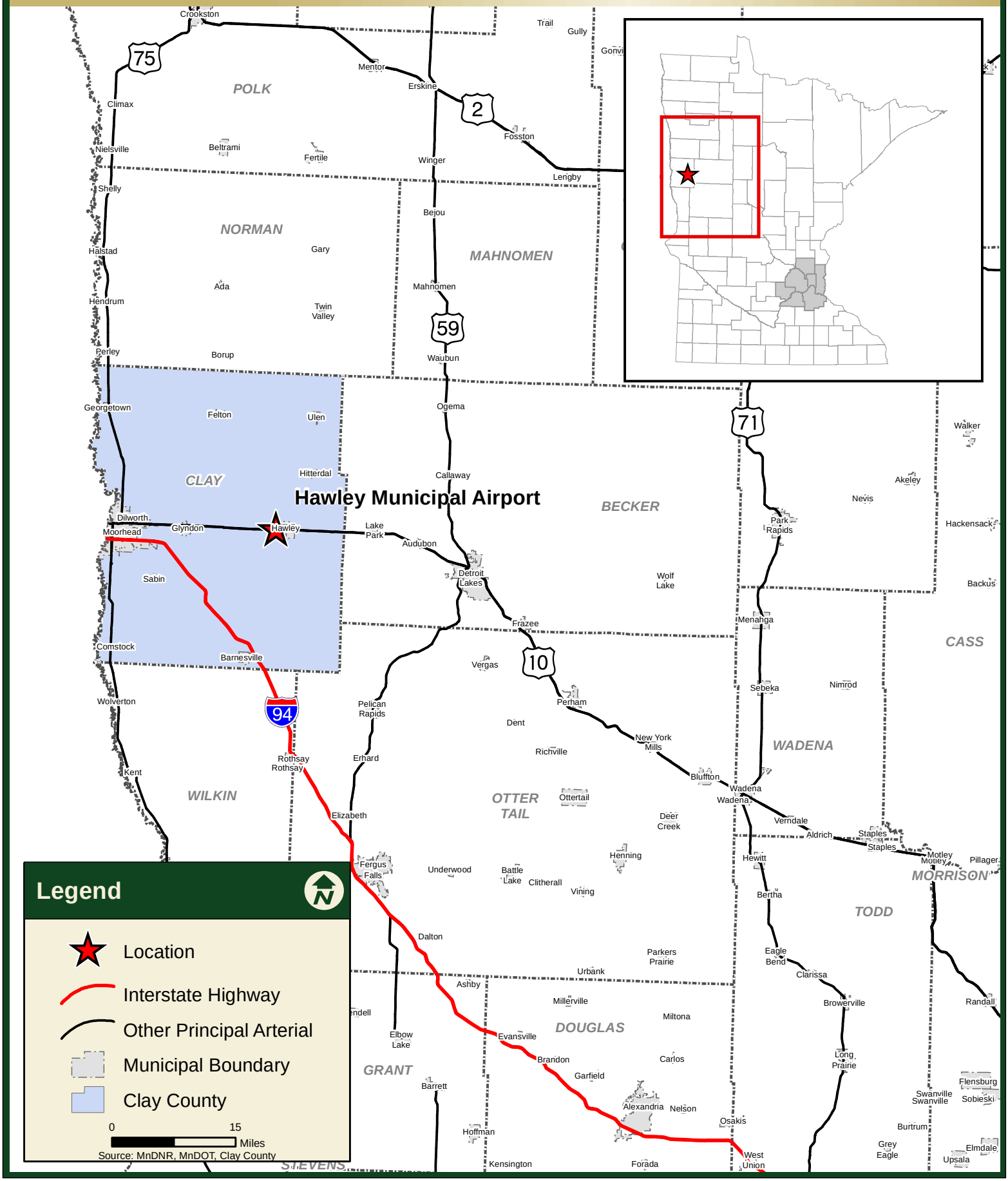
The closest Wildlife Management Area (WMA) to the airport is the Gruhl State Wildlife Management Area. It is approximately 2.0 miles west-northwest of Runway 16 (see **Figure 2-8**). Wildlife Management Areas are part of Minnesota's outdoor recreation system and are established to protect those lands and waters that have a high potential for wildlife production, public hunting, trapping, fishing, and other compatible recreational uses. They are owned by the state and managed by the Minnesota Department of Natural Resources. The Gruhl WMA is 304 acres in size and contains numerous wetland habitats.

Hawley Municipal Airport

Airport Master Plan

Figure 2-1

Airport Vicinity Map



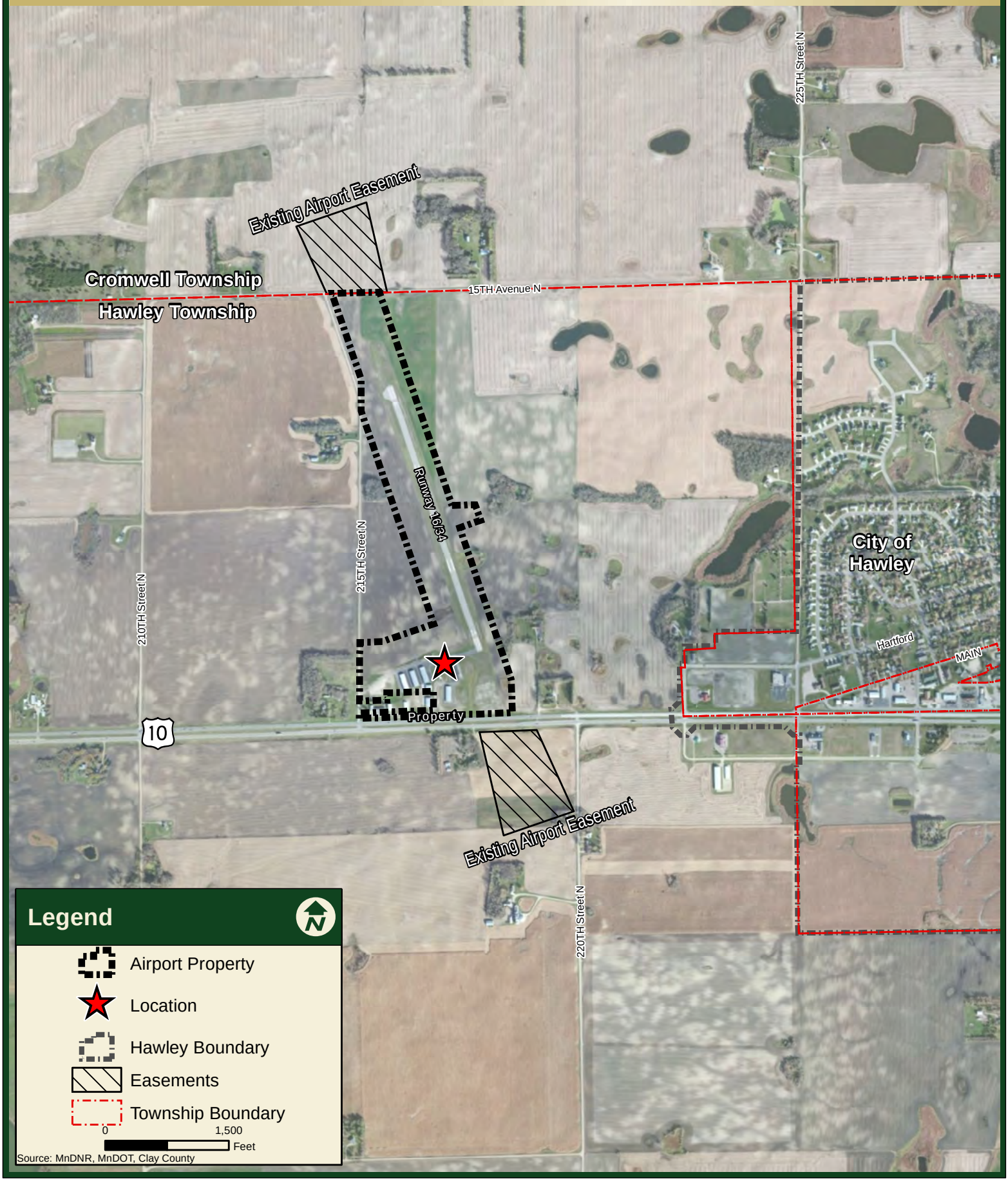
Map Document: C:\Users\christopherga\Desktop\AVIA_Transfers\HAWL\GISTEST1_5\T51106663\ESRI\Maps\Master_Plan_Figures\106663 Fig1 Vicinity 85x11.mxd
Date Saved: 2/7/2014 8:46:54 AM

Hawley Municipal Airport

Airport Master Plan

Figure 2-2

Airport Location Map



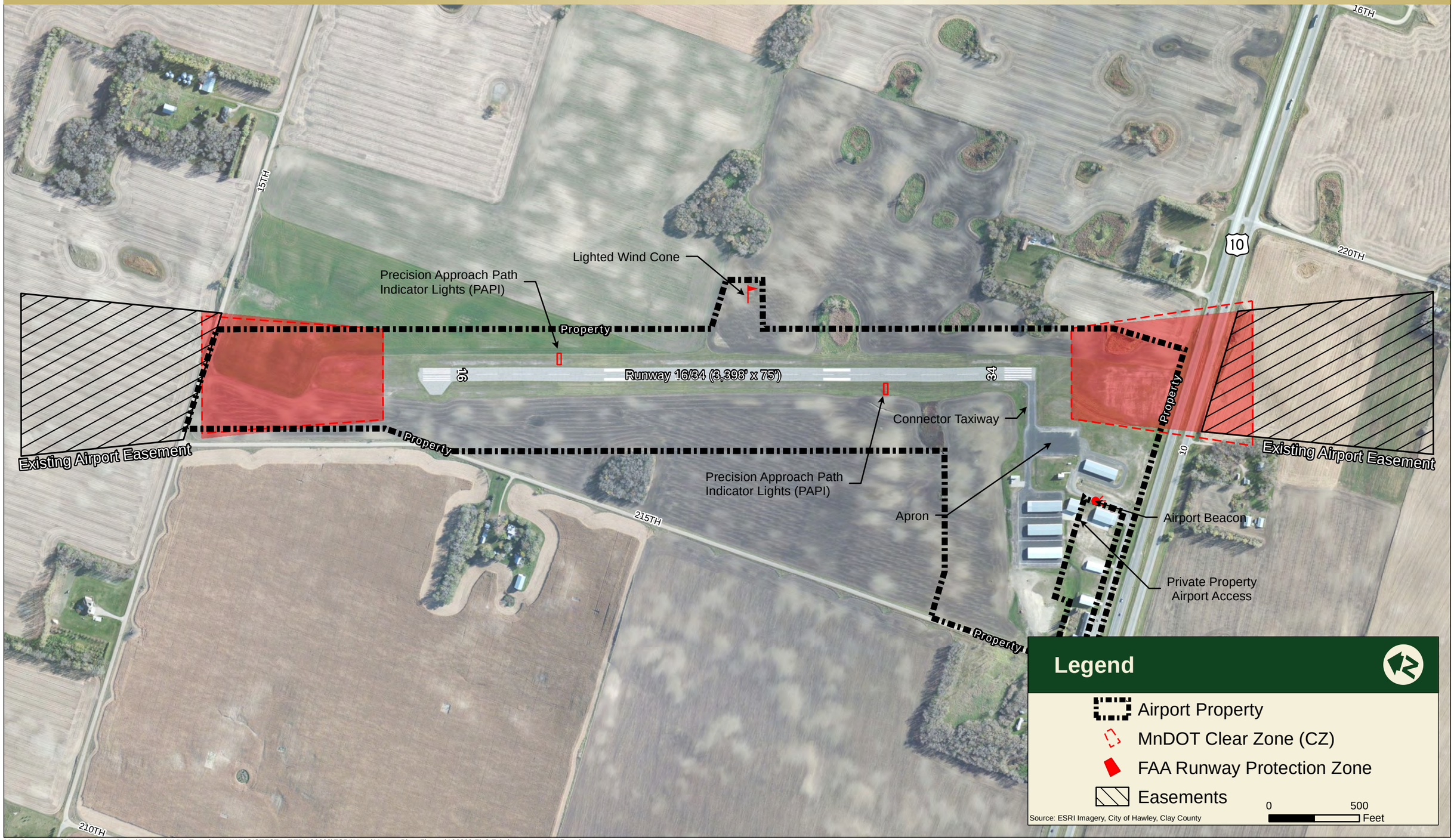
Map Document: C:\Users\christopherga\Desktop\AVIA_Transfers\HAWL\GISTEST1_5\T51106663\ESRI\Maps\Master_Plan_Figures\106663 Fig2 Location 85x11.mxd
Date Saved: 2/10/2014 2:18:24 PM

Hawley Municipal Airport

Airport Master Plan

Figure 2-3

Existing Airport Layout



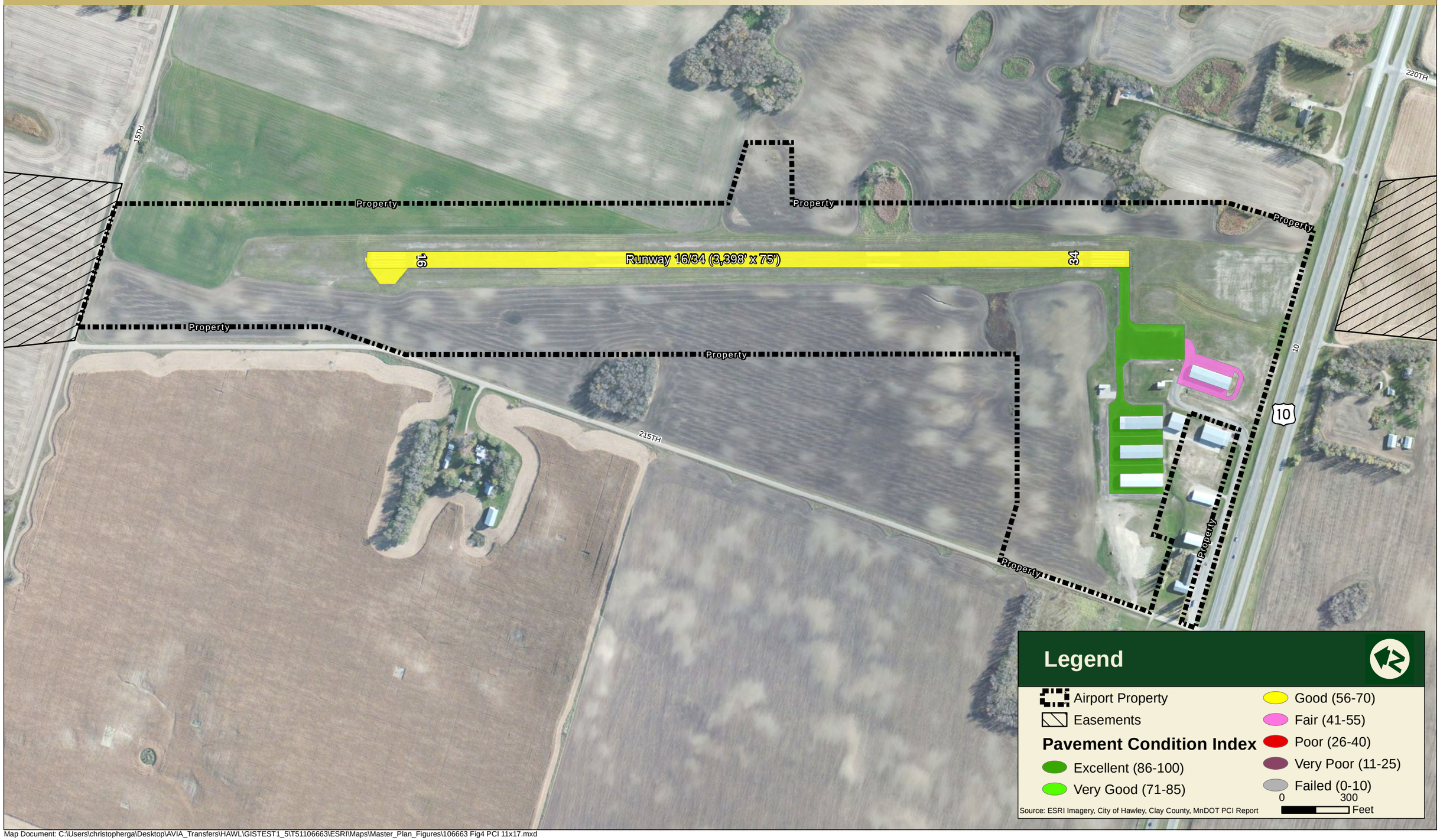
Map Document: C:\Users\christopherga\Desktop\AVIA_Transfers\HAWL\GISTEST1_5\T51106663\ESRI\Maps\Master_Plan_Figures\106663 Fig3 Existing Layout 11x17.mxd
Date Saved: 10/21/2014 2:33:19 PM

Hawley Municipal Airport

Airport Master Plan

Figure 2-4

2011 Pavement Condition Index (PCI) Rating



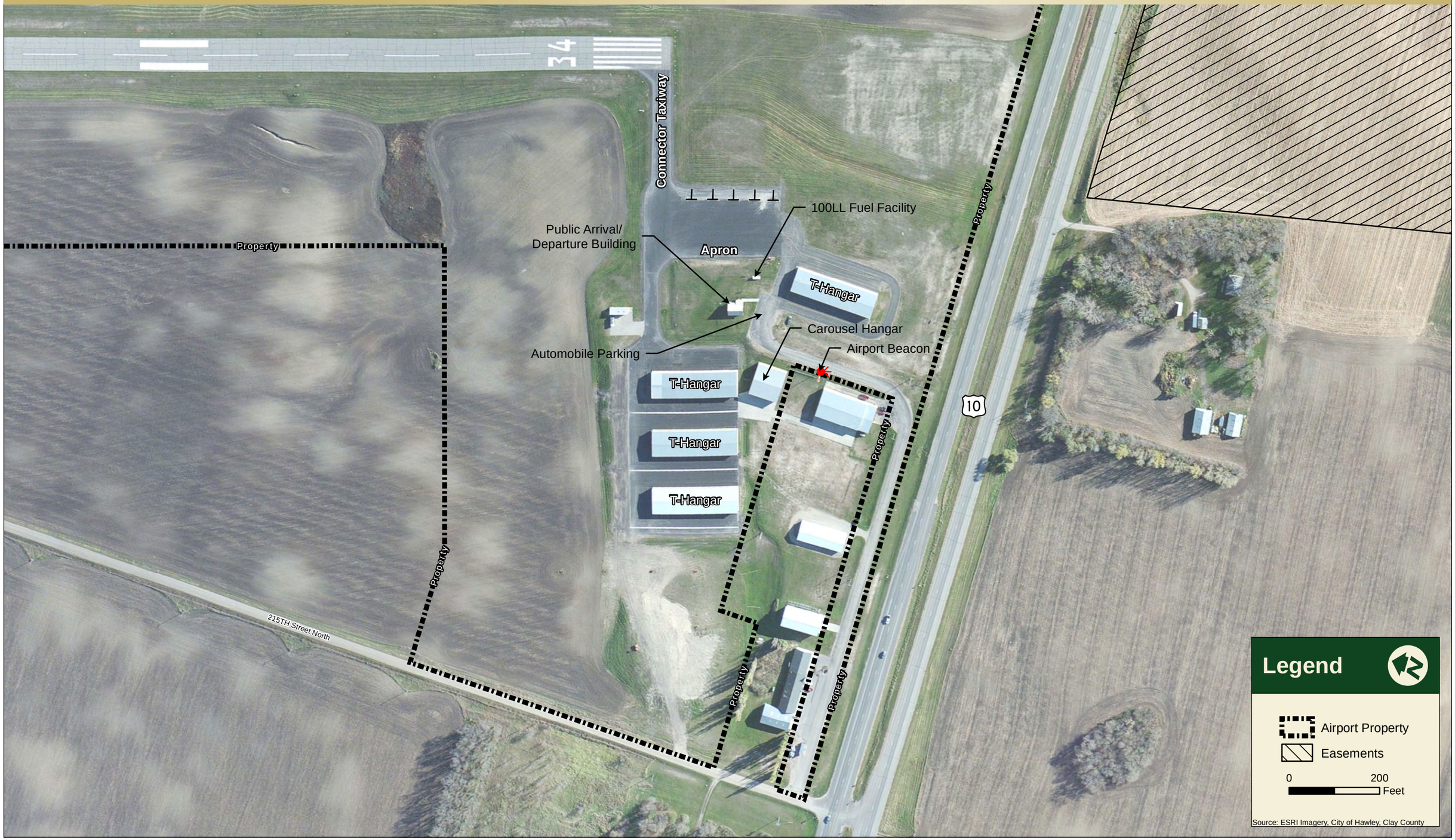
Map Document: C:\Users\christopherga\Desktop\AVIA_Transfers\HAWL\GISTEST1_5\T51106663\ESRI\Maps\Master_Plan_Figures\106663 Fig4 PCI 11x17.mxd
Date Saved: 10/21/2014 2:36:05 PM

Hawley Municipal Airport

Airport Master Plan

Figure 2-5

Existing Building Area



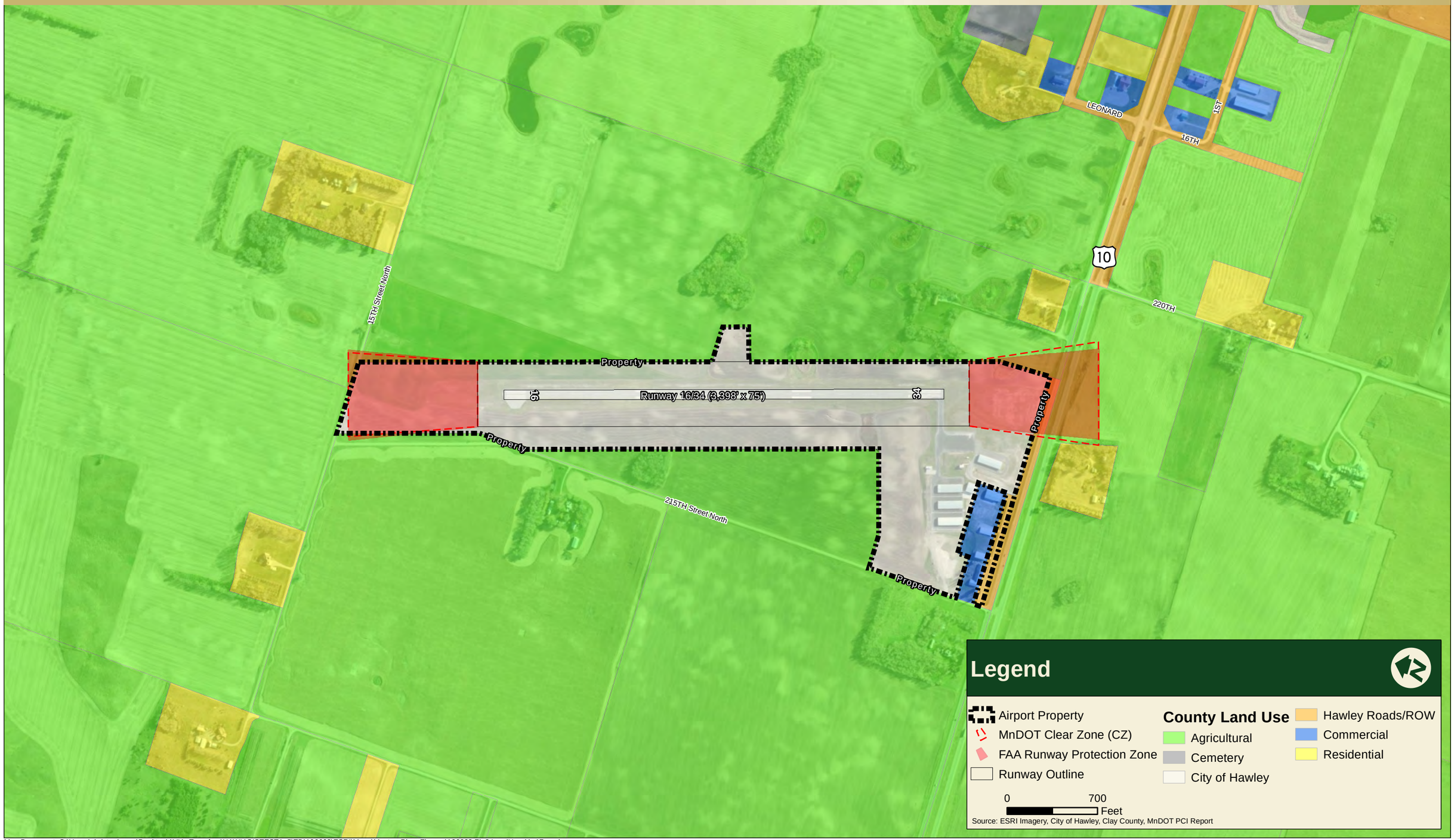
Map Document: C:\Users\christopherga\Desktop\AVIA_Transfers\HAWL\GISTEST1_5\T51106663\ESRI\Maps\Master_Plan_Figures\106663 Fig5 Existing Building Area 11x17.mxd
Date Saved: 2/10/2014 2:34:09 PM

Hawley Municipal Airport

Airport Master Plan

Figure 2-6

Existing Land Use



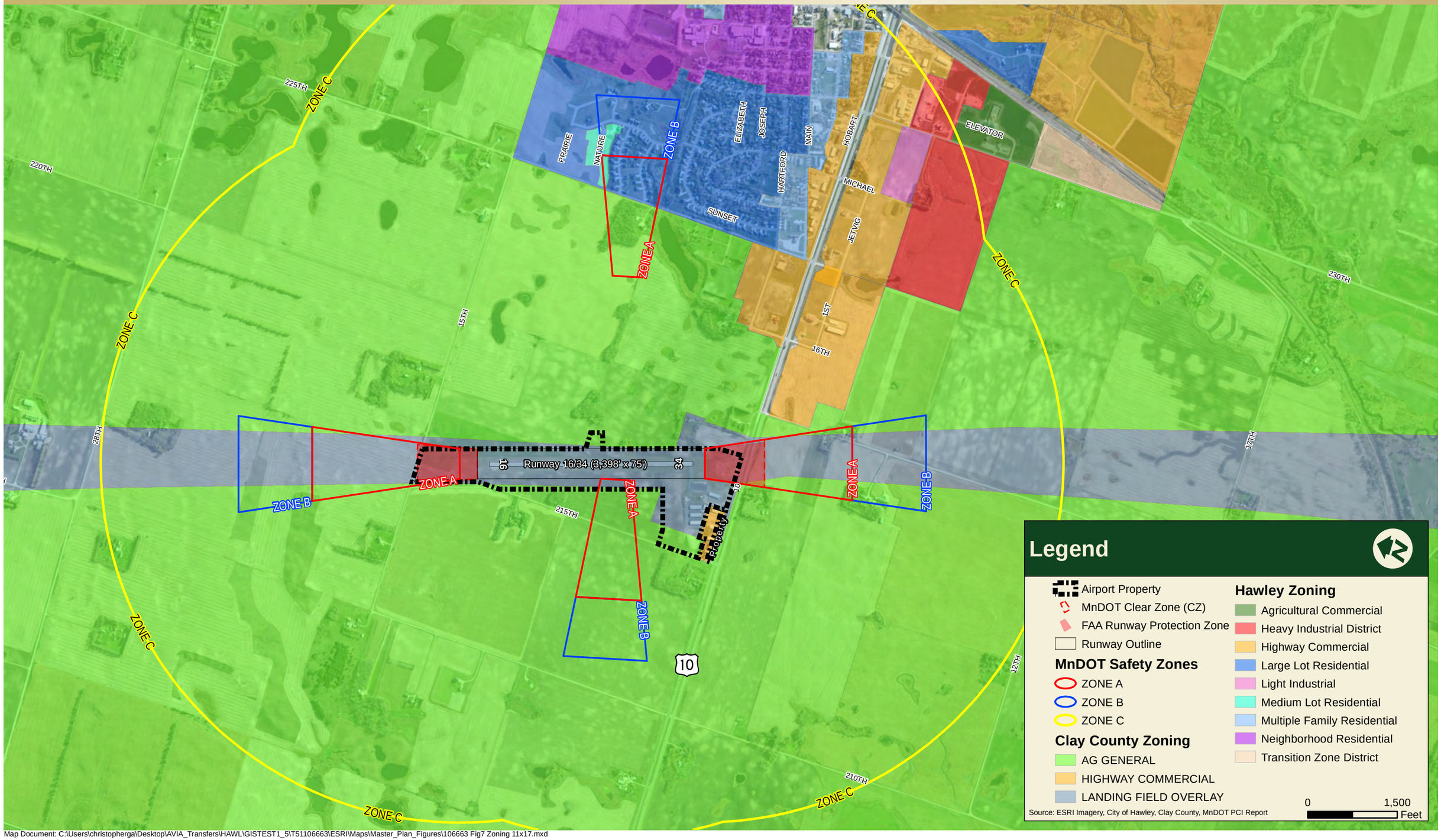
Map Document: C:\Users\christopherga\Desktop\AVIA_Transfers\HAWL\GISTEST1_5\T51106663\ESRI\Maps\Master_Plan_Figures\106663 Fig8 LandUse 11x17.mxd
Date Saved: 10/21/2014 2:46:44 PM

Hawley Municipal Airport

Airport Master Plan

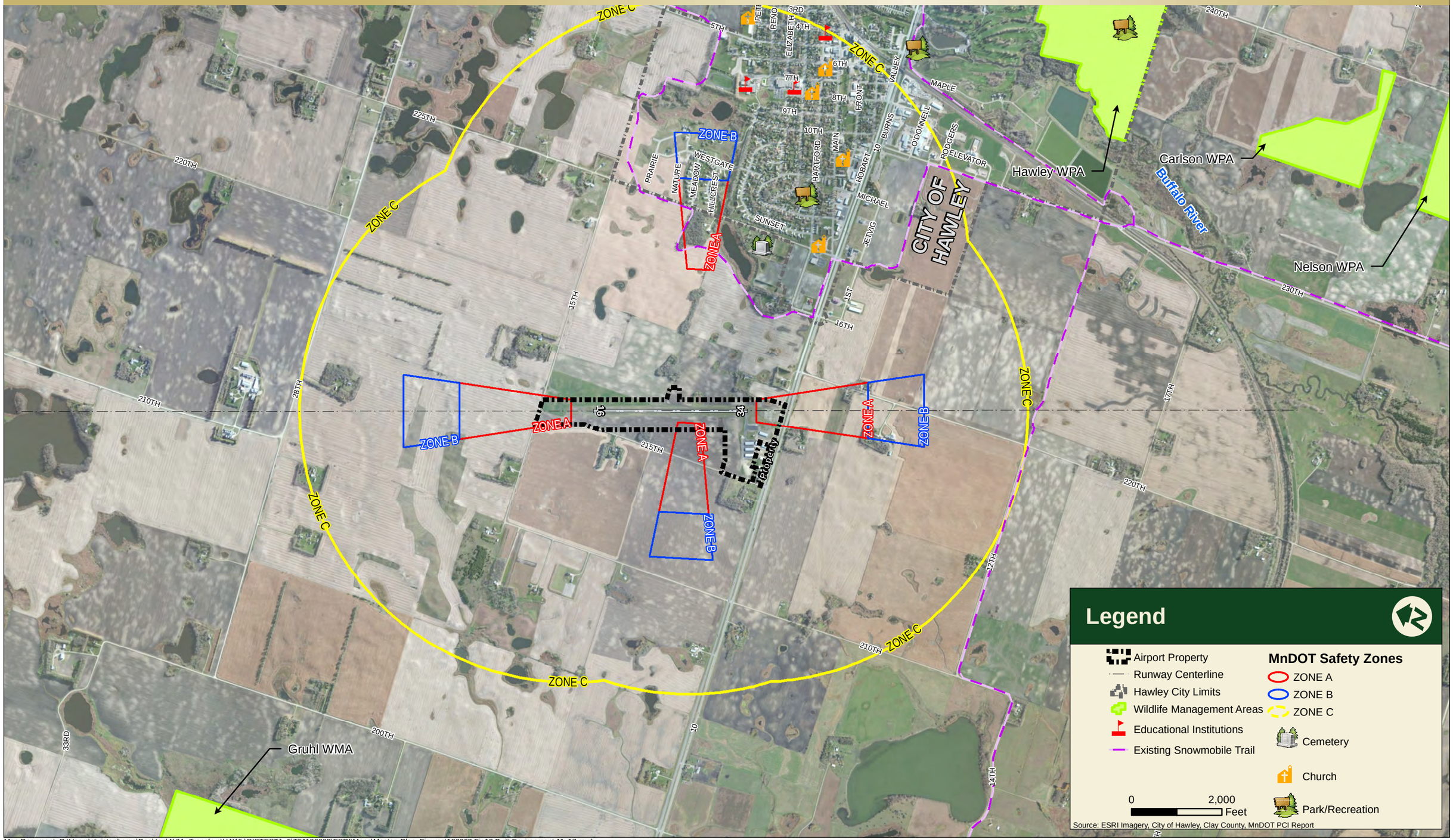
Figure 2-7

State Airport Zoning & County Zoning Map



Map Document: C:\Users\christopherga\Desktop\AVIA_Transfers\HAWL\GISTEST1_5\T51106663\ESRI\Maps\Master_Plan_Figures\106663 Fig7 Zoning 11x17.mxd
Date Saved: 10/21/2014 3:00:19 PM

Figure 2-8
Built Environment & Compatible Land Use Considerations



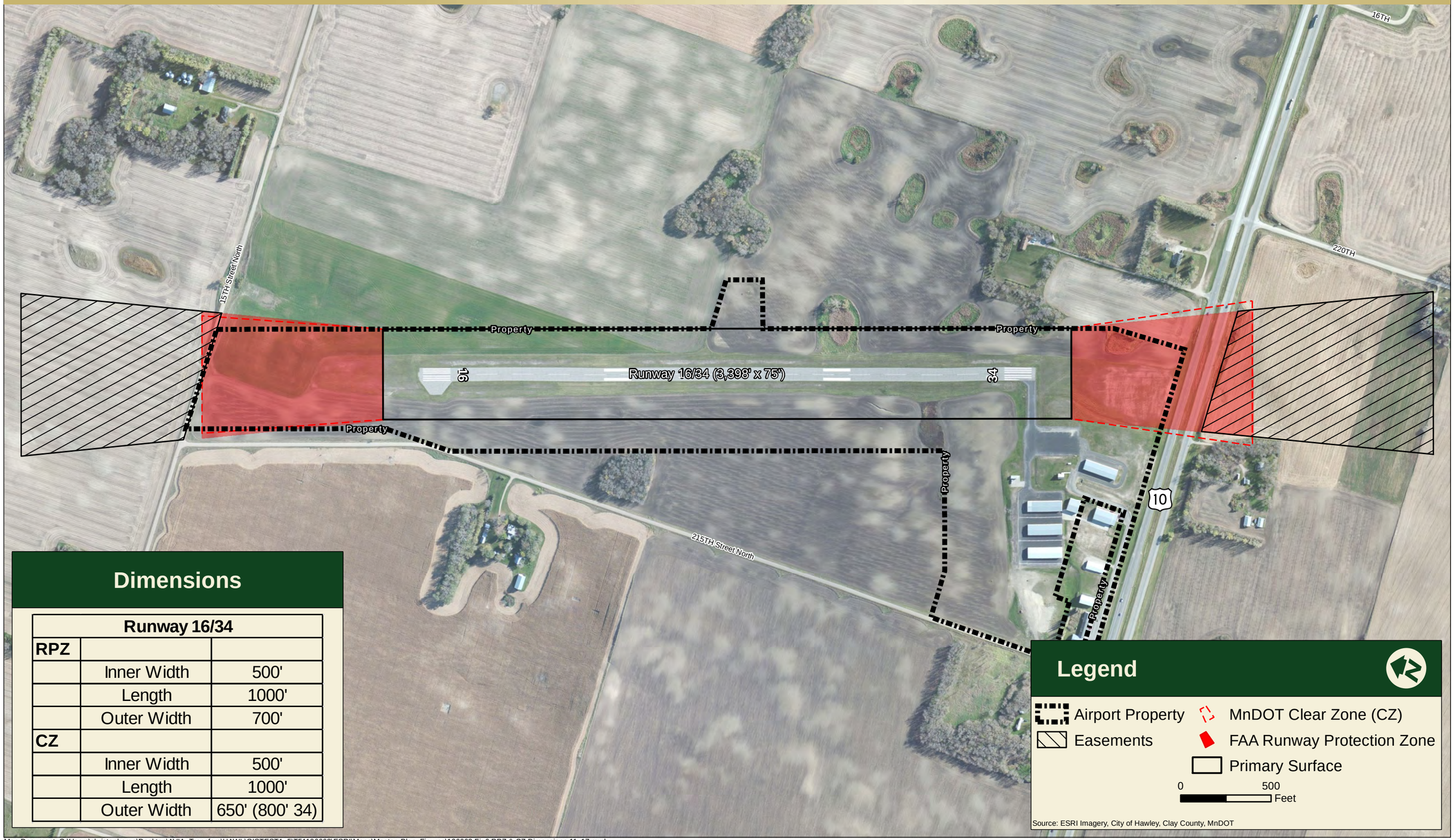
Map Document: C:\Users\christopherga\Desktop\AVIA_Transfers\HAWL\GISTEST1_5\T51106663\ESRI\Maps\Master_Plan_Figures\106663 Fig10 Built Environment 11x17.mxd
Date Saved: 10/21/2014 4:24:24 PM

Hawley Municipal Airport

Airport Master Plan

Figure 2-9

Runway Protection Zone (RPZ) & Clear Zone (CZ) Dimensions



Dimensions

Runway 16/34		
RPZ		
	Inner Width	500'
	Length	1000'
	Outer Width	700'
CZ		
	Inner Width	500'
	Length	1000'
	Outer Width	650' (800' 34)

Legend

- Airport Property
- Easements
- MnDOT Clear Zone (CZ)
- FAA Runway Protection Zone
- Primary Surface

0 500 Feet

Source: ESRI Imagery, City of Hawley, Clay County, MnDOT

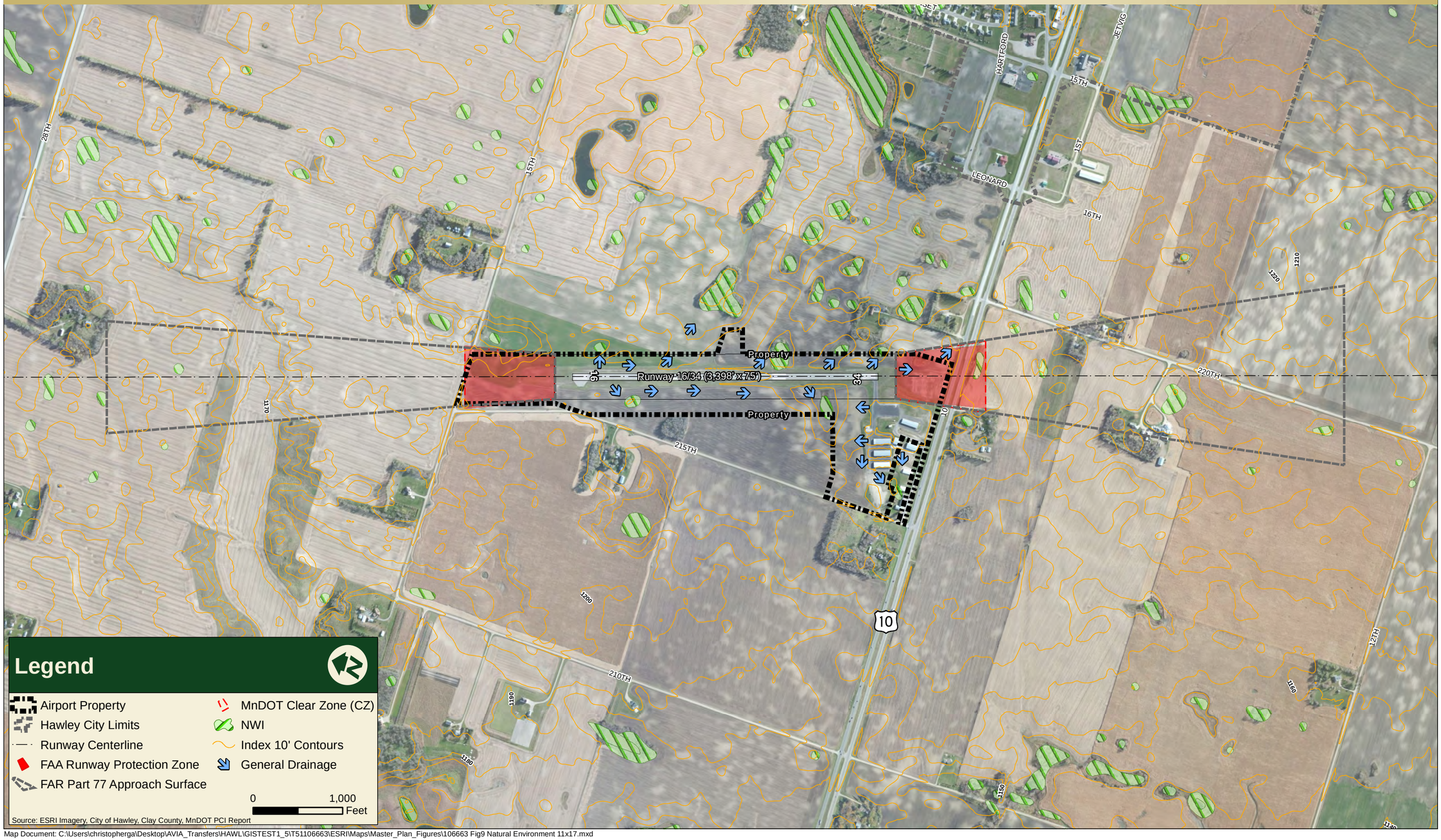
Map Document: C:\Users\christopherga\Desktop\AVIA_Transfers\HAWL\GISTEST1_5\T51106663\ESRI\Maps\Master_Plan_Figures\106663 Fig6 RPZ & CZ Dimensions 11x17.mxd
Date Saved: 10/21/2014 2:24:30 PM

Hawley Municipal Airport

Airport Master Plan

Figure 2-10

Natural Environment



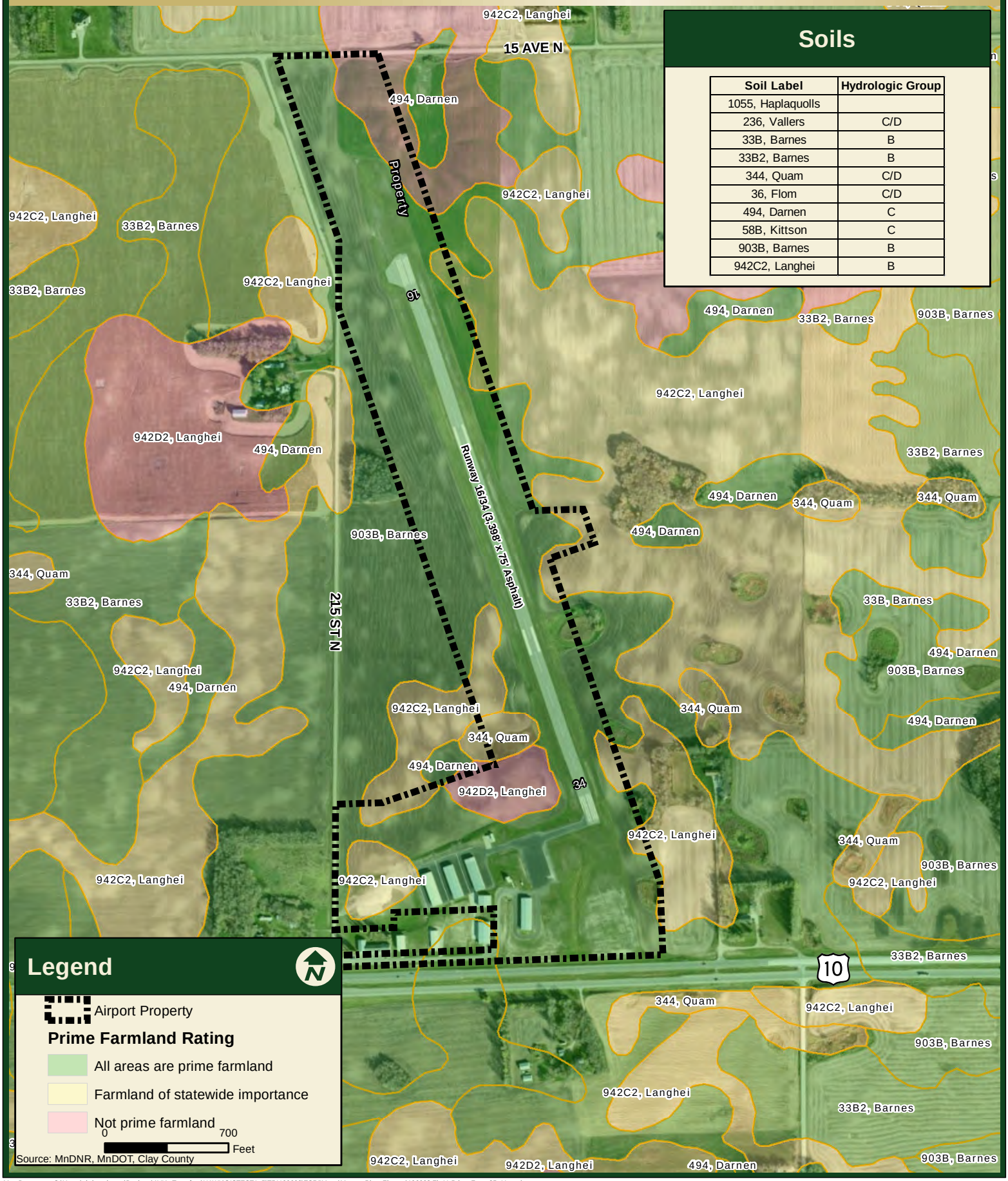
Map Document: C:\Users\christopherga\Desktop\AVIA_Transfers\HAWL\GISTEST1_5\T51106663\ESRI\Maps\Master_Plan_Figures\106663 Fig9 Natural Environment 11x17.mxd
Date Saved: 10/21/2014 2:41:39 PM

Hawley Municipal Airport

Airport Master Plan

Figure 2-11

Soils & Prime Farmland



Soils

Soil Label	Hydrologic Group
1055, Haplaquolls	
236, Vallers	C/D
33B, Barnes	B
33B2, Barnes	B
344, Quam	C/D
36, Flom	C/D
494, Darnen	C
58B, Kittson	C
903B, Barnes	B
942C2, Langhei	B

Legend

Airport Property

Prime Farmland Rating

All areas are prime farmland

Farmland of statewide importance

Not prime farmland

0 700 Feet

Source: MnDNR, MnDOT, Clay County

Map Document: C:\Users\christopherga\Desktop\AVIA_Transfers\HAWL\GISTEST1_5\T51106663\ESRI\Maps\Master_Plan_Figures\106663 Fig11 Prime Farm 85x11.mxd
Date Saved: 10/21/2014 1:28:33 PM

3. AVIATION FORECASTS

3.1. INTRODUCTION

Evaluation of current and forecasted aviation activity is vital in preparing an Airport Master Plan. Aviation forecasts are necessary to evaluate current and potential future airport facility safety and capacity requirements.

Aviation forecasts are based on numerous factors, including socioeconomic data, local, regional, and national aviation trends, and FAA aviation forecasting methodology. Guidance used to help develop aviation activity forecasts includes the following resources:

- *Forecasting Aviation Activity by Airport* (July 2001), GRA, Inc., prepared for FAA.
- *Model for Estimating General Aviation Operations at Non-Towered Airports Using Towered and Non-Towered Airport Data* (July 2001), GRA, Inc., prepared for FAA.

Forecasts for general aviation airports commonly include based aircraft, annual operations, and critical aircraft projections over a 20-year planning period. The time period for the forecasts at 04Y are from the base year, 2013, through 2033. Based aircraft counts are split by the following aircraft types: single-engine piston, multi-engine piston, turboprop, turbojet, rotorcraft, and experimental aircraft. Annual operations are classified as local or itinerant. *Forecasting Aviation Activity by Airport* defines local operations as "aircraft operating in the traffic pattern or aircraft known to be departing or arriving from flight in local practice areas, or aircraft executing practice instrument approaches at the airport." Itinerant operations are defined as operations "other than local operations." Critical aircraft projections are used to determine the airport design standards.

Forecasts developed are unconstrained; they identify the actual aviation demand for the facility regardless of limiting factors such as hangar availability or runway length, etc. If the aviation forecast differs by more than 10% from what is published in the FAA Terminal Area Forecast (TAF), additional FAA coordination is required.

3.2. EMERGING BUSINESS & POPULATION TRENDS

The Hawley Municipal Airport is located in the Fargo-Moorhead Metropolitan Statistical Area. This is an area of growing population. Increasing population both within the City of Hawley and the larger region is anticipated to lead to increased aviation activity and demand.

3.2.1. FARGO-MOOREHEAD METROPOLITAN STATISTICAL AREA

The Fargo-Moorhead Metropolitan Core Based Statistical Area (CBSA) is defined as Cass County, North Dakota and Clay County, Minnesota, which includes the City of Hawley (see **Figure 3-1**, at the end of this chapter). A metropolitan statistical area is a geographical region with a high population density and strong economic ties throughout the area.

The adjoining cities of Fargo, ND and Moorhead, MN are the core urban area of the MSA and have influences on the population, jobs, and income of the area. Population in the MSA is 216,500 and has been increasing 1.6% a year in recent years. Fargo-Moorhead is a cultural, commerce, manufacturing, health care, and education center for the region. Agriculture and technology are identified as the major

industries in the area. It is home to five (5) colleges and universities which include: Minnesota State University-Moorhead, Concordia College, North Dakota State University, Rasmussen College and Minnesota State Community & Technical College. More than 70% of the population has more than a high school education compared to 55% nationwide. The Fargo-Moorhead MSA has low unemployment (3.7%) and high job growth (4.2% in 2012).

The area ranks high nationally in the area of education and job growth. Forbes List ranks Fargo Moorhead:

- #2 Best Small Places for Business and Careers
- #65 in Cost of Doing Business
- #5 in Job Growth
- #21 in Education

As a result of these trends and growing infrastructure needs, the area has established a Metropolitan Planning Organization (MPO). An MPO is a transportation policy-making organization made up of representatives from local government and transportation authorities. The Fargo-Moorhead Metropolitan Council of Governments (Metro COG) guides development in the surrounding area. This includes the City of Hawley (see **Figure 3-2**). Metro COG conducts planning efforts to understand infrastructure needs to improve the quality of life in the metropolitan area and meet the needs of the growing population and business community.

MnDOT conducts periodic traffic counts to understand transportation demands and needs in the area. U.S. Highway 10 is an important corridor that runs from Detroit, MI to Seattle, WA. In north western Minnesota, it runs through the cities of Fargo, Moorhead, Dilworth, Hawley and Detroit Lakes. Results from the latest traffic counts show that the corridor is traveled by 11,400 vehicles per day in the City of Hawley, similar counts are found along the entire corridor between Fargo-Moorhead and Detroit Lakes. Many people who work in the Fargo-Moorhead area live along U.S. Highway 10 from Glyndon to the lake area of Detroit Lakes. The large amount of traffic along U.S. Highway 10 suggests that the City of Hawley is part of a larger economic area.

3.2.2. CITY OF HAWLEY

The City of Hawley has a history of making infrastructure improvements and attracting businesses. Over the past 20 years the City has made consistent upgrades to roads, and water and sewer systems that have successfully attracted businesses. Recently, several businesses have chosen to locate within the Hawley community and have erected amenities that will contribute to the City's continued growth, including use of their airport. By the end of 2014, the following businesses will have started up or expanded in Hawley:

- Hotel Hawley and Event Center
- Castle Rock (Restaurant)
- AmericInn
- Cretex Concrete Products
- Alderon, an alarm systems manufacturer
- Dollar Store
- RAPAT Corporation expansion
- RDO Equipment business expansion
- Muscatell Burns vehicle dealer expansion

Anecdotal evidence suggests that much of the recent business activity in the area can be attributed not only to U.S. Highway 10 but also the Hawley Municipal Airport. Business activity couples well with the aviation industry. General aviation airports support business needs and act as a gateway to the community. As such, airports are viewed as an important asset for companies looking to relocate or that are considering expansion because of the increase in business efficiencies.

Employment is a measure of the vitality of a regional economy and demand for aviation. Significant employment industries in Clay County include manufacturing, wholesale, retail, health care, arts/entertainment, and accommodation or food service. The unemployment rate for the City of Hawley at the time of the 2010 U.S. Census was 4.2%, which is lower than the United States average of 7.8%.

According to the Hawley Comprehensive Plan (2009), major employers within the community include the Hawley School District, RAPAT Corporation, Sellin Brothers, RDO Equipment, Supervalu, Spring Prairie Meats, Hawley Manor, Hawley Golf Club, D.R. Planning Inc., and the Castle Rock Supper Club.

The Hawley Public School district is growing as well. After the highest enrollment in school history, the City overwhelmingly passed a referendum in 2013 for $11.6 million dollars to expand necessary facilities to serve students in the community. In addition, in 2013, building permit fees reached $30 million. This shows support for future growth in the community.

The Hawley Comprehensive Plan (2009) provides a thorough analysis of the community identity, vision, goals and objectives. It offers a reasonable picture of future population and development within the City. The comprehensive plan anticipates long-term sustained growth through 2035.

In 2011, The City of Hawley Economic Development Authority (EDA) along with the University of Minnesota Extension completed a Market Area Profile (MAP) to analyze the customer base of the Hawley Trade Area, a 10 mile radius around the City of Hawley. The study was able to identify market potential, business opportunities and specific retail "gaps". In the years since the study several businesses have moved into the community to fill these gaps. The study identifies other business types with potential to relocate to the City of Hawley to serve the estimated $62 million potential retail purchases to be made in the Hawley Trade Area.

3.2.3. THE BAKKEN FORMATION

The Federal Reserve Bank of Minneapolis has conducted a study on the influence and scope of the emerging oil market in North Dakota and its influence on employment and wages in the region. The study found that the oil boom in western North Dakota has an impact on individuals, businesses and communities as far away as in the City of Hawley. The largest growth area for cities such as Hawley has been in engineering and technology companies that provide services to the Bakken region. The Bakken region covers the western ¾ of North Dakota, the eastern half of Montana, and the northwest corner of South Dakota, in addition to some areas of southern Canada. Businesses and individuals in the Hawley area that sell supplies to help build the booming infrastructure to the west have had increased revenue. The City of Hawley has a dependable work force. Additionally, there's enough demand for skilled workers in the oil fields that employers will let employees commute to the oil fields for a week or two and then return to the Hawley region where they reside.

3.3. AVIATION TRENDS

3.3.1. NATIONAL, REGIONAL, & STATE TRENDS

During the time period between 2001 and 2005, general aviation aircraft registered with the FAA declined nearly 3.1%. From 2005 through 2011, the total number of general aviation aircraft remained relatively

flat. The economic decline since 2008 has resulted in a reduction in the number of general aviation aircraft with the FAA estimating the overall general aviation fleet being reduced by 2.7% from 2008 to 2011. Piston-powered fixed-wing aircraft, which make up the majority of general aviation aircraft, are projected to decrease in numbers through 2032 at a -0.1% average annual growth rate. The number of hours flown is projected to decrease by the same rate.

Shipments of new general aviation aircraft, according to the 2012 General Aviation Manufacturers Association (GAMA) year-end shipment report, have increased 0.6% from 2011 to 2012. This represents a slight upturn in manufacturing after years of decline since 2008. Total shipments in 2012 are down 50%, however, from 2007. Manufacturing of turboprop aircraft are up 10.6% in the same time period.

The outlook in the general aviation industry is favorable, especially in the areas of turbine aircraft, rotorcraft, and experimental aircraft. Overall activity levels are expected to grow.

According to the FAA Aerospace Forecast (2013-2033):

> *"The forecast calls for robust growth in the long term outlook, driven by higher corporate profits and the growth of worldwide GDP [Gross Domestic Product]. Additionally, continued concerns about safety, security, and flight delays keep business aviation attractive relative to commercial air travel. As the industry experts report a significant portion of piston aircraft hours are also used for business purposes, we predict business usage of general aviation aircraft will expand at a faster pace than that for personal and recreational use."*

Turbine powered general aviation aircraft (turboprop and turbojet) trends from 2000-2012 indicated a steady 4.5% annual growth. In the future, the FAA projects the number of turbine general aviation aircraft will increase 2.8% annually from 2012 to 2033.

Experimental aircraft provide pilots with the ability to construct an aircraft at a low cost. An increase in experimental aircraft is projected into the future with a 1.1% annual growth rate through 2033.

Overall, according to the FAA 2013 – 2033 aviation forecasts, the active general aviation fleet is projected to increase at an average of 0.39% per year for the forecast period.

National and Minnesota aviation trends can be measured by activity levels published in the FAA TAF. Statewide trends provide a closer look into how the national aviation trends translate on a regional level. Based aircraft from the 2013 TAF are listed in **Table 3-1**.

Table 3-1
2013 FAA TAF – National, Regional, & State Based Aircraft

Year	United States	Great Lakes Region	State of Minnesota
1990	162,219	26,576	3,317
1995	157,805	26,668	3,601
2000	179,929	30,507	4,520
2005	197,407	32,951	4,875
2010	165,807	27,586	4,105
2015	166,491	27,685	4,365
2020	173,937	28,717	4,519
2025	181917	29772	4681
2030	189,917	30,816	4,862
2035	198,440	31,889	5,050
Historical Trend	**0.11%**	**0.19%**	**1.07%**
Future Trend	**0.88%**	**0.71%**	**0.73%**

Source: FAA Terminal Area Forecast (2013)
Notes: Trend indicates annual growth rate. Great Lakes Region includes North Dakota, South Dakota, Minnesota, Wisconsin, Illinois, Indiana, Michigan, and Ohio

Overall aviation trends show a steady increase in based aircraft for the United States, the Great Lakes region, and in the State of Minnesota. Minnesota has historically had a higher rate of based aircraft growth than both the Great Lakes Region and the United States. Annual aircraft operations from the 2013 FAA TAF are listed in **Table 3-2**.

Table 3-2
2013 FAA TAF – National, Regional, & State Annual Operations

Year	United States	Great Lakes Region	State of Minnesota
1990	105,390,026	17,393,585	2,195,004
1995	109,078,669	18,414,499	2,335,247
2000	121,942,002	20,347,943	2,624,609
2005	115,458,386	19,068,855	2,442,400
2010	101,410,177	16,335,713	2,133,332
2015	101,426,575	15,977,505	2,062,276
2020	104,685,199	16,403,673	2,120,978
2025	108,211,355	16,869,548	2,192,422
2030	112,134,282	17,387,503	2,270,497
2035	116,506,082	17,959,731	2,355,773
Future Trend	**0.70%**	**0.59%**	**0.67%**

Source: FAA Terminal Area Forecast (2013)
Notes: Trend indicates annual growth rate. Great Lakes Region includes North Dakota, South Dakota, Minnesota, Wisconsin, Illinois, Indiana, Michigan, and Ohio

Overall aviation trends show an increase in operations from 1990 to 2000. There is a fluctuation in annual operations until 2020 before the future operations are proposed to increase for the United States, Great Lakes Region, and the State of Minnesota.

3.4. USER SURVEY SUMMARY

The growth of population and businesses in the region, in addition to the trends in the aviation industry, impact the based aircraft and number of operations at the airport. To gain a better understanding of the local aviation operations at 04Y, and to help determine local aviation trends, an airport user survey was conducted. A questionnaire was sent to existing users or possible recreational and business users of the airport. A copy of the airport user survey is located in **Appendix A**.

The service area for 04Y is defined as the half-way point between 04Y and the surrounding airports with similar facilities. Since one advantage to flying is reduced travel time, it is assumed that pilots will use the airport closest to their residence that has the facilities to meet their needs. The service area for 04Y includes the eastern portion of Clay County. User Surveys were sent to registered pilots within the service area in addition to registered pilots within the 30 minute drive time of the airport (see **Figure 3-1**).

The user survey at 04Y was completed in November 2013. Of the 300 questionnaires sent out, there were a total of 31 questionnaires returned (10%) that indicated an existing or future use of the airport. Of the 31 surveys that were returned, 42 aircraft were reported, of which 16 are based at 04Y. This represents more than half of the based aircraft at 04Y. Another 16 aircraft were reported as being based at airports within 30 nautical miles of 04Y. In total 32 of the 42 aircraft reported are based in and around 04Y.

One question in the user survey asked pilots to list their average annual operations per year for the past (2007 – 2011), existing (2012), and future (2013 – 2017) conditions. **Table 3-3** represents the surveys with responses to this question.

Table 3-3

User Survey (2013) Annual Operations

Year	Aircraft	Annual Operations
2007	42	2163
2012	42	2737
2017	42	3021

Source: 04Y Airport User Survey (2013)
Notes: Some users own more than one aircraft

Overall, airport users indicated growth in annual aircraft operations at 04Y. The sample size was determined to be too low to make definitive conclusions on growth trends, however, this information was used to supplement known information about existing and potential users at 04Y.

Most of the reported aircraft were small aircraft and owned by the respondents. Five aircraft were corporate aircraft, with 13 of the 31 returned user surveys declaring use of their aircraft for business travel. Seven users expressed interest in upgrading their aircraft fleet within five years, five of which were for performance improvements such as range, speed, and payload of aircraft.

The survey asked the participants about their needs at the airport. One set of questions required assigning a priority of high, moderate, or low to facilities that are important to their use of 04Y. T-hangar priority was ranked high by 14 of the surveys, and moderate for nine users for a total of 23 out of 31. Fifteen of the surveys rated conventional hangar development as either a high or moderate priority. Ten of the respondents put a high or moderate priority onto a longer runway and 12 identified some type of ground

transportation such as a courtesy car as needed. The priorities for both Jet A fuel and a business center/meeting facility were rated as low.

Written comments received in the survey included the need for more hangar space, the desire for an onsite FBO, and also how well the airport is kept and run.

Another area of interest are the current and potential business users of 04Y. These users often have different needs at the airport than general aviation pilots. Known business users include:

Alderon Industries:

- Alderon Industries was started in 1993 and produces float switches for wastewater, HVAC, and elevator industries. They have expended their market to manufacture control panels, alarm systems, and control systems for irrigation, pressure boosting systems, telemetry systems, and many other industries. According to a phone conversation held February 14, 2014, Alderon expressed interest in utilizing charter services out of 04Y were they available.

Rapat Corporation:

- Rapat Corporation is the provider of engineering solutions for a variety of industrial and agricultural material handling needs. This international company uses computer aided drafting and computer controlled manufacturing to produce engineered and manufactured systems for waste management, material storage, manufacturing, and food processing. They operate out of a 95,000 square foot facility in the City of Hawley, with a secondary 12,000 square foot satellite plant in the Philippines to access markets in Asia.

  Rapat Corporation currently operates a 2013 Piper PA-46 Meridian with a single turboprop engine which is based at the airport. Their user survey indicated 400 operations at 04Y in 2012. They sent a letter of support for a runway extension to the City indicating their current aircraft is not capable of taking off from the current runway on hot summer days at its certified maximum takeoff weight. Rapat stated they would require 4,500 feet to fully utilize the aircraft, citing an additional 50-75 operations would be possible were the runway extended. Rapat Corporation also indicated they were looking to upgrade to a Daher-Socata TBM 850, a larger turboprop aircraft within the next five years.

Cretex Companies

- Cretex Companies is a family of companies that serve markets across the world from concrete solutions to heart pacemaker components. They are currently closing their Fargo and Grand Forks plants to move their facilities to the City of Hawley. Cretex Companies operates a Beechcraft Super King 350 based at Anoka-Blaine Airport (Janes Field) in the Twin Cities. .According to a letter of support and phone conversations with the chief pilot for Cretex Companies, they are currently unable to operate at 04Y. To operate at 04Y, they need a minimum runway length of 4,000 feet. If there was 4,000 feet of runway available for landing and takeoff, they would fly into 04Y at least 10 times a year.

RDO Equipment Company

- Starting as a potato farmer investing in a John Deere dealership, RDO Equipment Company has grown to having over 60 dealerships in nine states. RDO is family owned and operated, and employs over 1,900 people. Partnerships have led to operating multiple locations in Mexico, Russia, Ukraine, and Australia. RDO currently has a John Deere dealership in the City of Hawley to serve the eastern North Dakota Red River Valley area. This area includes Clay, Becker, and Otter Tail counties.

Sanford Health:

- Sanford Health is considered an integrated health system. Their business model is a not-for-profit health care system operating in 126 communities in nine states. This network includes 39 hospitals, 140 clinics, and 1,360 physicians. They are also expanding internationally with clinics being developed in Ghana, Israel, and Mexico. Sanford Health has been in the City of Hawley since 1993. The specialty services they provide to the City of Hawley are family and internal medicine.

Dollar General

- Dollar General is the largest small-box discount retailer in the United States. They are also one of the largest retailers of top-quality brands. They have 10,000 stores in 40 states, and recently opened a location in the City of Hawley.

All airport operators, including those identified above, should be monitored into the future to determine their aviation needs at 04Y. This includes based users, agricultural businesses, aviation businesses, local non-aviation businesses, transient user traveling to 04Y for local business purposes, and based aircraft located at other airports.

3.5. EXISTING BASED AIRCRAFT & ANNUAL OPERATIONS FORECASTS

Both the FAA TAF and the 2012 Minnesota State Aviation System Plan (SASP) provide based aircraft and operations forecasts for individual airports. These forecasts provide baseline data to aid in forecasting based aircraft and operations at a local level.

Table 3-4 shows the based aircraft forecasts for 04Y from the FAA TAF and the 2012 Minnesota SASP.

Table 3-1
Existing Based Aircraft Forecasts

Year	FAA TAF Based Aircraft	2012 Minnesota SASP Based Aircraft
2010	13	31
2015	13	34
2020	13	35
2025	13	37
2030	13	37
Trend:	**0.00%**	**0.94%**

Source: FAA Terminal Area Forecast (2013); 2012 Minnesota SASP (2010 data) for 04Y

According to the City of Hawley, there are currently 33 based aircraft at 04Y (2013). This includes 29 single-engine aircraft and four ultralight/experimental aircraft. All existing hangar spaces are full and there are four aircraft owners on a waiting list to rent hangar space when it becomes available.

In addition to based aircraft, both the TAF and SASP forecast annual operations at 04Y for the next 20 years. **Table 3-5** shows the FAA TAF operations forecast data through 2035 and **Table 3-6** depicts the SASP operations data through 2030.

Table 3-2
Existing FAA TAF Annual Operations Forecasts (2013)

Year	TAF Itinerant Operations	TAF Local Operations	Total Operations	Based Aircraft	OPBA
2011	4,000	4,600	8,600	13	662
2015	4,000	4,600	8,600	13	662
2020	4,000	4,600	8,600	13	662
2025	4,000	4,600	8,600	13	662
2030	4,000	4,600	8,600	13	662
2035	4,000	4,600	8,600	13	662

Source: FAA Terminal Area Forecast (2013); Notes: OPBA = Operations Per Based Aircraft

The FAA TAF provides a general overview of airport activity. As with most general aviation airports, the FAA TAF does not show any growth in based aircraft or annual operations at 04Y for the next 20 years.

Table 3-3
State Aviation System Plan Operations Forecast (2010)

Year	SASP Itinerant Operations	SASP Local Operations	Total Operations	Based Aircraft	OPBA
2011	3,956	4,644	8,600	31	277
2015	4,226	4,961	9,187	34	270
2020	4,432	5,201	9,633	35	275
2025	4,795	5,627	10,423	37	284
2030	5,389	6,325	11,714	37	317

Source: Minnesota State Aviation System Plan (2010 data) for 04Y; Notes: OPBA = Operations Per Based Aircraft

3.6. BASED AIRCRAFT FORECAST

Based aircraft demand is typically a product of population, income, and labor force. The baseline for the number and type of based aircraft at 04Y was derived from local records. The current based aircraft fleet mix at 04Y includes 29 single-engine aircraft and four ultralight/experimental aircraft.

The SASP provides a based aircraft forecast for all Minnesota airports. An annual growth rate can be established based on these numbers over the 20 year period from 2010 to 2030. 04Y has a based aircraft annual growth rate of 0.94%. The growth rates of based aircraft in nearby airports was also evaluated as a comparison to the growth rate for 04Y.

The four chosen nearby airports include: Detroit Lakes Airport – Wething Field (DTL), Mahnomen County Airport (3N8), Moorhead Municipal Airport (JKJ), and Norman County Ada/Twin Valley Airport (D00). The average annual based aircraft growth rate for these four airports plus 04Y is 1.01%. The individual growth rates are shown in **Table 3-7**.

Table 3-4
Based Aircraft Growth Rates of Nearby Airports

SASP Based Aircraft					
Nearby Airports to 04Y	**Base Year 2010**	**2012-2015**	**2016-2020**	**2021-2030**	**Annual Growth Rate**
Moorhead (JKJ)	39	41	43	46	0.83%
Detroit Lakes (DTL)	32	36	38	42	1.37%
Norman County (D00)	7	7	7	7	0.00%
Mahnomen County (3N8)	19	21	22	23	0.96%
Hawley Municipal (04Y)	31	34	35	37	0.89%
				Average	**1.01%**

Source: 2012 Minnesota State Aviation System Plan (2010 data)

The closest public airport to 04Y is DTL. According to the SASP, DTL has space for additional based aircraft, and their annual growth rate for based aircraft is the highest at 1.37%. The remaining airports are at or near capacity. 04Y currently has a waiting list of four aircraft with plans to build another hangar in the near future. DTL is designed for corporate aviation with local operations only accounting for 33% of their overall aircraft operations. Nearly 53% of the operations at 04Y are local. With a waiting list of four aircraft, and having a larger percent of local operations, the SASP annual based aircraft growth rate for 04Y is considered low. Because of the relationship between these two airports, the average of the annual growth rates for based aircraft at both 04Y and DTL is 1.13%. This number is a realistic growth rate for the airport based on the surrounding community development and existing use at the airport.

To account for the construction of a T-hangar in the near-term, which will allow the four aircraft on the waiting list to base at 04Y, four aircraft were added to the based aircraft forecasts in 2020. The growth rate from year to year still remains 1.13% throughout the planning period.

The based aircraft growth, by aircraft type, for the 20 year planning period at 04Y is depicted on **Table 3-8**. Over the 20-year planning period, the based aircraft is predicted to grow from 33 in 2013 to 46 by 2033.

Table 3-5
Based Aircraft Forecast

Year	Single Piston	Multi Piston	Turboprop	Turbojet	Helicopter	Ultralight/ Experimental	Total
2013	28	0	1	0	0	4	33
2014	28	0	1	0	0	4	33
2015	29	0	1	0	0	4	34
2016	29	0	1	0	0	4	34
2017	30	0	1	0	0	4	35
2018	30	0	1	0	0	4	35
2019	30	0	1	0	0	4	35
2020	34	0	1	0	0	5	40
2021	34	0	1	0	0	5	40
2022	33	1	2	0	0	5	41
2023	33	1	2	0	0	5	41
2024	34	1	2	0	0	5	42
2025	34	1	2	0	0	5	42
2026	34	1	2	0	0	5	42
2027	35	1	2	0	0	5	43
2028	35	1	2	0	0	5	43
2029	36	1	2	0	0	5	44
2030	36	1	2	0	0	5	44
2031	37	1	2	0	0	5	45
2032	37	1	2	0	0	5	45
2033	38	1	2	0	0	5	46

Source: Bolton & Menk Analysis

3.7. ANNUAL OPERATIONS FORECAST

3.7.1. CONFIRMED OPERATIONS

The lack of an FAA Air Traffic Control Tower does not allow for exact aircraft operation counts at a general aviation airport like 04Y. Therefore, FAA Instrument Flight Rules (IFR) flight data for 2010 – 2012 was obtained to get an understanding of the larger corporate users at 04Y. However, IFR flight data is only recorded when pilots file a flight plan with the FAA. It does not take into account fair weather flights, touch and go operations, or flights with flight plans cancelled before landing at the airport.

The IFR flight data for 04Y indicated there were 1,059 instrument operations to and from 04Y from 2010 – 2012. This includes filed instrument flight plans with 04Y as the origin or destination. This local historical data provides actual figures to reference when development the forecasts for the airport.

The documented critical aircraft type from the IFR flight data was determined to be RDC A-I/small. Small indicates aircraft that weigh 12,500 pounds or less. Large refers to aircraft weighing greater than 12,500 pounds. As with the operations number, the results of the critical aircraft list are estimated to be a documented sample of critical aircraft at 04Y and do not capture all critical aircraft flying to the airport. **Table 3-9** shows the confirmed operations data from both the user survey, and 12 months of IFR data from November 2011 to October 2012.

Table 3-9
Aircraft Types from IFR Flight Data and User Survey Responses

Piston Aircraft					
Aircraft	**ARC**	**Ops**	**Aircraft**	**ARC**	**Ops**
Aeronca Chief	A-I/s	10	Piper PA-20 Pacer	A-I/s	62
Beechcraft Sierra	A-I/s	40	Piper PA-28 Cherokee	A-I/s	54
Beechcraft Bonanza*	A-I/s	7	Piper PA-32 Cherokee Six*	A-I/s	22
Bell 206 Jet Ranger*	Heli	8	Piper PA-34 Seneca*	A-I/s	8
Cessna 150/152	A-I/s	34	Piper PA-36 Pawnee Brave	A-I/s	800
Cessna 172/177*	A-I/s	130	Quad City Challenger (EXP)	A-I/s	10
Cessna T210*	A-I/s	147	Seawind 3000	A-I/s	40
Cessna 320	A-I/s	4	Vans RV-4	A-I/s	50
Cessna 414*	B-I/s	2	Vans RV-8	A-I/s	62
Cirrus SR22*	A-I/s	2	**Turboprop**		
Grumann AA-1*	A-I/s	1	**Aircraft**	**ARC**	**Ops**
Grumann AA-5*	A-I/s	102	Beechcraft King Air (200)*	B-II/s	34
Kolb Twinstar	A-I/s	24	Pilatus PC-12*	A-I/s	12
Luscombe 8E	A-I/s	90	Piper PA-46 Meridian	A-I/s	400
Mooney M20 Bravo*	A-I/s	582	Socata TBM 850*	A-I/s	2
Piper J-3 Cub	A-I/s	50	**Total Ops (All Aircraft):**		**2,789**

Source: 2013 User Survey, FAA IFR Flight Data Nov. 2011 – Oct. 2012
*Includes data from IFR Flight Data

3.7.2. ANNUAL OPERATIONS FORECAST

Annual operations are the count of both takeoffs and landings at an airport. Baseline (year 2013) airport operations were estimated using FAA approved Operations Per Based Aircraft (OPBA) figures. The OPBA number is an average that includes both based aircraft and transient aircraft traffic. FAA Order 5090.3C *Field Formulation of the National Plan of Integrated Airport Systems* recommends 250 operations per based aircraft for rural general aviation airports and 350 operations per based aircraft for busier general aviation airports with more itinerant traffic. The current FAA TAF shows 8,600 operations for 04Y. Dividing the number of annual operations by the 2013 TAF based aircraft number, 13, yields 662 OPBA. If the most current number of based aircraft, 33, was applied to the 8,600 annual operations reported in the FAA TAF, the OPBA would be 260. This number is more realistic to what is actually happening at 04Y. The SASP shows 8,600 operations and 31 based aircraft for an OPBA of 277.

According to the SASP, local operations compose 53% of the total operations at 04Y. Using this percentage, the OPBA for local operations was determined from the SASP to be 150 (277 x .53; rounded to nearest 10).

To determine the baseline for local operations, 150 OPBA was multiplied by the number of based aircraft, 33, to produce 4,950 local operations. The remaining 47% of operations are from itinerant aircraft. This equates to 4,390 itinerant operations for the base year or 9,340 total operations at 04Y. The baseline operations number is within 10% of the FAA TAF and SASP number of annual operations.

Once more using the SASP as a guide, the growth rate of the OPBA for 04Y is 0.66% annually. To keep in line with the growth of based aircraft using both DTL and 04Y, the average annual growth rate for both DTL and 04Y was used to determine the growth in aircraft operations of 0.54% annually.

The based aircraft discussion noted four aircraft would immediately fill available hangar space once a new T-hangar is built. It is assumed local operations would jump due to the addition of four aircraft in one year. The percentage of local operations is therefore adjusted to reflect this to prevent overestimating growth. This adjustment is made by removing four extra aircraft from the equation when determining the itinerant operations. The new percentage of local to itinerant is 55% local, and 45% itinerant.

Over the 20-year planning period, operations are forecasted to grow from a baseline of 9,340 total operations, to 13,907 operations in 2033.

The annual operations forecast for 04Y over the 20-year planning period is shown in **Table 3-10**. FAA and MnDOT concur with the aviation activity estimates and forecasts of based aircraft and annual operations. This information will be used when evaluating the facility requirements for 04Y over the next 20 years.

Table 3-60
Annual Operations Forecast by Aircraft Type

Year	Itinerant							Local					Total
	Small Aircraft					Large Aircraft		Small Aircraft					
	A-I	A-II	B-I	B-II	HELI	B-I	B-II	A-I	A-II	B-I	B-II	HELI	
2013	4,250	30	45	40	10	5	10	4,946	0	0	0	4	9,340
2014	4,271	30	46	41	10	5	10	4,973	0	0	0	4	9,390
2015	4,427	31	46	41	11	5	11	5,151	0	0	0	4	9,727
2016	4,449	31	47	42	11	5	11	5,179	0	0	0	4	9,779
2017	4,607	32	48	43	11	6	11	5,360	0	0	0	4	10,121
2018	4,630	32	49	43	11	6	12	5,389	0	0	0	4	10,176
2019	4,653	33	49	44	12	6	12	5,418	0	0	0	4	10,231
2020	4,814	33	50	44	12	6	12	6,226	0	0	0	4	11,203
2021	4,838	34	51	45	12	6	13	6,260	0	0	0	5	11,264
2022	5,002	34	52	46	13	6	13	6,451	0	0	0	5	11,622
2023	5,027	35	52	47	13	7	13	6,486	0	0	0	5	11,684
2024	5,193	35	53	47	13	7	14	6,680	0	0	0	5	12,048
2025	5,219	36	54	48	14	7	14	6,716	0	0	0	5	12,113
2026	5,245	37	55	49	14	7	15	6,752	0	0	0	5	12,178
2027	5,415	37	56	49	15	7	15	6,950	0	0	0	5	12,549
2028	5,442	38	57	50	15	8	15	6,988	0	0	0	5	12,617
2029	5,614	38	57	51	15	8	16	7,189	0	0	0	5	12,993
2030	5,642	39	58	52	16	8	16	7,228	0	0	0	5	13,064
2031	5,817	39	59	53	16	8	17	7,432	0	0	0	5	13,446
2032	5,846	40	60	53	17	9	17	7,472	0	0	0	5	13,519
2033	6,023	41	61	54	17	9	18	7,679	0	0	0	5	13,907

Source: Bolton & Menk estimates

Notes: All local operations at 04Y are conducted by small aircraft, therefore large aircraft forecasts for local operations are 0 and not shown. Small indicates aircraft with a maximum takeoff weight 12,500 pounds or less.

3.8. FUTURE CRITICAL DESIGN AIRCRAFT

3.8.1. RUNWAY DESIGN CODE (RDC) & AIRPORT REFERENCE CODE (ARC)

The majority of the existing operations at 04Y are in small aircraft 12,500 pounds or less. The critical design aircraft represents the aircraft design group that utilizes an airport on a regular basis of 500 or more annual operations. The existing critical design aircraft category is A-I/small. The forecasts estimate that small aircraft will continue to be the critical design aircraft over the next 20 years. However, the existing runway

The majority of the existing airport operations at 04Y are in small aircraft 12,500 pounds or less. This would include aircraft such as the Piper PA-46 Meridian (ARC A-I) based at the airport. A select few turboprop aircraft are noted to have flown into the airport from FAA IFR flight plan data including a Beechcraft King Air 200 (B-II).

The critical design aircraft represents the aircraft design group that utilizes an airport on a regular basis of 500 or more annual operations. The existing critical design aircraft category is A-I, and the existing airport configuration on the Airport Layout Plan shows that the safety areas are designed to B-II standards. Based on documented data, estimates, and statewide criteria, the future critical design aircraft for 04Y will remain A-I/small aircraft. However, the existing safety areas meet B-II requirements and there is use by this type of aircraft at the airport. Therefore, it is recommended that the safety area requirements continue to follow B-II design standards. Therefore the future primary runway is B-II-5000.

The City of Hawley should continue to monitor airport operations and evaluate the needs of current and future airport users.

Source: Piper Aircraft, Inc.

3.9. SUMMARY

The following points summarize key findings with regard to the based aircraft and general aviation forecasts at FBL:

- The aircraft operations at 04Y are a mix of recreational and business flights. The user survey indicated local use of aviation for business travel.
- Based aircraft are expected to increase from 33 to 46 by the end of the planning period in 2033. The annual growth rate of based aircraft is 1.13%. This growth rate is comparable to the existing State Aviation System Plan forecasts.

- Aircraft operations are estimated at 9,340 in 2013, and are expected to increase to 13,907 at the end of 20-year planning period. This is on average a 0.54% annual growth rate. This growth rate is slightly less than the State Aviation System Plan growth rate.
- The existing critical design aircraft is A-I, small which include twin engine piston aircraft. The future critical design aircraft is recommended to remain an A-I, small Aircraft throughout 20-year the planning period.

Hawley Municipal Airport
Airport Master Plan

Figure 3-1
Service Area & Drive Times

Norman County Airport

Mahnomen County Airport

Hector International Airport
Fargo, ND

Hawley
Municipal Airport

Detroit Lakes Airport

Moorhead Municipal
Airport

Harry Stern Airport
Wahpeton, ND

Fergus Falls
Municipal Airport

Legend

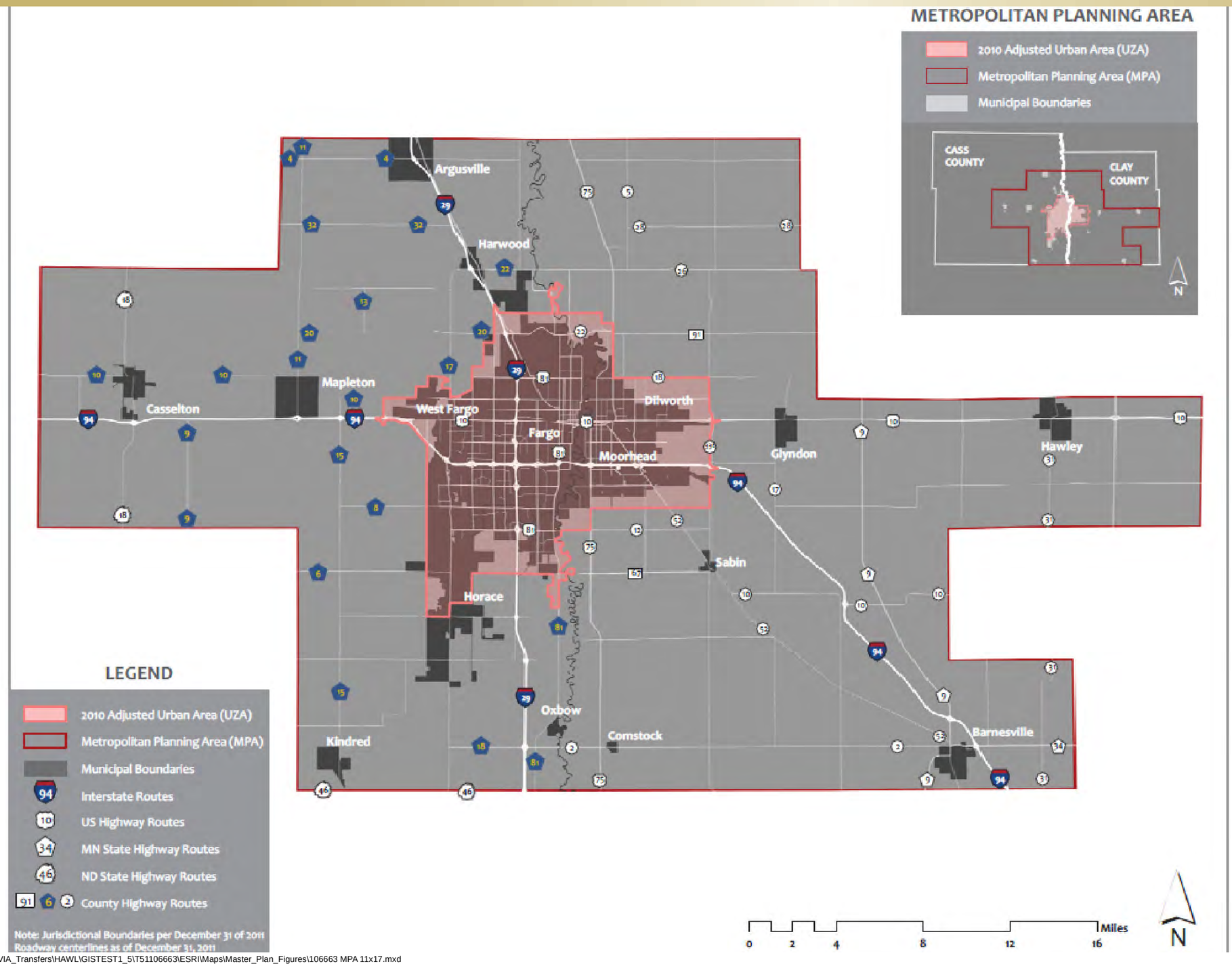
Drive Times (Minutes)
- 0-10
- 10-20
- 20-30
- Cass & Clay Counties

USA Core Based Statistical Areas
- Metropolitan CBSA
- Service Areas
- Airports

0 10 Miles

Source: ESRI Imagery, City of Hawley, Clay County

Map Document: C:\Users\christopherga\Desktop\AVIA_Transfers\HAWL\GISTEST1_5\T51106663\ESRI\Maps\Master_Plan_Figures\106663 Drive Times Service Area 11x17.mxd
Date Saved: 2/7/2014 11:07:23 AM



Source: Metro COG

Map Document: C:\Users\christopherga\Desktop\AVIA_Transfers\HAWL\GISTEST1_5\T51106663\ESRI\Maps\Master_Plan_Figures\106663 MPA 11x17.mxd
Date Saved: 2/11/2014 10:34:31 AM

4. FACILITY REQUIREMENTS

4.1. INTRODUCTION

The Facility Requirements Chapter evaluates the airside, landside, and support facility requirements at the airport. Airside areas for general aviation airports include the runway and taxiway environment, as well as general aviation aircraft parking, storage hangars, and fueling needs. Landside and other airport support facilities include airport support buildings, access roads, parking lots, fencing, and utilities.

Although there are similar infrastructure and operational requirements that every Airport Master Plan evaluates, individual airports have different areas of focus to address safety related concerns, future facility needs, and/or environmental and planning considerations for the surrounding environment. These specific areas for 04Y, both on and off airport property, are identified on **Figure 4-1**, at the end of this chapter. The primary planning considerations at 04Y include determining the development necessary to support local airport users, evaluate the feasibility of accommodating larger aircraft that have expressed interest in using the airport, improving instrument approaches, and expanding the building area to accommodate additional hangar space and development.

This chapter evaluates the ability for the airport to accommodate the forecasted demand, and to meet applicable airport facility requirements for the existing and future facility. Areas evaluated include:

- Airfield capacity and delay analysis
- Instrument approaches
- Runway facility requirements
- Airport visual aids & navigational aids
- Meteorological facilities
- Taxiway & taxilane facility requirements
- Apron requirements
- MN State Aviation System Plan (SASP) airside recommendations
- Landside facility requirements
- MN SASP landside recommendations

Facility requirements identify and evaluate the current condition of the airport elements and its ability to meet safety, capacity, and compatibility needs. Specific facility requirements are based on aeronautical compliance, demand, or event triggers, rather than specific time periods. Examples include safety needs, changes in pavement condition, or airport operations thresholds. This allows the City of Hawley to use the Airport Master Plan as a tool for decision making and funding prioritization.

4.2. AIRFIELD CAPACITY AND DELAY ANALYSIS

4.2.1. AIRFIELD CAPACITY

Airfield capacity is defined as the maximum aircraft operations an airfield configuration can accommodate. The FAA metric used to determine reasonable airfield capacity is Annual Service Volume (ASV). ASV is a calculated number that represents a reasonable estimate of an airport's annual operational capacity taking into account differences in runway utilization, weather conditions, and aircraft mix that would be encountered in a year's time.

The ASV is determined by grouping aircraft into classes of aircraft per FAA Advisory Circular (AC) 150/5060-5, *Airport Capacity and Delay*. These classes, shown in **Table 4-1**, identify aircraft based on recommended arrival and departure separation distances.

Table 4-1
Annual Service Volume Classifications

Aircraft Classification	Maximum Takeoff Weight (lbs.)	Number of Engines	Wake Turbulence Classification
A	12,500 or less	Single	Small
B	12,500 or less	Multi	Small
C	12,501 – 300,000	Multi	Large
D	Over 300,000	Multi	Heavy

Source: FAA AC 150/5060-5 *Airport Capacity and Delay*

The largest aircraft to utilize 04Y includes Annual Service Volume (ASV) Class C aircraft (12,501-300,000 pounds). An example is a Beechcraft King Air B-300 turboprop. The aviation forecasts, shown in **Table 3-12**, estimate that, in the long-term, operations will be comprised of less than one percent ASV Class C airplanes (approximately 27 annual operations), eight percent ASV Class B airplanes, and the remaining 91 percent ASV Class A airplanes.

FAA AC 150/5060-5, *Airport Capacity and Delay* was used to calculate the ASV for a single-runway scenario at 04Y. The results are shown in **Table 4-2**.

Table 4-2
Annual Service Volume

2033 Annual Operations	Annual Service Capacity	Percentage
13,907	230,000	6.1%

Source: Bolton & Menk Analysis, FAA AC 150/5060-5 *Airport Capacity and Delay*

Under these conditions, the airfield configuration will adequately meet the capacity demand over the next 20 years.

4.2.2. AIRFIELD DEMAND

The demand of an airfield is a function of the number and location of exit taxiways, the runway configuration, wind, and weather conditions. The methodology for computing the relationship between the demands placed upon an airport versus its capacity is also contained in FAA AC 150/5060-5. In order to facilitate this comparison, computations were made to determine the hourly capacity of a single runway configuration in visual flight rules (VFR) and in instrument flight rules (IFR). VFR operations are when a pilot operates an aircraft during weather conditions that allow the pilot to see the ground and visually avoid obstructions. IFR operations are when a pilot operates an aircraft using instruments within the cockpit versus referencing the ground due to the surrounding cloud cover and weather conditions.

Based on the forecasts presented in **Chapter 3.0**, the peak hourly operations were calculated for the existing 2013 operations and for the future 2033 operations. The national FAA guidance for general aviation airports assumes a single general aviation runway can accommodate 98 operations per hour during VFR conditions and 59 operations per hour during IFR conditions. The FAA guidance also assumes the busiest month at a general aviation airport conducts 14.8% of the annual operations. For 04Y, the busiest month equates to 1,382 operations in 2013 and 2,058 operations in 2033. The number of peak

operations for the busiest day in the busiest month is 46 (1,382/30) in 2013 and 68 (2,058/30) in 2033. The national FAA guidance also assumes that at general aviation airports, the peak hour is 20% of the peak daily operations. Therefore, the peak hourly operations for 2013 are 10 (46 x 0.20) and the peak hourly operations in 2033 are 14 (67 x 0.20). Based on the airport layout and conditions at 04Y, the hourly capacity is shown in **Table 4-3**.

Table 4-3
Hourly Capacity

2033 Peak Hourly Operations	VFR Hourly Capacity	VFR Percentage	IFR Hourly Capacity
13.7	98	14.0%	59

Source: Bolton & Menk Analysis, FAA AC 150/5060-5 *Airport Capacity and Delay*

The vast majority of operations will occur under VFR conditions. Due to the type of traffic at 04Y, peak hourly operations will likely never be achieved under IFR conditions. Using these assumptions, a single runway facility will adequately meet the demand of a single runway during VFR and IFR weather conditions. No long-term delays are forecasted.

4.3. INSTRUMENT APPROACHES

04Y experiences weather conditions less than allowable for visual procedures 12.9% of the time. Visual approaches to a runway have no instrument approach procedure. For instrument approaches, FAA defines three types of procedures:

- Non-Precision Approach (NPA) – A standard instrument approach procedure with horizontal course and no electronic vertical descent guidance. These approaches utilize ground-based or satellite-based navigational aids such as Global Positioning System (GPS), Very-High Frequency Omnidirectional Range, and Non-Directional Beacon (NDB).
- Approach with Vertical Guidance (APV) – An instrument approach procedure providing electronic course and vertical descent electronic guidance. These approaches utilize ground-based Glideslope navigational aids or satellite based navigational aids such as a Localizer Performance with Vertical Guidance (LPV).
- Precision Approach (PA) – An instrument approach procedure with electronic course and vertical descent guidance and visibility minimums of less than ¾ mile. These approaches utilize ground-based navigational aids as part of an Instrument Landing System (ILS). The three components of an Instrument Landing System are a Localizer antenna for course guidance, a Glideslope antenna for vertical guidance, and an Approach Lighting System.

04Y currently has an NPA approach to the Runway 34 end. The procedure is an Area Navigation GPS approach. Published cloud ceiling minimums are as low as 500 feet and published visibility minimums are 1 mile for the approach. These approaches are satellite-based, utilize GPS technology, and do not rely on ground-based facilities to be located at the airport. Runway 16 does not have an instrument approach.

The impacts of publishing a precision approach at 04Y was analyzed to determine if this is a viable alternative for the airport. The impacts of this type of approach are shown on **Figure 4-2**, at the end of this chapter. The federal airspace imaginary surfaces get larger when a runway changes from a non-precision instrument runway to a precision instrument runway. The primary surface for a precision instrument runway is 500 feet wider than a non-precision instrument runway. The approach slope changes from a 34:1 non-precision approach to a lower 50:1 precision approach. This means that for every 50 feet

traveled outward from the end of the primary surface, one foot of elevation is gained. To provide a clear precision approach, tree obstructions would need to be removed from 14 parcels surrounding the airport.

The precision approach would be published to the Runway 16 requiring a larger RPZ which would encompass an additional 65 acres of property. 15th Avenue N. would need to be relocated approximately 13,000 linear feet around the proposed RPZ. Although the threshold does not change on the Runway 34 end, the RPZ size changes because of a wider primary surface. As previously mentioned, whenever an RPZ changes, it must be clear of incompatible land uses, and five residences and U.S. Highway 10 would need to be relocated. Relocating U.S. Highway 10 is not an option, and the City of Hawley does not want to displace homeowners. Due to the impacts to the surrounding community and natural environment, this alternatives was removed from further consideration.

It is recommended the Runway 34 approach be enhanced with Localizer Performance with Vertical Guidance (LPV) technology. This upgrade will provide vertical guidance to the runway end without requiring additional equipment on the ground. This type of procedure adds to the utility of the runway by lowering weather minimums to as low as 250 feet. The visibility minimums associated with a LPV approach are close to the same minimums achieved with a precision approach. Because of technology advances, non-precision approach capabilities are increasing.

The FAA recommends the construction of a full-length parallel taxiway with a LPV non-precision approach. A non-precision approach with LPV capabilities is also recommended for the Runway 16 end. A GPS approach with LPV capabilities to both primary runway ends will be adequate for the 20 year planning period.

4.4. RUNWAY FACILITY REQUIREMENTS

Runways at airports need to meet applicable FAA design standards to allow for safe and efficient operations of aircraft on and in the vicinity of an airport and to remain eligible for federal and state funding. The design standards are based on two components which include the critical design aircraft and the most demanding type of approach established for either runway end.

The future critical design aircraft family for Runway 16/34 was determined in the forecast chapter to remain A-I, small aircraft throughout the 20 year planning period. However, the runway is currently designed to B-II, small standards. B-II, small aircraft performed approximately 40 operations in 2013 and are expected to grow to 54 operations by 2033, as seen in **Table 3-12**. Although the critical aircraft is currently A-I, small, it is recommended that the runway remain designed to B-II, small standards. In addition, it was recommended a non-precision approach with vertical guidance be developed for Runway 16, and the approach for Runway 34 be upgraded to include vertical guidance. These requirements are important when determining the design standards for the future development of not only the runways but the entire airport.

4.4.1. PRIMARY RUNWAY 16/34

Runway Length

Runway length is a critical component to any airport design, as it provides aircraft a defined area for their takeoff and landing operations. Runway length requirements are determined by reviewing the needs of the critical design aircraft planned to use the airport for a total of 500 annual operations or more. Aircraft require the most runway length during their takeoff roll. Factors affecting runway length include aircraft performance, aircraft load factor, route length, airport elevation, runway gradient, runway condition, and temperature.

FAA AC 150/5325-4B, *Runway Length Requirements for Airport Design,* provides guidance in

determining runway length requirements. **Table 4-4** gives the recommended runway lengths for 04Y.

Table 4-4
Recommended Runway Lengths (airplanes less than 60,000 pounds)

Airport Data	
Airport elevation	1,208 ft. MSL
Mean daily maximum temperature of the hottest month	82.0°F
Maximum difference in runway centerline elevation	14 feet
Aircraft Criteria	**Length (Feet)**
Small airplanes (with less than 10 passenger seats)	
95 percent of these small airplanes	3,400
100 percent of these small airplanes	4,000
Small airplanes with 10 or more passenger seats	4,300

Source: AC 150/5325-4B *Runway Length Requirements for Airport Design*

FAA runway length requirements divide small airplanes (less than 12,500 lbs.) into three categories to determine runway length. These are defined as the following:

Small Airplanes with less than 10 passenger seats:

- 95 Percent of Fleet - This category applies to airports that are primarily intended to serve medium size population communities with a diversity of usage and a greater potential for increased aviation activities. Also included in this category are those airports that are primarily intended to serve low-activity locations, small population communities, and remote recreational areas. Their inclusion recognizes that these airports in many cases develop into airports with higher levels of aviation activity.
- 100 Percent of Fleet - This type of airport is primarily intended to serve communities located on the fringe of a metropolitan area or a relatively large population remote from a metropolitan area.

Small Airplanes with 10 or more passenger seats

- Small airplanes with 10 or more passenger seats (excluding pilot and co-pilot) demand a longer runway to safely serve these type of aircraft, thus these airplanes have their own determined runway length requirements category.

The critical design airplane is classified as a small airplane with 10 or fewer passenger seats. As a result, the current runway length of 3,398 feet meets the recommend runway length of 3,400 feet. The City of Hawley is on the fringe of the Fargo/Moorhead Metropolitan Statistical Area 13 miles to the west. This metropolitan area was thought to place the City of Hawley within the airports serving the 100 percent of small aircraft fleet category for FAA runway length calculations. The recommended runway length for those aircraft is 4,000 feet. Guidance from the FAA, however, states Metropolitan Statistical Areas, Metropolitan Divisions, Micropolitan Statistical Areas, and Combined Statistical Areas are intended solely for statistical purposes. They are created to provide nationally consistent delineations for publishing Federal statistics for geographic areas. The term metropolitan area used by the FAA refers to an airport in an urban location where the fleet mix is expected to be more diverse.

Despite not being considered within a metropolitan area, a runway length of 3,400 feet was not considered adequate by the existing business users of the airport. Letters were received from two companies that currently use, or would use 04Y were the facilities adequate. One corporation, with a

Piper Meridian based at 04Y, stated a runway length of 4,500 feet is necessary to operate at full capacity from 04Y. This corporation plans to upgrade their aircraft to a Daher-Socata TBM 850 within the next five years. This aircraft is larger than the Piper Meridian, and requires 4,500 feet of runway for safe operations without load concessions.

The second company, which opened a new plant in the City of Hawley in 2014, owns a Beechcraft King Air 350, currently based in the Twin Cities. This type of aircraft requires 4,000 feet of runway to operate at full capacity. Although these aircraft do not meet the substantial use threshold of 500 operations to currently become the critical aircraft at 04Y, the City of Hawley should continue to monitor and survey the existing and future users of the airport to support the needs of the community. For the City of Hawley to protect for the potential growth at the airport, a runway extension to 4,500 feet will be presented in the ALP as seen in **Appendix C**.

Runway Width

FAA Airport Design standards require that an RDC B-II-5000 runway with non-precision instrument approaches have a width of 75 feet. A runway width of 75 feet is also a Minnesota State Aviation System Plan (SASP) system objective for an Intermediate classified airport. 04Y currently meets these design standards and is adequate for the 20-year planning period.

Runway Pavement Strength, Type, Condition

Airport pavement strength is based on single wheel and dual-wheel aircraft wheel gear configurations. The gear configuration determines how the weight of the aircraft is distributed on the pavement. Published weight bearing capacity is a result of the pavement section thickness, materials, and underlying soils. The published pavement strength for the primary runway at 04Y is 12,500 pounds or less in a single-wheel configuration. An extension to 4,500 feet may generate more traffic from aircraft larger than 12,500 pounds. It is suggested the pavement strength of the runway be improved to support 30,000 pounds in a single-wheel configuration when the runway is extended.

The maximum gross weight of the future critical design aircraft will continue to be up to but not exceed 12,500 pounds. The airfield pavement should be verified that regular use of aircraft of this size can be accommodated. Any modifications should be made during the next major pavement rehabilitation project. Aircraft greater than 12,500 pounds may use 04Y on a non-regular basis. Future pavement design should ensure that these operations can be accommodated without jeopardizing the pavement condition.

The 2011 Pavement Condition Index (PCI) report states that Runway 16/34 is in good condition.

Runway Alternatives

As identified in the Runway Length section, it is recommended the City of Hawley plan for an extension of Runway 16/34 to a length of 4,500 feet. The current runway length is 3,398 feet, therefore an extension of 1,102 feet is required.

04Y is constrained to the south by a critical federal roadway. U.S. Highway 10 is located approximately 1,123 feet from the existing Runway 34 end along the extended runway centerline. This principal arterial roadway serves as a vital link from the City of Hawley to the Fargo-Moorhead metropolitan area and other surrounding communities.

To the north, the airport is constrained by the location of 15th Avenue North, which is a township road that serves as a connection between 210th Street North and the City of Hawley. This roadway serves rural residential properties and many agricultural properties and is a boundary between Hawley and Cromwell Township.

Extending the Runway 16 or Runway 34 threshold 1,102 feet requires the future Runway Protection Zone (RPZ) location be clear of all incompatible land uses including roadways, structures, recreational land uses, fuel storage facilities, and above-ground utility infrastructure. Previous FAA guidance allowed roads through the RPZ as long as the ditches were properly graded to allow access by rescue and firefighting equipment or by aircraft that may land short or overshoot the runway. That is why U.S. Highway 10 and 15th Avenue North are going through the existing RPZs.

However, in September 2012, the FAA published a memorandum clarifying the FAA policy on land uses within the RPZ. These guidelines state that transportation facilities such as public roads or highways within the RPZ require consultation with the National Airport Planning and Environmental division within the FAA and are prohibited unless it can be proven that no viable alternative exists. The guidelines in the memorandum apply to the introduction of new or modified land uses within an RPZ and proposed changes to the existing RPZ size or location. Although allowed at this time, mitigation of existing incompatible land uses is recommended by the FAA when practicable.

Another consideration when evaluating alternatives is the impact MnDOT Safety Zoning will have on the surrounding residents and economic development around the airport. According to Minnesota Statute Chapter 360, the land use restrictions for Safety Zone A include no buildings, temporary structures, uses that create wildlife hazards, or uses that would create, attract, or bring together an assembly of people. Uses allowed in Safety Zone A include agriculture, cemetery, and automobile parking. For a paved runway, Safety Zone A begins 200 feet from the end of the runway and extends to two-thirds the runway length. Therefore, the length of the Safety Zone depends on the length of the runway.

Safety Zone B begins at the end of Safety Zone A and extends an additional one-third of the runway length. The restrictions in Safety Zone B are less than in Safety Zone A. Buildings are allowed in Safety Zone B but they must be on sites that encompass three or more acres. In addition, Safety Zone B should not create, attract, or bring together an assembly of people that would exceed 15 times the size of the parcel.

Using these guidelines, six primary runway alternatives were developed for the airport sponsor and analyzed to meet the needs of the future users of the airport and minimize the impacts to the surrounding community. The six alternatives are described below:

- No Build Alternative (see **Figure 4-3**, at the end of this chapter). One option the City has when deciding on the future plan of the airport is to do nothing. This, however, discounts any future growth at the airport and any potential to accommodate community growth with the airport being an economic engine. This alternative does not include any new facility construction, however it would require the existing pavement be maintained, and the approaches to be clear of obstructions. This alternative was eliminated because it does not meet the needs of the future users of the airport.

- 602-foot south extension (see **Figure 4-4**, at the end of this chapter). This alternative would extend the runway 602 feet to the south (Runway 34 end) to a total runway length of 4,000 feet. The future RPZ would shift farther south and cross over U.S. Highway 10. As previously discussed, a new RPZ must be completely clear of incompatible land uses and therefore U.S. Highway 10 would need to be relocated. Due to the role of U.S. Highway 10 and the costs associated with relocation, this alternative was removed from further consideration.

- 602-foot north extension (see **Figure 4-5**, at the end of this chapter). This alternative would extend the runway 602 feet to the north (Runway 16 end) for a total length of 4,000 feet. Extending the runway to the north moves the future RPZ over 15th Avenue North. This township road is the boundary between Hawley and Cromwell Townships. Both Townships participate in

the maintenance of this roadway. The roadway is used for residential access to the City of Hawley, a bus route, and agricultural machinery access. Neither township is willing to close this roadway. Therefore, to keep the RPZ clear of incompatible land uses, 15th Avenue North would need to be relocated around the future RPZ. Roadway alternatives are discussed in the following section. Any extension of a runway increases the lengths of the MnDOT Zones A and B. There would be no incompatibilities for either Zones A or B to the north, however there would be two residences introduced into Zone A for this alternative (see **Figure 4-5**). This alternative satisfies the needs of the airport for the near-term, however the ultimate need at 04Y is a 4,500-foot runway. Therefore, this alternative will continue to be evaluated to meet the near-term needs of the airport users. The following alternative analyzes the impacts for the long-term needs at the airport.

- 1,102-foot north extension (see **Figure 4-6**, at the end of this chapter). This alternative extends the runway 1,102 feet to the north off the Runway 16 end to a total runway length of 4,500 feet. The RPZ would shift north and cover portions of 15th Avenue North. The township road would need to be relocated approximately 4,900 linear feet around the RPZ. Roadway alternatives are discussed in the next section. To the north, two residences would be included in Zone B, which already meet Zone B requirements. To the south, two residences would be introduced into Zone A. This alternative is the preferred alternative because it meets the needs of the existing and future users of the airport over the next 20 years.

- Runway Shift (see **Figure 4-7**, at the end of this chapter). This alternative analyzes the impact of shifting the runway to the northwest to remove the future RPZ from U.S. Highway 10, remove Zone A from any residential parcels, and extend the runway to 4,500 feet. This would require removing 1,035 feet of pavement on the Runway 34 end and adding 2,137 feet of pavement to the Runway 16 end. This alternative requires the relocation of 15th Avenue North a minimum of 2,900 feet to the north because the future runway pavement would cross over the road. To the north, Zone B would encompass two additional residences. To the south, four residences would be removed from Zone A, but two residences would be added to Zone B.

  The change in the Runway 34 threshold location shifts the Terminal Instrument Procedures (TERPs) Departure Surface farther north. The Departure Surface, when clear, allows pilots to follow standard departure procedures. If this surface is not clear, departure procedures may require non-standard climb rates and/or higher departure minimums. There are no departure surface procedures currently published or proposed to be published at 04Y over the next 20 years. However, the Departure Surface is recognized by the FAA at all airports and no new structures are allowed within this surface. The runway shift causes the Departure Surface to pass through the existing building area, therefore no new development could occur in the existing building area. Additional land would need to be acquired to expand the building area (see **Figure 4-7**). The additional cost associated with the construction of this alternative including the runway extension of 2,152 feet, 15th Avenue North relocation, and the additional land required for any building area development removed this alternative from further consideration.

To meet both the near and long-term needs for the users of the airport, a runway extension to the north of 602 feet (4,000-feet total runway length) will be planned for future development on the Airport Layout Plan with an ultimate development length shown to 4,500 feet (see **Appendix C**).

Roadway Alternatives

The future and ultimate preferred runway extension alternatives move the future RPZ over 15th Avenue North. Both Hawley and Cromwell Township stated the road could not be closed because of its importance to the residents using the road for residential access, bus routes, and agricultural equipment.

Five roadway alternatives were developed to satisfy the requirements of the FAA and to keep the roadway open to the surrounding community members. All roadway alternatives consider the ultimate runway length of 4,500 feet. The goal is to only move the roadway once to accommodate airport growth. Below are the roadway alternatives that were analyzed:

- Roadway Alternative 1 (see **Figure 4-8**, at the end of this chapter) begins at the intersection of 210th Street North and 15th Avenue North. The proposed relocation is designed for travel at speeds of 35-40 miles per hour. The relocated road is 7,350 feet long and crosses two residential parcels used for farming. Approximately 19 acres would need to be acquired in road right-of-way, including farmland that would no longer be farmable. This alternative closes 1,500 linear feet of 15th Avenue North while still allowing access to the residential property west of the airport. The terrain in this area is hilly and will require approximately 17,100 cubic yards of fill. No wetlands will be impacted with this alternative. This alternative will cost approximately $750,000.

- Roadway Alternative 2 (see **Figure 4-8**) extends 210th Street North by 1,380 feet before it turns east towards the airport. The road follows the angle of the RPZ and the ground contours, in order to reduce the amount of fill required, before connecting back to 15th Avenue North. This alternative allows travel speeds of 35-50 miles per hour. Roadway Alternative 2 is 7,900 feet long and will cross two parcels used for farming. This alternative is similar to Roadway Alternative 1 except for the west connection to 210th Street North. Approximately 16 acres of road right-of-way would need to be acquired from four parcels. A long term plan for Cromwell Township is to extend 210th Street North one mile to 28th Avenue N. However, due to the terrain in that area, this connection has not yet been completed. This alternative will cost approximately $850,000.

- Roadway Alternative 3 (see **Figure 4-8**) extends 215th Street North by 1,480 feet, follows the RPZ east until connecting back to 15th Avenue North. This alternative was designed for speeds of 35-40 miles per hour. Roadway Alternative 3 is 5,600 feet long and crosses two parcels where the land is rented for farming. Approximately 14 acres of land acquisition is required for road right-of-way, including approximately 11 acres of land that would no longer be farmable. This alternative has the same eastern connection to 15th Avenue North as Alternatives 1 and 2. This alternative will cost approximately $600,000.

Based on discussions with the Master Plan Advisory Group, roadway Alternative 3 was chosen as the preferred alternative because it has the least amount of impacts to the surrounding land owners and environment and has the lowest construction costs. Both Hawley and Cromwell Townships would like to work out an agreement to continue to share the maintenance costs and responsibilities although the new roadway is completely located in Cromwell Township.

The three roadway alternatives were presented at the public open house. During that time, residential land owners expressed their concerns with how the roadway alternatives would impact existing farming operations. Any reduction in impact to the farming operations east of the future RPZ would be more acceptable to the surrounding residents. Based on this discussion, two additional roadway alternatives were analyzed.

- Roadway Alternative 4 (see **Figure 4-9**, at the end of this chapter) starts at 215th Street North and follows the western side of the RPZ as with Alternative 3. However, to minimize the amount of farming land acquisition on the east side of the runway, the roadway is proposed to follow the RPZ as closely as possible along the east side as well. This alternative was designed for traffic travelling at 35 miles per hour. Roadway Alternative 4 is 4,900 feet long and crosses two parcels. Approximately seven acres of land acquisition is required for road right-of-way. This alternative will cost approximately $525,000.

- Roadway Alternative 5 (see **Figure 4-9**) does not relocate 15th Street North, but instead tunnels the roadway underneath the future RPZ. The tunnel would be 1,550 feet long and due to FAA requirements, would not be allowed to be constructed under the Runway Safety Area.

Based on the additional roadway analysis, Roadway Alternatives 4 and 5 were chosen as the final preferred alternatives because they minimize the impacts to local residents and farming operations while allowing the runway to be constructed to 4,500 feet. Both Hawley and Cromwell Townships also agree with Roadway Alternatives 4 and 5 as long as an agreement can be written prior to construction of the determined roadway alternative that allows the maintenance of the roadway to continue to be split between the two townships as it currently exists today.

These two roadway alternatives will be evaluated in greater detail when the runway extension is justified based on FAA requirements and a single roadway alternative needs to be determined.

4.5. AIRPORT VISUAL AIDS & NAVIGATIONAL AIDS

Airport visual aids are a necessary component to provide pilots with the proper guidance within the immediate airport environment. As discussed in the Airport Inventory chapter, there are several visual aids at the airport. This section will identified if any airport visual aids need to be added, changed, or upgraded based on the needs of the existing and future users of the airport.

- The existing runway edge lights on Runway 16/34 are Medium Intensity Runway Lights (MIRLs). MIRLs are recommended for runways with night procedures and/or visibility minimums one mile or greater. If the visibility minimums drop below one mile than High Intensity Runway Lights (HIRLs) are required. 04Y has adequate runway edge lighting and should maintain those lights throughout the 20-year planning period. In the event of a runway extension, the runway lights will also be extended.
- 04Y has taxiway edge lighting installed along the connecting taxiway leading to the apron. This is adequate for the 20 year planning period. It is recommended when the full parallel taxiway is constructed that it too be lit with taxiway edge lighting.
- Runway 16/34 is currently lacking non-precision runway markings. It is recommended these be added to the runway during the next runway project and maintained over the next 20 years.
- There are not any Runway End Identifier Lights (REILs) installed at 04Y. REILs provide rapid and positive identification of the approach end of a runway during night and low visibility conditions. It is recommended that REILs be installed to both ends of Runway 16/34.
- There are currently 2-light Precision Approach Path Indicators (PAPIs) for both runway ends at 04Y. These type of lights provide glide path guidance to pilots during landing operations. No other Visual Glide Slope Indicators (VGSI) are recommended for 04Y throughout the planning period.

The existing and proposed GPS approaches with future LPV capability to each runway end will be adequate for the existing and future users of the airport over the next 20 years. Additional navigational aids, as discussed in the Airport Inventory chapter, such as a VOR, ILS, or NDB require additional equipment be installed at the airport and are not recommended for 04Y over the next 20 years.

4.6. METEOROLOGICAL FACILITIES

The existing wind cone was constructed in its current location in 1992 (see **Figure 2-5**). The wind cone is visible to pilots on both ends of Runway 16/34. It is also visible when leaving the existing building area. It is recommended that the wind cone remain in its current location over the next 20 years.

There currently is no Automated Weather Observation System (AWOS) at 04Y. It is recommended an AWOS be installed at the airport and kept clear of agricultural operations within 100 feet, clear of objects above the 30-foot sensor height within 500 feet, and clear of high objects within 1,000 feet of the system. The proposed location of the future AWOS is shown in **Figure 4-6**.

4.7. TAXIWAY & TAXILANE FACILITY REQUIREMENTS

4.7.1. TAXIWAY REQUIREMENTS

The existing taxiway system at 04Y consists of one paved connecting taxiway from the apron area to the Runway 34 end (see **Figure 2-3**). One of the safety goals recommended by MnDOT Office of Aeronautics is to eliminate direct access from the building apron area to the runway in order to avoid aircraft or vehicles accidently accessing the runway. The construction of a parallel taxiway would eliminate this issue. Building area alternatives presented in **Section 4.10.3** address this concern.

It is recommended that when the runway is extended to either 4,000 feet or 4,500 feet, a full parallel taxiway be constructed. A full length parallel taxiway allows aircraft to exit the runway quickly to eliminate the need for aircraft to back-taxi on an active runway.

The runway to taxiway centerline separation distance and the taxiway safety area dimensions are defined by the critical aircraft and type of approaches proposed to be used at the airport over the next 20 years. The suggested design standards for the runway are based on RDC B-II aircraft, and the future approaches are proposed to be non-precision with one mile visibility minimums. Based on this criteria, the future parallel taxiway centerline would be constructed 240 feet from the runway centerline. The taxiway object free area (TOFA) width is 131 feet centered on the taxiway centerline to ensure proper wing tip clearance. Only objects necessary for air navigation may be placed within the TOFA.

Taxiway width, fillet, and curve design are based on the Taxiway Design Code (TDG) of the critical aircraft identified for use on the parallel taxiway. The TDG is based on the width of the main gear of the aircraft and the distance between the cockpit and main gear of the critical design aircraft. The classification for taxiway development at 04Y is TDG-2. The taxiway width for this group of aircraft is 35 feet. It is recommended that the full parallel taxiway be constructed 240 feet from the runway centerline at a width of 35 feet.

There is currently an aircraft turnaround area on the Runway 16 end. Turnaround areas at the end of the runway give pilots an area to safely park their aircraft while performing engine run-ups or airplane system checks necessary before take-off. This allows pilots to stay safely off the active runway until they are ready to begin their take-off operation. It also allows pilots in the flight pattern or those ready to depart to safely continue their operation. The current turnaround does not allow aircraft to hold far enough from the runway. If a parallel taxiway is not justified in the next five years, then it is recommended that the turnaround area be expanded to keep an aircraft from being an impediment to approaching aircraft. The turnaround will eventually become part of the full-parallel taxiway.

4.7.2. TAXILANE REQUIREMENTS

While taxiways provide access from the active runways to the building areas, taxilanes provide access to hangars and other facilities throughout the building area. Taxilanes are not as wide nor do they require the

same safety area widths as taxiways due to aircraft operating at a lower speed than on a taxiway.

There are two groupings of aircraft that are in the existing hangars or operate businesses at 04Y. The TDG for the type of aircraft using the hangar area at the airport is TDG-1A and TDG-2. Based on the filet design tables for taxiways, the minimum recommended taxilane width for TDG-1A aircraft is 25 feet and the taxilane width for TDG-2 aircraft is 35 feet. The taxilane object free area used to maintain adequate wing tip clearance between hangars is based on the ADG of the critical aircraft and should be 79 feet for ADG I aircraft and 115 feet for ADG II aircraft.

The existing building area to the west of the main apron is designed for TDG-1A aircraft. The separation between hangars should be at least 79 feet to provide clearance while aircraft taxi between buildings. Pilots will need to exercise caution when taxiing between hangars with less than standard separation. The majority of separation distances in this building area meet standards. Any new taxilanes constructed in the building area should meet the width and separation distance standards as mentioned above. The 20-year building area plan in the ALP depicts the different separation standards and taxilane access within the building area (see **Appendix C**).

4.8. TIE-DOWN AND APRON SIZE REQUIREMENTS

An aircraft apron provides an area for aircraft parking, aircraft movements, fueling operations, and access to the hangar area. The apron space requirements are developed according to local trends and FAA design standards. The existing apron is 5,650 square yards and provides five tie-downs.

Aircraft Tie-Downs

An analysis of the overall tie-down and apron size requirements was completed to determine the future needs at the airport. The peak number of operations on the busiest day of the year at 04Y will be used to calculate the number of tie-down spaces needed in the base year and also at the end of the 20 year planning period. This will ensure there are adequate tie-down spaces available at any time throughout the year. The demand at the airport was calculated at the beginning of the chapter. In 2013, the peak number of operations on the busiest day is 46. Itinerant aircraft represent 50 percent of the operations at the airport for a total of 23 operations or 12 aircraft on the busiest day of the year. It is assumed that 50 percent of itinerant aircraft that use the airport on the busiest day will stay and park at the airport for a total of six tie-downs needed in 2013.

The same formula was used to determine the number of tie-downs necessary at the end of the 20 year planning period. The peak number of operations at the airport in 2033 is 68. Therefore, there are approximately 34 itinerant operations on the peak day by 17 aircraft on the busiest day of the year. If 50 percent of the itinerant aircraft that use the airport on the busiest day stay and park at the airport, 9 tie-downs will be needed in 2033.

There are currently five aircraft tie-down spaces available for ADG-1A aircraft at 04Y, which does not meet the existing or future needs of the airport. One space is needed in the near future and an additional two spaces will be needed within the 20 year planning period. It is recommended that two of the additional tie-downs be constructed for ADG-2 aircraft. The building area plan on the ALP depicts the future tie-down locations.

Apron Size

General aviation apron space requirements necessitate an assessment of the number of aircraft tie-downs, airplane types, wingtip clearances, and aircraft maneuverability.

Existing apron facilities at the airport consist of a main 5,650 square yard area for parking, aircraft tie-down, fueling, circulation, and general aircraft circulation. General FAA size factors assume 960 square

yards of apron space to accommodate both the aircraft and a taxilane for an ADG-I airplane, and 1,385 square yards to accommodate both the aircraft and a taxilane for an ADG-II airplane. Accommodations for ADG-II sizing yield a recommended size of 6,021 square yards of apron space to accommodate existing demands, and 9,000 square yards of apron space to accommodate future demands. The existing apron should be expanded within the 20 year planning period to accommodate future demands including parking for ADG-II aircraft. Actual apron size will be based on meeting local constraints and maneuverability requirements.

4.9. MN STATE AVIATION SYSTEM PLAN (SASP) AIRSIDE RECOMMENDATIONS

The MN SASP gives a top down approach to looking at the needs of the aviation system in Minnesota. Although the Airport Master Plan process is a more in depth look at a specific airport, the SASP recommends basic needs for the airport based on how the airport serves the aviation system as a whole within the state.

04Y is classified as an Intermediate Airport in the 2012 Minnesota State Aviation System Plan (SASP). Intermediate Airports such as 04Y have a paved and lighted primary runway less than 5,000 feet in length. These airports are capable of accommodating all single-engine engine aircraft and some multi-engine aircraft and business jets depending on runway length. These airport types serve a variety of roles including emergency medical flights, recreational flying, flight training, and business travel flights in support of local businesses.

At 04Y, the SASP recommends the addition of an enhanced non-precision instrument approach with vertical guidance approach technology on at least one runway end. The SASP also recommends expansion of the apron area as well as the installation of runway visual aids such as REILs. All of these recommendations have been discussed in this chapter and will be included on the ALP (see **Appendix C**).

4.10. LANDSIDE FACILITY REQUIREMENTS

Building area facilities at a general aviation airport support airfield operations including aircraft storage, fueling operations, aviation services, Arrival/Departure building space, and automobile parking. Overall facility requirements should be designed to accommodate ARC B-II aircraft to meet existing and future critical aircraft requirements. Areas designed to exclusively serve smaller aircraft will also be depicted on the ALP (see **Appendix C**).

4.10.1. ARRIVAL/DEPARTURE (A/D) BUILDING

General aviation Arrival/Departure (A/D) buildings provide an area for local and transient pilots and passengers to transition to and from the aircraft operations area. The existing A/D building is 616 square feet and was constructed in 2008. The facilities within the A/D building include restrooms, conference table, office, and computer access for flight planning. The facilities located within the building are adequate for the type of users at 04Y.

Public space requirements are designed around the number of passengers (including the pilot) during the peak hours of operations at the airport. A general average of one pilot and one passenger per general aviation flight can be assumed. A general aviation A/D building requires approximately 50 square feet per passenger for circulation, waiting area, management/operations space, public conveniences, concessions area, and storage. The recommended size of the A/D building was based on the peak hourly operations of 10 in 2013 and 14 in 2033 (see Section 4.2.2), assuming two persons per flight. The existing activity at 04Y requires a 1,000 (20 x 50) square foot building increasing to 1,400 (28 x 50) square feet within the 20 year planning period. The existing A/D building does not meet the amount of space required during the

peak hour of the peak month. The City of Hawley should continue to monitor the use of the A/D building. Plans for expansion may be needed in the future and will be shown on the ALP.

4.10.2. AIRPORT ACCESS & AUTOMOBILE PARKING

Access

The entrance to 04Y is located on the southwest side of the airport along 215th Street North accessible via U.S. Highway 10. The airport entrance road provides access to the building area and automobile parking. This roadway is currently a bituminous surface and adequate to serve the existing and projected needs of the airport.

Parking

An airport needs to provide adequate automobile parking to accommodate pilots, employees, visitors, and passengers. The airport automobile parking lot is paved and has 10 automobile parking stalls in immediate proximity to the A/D building. The SASP recommendations one automobile parking space per based aircraft plus 25 percent. There are currently 33 based aircraft at 04Y. Adding 25 percent to that number gives a total of 42 automobile parking spaces needed. The based aircraft forecasts show 46 based aircraft in 2033 which would require approximately 58 automobile parking spaces at the airport within the 20 year planning period. Plans for additional parking near the A/D building and also in various locations near future hangars has been added to the future building area development plans.

In addition, on-site aviation businesses also require additional vehicular parking needs for employees and their visitors. Generally, an automobile parking area should provide five parking spaces for each service offered with additional spaces for employee parking. There are no aviation businesses currently operating on the airport. Future parking spaces have been added to areas identified as future business locations. The City of Hawley should continue to monitor parking availability for future businesses locating at 04Y.

4.10.3. AIRCRAFT STORAGE

Aircraft are typically stored in conventional, box hangars, or T-hangar structures on the airport. Currently, 04Y has four public T-hangar buildings (32 units) and one four unit conventional private hangar. No based aircraft are stored outside. The existing southern T-hangar has had accessibility issues due to the location of the fuel pump on the apron adjacent to the taxilane access. When aircraft are fueling in the current location, aircraft stored in the southern T-hangar cannot taxi safely around the parked fueling aircraft. Alternative locations were evaluated during the building area development to alleviate this issue.

Planning considerations for hangar facilities include the appropriate number and type of hangars to accommodate the projected based aircraft, airport sponsor preferences, hangar owner/tenant needs, and geographic/environmental constraints. Aircraft storage needs are driven by the based aircraft forecast and the type of aircraft storage demand.

Currently, most of the based aircraft at 04Y utilize T-hangar units for storage. Demand for T-hangar space is assumed to remain strong as it is economical for the user. Currently, there are four people on a waiting list for T-hangar space. It should be noted that additional infrastructure development cannot occur within the Departure Surface as stated in **Section 4.4.1.** Therefore, all development was shown outside of those limits.

Four building area alternatives were presented to the Master Plan Advisory Group, which evaluated the needs identified at the airport such as additional tie-down parking spaces for both small and larger aircraft, additional apron space, additional automobile parking spaces, additional hangar storage, and eliminating direct access from the building area to the runway. The alternatives analyzed are described below:

Alternative A, depicted on **Figure 4-10,** at the end of this chapter, placed T-hangars where the least amount of fill was required since there is an immediate need for this type of hangar development. A small apron for B-II aircraft parking is shown north of the existing apron. A FBO hangar of 100 feet by 100 feet is shown on the existing apron with additional parking spaces added for employees and tenants, and adequate room is provided for a fuel truck to access fuel tanks. The remainder of the existing airport property is used for development of additional conventional private hangars.

Alternative B, depicted on **Figure 4-11**, at the end of this chapter, expanded the existing apron to accommodate B-II aircraft parking and an apron for a FBO. T-hangars are proposed to be built in line with the existing T-hangars with private conventional hangars being built on the north side of the building area.

Alternative C, depicted on **Figure 4-12**, at the end of this chapter, separates vehicle and aircraft traffic by adding access roads to private conventional hangars and the FBO. The A/D building is shown to be relocated and the apron is to be expanded to the north. Proposed T-hangars are built in line with the existing T-hangars and the aircraft renting those units will access the runway and fueling by taxiing through the conventional hangar area.

Alternative D, depicted on **Figure 4-13**, at the end of this chapter, is a combination of Alternative A and Alternative C. A primary taxilane connects all hangars to the proposed parallel taxiway and fueling area. A mix of conventional private hangars and public T-hangars are shown throughout the building area, with two 10-unit T-hangars located in an area which does not require as much fill as some of the remaining portions of the building area. It is proposed that the next hangar to be constructed at the airport would be a T-hangar to accommodate the four aircraft on the waiting list to base at 04Y. Vehicle parking is provided along the north property line to separate vehicle and aircraft traffic.

All alternatives eliminate direct access from the Runway 34 end to the apron to avoid unwanted operations on the runway.

The Master Plan Advisory Group chose Building Alternative D as the preferred alternative because it allows for near-term development of T-hangars to meet existing demand. Alternative D will be depicted on the ALP (see **Appendix C**). The future building area may show additional hangar development beyond the 20 year planning period. This is beneficial to show the potential of the building area should additional user needs occur.

4.10.4. AIRPORT FUELING SYSTEMS

Fuel storage requirements are based on the average forecasted number of annual operations and fuel sales data for the airport. Based on national estimates, an estimated fuel consumption rate of three gallons per piston aircraft operation for 100LL fuel and a consumption rate of five gallons per turbine aircraft operation for Jet A fuel is common at general aviation airports similar in size to 04Y. The existing fuel facility at 04Y is located along the main apron and consists of a 3,000 gallon 100LL tank.

In 2013 there were an estimated 8,406 operations by piston aircraft and 934 operations by turbine aircraft. As discussed in **Chapter 4.2.2**, 14.8% of the 04Y operations occur during the peak month. There are

1,382 piston operations during the peak month, and at three gallons per operation, 4,147 gallons of 100LL fuel are sold during the peak month at 04Y. The peak month operations for piston aircraft increase to 2,058, and there will be 6,175 gallons of 100LL sold per month by the end of the 20-year planning period (see **Figure 4-13**, at the end of this chapter).

The fuel storage requirements are not sufficient to accommodate existing and future demand at the airport. The airport should replace the 3,000 gallon 100LL fuel tank with a 10,000 gallon fuel tank, by the end of the 20-year planning period. An upgrade to the existing card reader may also be necessary due to software updates within the industry. In addition, Jet A fuel is not currently available at the airport but may be needed by agricultural aircraft and some corporate turboprop aircraft in the future. The City should explore installing a Jet A tank of at least 2,000 gallons in the 20 year planning period. The future location of the Jet A fuel tank is shown on the preferred building area plan.

The location of the existing 100LL fuel pump and card reader does not allow for aircraft to taxi past fueling aircraft to have access to the existing T-hangar on the south end of the building area. In addition, due to the location of the fuel tanks, the pump and card reader cannot be seen from the A/D building. Therefore, the preferred building area alternative depicts the location where the pumps and card reader should be relocated to allow aircraft adequate space to taxi by fueling aircraft and also allow visibility from the A/D building.

4.10.5. AIRPORT MAINTENANCE

The City of Hawley does not store airport maintenance equipment at the airport due to lack of storage space and the lack of fuel for maintenance equipment at the airport. In addition, the City maintenance equipment buildings are heated where a new building at the airport for equipment would not be heated. For these reasons, the City of Hawley would like to keep the airport snow removal equipment stored with the other City maintenance equipment.

4.10.6. AIRPORT PROPERTY

Airport property consists of 102 acres, owned in fee by the City of Hawley. In addition, the City has acquired 44.2 acres in easement within both approach areas of the runway. The future property acquisition at the airport includes 48.3 acres from five property owners for the Runway 16 extension, RPZ, relocation of 15th Avenue North, and the 20-foot Building Restriction Line. Property acquisition will be shown on the ALP (see **Appendix C**).

4.10.7. FENCING & SECURITY

04Y does not have any wildlife or security fencing. A perimeter fence is recommended at airports for wildlife and security purposes but not yet a requirement for general aviation airports such as 04Y. FAA is beginning to require general aviation airports to complete a Wildlife Hazard Assessment study to determine the risk wildlife pose to aircraft at an individual airport. If a perimeter fence is recommended from the plan, those improvements will be specifically recommended and prioritized for FAA funding.

4.10.8. STATE AIRPORT ZONING

The existing Airport Zoning Ordinance adopted for the airport in 1984 protects the airspace and land use for the existing 3,398 foot runway length for Runway 16/34 and for a future 3,000 foot crosswind runway, Runway 7/25. The ordinance currently protects for a planned runway extension to 3,700 feet. The ordinance is recommended to be updated to protect the existing and planned future configurations based on the results of the Airport Master Plan study. The updated zoning requirements for the future runway configurations will be depicted on the ALP (see **Appendix C**).

4.11. MN SASP LANDSIDE RECOMMENDATIONS

The 2012 MN SASP also provides landside recommendations for each airport within the state. At 04Y, most of the landside recommendations in the SASP are met. They include having an A/D building, enough hangar storage for 95% of all based aircraft, and it is desirable but not required to have perimeter fencing at the airport. The SASP suggests adding a minimum of one parking space per based aircraft plus 25%. This would require 58 parking spaces by the end of the 20-year planning period. All of these recommendations have been discussed in this chapter and will be included on the ALP (see **Appendix C**).

4.12. SUMMARY

The following points summarize the key facility requirements at 04Y:

- A non-precision approach with vertical guidance should be developed for both ends of Runway 16/34.
- The recommended runway length is 4,500 feet based on existing critical aircraft types currently using, and expected to use the airport. The preferred alternative is to extend the runway to the north to avoid rerouting U.S. Highway 10.
- A full parallel taxiway is recommended at the airport to prevent aircraft from back-taxiing on an active runway.
- 15th Avenue N. will need to be relocated around the location of the future RPZ. The preferred alternative is to extend 215th Street North and follow the RPZ back to 15th Avenue North east of the runway.
- Building area improvements recommend an expanded hangar area to accommodate additional T-hangar and conventional hangar development in addition to an expanded apron area, a location for a FBO hangar, additional tie-downs, and an SRE building.
- The existing 100LL fuel pump and card reader location do not allow aircraft to taxi around fueling aircraft to access the southern existing T-hangar. Recommendations have been made to shift these facilities to the north.

Hawley Municipal Airport

Airport Master Plan

Figure 4-1

Planning Considerations

Overall Planning Considerations:

- Review Community Comprehensive Growth Plan &/or Local Zoning Ordinance to be Compatible with & Accommodate Airport Needs
- Zoning Regulations May Need to Change to Protect Flying Public, People & Property on the Ground

Future FAA Runway Protection Zone Location and Land Uses Must be Approved by FAA

Determine Future Runway Length to Accommodate Aircraft Safety Needs

Identify Critical Design Aircraft for Existing & Future Airport Design

Review Need for Full Parallel Taxiway To Minimize Taxiing on Runway

Runway 16/34 (3,398' x 75' Asphalt)

16

34

Building Area

15 ST

225 ST N

SUNSET BLVD

WESTGATE CIR

LEONARD ST

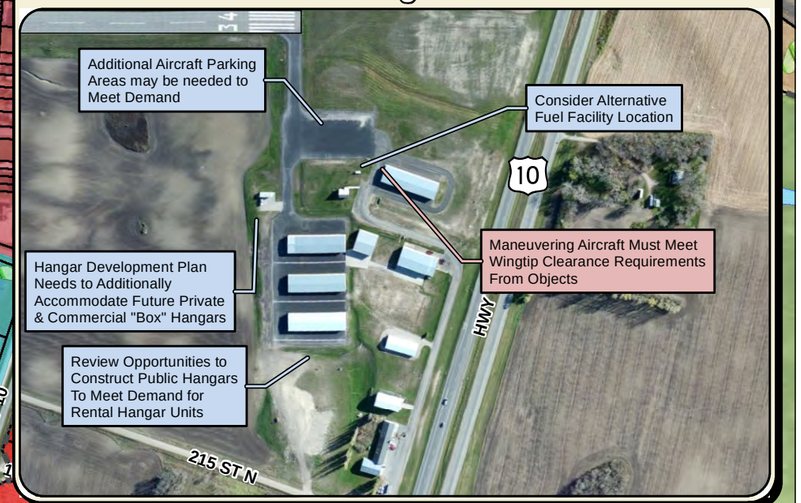
HWY 10

215 ST N

210 ST N

15 AVE N

10



Legend

- Airport Property
- Hawley City Limits
- Parcels
- Wetlands (NWI)
- Potential Expansion
- Lakes

Airspace

- FAR Part 77 Primary Surface
- FAR Part 77 Approach Surface

Land Use

- FAA Runway Protection Zone (RPZ)
- Future_RPZ
- MnDOT Clear Zone (CZ)
- MnDOT Safety Zone A
- MnDOT Safety Zone B

Airport Design

- Runway Safety Area (RSA)
- Runway Obstacle Free Zone (ROFZ)
- Runway Object Free Area (ROFA)
- Runway Edge

Hawley Zoning

- Agricultural Commercial
- Heavy Industrial District
- Highway Commercial
- Large Lot Residential
- Light Industrial
- Medium Lot Residential
- Multiple Family Residential
- Neighborhood Residential
- Transition Zone District

Clay County Zoning

- AG GENERAL
- HIGHWAY COMMERCIAL
- LANDING FIELD OVERLAY
- MUNICIPALITY

0 1,000 Feet

Source: Clay County, Esri Imagery, City of Hawley

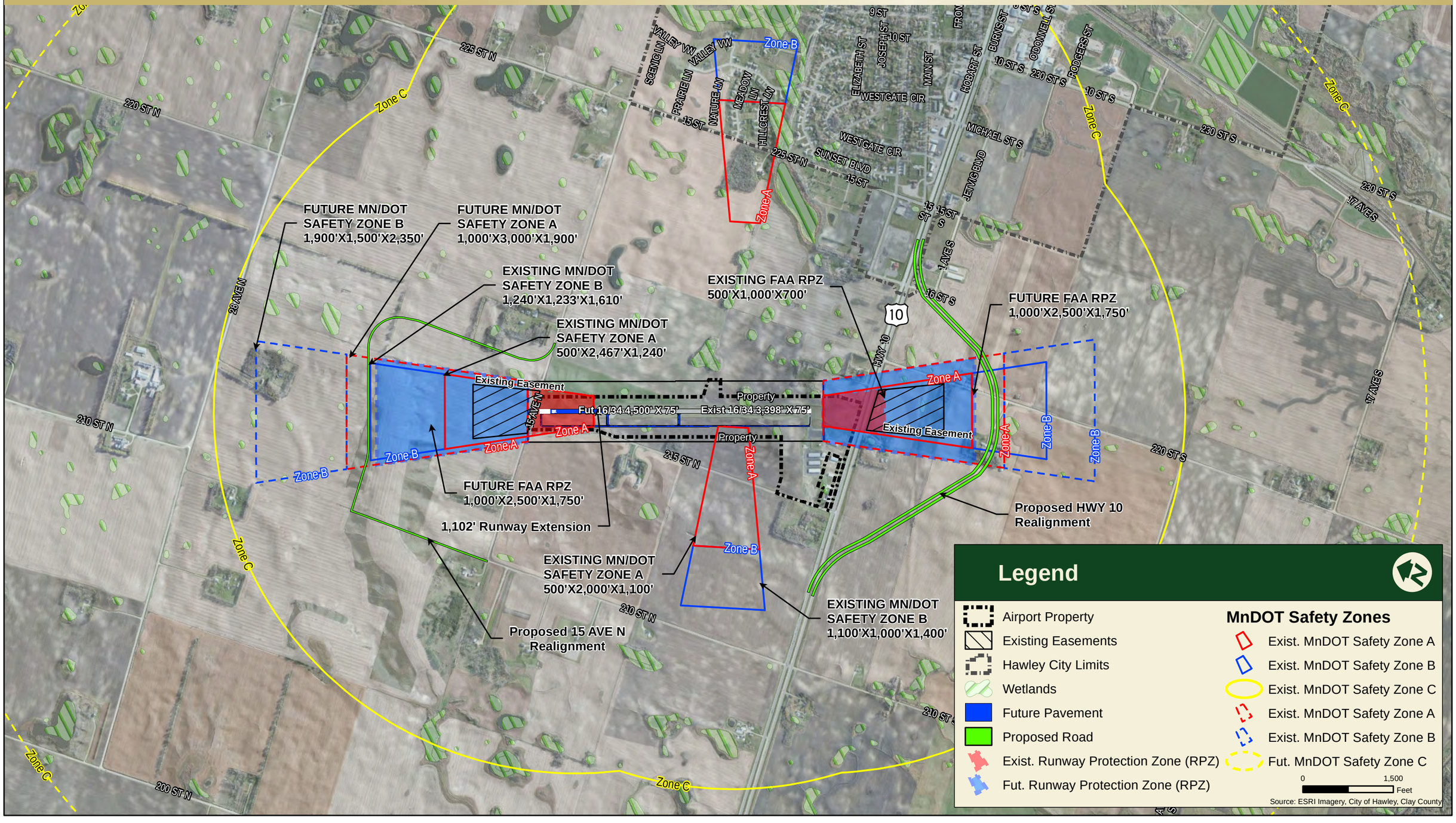
Map Document: C:\Users\christopherga\Desktop\AVIA_Transfers\HAWL\GISTEST1_5\T51106663\ESRI\Maps\CH4\106663 HAWL PLanning Considerations.mxd
Date Saved: 9/17/2014 1:40:23 PM

Hawley Municipal Airport

Airport Master Plan

Figure 4-2

Precision Instrument Approach

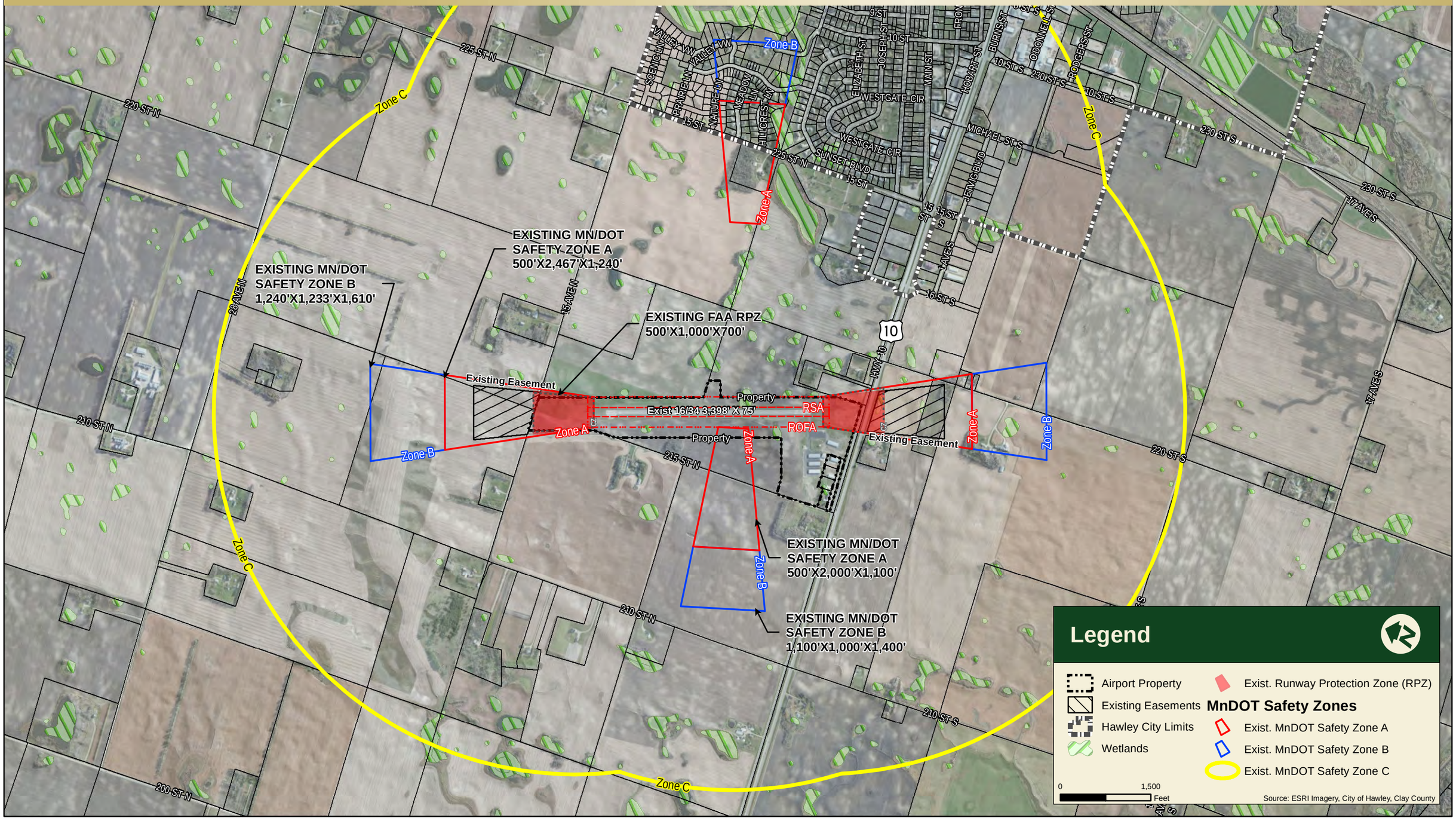


Hawley Municipal Airport

Airport Master Plan

Figure 4-3

No Build Alternative



Hawley Municipal Airport

Airport Master Plan

Figure 4-4

602' South Extension

FUTURE MN/DOT SAFETY ZONE B 1,300'X1,333'X1,700'

EXISTING MN/DOT SAFETY ZONE B 1,240'X1,233'X1,610'

FUTURE MN/DOT SAFETY ZONE A 500'X2,667'X1,300'

EXISTING MN/DOT SAFETY ZONE A 500'X2,467'X1,240'

FUTURE FAA RPZ 500'X1,000'X700'

EXISTING FAA RPZ 500'X1,000'X700'

602' Runway Extension

Proposed HWY 10 Realignment

Existing Easement

Property

Exist 16/34 3,398' X 75'

Fut 16/34 4,000' X 75'

Property

Existing Easement

EXISTING MN/DOT SAFETY ZONE A 500'X2,000'X1,100'

EXISTING MN/DOT SAFETY ZONE B 1,100'X1,000'X1,400'

Zone A

Zone B

Zone C

225 ST N

SUNSET BLVD

15 ST

HARTFORD ST

JEFFERSON BLVD

15 ST S

16 ST S

14 AVE S

15 AVE S

10

215 ST N

210 ST N

210 ST S

220 ST S

HWY 10

Legend

- Airport Property
- Existing Easements
- Hawley City Limits
- Wetlands
- Future Pavement
- Proposed Road
- Exist. Runway Protection Zone (RPZ)
- Fut. Runway Protection Zone (RPZ)

MnDOT Safety Zones

- Exist. MnDOT Safety Zone A
- Exist. MnDOT Safety Zone B
- Exist. MnDOT Safety Zone C
- Exist. MnDOT Safety Zone A
- Exist. MnDOT Safety Zone B
- Fut. MnDOT Safety Zone C

0 1,000 Feet

Source: ESRI Imagery, City of Hawley, Clay County

Hawley Municipal Airport

Airport Master Plan

Figure 4-5

602' North Extension

FUTURE MN/DOT SAFETY ZONE B 1,300'X1,333'X1,700'

EXISTING MN/DOT SAFETY ZONE B 1,240'X1,233'X1,610'

FUTURE MN/DOT SAFETY ZONE A 500'X2,667'X1,300'

EXISTING MN/DOT SAFETY ZONE A 500'X2,467'X1,240'

602' Runway Extension

EXISTING FAA RPZ 500'X1,000'X700'

FUTURE FAA RPZ 500'X1,000'X700'

EXISTING MN/DOT SAFETY ZONE A 500'X2,000'X1,100'

EXISTING MN/DOT SAFETY ZONE B 1,100'X1,000'X1,400'

Existing Easement

Property

Exist 16/34 3,398' X 75'

Fut 16/34 4,000' X 75'

Zone A

Zone B

Zone C

225 ST N

215 ST N

210 ST N

210 ST S

220 ST S

SUNSET BLVD

15 ST

HARTFORD ST

JEMGBLVD

15 ST S

1 AVE S

LEONARD ST

16 ST S

2 AVE N

HWY 10

10

Legend

- Airport Property
- Existing Easements
- Hawley City Limits
- Wetlands
- Future Pavement
- Exist. Runway Protection Zone (RPZ)
- Fut. Runway Protection Zone (RPZ)

MnDOT Safety Zones

- Exist. MnDOT Safety Zone A
- Exist. MnDOT Safety Zone B
- Exist. MnDOT Safety Zone C
- Exist. MnDOT Safety Zone A
- Exist. MnDOT Safety Zone B
- Fut. MnDOT Safety Zone C

0 1,000 Feet

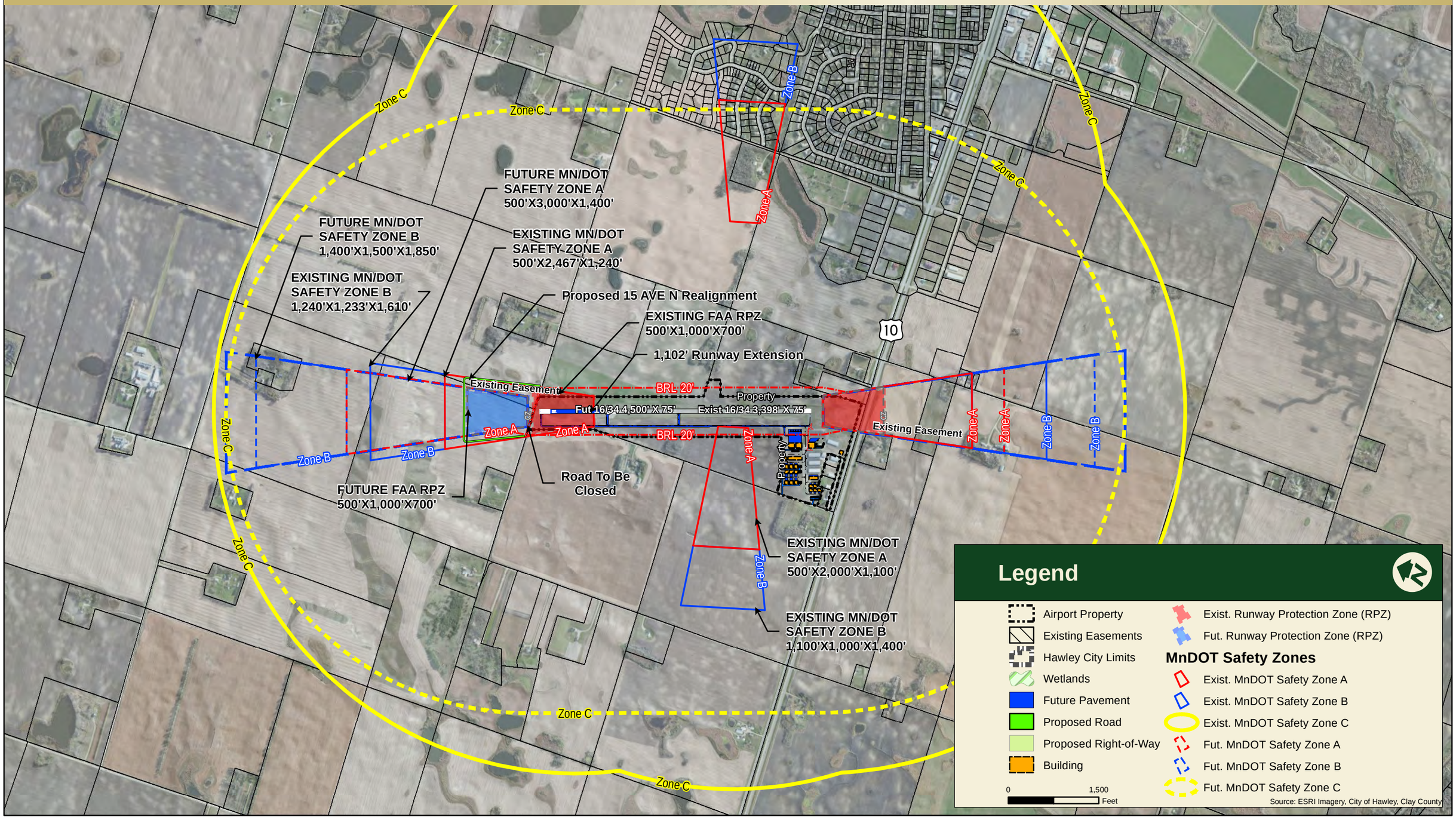
Source: ESRI Imagery, City of Hawley, Clay County

Hawley Municipal Airport

Airport Master Plan

Figure 4-6

1,102' North Extension

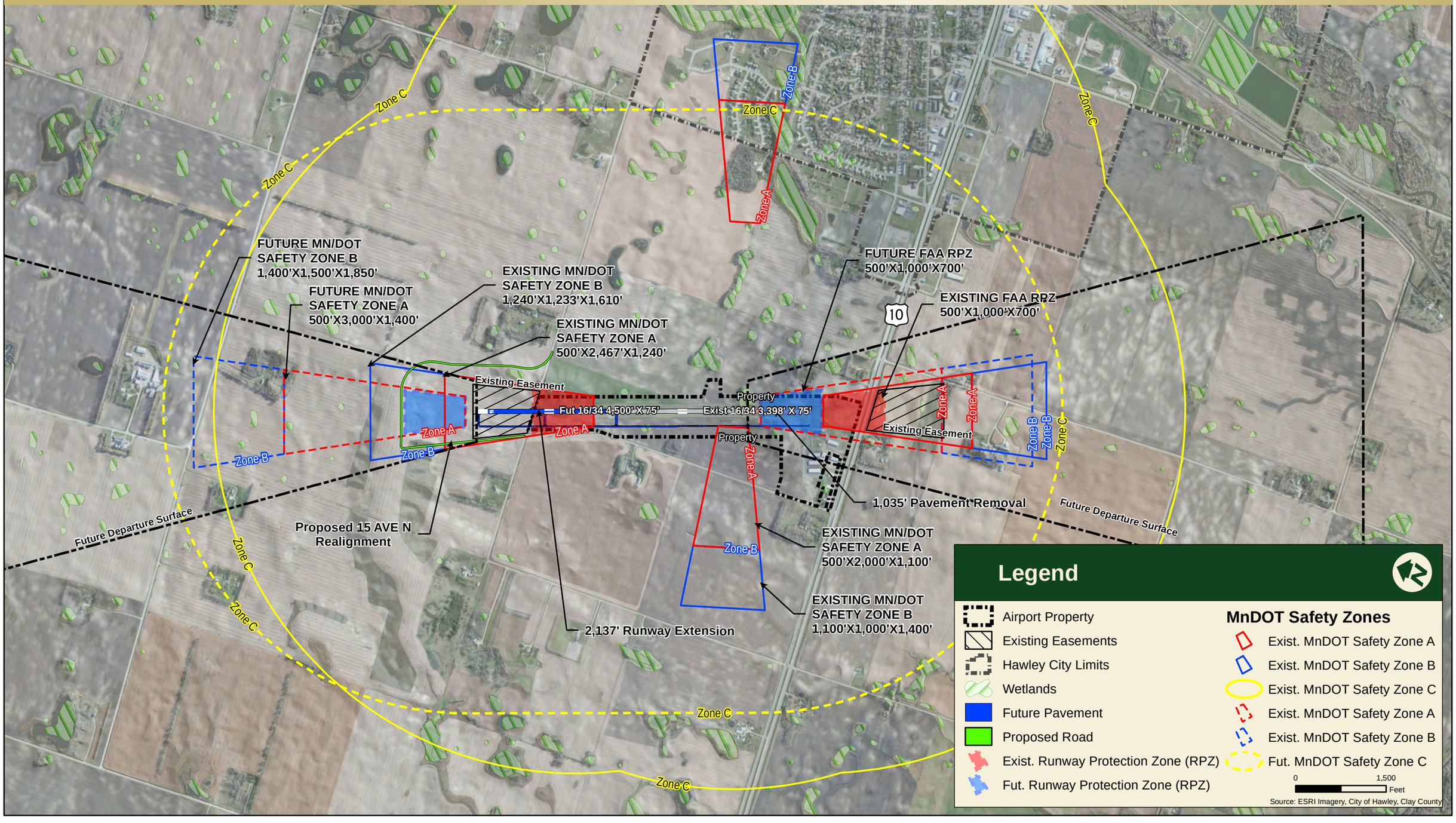


Hawley Municipal Airport

Airport Master Plan

Figure 4-7

2,137' North Extension

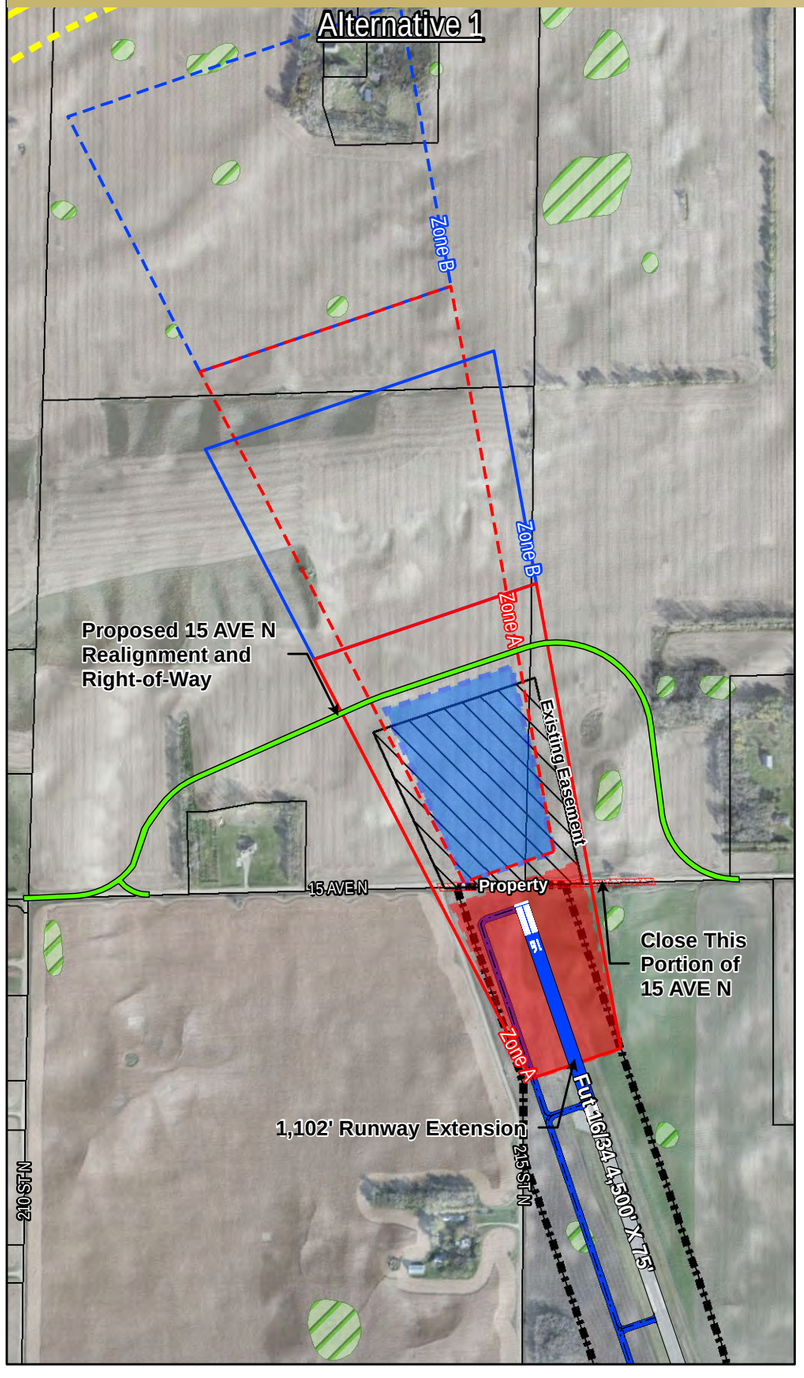


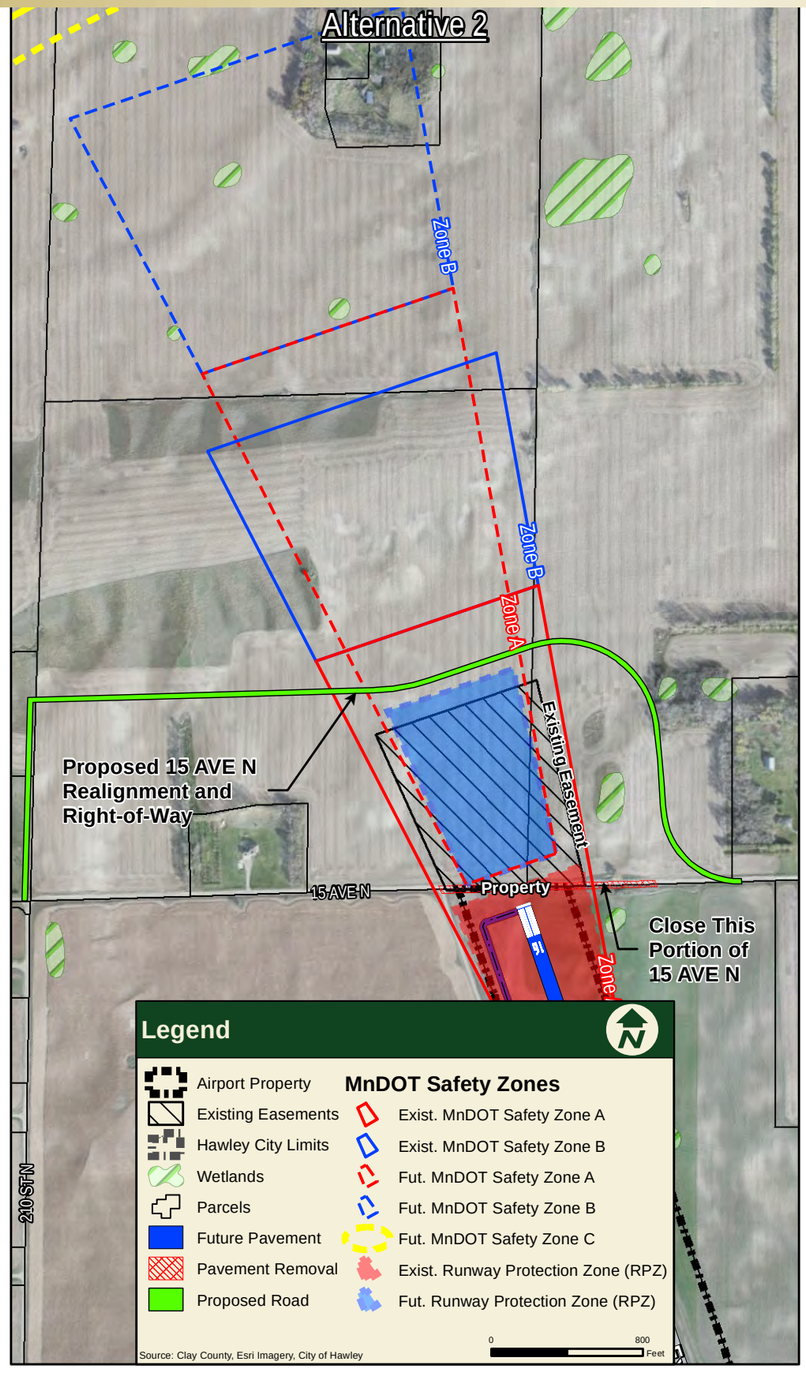
Hawley Municipal Airport

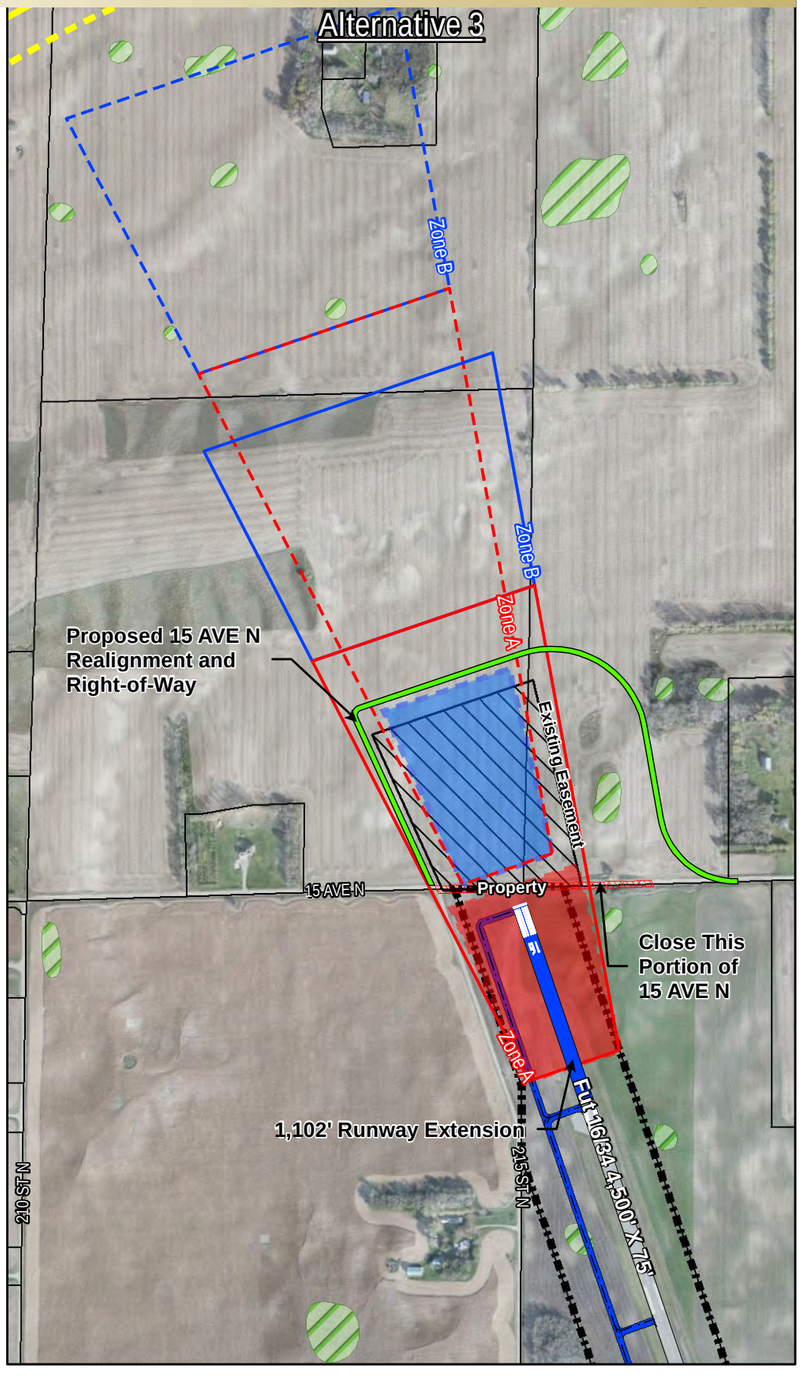
Airport Master Plan

Figure 4-8

Roadway Alternatives 1, 2, & 3





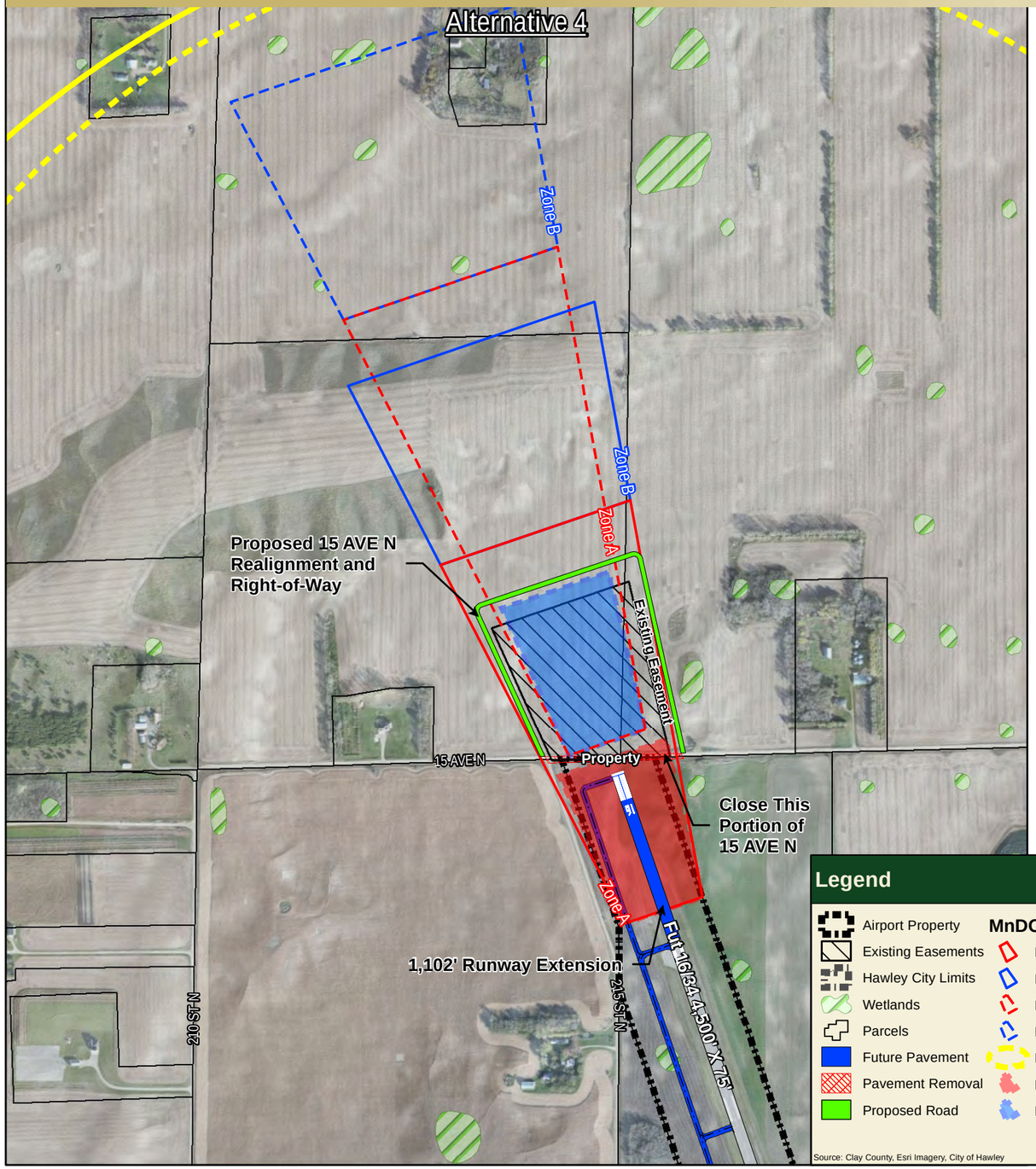


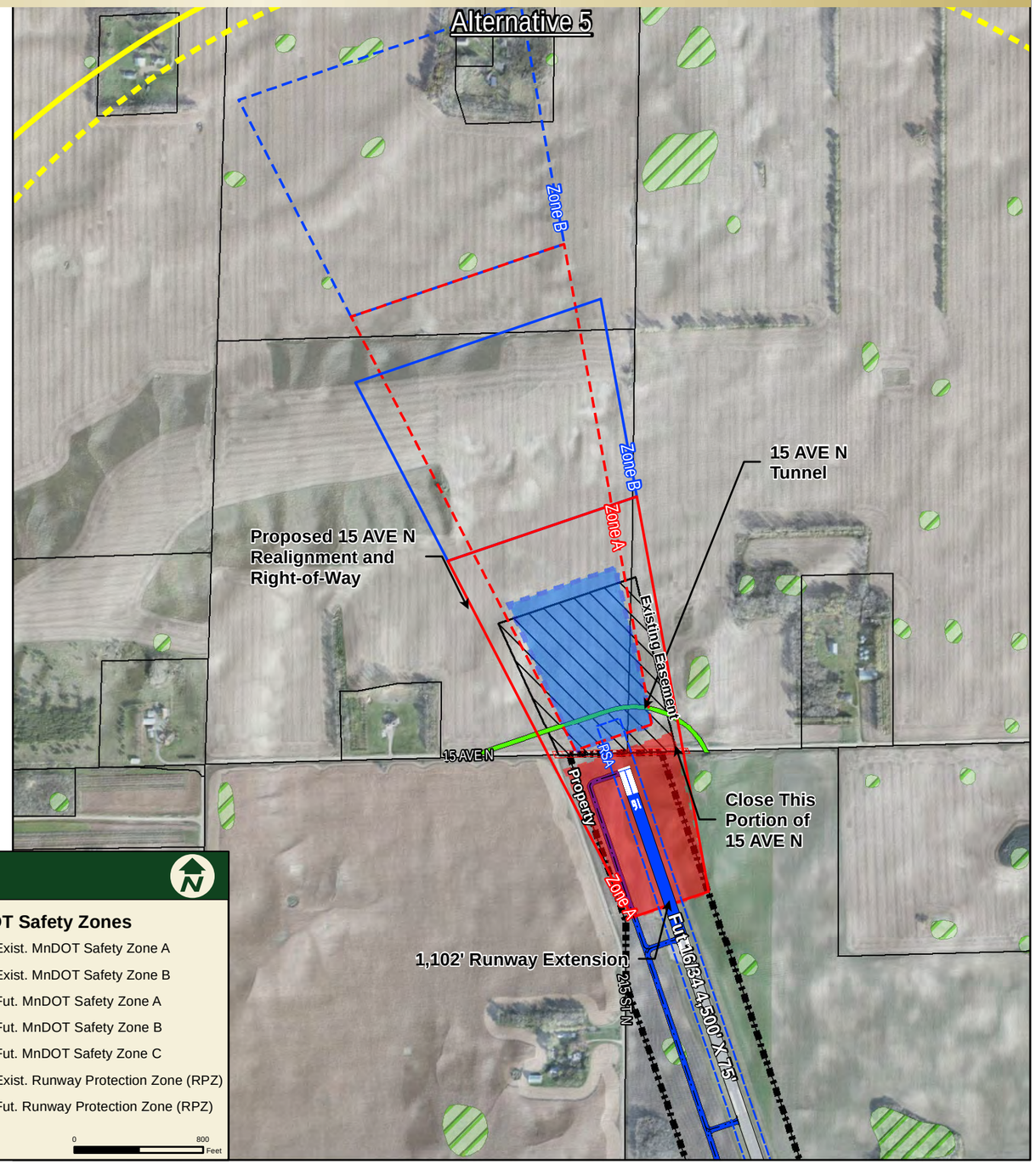
Hawley Municipal Airport

Airport Master Plan

Figure 4-9

Roadway Alternatives 4 & 5





Legend

- Airport Property
- Existing Easements
- Hawley City Limits
- Wetlands
- Parcels
- Future Pavement
- Pavement Removal
- Proposed Road

MnDOT Safety Zones

- Exist. MnDOT Safety Zone A
- Exist. MnDOT Safety Zone B
- Fut. MnDOT Safety Zone A
- Fut. MnDOT Safety Zone B
- Fut. MnDOT Safety Zone C
- Exist. Runway Protection Zone (RPZ)
- Fut. Runway Protection Zone (RPZ)

0 800 Feet

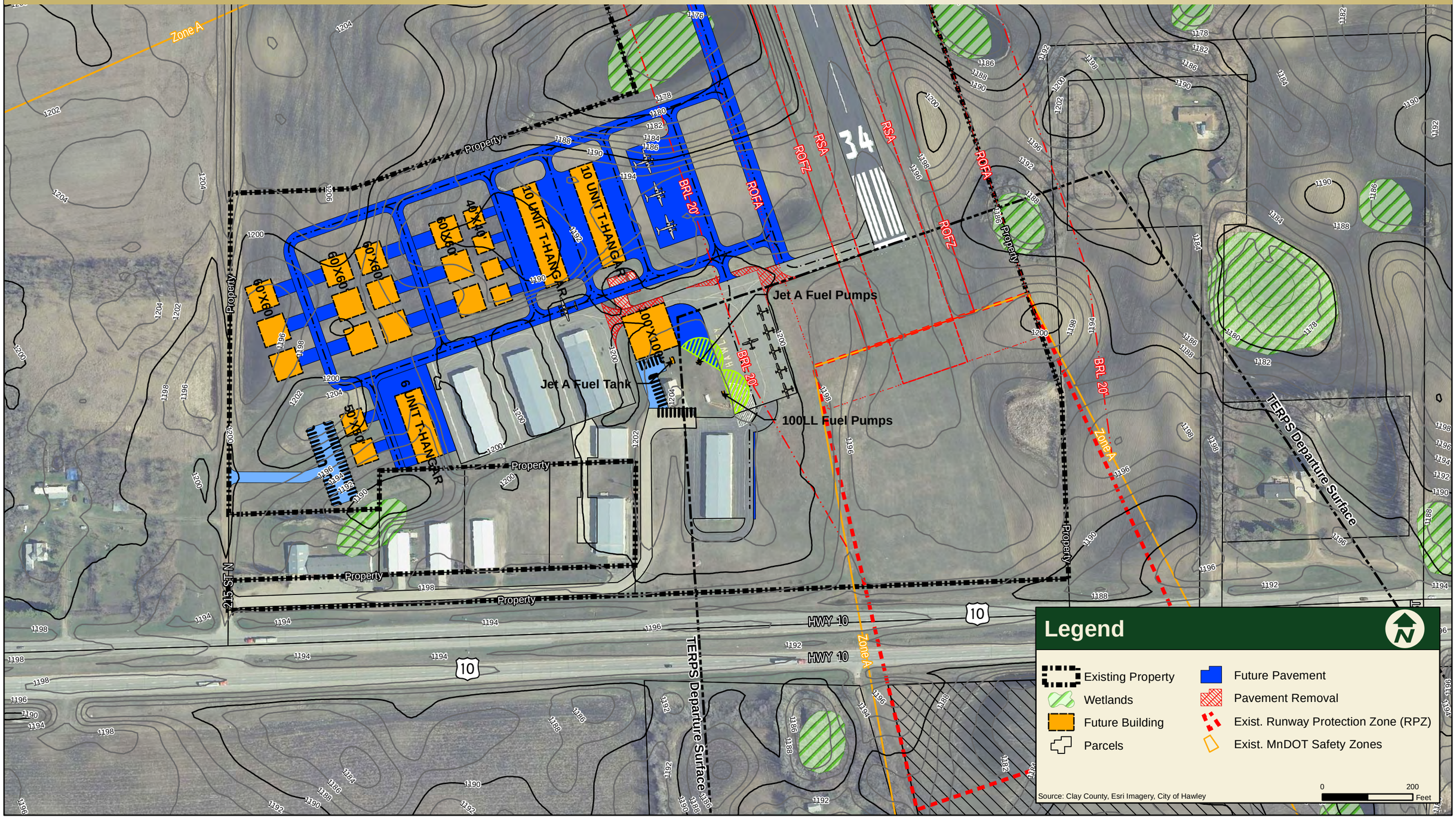
Source: Clay County, Esri Imagery, City of Hawley

Hawley Municipal Airport

Airport Master Plan

Figure 4-10

Building Area Concept A

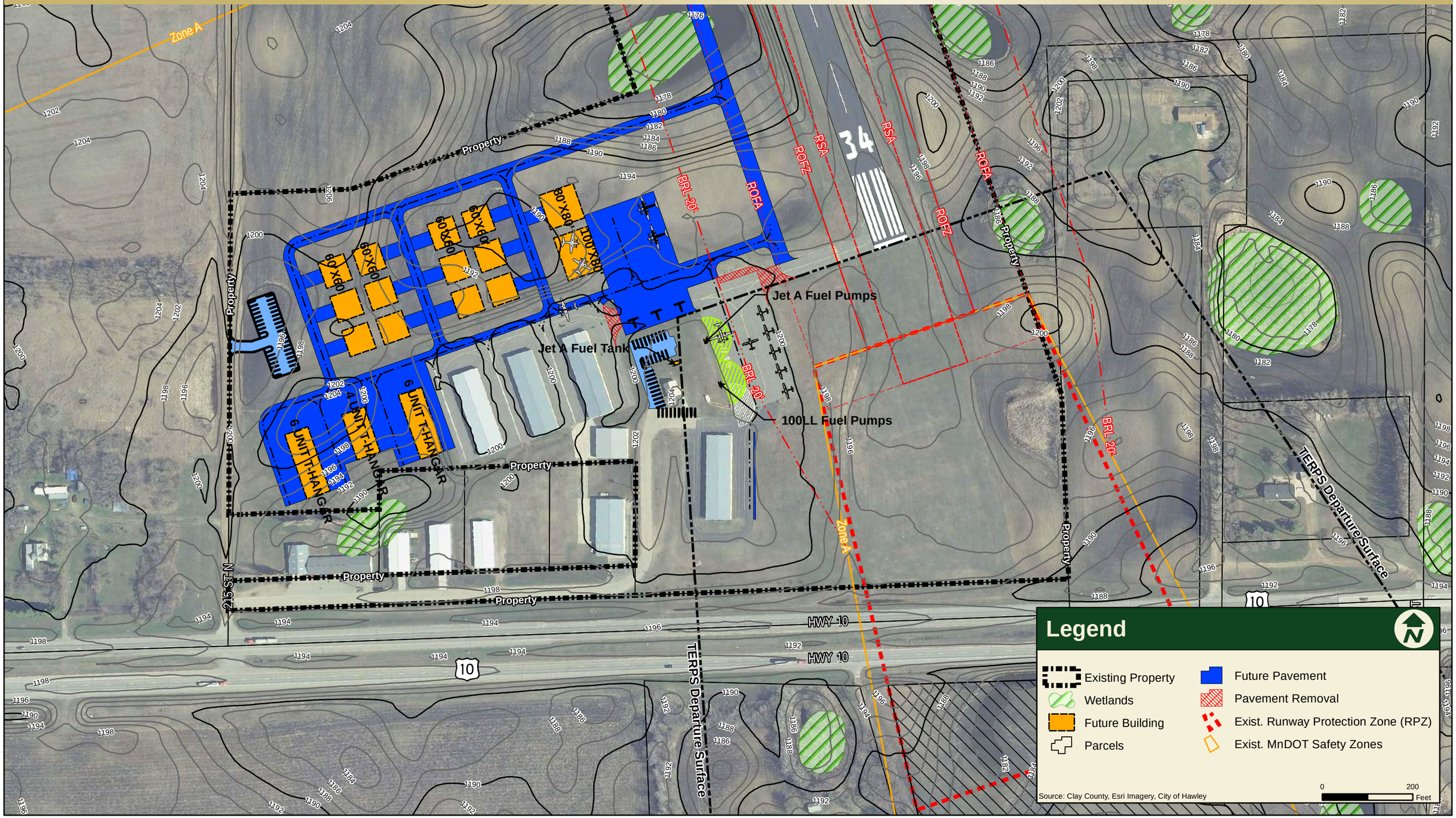


Hawley Municipal Airport

Airport Master Plan

Figure 4-11

Building Area Concept B

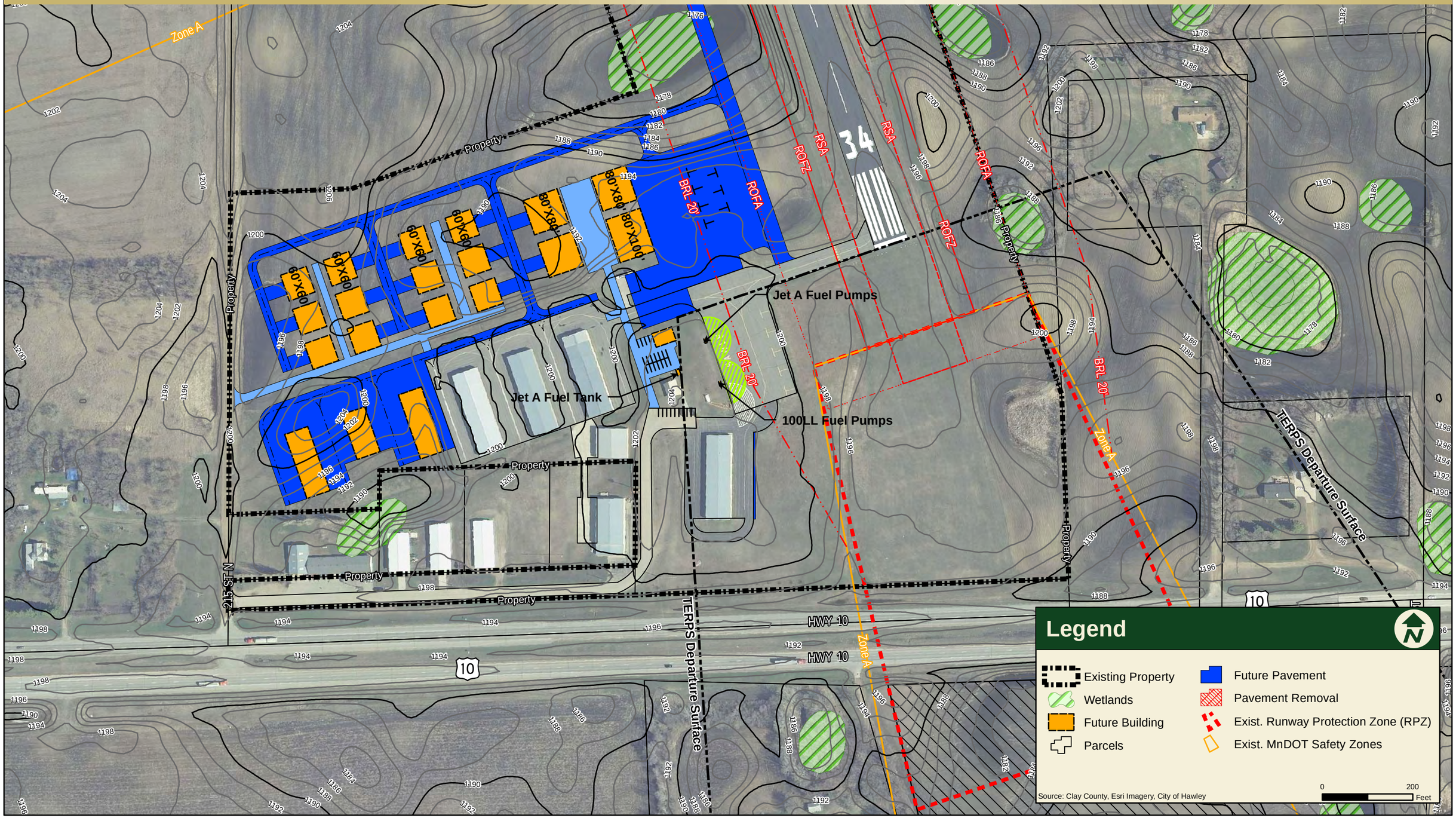


Hawley Municipal Airport

Airport Master Plan

Figure 4-12

Building Area Concept C

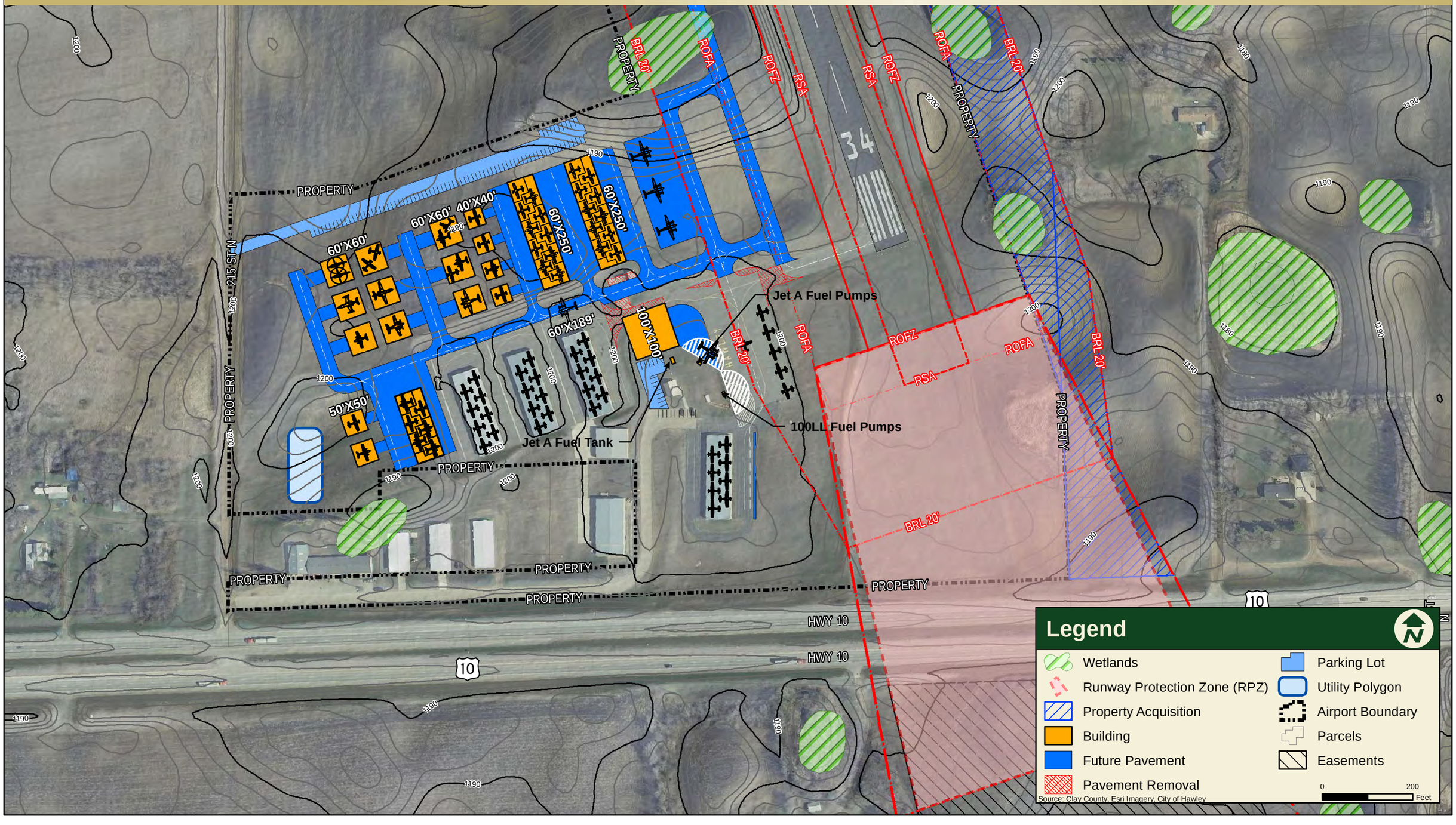


Hawley Municipal Airport

Airport Master Plan

Figure 4-8

Building Area Concept D



5. FACILITY IMPLEMENTATION PLAN

The implementation plan is necessary to provide guidance to the airport sponsor on how to implement the conclusions of the preferred airfield development alternative. A realistic, sequenced plan is developed to ensure airport development is completed to meet aviation demand, rules, regulations, and grant requirements. The implementation plan consists of a sequenced listing of projects over the 20 year planning period of this document.

Development projects are grouped into short-term (present – 5 years), mid-term (6 – 10 years), and long-term stages (11 – 20 years). The development depicted in the preferred alternative and future Airport Layout Plan (ALP) corresponds to the recommended development for each of the stages. Planning level development cost estimates in 2014 dollars are included for each item in the facility implementation plan. The projects are based on the recommended facility requirements and alternatives presented and analyzed in this report. Projects include safety, capacity, and compatibility enhancements based on the preferred runway and building area development concepts. The phasing of the projects assists the airport sponsor in budgetary planning for projects necessary to meet aviation demand.

The implementation plan is completed as a planning-level project staging tool. Actual completion of the projects depends on project justification (i.e. critical aircraft, aircraft operations) and funding (i.e. availability of Federal and State grant dollars). The comprehensive implementation of all airport projects is linked to the Airport Capital Improvement Program (CIP), updated each year by the airport sponsor and submitted to MnDOT Office of Aeronautics and FAA. The 2015 CIP for 04Y is included in **Appendix B**. Because this report is a planning document, not all items listed on the 2015 CIP are identified in this chapter. The purpose of this chapter is to plan for long term development and to understand what steps are necessary prior to construction of a project.

5.1. FUNDING INFORMATION

The City of Hawley and the Hawley Municipal Airport use funding from the FAA, State of Minnesota, and local sources to maintain the airport and complete airport improvements.

As a NPIAS airport, Hawley is eligible to receive Airport Improvement Program (AIP), funds for planning and development projects. This funding source covers the vast majority of the cost of major capital improvements. AIP funds currently cover 90 percent of eligible planning, development, and equipment costs. Under the current authorization bill, general aviation airports are entitled to $150,000 per year, and may accrue up to $600,000 to use for eligible airport planning and development projects. Additional funds, designated as discretionary, are allocated to airports based on the FAA's national priority system.

Accepting AIP funds also requires the airport sponsor (City of Hawley) to follow Grant Assurances which ensure the airport sponsor maintains the federal development investment in the airport. Grant assurances require airports to be maintained as a public-use airport, abide by federal regulations, and operate in a safe manner.

The City of Hawley also receives state airport funding from the Minnesota Department of Transportation Office of Aeronautics. Airport grant funds are gathered from aviation fuel taxes and aircraft registration fees. Grant programs include the Airport Construction Grant Program to provide funding for airport safety, planning and development projects; the Airport Maintenance and Operations Program providing assistance for day-to-day airport operating and maintenance expenses; and the Hangar Loan Revolving Account Program that provides interest free loans for the construction of hangar infrastructure. State funding participation ranges from 50 to 80 percent, depending on the type of project. However, due to

funding changes at the state level, beginning in calendar year 2014 through 2017 there is the potential for additional MnDOT funding participation. The additional funding could increase participation rates to 90 percent for state projects and an additional five percent for federally eligible projects. The additional funding will be evaluated on a yearly basis by MnDOT so it is not certain it will be there each year. After 2017 the funding rates would go back to what they were prior to 2014. The additional funding participation will make the local funding share of the project less than it currently exists today.

Locally, the City of Hawley collects revenues from fuel sales, hangar rental, and private hangar ground leases. Other funding sources may include city general funding, private funding, or general obligation bonds. Bonds are typically used to cover the local share of major airport improvement projects, such as runway rehabilitation.

A Capital Improvement Program (CIP) is developed each year for every Minnesota airport that qualifies for State or Federal funding. The airport sponsors complete a 5-year CIP for development projects at the airport. This document assists the local, state and federal officials with planning for funding of upcoming capital improvement projects.

5.2. PROJECT SCHEDULE

Below is a list of the proposed projects over the next 20 years at the airport. The following sections will provide details for each project such as a project description, timing of each project, interrelated projects, special considerations, and project costs. The projects for calendar years 2014 through 2017 will show the additional state funding options. The City should continue to plan conservatively in the event that the additional state funding does not come through. The projects listed can be seen on the updated ALP included in this report. There are also three figures located at the end of this chapter that summarize the development projects planned for each stage of development including a figure for short-term projects, mid-term projects, and long-term projects.

Short-term (present – 5 years) (**Figure 5-1**)
SRE Replacement
T-hangar Site Preparation
8-Unit T-hangar Construction

Mid-term (6 – 10 years) (**Figure 5-2**)
Environmental Assessment – Runway Extension
Update Zoning Ordinance for Runway Extension
Land Acquisition – Runway Extension
Relocate 15th Avenue N.
Construct Runway Extension
Runway 16/34 Reconstruction

Long-term (11 – 20 years) (**Figure 5-3**)
Construct Parallel Taxiway
Fuel Tanks – 100LL and Jet-A
Expand Apron
Expand Vehicle Parking
Snow Removal Equipment Building
Construct Perimeter Fencing with Controlled Access Gates
Install AWOS

5.2.1. KEY PROJECTS – SHORT-TERM (PRESENT – 5 YEARS)

Project Name:	SRE Replacement
Project Scope:	Replace snow removal equipment
Project Purpose:	This project will replace the existing equipment used for snow removal at 04Y
Interrelated Projects:	None
Special Considerations:	
Estimated Cost:	**$250,000** Federal funding (90%) = $225,000 State Funding (5%) = $12,500 Local funding (5%) = $12,500

Project Name:	T-hangar Site Preparation
Project Scope:	Prepare site for T-hangar construction
Project Purpose:	This project will prepare the site where the T-hangar will be built. This includes filling, grading, and paving the area up to the existing pavement infrastructure.
Interrelated Projects:	8-Unit T-hangar Construction
Special Considerations:	
Estimated Cost:	**$250,000** State funding (80%) = $200,000 Local funding (20%) = $50,00

Project Name:	8-Unit T-hangar Construction
Project Scope:	Construct T-hangar
Project Purpose:	This project will construct a public T-hangar to accommodate aircraft forecasted to base at 04Y during the 20-year planning period
Interrelated Projects:	T-hangar Site Preparation
Special Considerations:	
Estimated Cost:	**$800,000** Federal funding (90%) = $720,000 Local funding (10%) = $80,000

5.2.2. SHORT-TERM (PRESENT – 5 YEARS) PROJECT SUMMARY

The goals of the projects presented over the next five years are to replace snow removal equipment, prepare a site for a T-hangar, and construct an 8-unit T-hangar to accommodate aircraft on the waiting list. The timing of the projects depends on project justification and local funding availability. The short-term project funding is summarized in **Table 5-1**.

Table 5-1
Short-Term Project Funding Summary

Year	Project	Total Cost	Funding Rate Percentages			Federal Funding	State Funding	Local Funding
			Federal	State*	Local			
2016	SRE Replacement	$250,000	90%	5%	5%	$225,000	$12,500	$12,500
2017	T-hangar Site Preparation	$250,000	--	80%	20%	--	$200,000	$50,000
2017	8-Unit T-hangar Construction	$800,000	90%	--	10%	$720,000	--	$80,000
	Totals	**$1,300,000**				**$945,000**	**$212,500**	**$142,500**

* This column depicts the funding participation rates should MnDOT provide additional funding support. This percentage could change if additional funding is no longer provided.

5.2.3. KEY PROJECTS – MID-TERM (6 – 10 YEARS)

Project Name:	**Environmental Assessment – Runway Extension**
Project Scope:	This project involves the examination of potential environmental impacts associated with construction of a 1,102-foot runway extension including land acquisition
Project Purpose:	This project is necessary to satisfy the local, state, and federal environmental regulations and the National Environmental Policy Act of 1969 (NEPA) of the proposed action.
Interrelated Projects:	Land acquisition and construction of the runway extension
Special Considerations:	None
Estimated Cost:	**$150,000** Federal funding (90%) = $135,000 Local funding (10%) = $15,000

Project Name:	**Update Zoning Ordinance for Runway Extension**
Project Scope:	Update the MnDOT state aviation zoning ordinance to accommodate the planned runway extension
Project Purpose:	The runway extension is not covered in the existing zoning ordinance, therefore the ordinance should be updated to reflect the addition of the 1,102-foot extension to Runway 16.
Interrelated Projects:	This project should occur prior to land acquisition for the runway extension
Special Considerations:	None
Estimated Cost:	**$50,000** State funding (50%) = $25,000 Local funding (50%) = $25,000

Project Name:	Land Acquisition – Runway Extension
Project Scope:	Acquire land to build runway extension
Project Purpose:	This project is will acquire land to allow the construction of the runway extension and control of the runway protection zone, as well as acquiring land out to the 20-foot building restriction line.
Interrelated Projects:	Construction of the runway extension
Special Considerations:	Necessary mitigation will be determined through the environmental process completed prior to the project
Estimated Cost:	**$500,000** Federal funding (90%) = $450,000 Local funding (10%) = $50,000

Project Name:	Relocate 15th Avenue N.
Project Scope:	Relocate 15th Avenue N. to build the 1,102-foot runway extension
Project Purpose:	15th Avenue N. is a gravel road to be relocated around the RPZ of the runway extension. RPZs must be clear of incompatible land uses, including roads.
Interrelated Projects:	Land acquisition; Construct Runway Extension
Special Considerations:	Necessary mitigation will be determined through the environmental process completed prior to the project
Estimated Cost:	**$600,000** Federal funding (90%) = $540,000 Local funding (10%) = $60,000

Project Name:	Construct Runway Extension
Project Scope:	Construct 1,102-foot extension to Runway 16
Project Purpose:	Growing businesses in the Hawley area are using or want to use 04Y. Aircraft are currently making load concessions or cannot land at 04Y due to its length. This project will allow existing and future aircraft to better utilize 04Y.
Interrelated Projects:	Land acquisition
Special Considerations:	Necessary mitigation will be determined through the environmental process completed prior to the project
Estimated Cost:	**$1,300,000** Federal funding (90%) = $1,170,000 Local funding (10%) = $130,000

Project Name:	Runway 16/34 Reconstruction
Project Scope:	Reconstruct the existing Runway 16-34
Project Purpose:	Pavement maintenance is critical to maintaining the useful life of airport pavement. The 2011 PCI for the apron around Hangar #1 is "Good" with a drop in PCI of 1 to 3 points per year. The runway was recently reconstructed in 2013, and will need pavement maintenance again in 2022.
Interrelated Projects:	Construct Runway Extension
Special Considerations:	Necessary mitigation will be determined through the environmental process completed prior to the project
Estimated Cost:	**$1,700,000** Federal funding (90%) = $1,530,000 Local funding (10%) = $170,000

5.2.4. MID-TERM (6 – 10 YEARS) PROJECT SUMMARY

The goal of the project presented over the six to ten year period includes the completion of the environmental assessment, airport zoning update, land acquisition, and relocation of 15th Avenue N. in order to construct the runway extension. Along with the runway extension will be the reconstruction of Runway 16/34. The further out the improvement projects are, the less firm timing and funding availability become. The mid-term project funding is summarized in **Table 5-2**.

Table 5-2
Mid-Term Project Funding Summary

Year	Project	Total Cost	Funding Rate Percentages			Federal Funding	State Funding	Local Funding
			Federal	State	Local			
2018	Environmental Assessment	$150,000	90%	--	10%	$135,000	--	$15,000
2020	Update Zoning Ordinace	$50,000	--	50%	50%	--	$25,000	$25,000
2020	Land Acquisition – Runway Extension	$500,000	90%	--	10%	$450,000	--	$50,000
2021	Relocate 15th Avenue N.	$600,000	90%	--	10%	$540,000	--	$60,000
2021	Construct Runway Extension	$1,300,000	90%	--	10%	$1,170,000	--	$130,000
2021	Runway 16/34 Reconstruction	$1,700,000	90%	--	10%	$1,530,000	--	$170,000
	Totals	**$4,300,000**				**$3,825,000**	**$25,000**	**$450,000**

5.2.5. KEY PROJECTS – LONG-TERM (11 – 20 YEARS)

Project Name:	Construct Parallel Taxiway
Project Scope:	Construct a parallel taxiway to Runway 16/34
Project Purpose:	Project developed for safety needs at the airport to avoid the need for pilots to back-taxi on the primary runway
Interrelated Projects:	This is a stand-alone project
Special Considerations:	Necessary mitigation will be determined through the environmental process completed prior to the project
Estimated Cost:	**$1,500,000** Federal funding (90%) = $1,350,000 Local funding (10%) = $150,000

Project Name:	Fuel Tanks – 100LL and Jet-A
Project Scope:	Purchase 100LL and Jet-A fuel tanks
Project Purpose:	This project is necessary to fulfill the fueling needs at 04Y through the 20-year planning period. The existing tank is not large enough to hold enough fuel for demand during the peak month at the end of the 20-year planning period, and there is currently no Jet-A fuel tank. Aircraft that burn Jet-A fuel are expected to use the airport regularly by the end of the planning period
Interrelated Projects:	This is a stand along project
Special Considerations:	A Categorical Exclusion will be required before the project begins
Estimated Cost:	**$250,000** Federal funding (90%) = $225,000 Local funding (10%) = $25,000

Project Name:	Expand Apron
Project Scope:	Expand the apron for additional aircraft parking
Project Purpose:	The existing tie-downs are not sufficient for the demand through the 20-year planning period. The apron will be expanded to add more tie-downs and the appropriate maneuvering space to accommodate this demand, and larger tie-downs will be added to fit airplane design group II aircraft.
Interrelated Projects:	This is a stand-alone project
Special Considerations:	A Categorical Exclusion will be required before the project begins
Estimated Cost:	**$600,000** Federal funding (90%) = $540,000 Local funding (10%) = $60,000

Project Name:	Expand Vehicle Parking
Project Scope:	Add more parking spaces for vehicle traffic
Project Purpose:	To prevent vehicle and aircraft traffic from interfering with one another, the vehicle parking lot will be expanded to accommodate a minimum of one space per based aircraft plus 25%.
Interrelated Projects:	This is a stand-alone project
Special Considerations:	A Categorical Exclusion will be required before the project begins
Estimated Cost:	**$400,000** Federal funding (90%) = $360,000 Local funding (10%) = $40,000

Project Name:	Construct Snow Removal Equipment Building
Project Scope:	Construct a Snow Removal Equipment Building
Project Purpose:	The existing snow removal equipment is stored off the airport. Construction of a building to store this equipment will allow easy access by City staff and keep the at the airport
Interrelated Projects:	This is a stand-alone project
Special Considerations:	A Categorical Exclusion will be required before the project begins
Estimated Cost:	**$750,000** State Funding (80%) = $600,000 Local Funding (20%) = $150,000

Project Name:	Perimeter Fencing with Controlled Access Gates
Project Scope:	Construct a fence around the perimeter of the property
Project Purpose:	A perimeter fence deters wildlife from entering the airfield and interfering with aircraft operations. The fence provides a safer operating environment. A perimeter fence with controlled access gates also deters unwanted vehicles and persons from accessing the airfield.
Interrelated Projects:	This is a stand-alone project
Special Considerations:	A Categorical Exclusion will be required before the project begins
Estimated Cost:	**$1,000,000** Federal funding (90%) = $900,000 Local funding (10%) = $100,000

Project Name:	Install AWOS
Project Scope:	Install an Automated Weather Observation System
Project Purpose:	An AWOS provides the airport with weather data to ensure the airport is adequately meeting wind coverage requirements.
Interrelated Projects:	This is a stand-alone project
Special Considerations:	A Categorical Exclusion will be required before the project begins
Estimated Cost:	**$200,000** Federal funding (90%) = $180,000 Local funding (10%) = $20,000

5.2.6. LONG-TERM (11 – 20 YEARS) PROJECT SUMMARY

The focus of this time period will be the completion of taxiway and building area improvements. These include the installation of new 100LL and Jet-A fuel tanks, expanding the apron, expanding vehicle parking, constructing an SRE building, enclosing the airport with a perimeter fence, and installing an AWOS. The further out the improvement projects are, the less firm timing and funding availability become. Additional building area expansion can occur when the need is presented for additional based aircraft. The long-term project funding is summarized in **Table 5-3**.

Table 5-3
Long-Term Project Funding Summary

Year	Project	Total Cost	Funding Rate Percentages			Federal Funding	State Funding	Local Funding
			Federal	State	Local			
	Construct Parallel Taxiway	$1,500,000	90%		10%	$1,350,000		$150,000
	Fuel Tanks 100LL and Jet-A	$250,000	90%		10%	$225,000		$25,000
	Expand Apron	$600,000	90%		10%	$540,000		$60,000
	Expand Vehicle Parking	$400,000		80%	20%		$320,000	$80,000
	Construct SRE Building	$750,000	90%		10%	$675,000		$75,000
	Perimeter Fencing	$1,000,000	90%		10%	$900,000		$100,000
	Install AWOS	$200,000	90%		10%	$180,000		$20,000
	Totals	**4,700,000**				**$3,870,000**	**$320,000**	**$510,000**

Hawley Municipal Airport

Airport Master Plan

Figure 5-1

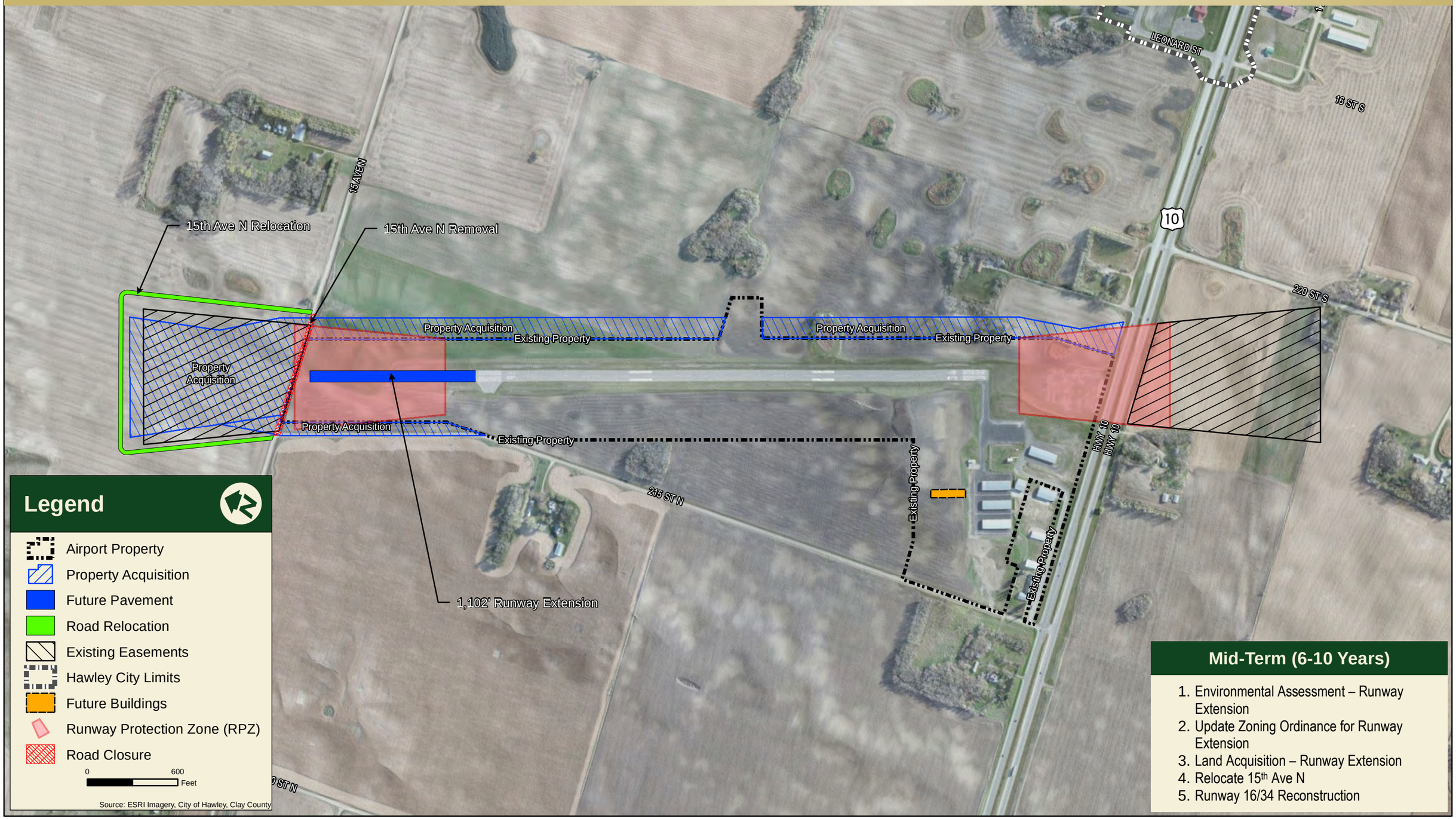
Short-Term (Present-5 Years)

Hawley Municipal Airport

Airport Master Plan

Figure 5-2

Mid-Term (6-10 Years)



Mid-Term (6-10 Years)

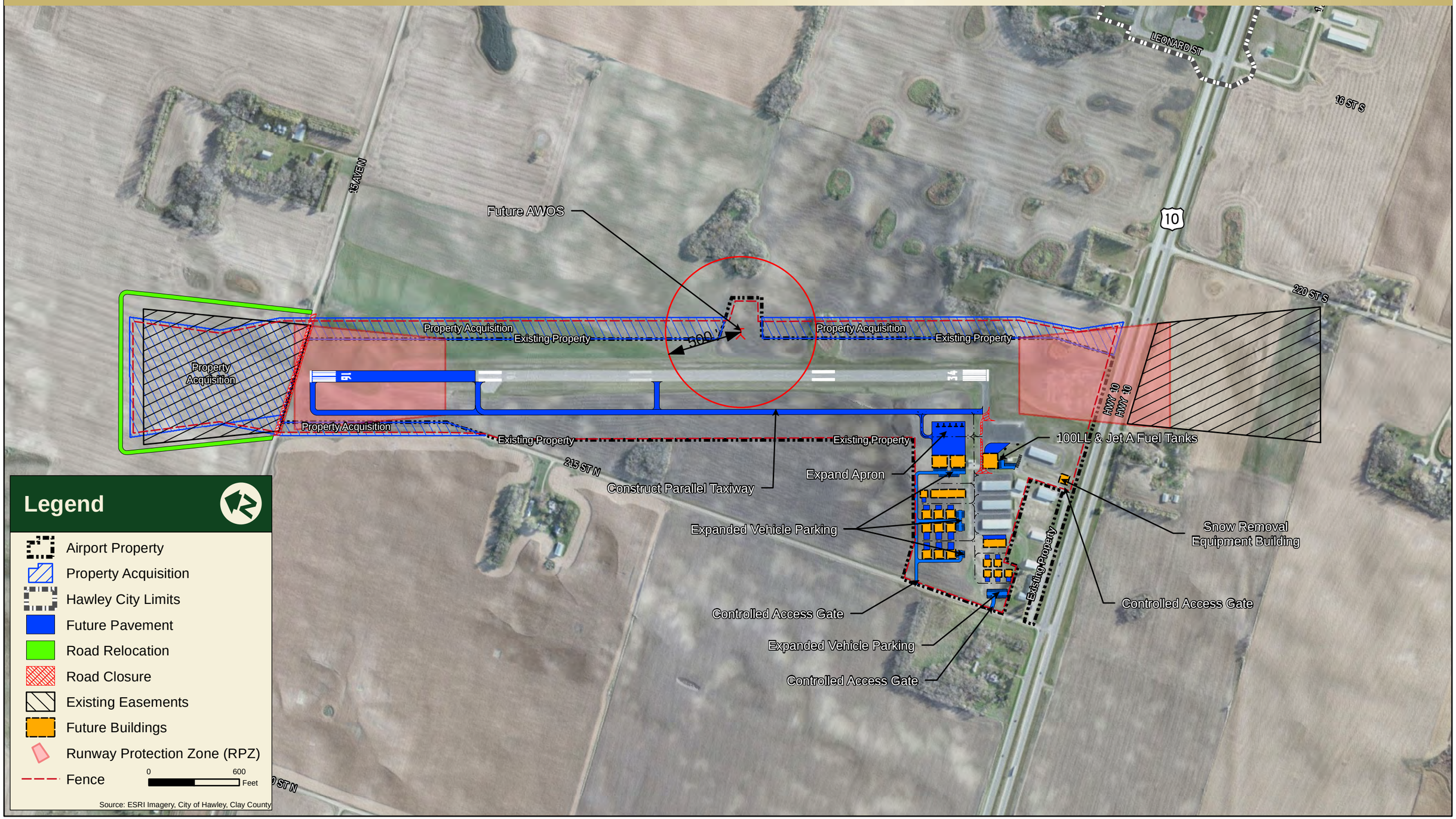
1. Environmental Assessment – Runway Extension
2. Update Zoning Ordinance for Runway Extension
3. Land Acquisition – Runway Extension
4. Relocate 15th Ave N
5. Runway 16/34 Reconstruction

Hawley Municipal Airport

Airport Master Plan

Figure 5-3

Long-Term (11-20 Years)



APPENDIX A
USER SURVEY

AIRPORT OPERATOR SURVEY
HAWLEY MUNICIPAL AIRPORT
AIRPORT MASTER PLAN

The Hawley Municipal Airport (04Y) is preparing an Airport Master Plan to evaluate airport facilities to better serve the economic vitality of the Hawley community and surrounding area. The data collected in this survey will assist in making decisions for the improvement of the airport.

The survey can be completed by-hand or online. An online version of this survey is available at: https://www.surveymonkey.com/s/hawley04Y or by scanning the QR code to the right.

Please return this survey, or direct any questions to:

Lisa Jetvig, Airport Manager
P.O. Box 69
Hawley, MN 56549

Phone: (218) 483-3331
Fax: (218) 483-3332
E-mail: ljetvig@arvig.net

Please complete the following survey to the best of your ability:

1. How do you or your business currently use general aviation at 04Y? Check all that apply

- ☐ Personal Travel
- ☐ Business Travel
- ☐ Flight Training/Instruction
- ☐ Aircraft Charter (Passenger)
- ☐ Aircraft Repair/Service
- ☐ Cargo/Shipping/Parts
- ☐ Aerial Surveillance/Mapping
- ☐ Agriculture/Natural Resource
- ☐ Flying Club
- ☐ Other (please specify)_____
- ☐ Do not use 04Y but use General Aviation
- ☐ Do not use General Aviation (Go to Question 11)

2. Total annual operations for: _____Business _____Pleasure

3. How do you utilize general aviation aircraft?

- ☐ Own
- ☐ Rent
- ☐ Lease
- ☐ Fractional/Shared Ownership
- ☐ Corporate Owned-Aircraft
- ☐ Flying Club
- ☐ Other (Please Specify)_____

4. What type of aircraft do you use when flying? If you use more than one aircraft, please include it here:

Aircraft Make/Model	N-Number	Home Airport

The following questions are about your flight operations at 04Y:

*An operation is defined as either a takeoff or a landing. A **single visit** to an airport is comprised of **two operations**, arriving at the airport, and later departing from the airport. An "itinerant" operation is a landing or takeoff of an airplane traveling from one airport to another airport at least 20 nautical miles away. Local operations include flights to local practice areas, touch-and-goes within the traffic pattern, and agricultural aerial application operations.*

5. Please estimate your annual operations at 04Y:

Current Aircraft Make/Model	Local Operations			Itinerant Operations		
	2007	2012	2017	2007	2012	2017

6. Are the runway lengths available at 04Y adequate for your most demanding aircraft at desired weight?

	Adequate if wet/icy?		Adequate if hot?	
Runway 16-34 (3,404 feet)	☐ Yes	☐ No	☐ Yes	☐ No

If no, what runway length would you require to land at 04Y? _____

Please Return by November 15, 2013

AIRPORT OPERATOR SURVEY
HAWLEY MUNICIPAL AIRPORT
AIRPORT MASTER PLAN

7. Please indicate the basis of your runway length requirements:

☐ Pilot Operating Handbook ☐ Insurance Requirement
☐ Company Policy ☐ Other (Please Specify)_____

8. Do you currently make aircraft load concessions to operate at 04Y? ☐ Yes ☐ No

If yes, what concessions do you make? _____

_____

9. Are you considering an upgrade to your aircraft fleet in the next five years? ☐ Yes ☐ No

If yes, please indicate the following:

Aircraft Make/Model	Local Operations	Reason for Upgrade

10. Please indicate the types of facilities that are important to your use of 04Y:

	High Priority	Moderate Priority	Low Priority
Runway Longer Than 3,404 feet	○	○	○
Aircraft Storage – T-Hangar Rental Unit	○	○	○
Aircraft Storage – Conventional Hangar Development Site	○	○	○
Aircraft Storage – Transient/Overnight	○	○	○
Ground Transportation (Shuttle, Taxi Service, Rental Cars, Courtesy Car)	○	○	○
Jet Fuel	○	○	○
Business Center/Meeting Facilities	○	○	○

11. What airport services do you need or strongly desire to operate at 04Y? Check all that apply:

☐ Self-service Fueling ☐ Crew Rest Area
☐ Full-service Fueling / Line Services ☐ Conference Room Facilities
☐ Aircraft Charter ☐ Flight Training/Instruction
☐ Transient Aircraft Storage ☐ Pilot Shop
☐ Aircraft Repair/Maintenance ☐ Catering
☐ Rental Car ☐ Other (Please Specify)_____

12. Please provide any additional comments or concerns about the 04Y airport facilities or future needs:

_____

_____

_____

CONTACT INFORMATION

Please provide the following information pertaining to the individual who completed this survey.

Name: _____

Company/Affiliation: _____

Address: _____

_____

Phone: _____

E-mail: _____

May we contact you with any specific questions about this user survey? ☐ Yes ☐ No

NOTE: If your company or related vendors/clients operate from 04Y, we kindly request you forward this survey to these individuals.

The City of Hawley thanks you for completing this Airport Operator Survey! Please contact Lisa Jetvig, Airport Manager, at ljetvig@arvig.net with any questions.

Please Return by November 15, 2013

APPENDIX B
2015 AIRPORT CAPTIAL IMPROVEMENT PROGRAM (CIP)

Prepared by Bolton & Menk, Inc. Preparation Date: 9.18.2014 Updated: 10.8.2014

04Y - Hawley Municipal Airport

5-YEAR AIRPORT CAPITAL IMPROVEMENT PLAN (2015-2019) FINAL

Federal Entitlement Balance FY 2015 $587,275

State FY	Fed FY	Description	Funding Participation FAA %	State %	Local %	Project Cost	Federal Entitlement Funding	Other Federal Funding	State Funding	Local Funding	Other Programs	Local Project Priority	Project Bid Date	Federal Entitlement Balance
2015	2015	Fuel System Relocation	90%	5%	5%	$ 125,600	$ 113,040	$ -	$ 6,280	$ 6,280	$ -		July-15	$474,235
2015		Zoning for new Runway	0%	80%	20%	$ 40,600	$ -	$ -	$ 32,480	$ 8,120	$ -		July-15	$474,235
2016		Apron Rehabilitation Hangar #1 (noneligible)	0%	80%	20%	$ 120,120	$ -	$ -	$ 96,096	$ 24,024	$ -		July-15	$474,235
2016	2015	Apron Rehabilitation -Hangar #1 (eligible)	90%	5%	5%	$ 80,080	$ 72,072	$ -	$ 4,004	$ 4,004	$ -		July-15	$402,163
2016		Hangar Floor Repair	0%	80%	20%	$ 154,400	$ -	$ -	$ 123,520	$ 30,880	$ -		July-15	$402,163
													FY 2016 Entitlement Balance:	$552,163
2017	2016	SRE Replacement	90%	5%	5%	$ 207,000	$ 186,300	$ -	$ 10,350	$ 10,350	$ -		July-16	$365,863
2017	2016	Taxilane (eligible)	90%	5%	5%	$ 220,000	$ 198,000	$ -	$ 11,000	$ 11,000	$ -		July-16	$167,863
2017	2016	Tee Hangar Site Preparation & Paving (eligible)	90%	5%	5%	$ 114,500	$ 103,050	$ -	$ 5,725	$ 5,725	$ -		July-16	$64,813
2017		Tee Hangar Site Preparation & Paving (noneligible)	0%	80%	20%	$ 361,400	$ -	$ -	$ 289,120	$ 72,280	$ -		July-16	$64,813
													FY 2017 Entitlement Balance:	$214,813
2018	2017	8-Unit Tee Hangar	0%	80%	20%	$ 742,800		$ -		$ 148,560	$ 594,240		July-17	$214,813
													FY 2018 Entitlement Balance:	$364,813
2019	2018	Runway Extension-Environmental Assessment	90%	0%	10%	$ 150,000	$ 135,000	$ -	$ -	$ 15,000	$ -		May-18	$229,813
													FY 2019 Entitlement Balance:	$379,813
2020	2019	Runway, Taxiway, Hangar Crack Repairs	90%	0%	10%	$ 375,000	$ 337,500	$ -	$ -	$ 37,500	$ -		May-19	$42,313
													FY 2020 Entitlement Balance:	$192,313
2021	2020	Extend Rwy 16/34 - Land Acquisition (40 acres)	90%	0%	10%	$ 500,000	$ 192,313	$ 257,687	$ -	$ 50,000	$ -		July-20	$0
													FY 2021 Entitlement Balance:	$150,000
2022	2021	Relocate 15th Ave North	90%	0%	10%	$ 376,000	$ 150,000	$ 188,400	$ -	$ 37,600	$ -		July-21	$0
2022	2021	Extend Rwy 16/34 -North 1,102' - Construction	90%	0%	10%	$ 1,218,800	$ -	$ 1,096,920	$ -	$ 121,880	$ -		July-21	$0
2022	2021	Runway 16-34 Reconstruction	90%	0%	10%	$ 1,663,000	$ -	$ 1,496,700	$ -	$ 166,300	$ -		July-21	$0
													FY 2022 Entitlement Balance:	$150,000
2028	2027	Crack fill and seal coat Rwy 16/34	90%	0%	10%	$ 300,000	$ 150,000	$ 120,000	$ -	$ 30,000	$ -		July-27	$0
													FY 2028 Entitlement Balance:	$150,000
		TOTAL:				**$ 6,749,300**	**$ 1,637,275**	**$ 3,159,707**	**$ 578,575**	**$ 779,503**	**$ 594,240**			

APPENDIX C
AIRPORT LAYOUT PLAN