Chapter Two – Inventory of Existing Conditions

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2 | Section 1 – Existing Conditions Inventory

This chapter provides an overview of existing conditions at Tracy Airport. Sources of information referenced for this chapter include, but are not limited to:

- 2005 ALP
- 2007 ALP
- U.S. Census Bureau
- MnDOT Pavement Condition and Analysis
- Tracy Historical Society
- Airport Master Record 5010
- Previous construction project plans and specifications
- Municipal plans and ordinances
- County plans and ordinances
- TKC Airport Records
- On-site visusal inspection of TKC

2 | Section 2 – Airport Background

2.2.1 Airport Role and Classification

The Tracy Airport is a non-certificated General Aviation airport serving the aviation needs of Lyon County and the municipalities of Tracy, Walnut Grove, and other surrounding communities. TKC (the FAA's 3-letter identifier for the Tracy Municipal Airport) serves its communities by providing quality airside and landside facilities, and private and public aircraft storage facilities.

TKC is not a 14 CFR Part 139-certificated airport. Certification through 14 CFR Part 139 is required for airports that host scheduled passenger-carrying operations using aircraft originally designed with more than nine passenger seats, or an unscheduled passenger-carrying operation using an aircraft originally designed with more than 30 passenger seats.

TKC is classified as a non-certificated Basic General Aviation Airport according to the National Plan of Integrated Airport Systems.

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For the purpose of defining TKC's role in the context of the national aviation systems, the 2017-2021 **National Plan of Integrated Airport Systems** (NPIAS) Report lists the airport as a *Basic General Aviation Airport*. TKC recently regained its status as a Basic NPIAS airport, after a few years of being considered "Unclassified." "Basic" airports have moderate levels of activity, averaging about 10 based propeller-driven aircraft and no jets. The current report states, "Basic airports fulfill the principal role of a community airport providing a means for private general aviation flying, linking the community with the national airport system, and making other unique contributions…. In some instances, the airport is the only way to access the community and provides emergency response access such as emergency medical or firefighting and mail delivery." As a "General Aviation" airport, TKC does not receive scheduled commercial service, nor does it meet the criteria for a commercial service airport.

MnDOT classifies TKC as an Intermediate Airport.

As of 2012, there were 135 publicly-funded airports in the state of Minnesota. MnDOT classifies TKC as an "Intermediate" airport because it has a paved runway of less than 5,000 feet in length, one of 83 in the state. An "Intermediate" classification indicates that the airport facility meets certain criteria, including characteristics of the runways and taxiways, NAVAIDS and lighting, weather reporting, hangars and aprons, terminals, parking, fencing, and fueling facilities.

A copy of the 2016 Airport Master Record for Tracy Municipal Airport is included in the Appendix.

Understanding Airport Classifications

Federal airport classifications are published within the National Plan of Integrated Airport Systems (NPIAS) as required by the Airport and Airways Improvement Act of 1982. This FAA planning document is updated biannually in an effort to identify the nation's airport needs over a 10-year planning period and classify airports based on their significance to the air transportation system.

Only those airports within the NPIAS are eligible to receive federal Airport Improvement Program (AIP) funding. According to the 2017-2021 NPIAS, there are 5,136 public-use airports in the United States. Of these airports, 3,332 have been deemed significant to air transportation and therefore have been included in the NPIAS.

The State of Minnesota also classifies the role of airports within the State Aviation System Plan (SASP).

Commercial Service - Primary

- Airports that enplane less than 0.05 percent of all commercial passenger enplanements but have more than 10,000 annual enplanements.

Commercial Service - Non-primary

- Airport that have between 2,500 and 10,000 annual passenger enplanements.

Cargo Airport

- Served by aircraft providing air transportation of only cargo with a total annual landed weight of more than 100 million pounds.

Reliever Airport

- High-capacity general avaiation airports in major metropolitan areas that are open to the public, have 100 or more based aircraft, or have 25,000 annual itinerant operations.

General Aviation Airport

- Do not receive scheduled commercial service or do not meet the criteria for commercial service airport. Classification in the NPIAS typically requires at least 10 based aircraft and at least 20 miles from the nearest NPIAS airport.

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2.2.2 Airport Location

Tracy is part of Lyon County in Southwest Minnesota.

The City of Tracy is part of Lyon County, located in Southwest Minnesota, approximately 160 miles southwest of the Twin Cities metropolitan area and 92 miles northeast of Sioux Falls, South Dakota. In the 2010 U.S. Census, Tracy reported 2,163 residents. The airport is located approximately one mile northeast of downtown Tracy.

U.S. Route 14, functionally classified by MnDOT as a Principal Arterial, serves as a main arterial route in the community, with a right-of-way (ROW) width that varies between 66 and 100 feet running east-west between the airport and the City. County Roads also provide access to Tracy, with County State Aid Highway (CSAH) 11 (66-foot ROW), a Major Collector, bisecting the city from north to south, providing access from both directions and forming the western border of the airport. County Road 56 borders the airport on the north, and a township road lies on the east side. These well-used routes make TKC easily accessible to the public and connect Tracy to regions throughout the State of Minnesota. The Canadian Pacific Railway line runs between the main body of the city and the school in the southwest corner of town, serving as a division point where railroad crews from both east and west exchange trains.

Figure 2-1: Airport Location in State; Source: Minnesota-map.org

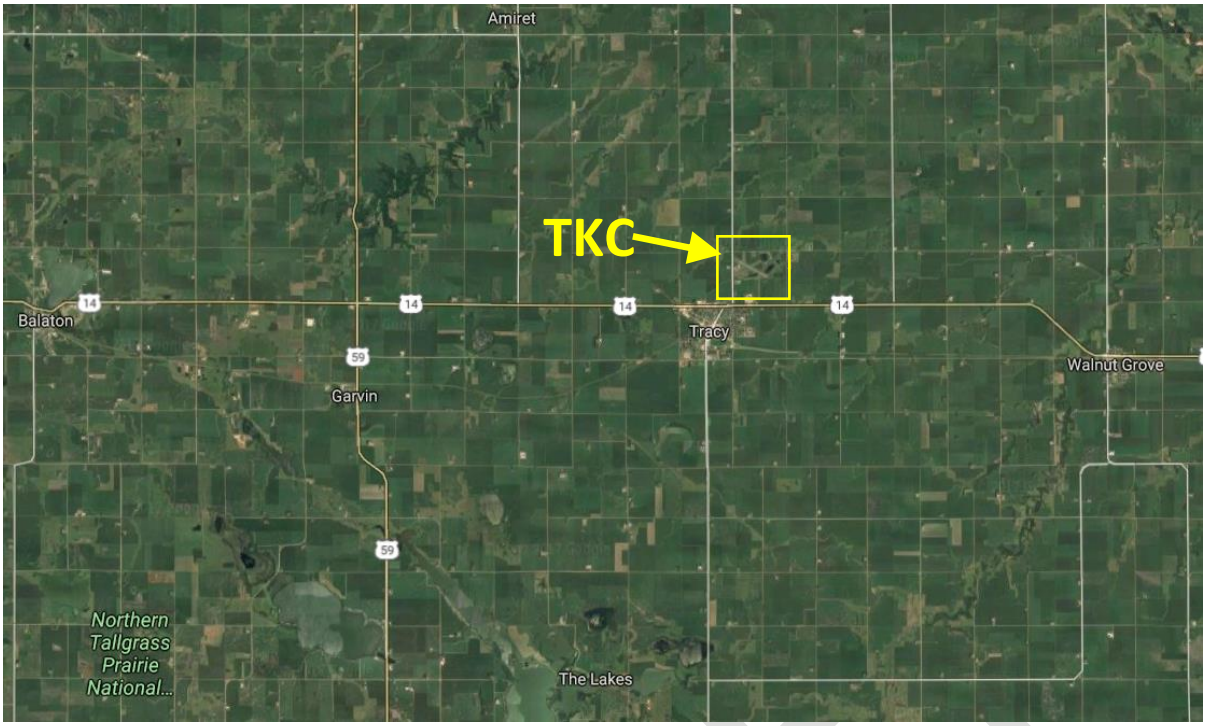

Figure 2-2: Airport Location in Region; Source: Google Earth

The surrounding topography is comprised of rolling hills, crop fields, and grassy meadows, with numerous small wetlands present at lower elevations. The airport's site and surrounding land slopes gently to the northeast, away from the City of Tracy. Numerous streams drain the area away to the northeast, including a waterway in a ravine that runs perpendicular to and at the end of Runway 11/29. This stream and its ravine's sudden drop in elevation impact the runway's required safety areas, which will be addressed later in the Master Plan.

2.2.3 Airport History

In 1948 the Church of Christ in Tracy got a new pastor, and about the same time the city opened its new municipal airport.

Pastor Homer Dobson was also a pilot. For 53 years he attended to the spiritual needs of his congregation while working to improve and maintain the Tracy Municipal Airport. He served on the Airport Commission, and for many years was the Tracy Airport Manager.

Pastor Dobson learned to fly in 1946 when he was working in Carthage, South Dakota. His plane of choice is the Ercoupe, one of which he restored to pristine condition. The pastor is handy with cars too. On his 80th birthday he drove his Model "A" Ford to the Tracy Airport to fly his Ercoupe, using the entrance road that's named after him to get there. The pastor/airport manager is retired now, but he has plenty of stories to tell.

Tracy's first airport was a "mowed strip" with one hangar started in the 1920s by a group of local pilots who formed a flying club. It was located on a farm just north of town and operated until the 1940s.

The city tried for many years to fund a municipal airport, without success. Several Tracy residents served in the Army Air Force during World War II, and their influence persuaded voters to pass a referendum in 1945 approving construction of a new airport. The vote was 357 to 241. Later that year, Tracy sold bonds for $54,000 to acquire the necessary land. The new Airport was fully operational in 1947.

Two well-known Minnesota pilots got their start in Tracy. Both have been inducted into the Minnesota Aviation Hall of Fame.

Ray Johnson started Tracy Air Service in 1963. He was a leader in the field of Agricultural Aviation, but also did charter work and flight instruction. Later, he expanded to Marshall, Minnesota where his business now operates as Midwest Aviation. Until recently, Ray was still doing flight tests as a FAA examiner.

General Edwin Rawlings grew up in Tracy. He was in charge of aircraft procurement for the Army Air Corps during World War II. After the war he was appointed the first Comptroller of the new US Air Force. He eventually became the service's youngest four-star general. After retiring from the military, General Rawlings was president and Chairman of the Board for General Mills.

The modern Tracy Municipal Airport has three runways (just like it did in 1947). It's one of the few General Aviation Airports where you don't have to worry about cross winds. Runway 11/29 is now paved and lighted and has the standard RNAV/GPS approaches. There's also hangar space, a Arrival/Departure Building, and self-service fueling. The city has a courtesy car you can use to get to one of the area's great parks, or the "Wheels Across the Prairie Museum."

When Laura Ingalls talks about going to the "big city" in "Little House on the Prairie," she means Tracy. Back then it was the biggest town in the area and a hub for the branch lines of the Chicago and North Western Railroad.

Named for John F. Tracy, a railroad official, the village was founded in 1880 and incorporated in 1893. Today it's a "division point" where Canadian-Pacific trains change crews. The City celebrates its railroad heritage with "Box Car Days" during the Labor Day weekend. Festivities include a parade, street dance, and a fly-in. Camping is allowed on the Airport so you can sleep next to your airplane. September 1-4, 2017, was the 90th "Box Car Days" celebration.

(Adapted from the January 1, 2017 Minnesota Flyer Magazine*, "Airport of the Month – Tracy Municipal.")*

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Over 90 years of flight at TKC.

Source: Google Earth

Early 1920s – 1940s: Tracy's first airport was a "mowed strip" with one hangar on a farm just north of town started by a group of local pilots who formed a flying club.

1945: Referendum passed for construction of a new airport.

1947: New Airport with three runways is fully operational.

1949: Bituminous Apron constructed.

1955: First fly-in at airport – "Wing and Wheel Day."

1950's: T-hangar constructed.

1963: Tracy Air Service was started.

1960's: Conventional hangar constructed and A/D building moved to the site.

1967: Runway extension and sanitary sewer improvements.

1968: Airport improvements including paving of Runway 11/29, apron, and connecting taxiway; lighting and beacon are installed.

1974: Airport zoning ordinance is passed allowing Airport to receive State aid.

1991: Airport improvements including underground fuel tank and the installation of markers for the grass strips.

1994: Stormwater Pollution Prevention Plan completed.

1996: Airport beacon refurbished.

2001: First Federal Grant to rehabilitate runway and apron.

2003: AWOS is installed.

2004: Pilot Controlled Lighting installed and airport mower purchased.

2005: First ALP Master Plan is completed.

2006: New paved taxiway and hangar taxilane is completed.

2007: Fence added.

2009: A/D building rehabilitated.

2013: New apron, tiedowns, and fuel facility constructed.

2015: Runway Lighting is upgraded.

Figure 2-3: Timeline of airport history

2.2.4 Summary of Commercial Service

Tracy does not currently support commercial airline service.

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2.2.5 Ownership and Management

The Tracy Airport is owned and operated by the City of Tracy. The City appoints a City Council member as liaison between the City Council and the Airport Board, sitting in on the Board meetings. Per the City Charter, the Airport Board meets the first Monday in April and on an as-needed basis throughout the year. An administrative assistant acts as Board Secretary. The members of the Airport Board are appointed by the Mayor. The City Council has ultimate authority over all decisions regarding the airport finances and management, but the Board plays a strong advisory role to the Council.

The Airport Manager is hired directly by the City but is responsible to both the City and the Airport Board.

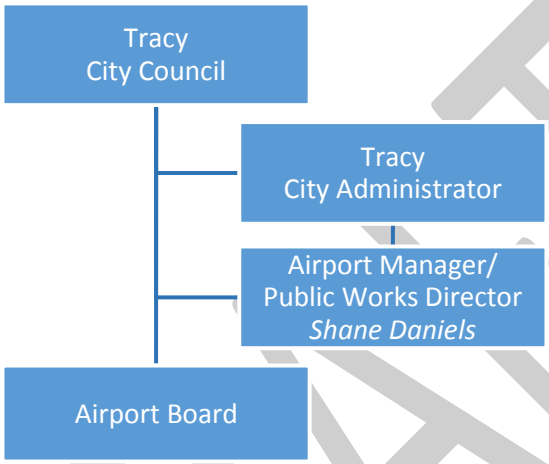

Figure 2-4: Organizational Chart

The Airport Board is currently working on completing a Minimum Standards and General Operation document for the airport, which will be included in this Master Plan's Appendix when completed.

2 | Section 3 – Regional Context

2.3.1 Surrounding Airports

Within the state of Minnesota, there are 97 public use airports included in the federal National Plan of Integrated Airport Systems. Of these, seven are Reliever airports, eight are Primary Commercial Service airports, and the remainder are considered General Aviation airports. As can be seen in the following figure, several General Aviation airports are located within close proximity to TKC. The city of Marshall, the Lyon County seat, approximately 15 miles northwest of Tracy, is home to the Southwest Minnesota Regional airport. Marshall's airport includes two paved runways (12/30 and 02/20), hangars, fuel facilities, flight training and repair services, charter flights, car rental, and a service building with restrooms.

Airports in adjacent counties are found in Granite Falls, Redwood Falls, Springfield, Windom, and Slayton, all of which are considered "Intermediate" airports. Of these, Granite Falls' airport has the largest runway, accommodating the largest aircraft,

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while Redwood Falls has the greatest number of operations – almost five times the operations at Tracy. Slayton and Springfield's airports are slightly less in terms of operations and based aircraft. The City of Marshall's airport (MML) is considered a "Key" airport in the NPIAS and a "Regional" airport in Minnesota SASP. It includes its own fixed base operator (FBO), offers instrument approach procedures, private and public hangars, and provides landside facilities. There is no commercial air service, but there is measurable air cargo activity to and from the Minneapolis/St. Paul International airport.

The nearest commercial services airport is in Sioux Falls, South Dakota. It is considered a Small Hub Primary Airport in the NPIAS Report. None of the nearby airports are considered eligible for the Essential Air Service Program (EAS).

Southwest Minnesota Regional Marshall/Ryan Field (KMML)	Slayton Municipal Airport (KDVP)
Longest Runway: 7221 x 100 ft, asphalt Lighting/NAVAIDS: HIRL / Beacon, Lighted wind indicator, PAPI, MALSR Instrument Approaches: RNAV(GPS), VOR, LOC Fuel: 100LL, Jet-A Total Based Aircraft/Operations: 27 / 22,848	Longest Runway: 3005 x 60 ft, asphalt Lighting/NAVAIDS: LIRL / Beacon, Lighted wind indicator, REIL Instrument Approaches: RNAV (GPS) Fuel: 100LL Total Based Aircraft/Operations: 4 / 3,300
Springfield Municipal Airport (D42)	**Redwood Falls Municipal Airport (KRWF)**
Longest Runway: 3402 x 75 ft, asphalt Lighting/NAVAIDS: MIRL / Beacon, Lighted wind indicator, PAPI, REIL Instrument Approaches: RNAV (GPS), VOR Fuel: 100LL Total Based Aircraft/Operations: 4 / 2,420	Longest Runway: 4001 x 100 ft, asphalt Lighting/NAVAIDS: MIRL / Beacon, Lighted wind indicator, PAPI, REIL Instrument Approaches: RNAV (GPS), VOR Fuel: 100LL, Jet-A Total Based Aircraft/Operations: 10 / 9,800
Windom Municipal Airport (KMWM)	**Granite Falls Municipal/Lenzen-Roe-Fagen Memorial Field (KGDB)**
Longest Runway: 3599 x 75 ft, concrete Lighting/NAVAIDS: MIRL / Beacon, Lighted wind indicator, REIL Instrument Approaches: RNAV (GPS) Fuel: 100LL, Jet-A Total Based Aircraft/Operations: 17 / 8,300	Longest Runway: 4357 x 75 ft, asphalt Lighting/NAVAIDS: MIRL / Beacon, Lighted wind indicator, REIL Instrument Approaches: RNAV (GPS), VOR Fuel: 100LL Total Based Aircraft/Operations: 15 / 7,000

Figure and Table 2-5: Surrounding Airports with instrument procedures near TKC; Source: Skyvector.com

Notes: LIRL/MIRL/HIRL = Low/Medium/High Intensity Runway Light
REIL = Runway End Identifier Light
PAPI = Precision Approach Path Indicator
RNAV = Area Navigation
VOR = Radio Navigation
LOC = Localizer

2.3.2 Climate and Topography

TKC is located on the plains of Minnesota among rivers, lakes and wetlands, and at an elevation of 1340 feet above mean sea level. Its reference point is N44°14'57.25" and W95° 36'26.67".

The surrounding topography is comprised of rolling hills, crop fields, and grassy meadows, with numerous small wetlands present at lower elevations. The airport's site and surrounding land slopes gently to the northeast, away from the City of Tracy. Average wind speeds are variable, up to 20 miles per hour, gusting higher. According to the Monthly Normals Report for 1981-2010 from the National Oceanographic and Atmospheric Administration (NOAA), the station at TKC averages 28.23 inches of precipitation per year. Tracy has a humid continental climate with warm summers and cold winters. The lowest temperatures are seen in January, with an average low of 5°F, and the highest temperatures occur in July, with an average high of 82°F.

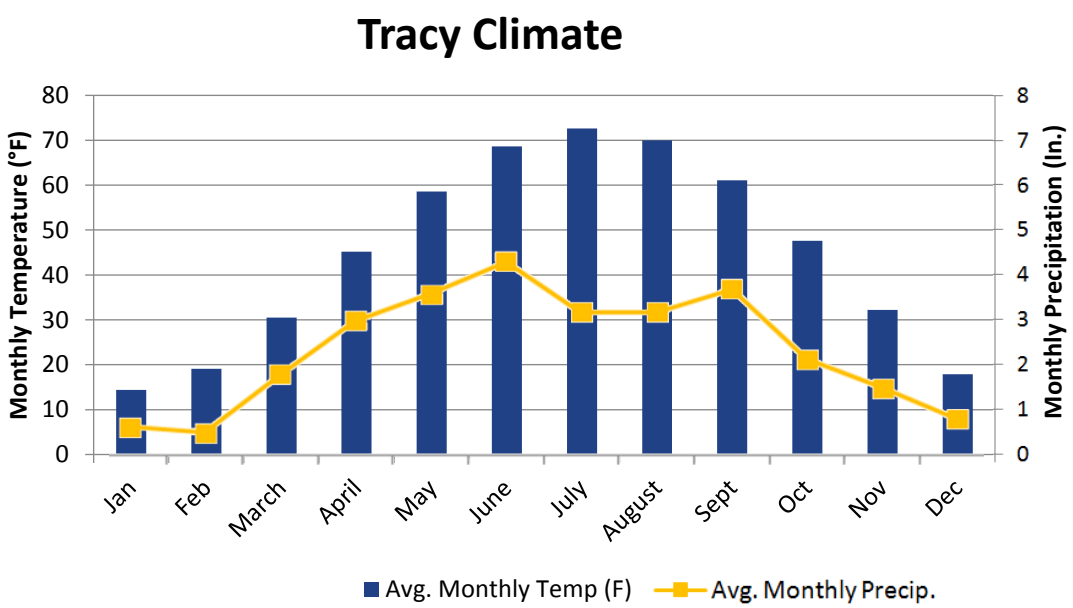

Figure 2-6: Average Monthly Precipitation and Temps in Tracy Area
Source: Midwestern Regional Climate Center

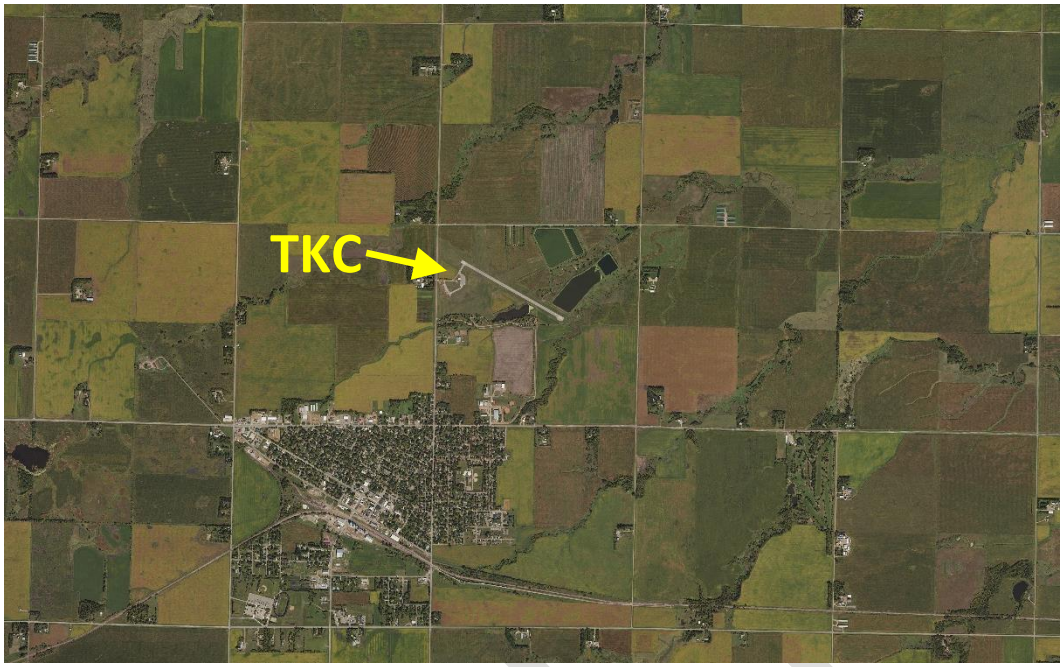

Figure 2-7: Aerial Photograph of Topography; Source: Woolpert, Inc.

2.3.3 Service Area and Demographic Profile

Tracy Municipal Airport's service area includes all of Lyon County.

2.3.3.1 Population, Employment, and Income

According to the Minnesota State Demographic Center, Lyon County's population is expected to decline slightly over the next 30 years. Employment rates have dropped and risen, and then fallen slightly in the past few years, while median incomes have risen and then held fairly steady.

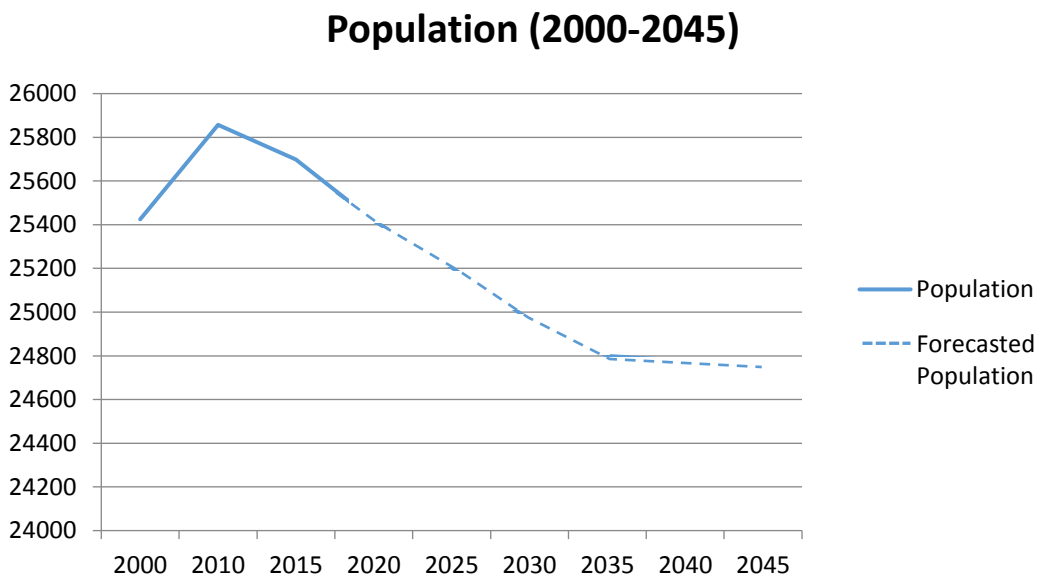

Figure 2-8: Population Growth/Forecast
Source: Factfinder.census.gov, US Census Bureau

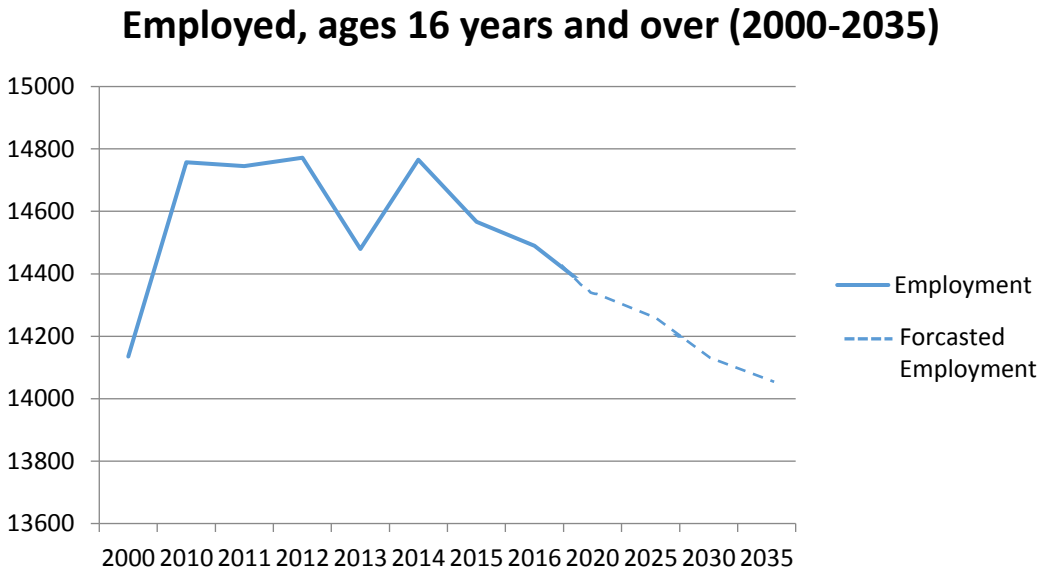

Figure 2-9: Employment Growth/Forecast
Source: Factfinder.census.gov, US Census Bureau

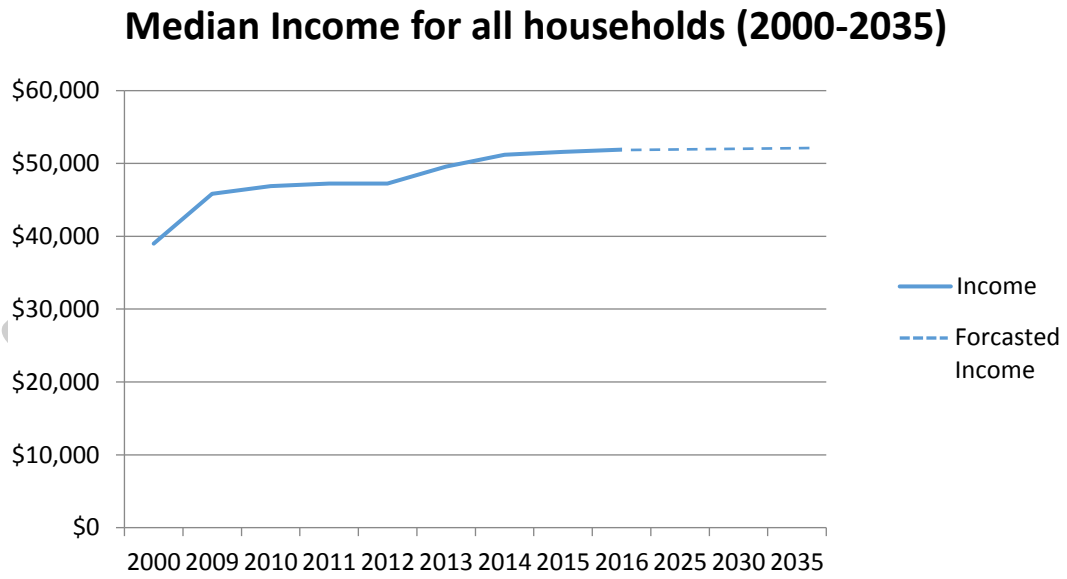

Figure 2-10: Per Capita Personal Income Growth/Forecast
Source: Factfinder.census.gov, US Census Bureau

Year	Population	Employment	Median Income
2010	25,857	14,757	46,872
2011	25,716	14,745	47,254
2012	24,714	14,772	47,256
2013	25,703	14,480	49,594
2014	25,724	14,766	51,182
2015	25,699	14,567	51,600
2016	25,670	14,490	51,920
CAGR	**-0.12%**	**-0.304%**	**1.72%**

Table 2-11: Socioeconomic Trends within TKC Service Area/Lyon County
Note: CAGR-Compound Annual Growth Rate

2.3.3.2 Local Economy

A busy manufacturing, business, and agricultural climate sustains the local economy. According to the US Census Bureau's *2012 Survey of Business Owners*, there are 1,983 businesses in Lyon County, down slightly from 2007's total of 2,302. The majority of Lyon County's residents are employed in finance, insurance, and real estate; in manufacturing; in retail trade; and in education or healthcare and social assistance services (*Factfinder.census.gov, 2011-2015 American Community Survey 5-year estimates*). While many of the county's largest employers are located in Marshall and served by the Southwest MN Regional Airport, these industries are also supported by the Tracy Airport.

The TKC market area supports a diversified array of manufacturing, retail, health care, and small business interests. Businesses such as Wilbur-Ellis Air, Meadowland Farmers Coop, and CMB Implement regularly use the airport. Its history, cultural and recreational amenities, natural beauty, and proximity to regional shopping and business hubs drive transportation needs as well. Major employers in the immediate area include Tracy School District, Tracy Medical Services, and Tracy Food Pride (Table 2-12).

Business	Industry
Tracy School District	Education
Tracy Medical Services	Health Care
City of Tracy	Government
Tracy Food Pride	Retail
North Star Homes	Manufacturing
Minnwest Bank	Finance
Premium Plant Services	Industrial
CHS Inc.	Agriculture

Table 2-12: Major Employers within TKC Market Area

2.3.4 Surrounding Land Use

Airport operations often impact adjoining properties and land uses, so it is important to integrate Airport Master Plans with local land use development plans. Due to its location in Tracy and Lyon County, any City or County zoning ordinances or comprehensive plans must be considered. All current airport property falls within Tracy city limits.

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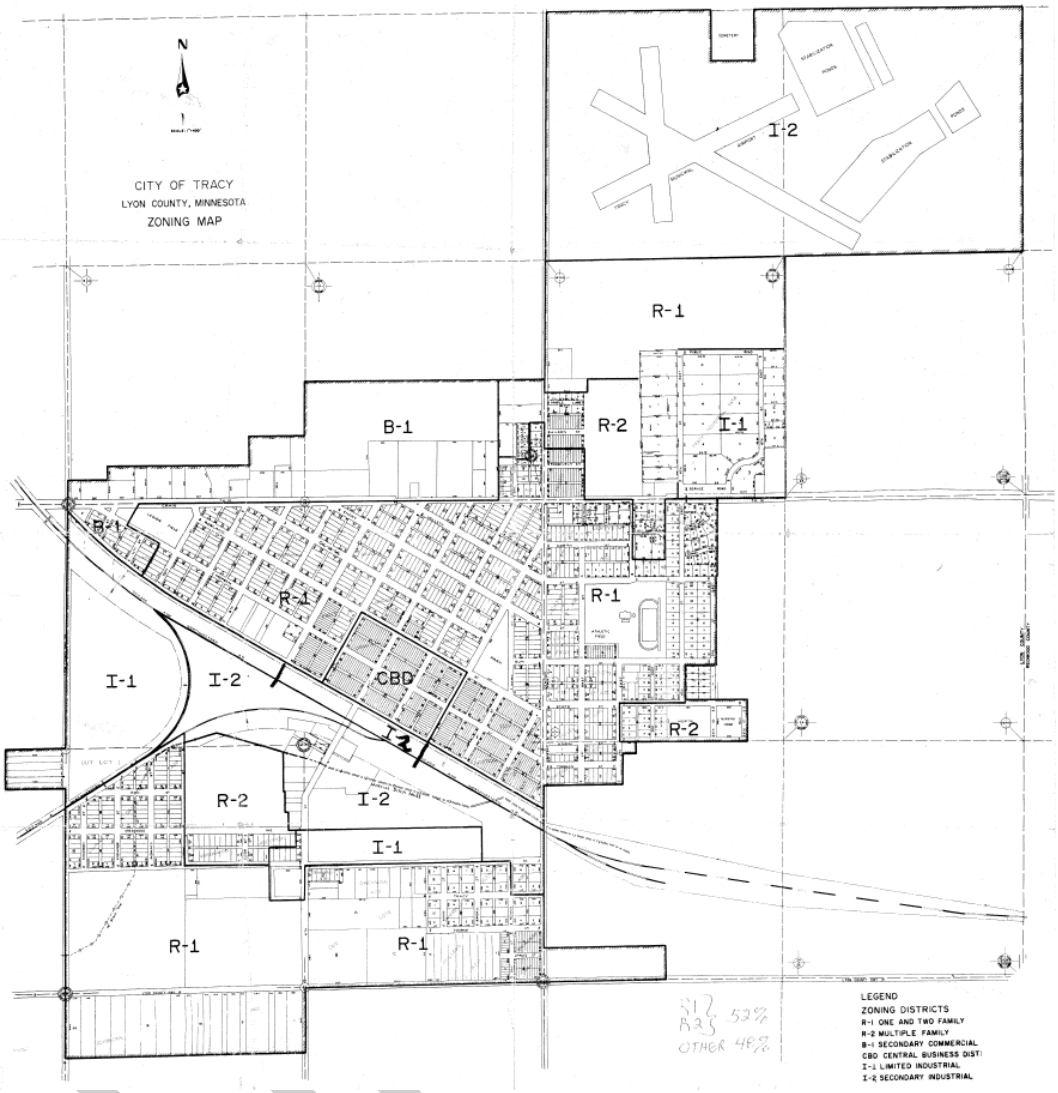

Figure 2-13: City of Tracy Zoning Map

Figure 2-13 is the Zoning Map for the City of Tracy which shows the airport vicinity zoned as I-2, Secondary Industrial, referred to in the Tracy City Code Land Use Regulations as I-2, General Industrial District. The City does not have a Municipal or Comprehensive Plan. The City has a zoning ordinance which was adopted in 1974, but a detailed zoning map has not been created. Lyon County has been zoned county-wide. Monroe Township does not have a Comprehensive Plan, but uses the County for planning and zoning services. The ordinances and regulations currently in effect regarding land use and influencing future work at the airport include:

- Lyon County Comprehensive Plan (2002)
- Lyon County Zoning Ordinance (2015)
- Lyon County Zoning Map (2012)
- Tracy City Code (1968)
  - Section 3.10: Land Use Regulations (Zoning)
  - Section 3.60: Airport Zoning
  - Section 9.12: Airport Board

Airport access roads are lined with residential, commercial, and some industrial properties. Consideration must be made of the residential properties nearest the airport, which are located south of Highway 14.

Lyon County Comprehensive Plan. A Comprehensive Plan helps the County to prevent the development of incompatible land uses. This kind of management plan could encourage the viability, development and growth of the Tracy Municipal Airport, including the coordination of adjacent land uses and transportation improvements to best facilitate the full use of the airport. At this time, land uses around the airport are primarily agricultural, with limited areas commercial, recreational, and residential use to the south. Lyon County's Comprehensive Plan has set forth "basic guiding principles that have been embraced by Lyon County to shape its future." It includes chapters on demographic characteristics, economic development, housing, community facilities, environmental features, land use, growth, and zoning. Each chapter contains and inventory and analysis of the subject matter for Lyon County, reviews the related issues identified, and outlines a policy plan containing Goals and Policies, which express the County's aspirations for the future.

Chapter 6 of the Comprehensive Plan is devoted to Transportation, including airports. The Goals for transportation set forth in the chapter include:

- Provision of a transportation system that serves the access and mobility needs of Lyon County.
- Maintain a transportation system that serves County development Goals and Objectives. *This includes necessary support to improve air, transit, and trail systems in the County.*
- Maintain a transportation system that is safe, efficient and cost effective.
- Provide an environmentally sensitive transportation system.
- Promote alternative transportation such as bicycling, walking, transit and rail.

Chapter 6 of the Plan notes the importance of supporting the operations of the County's two airports (Tracy and Marshall) through the provision of "good roadway accessibility and proper zoning in the airport environs."

Lyon County Zoning Ordinance. The purpose of the ordinance is for "…. Promoting health, safety, order and general welfare, by regulating the use of land, the location, arrangement and use of building, the density of population, and the orderly development of the area of Lyon County, Minnesota or parts thereof outside the incorporated limits of the municipalities." Included in the zoning ordinance are descriptions of each of the district types (such as Agricultural, Suburban, and Rural Residential, among others) and the districts' purpose, their permitted, conditional, and accessory uses, and lot size, setback, yard and height requirements.

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The Ordinance also addresses general regulations and specific issues, such as:

- Signs regulations
- Shoreland Standards
- Essential Services
- Animal Feedlot Regulations
- Towers
- Renewable Energy
- Conditional Uses
- Non-conforming Structures, Uses, and Lots
- Subsurface Sewage Treatment Systems, and
- Zoning Administration issues and procedures.

Lyon County Zoning Map. This map was adopted to regulate the use and orderly development of Lyon County, and applies to the unincorporated areas of the County. The map depicts townships, cities, and areas planned for land uses such as Agriculture, Highway commercial, Orderly Annexation, Planned Unit Developments, Suburban and Rural Residences, Unincorporated Villages, and Urban Expansion areas. It also depicts floodways and designated 100-year flood areas.

The Airport is included as part of the City of Tracy. An area south of the airport, between US Highway 14 and CSAH 14 is planned as an Urban Expansion area, while a smaller area to the west along US Highway 14 is set aside for Highway Commercial development. Greenhead Wildlife Management Area is shown in Monroe Township, west of the City of Tracy. The Zoning Map is included in the Appendix of the Master Plan.

Tracy City Code, Section 3.10 Land Use Regulations (Zoning). This document sets forth provisions for buildings and land use within the City. Lawful uses existing prior to January 1968 may be continued, subject to the regulations of Subd. 10 of this section. It defines the minimum requirements and standards of property design, construction, and materials in applications for building permits relating to housing in the City. It establishes the creation of the following zoning districts:

Zoning Districts	
R-1	One- and Two-Family Residence District
R-2	Multiple Family Residence District
B-1	Secondary Business District
B-2	Central Business District (CBD)
I-1	Limited Industrial District
I-2	General Industrial District

Table 2-14: City of Tracy Zoning Districts

The ordinance defines the requirements for all uses within each district. Airports are included in zoning district I-2 as a permitted use.

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Tracy City Code, Section 3.60 Airport Zoning. This chapter deals largely with airport hazards, noting that such hazards endanger the lives and property of airport users and the property or occupants of the land in its vicinity. Such hazards may also destroy or impair the utility of the airport. Thus, the chapter endeavors to prevent the creation or establishment of airport hazards, and the elimination, removal, alteration, mitigation or marking and lighting of existing airport hazards.

Structures such as cell towers, wind turbines, vegetation, terrain, and tall buildings can inhibit airport operations and pose a safety concern. This chapter protects the safety and utility of the airport, the safety of the public and property, and prohibits hazards in certain areas by establishing Safety Zones A, B, and C centered around the runway centerline. The designated Safety Zones have guidelines for land use and building or structure construction for each zone to prevent the development of obstructions which are a hazard to air navigation.

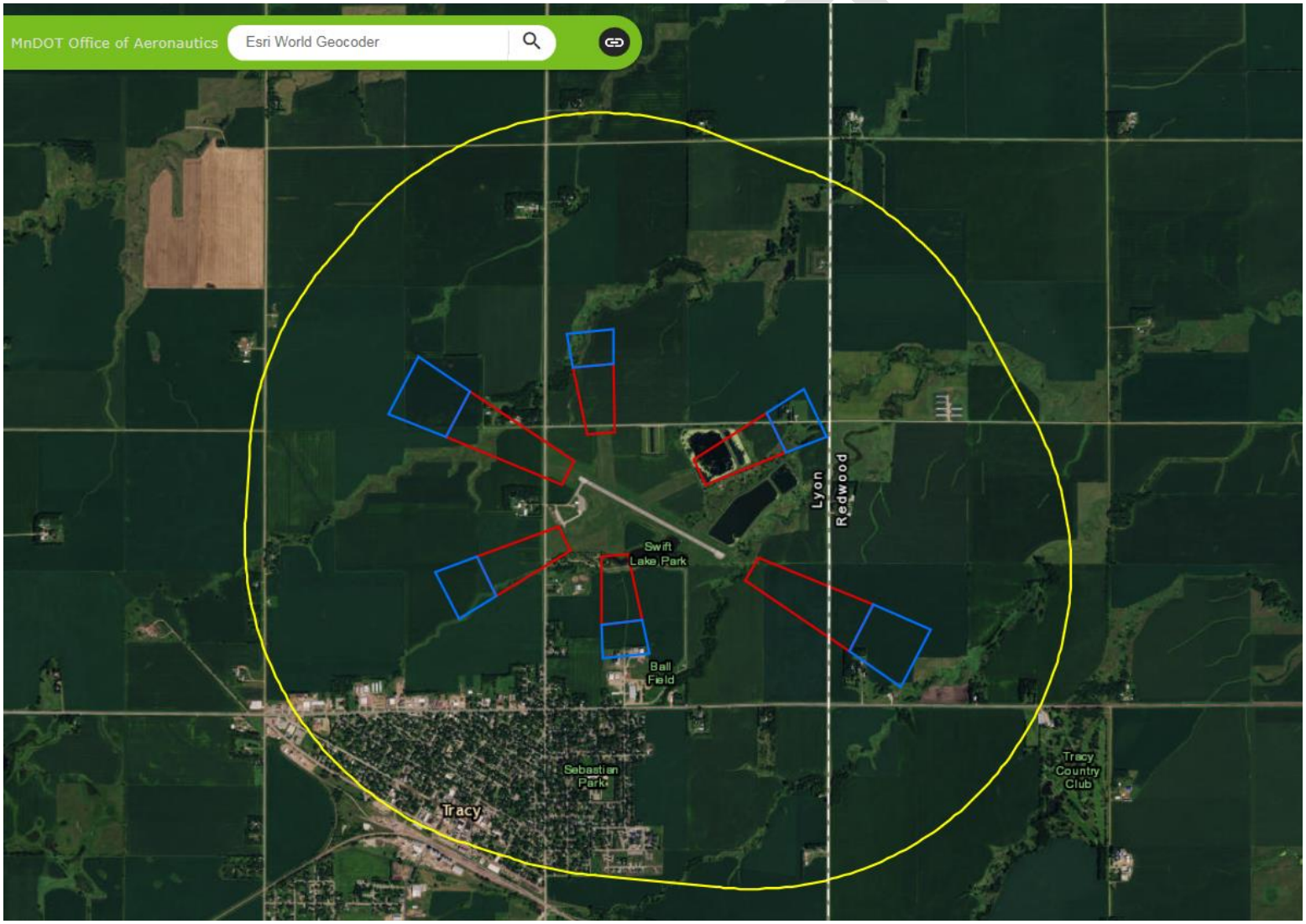

Figure 2-15: TKC Safety Zones A, B, and C
Source: MnDOT Office of Aeronautics Esri World Geocoder

The Safety Zones are superimposed over specific areas of airspace, defined in the ordinance, which impose height limitations according to the airspace being protected. It delineates the scope of the ordinance in relation to existing conditions or structures (meaning that they may be "grandfathered in") though they are nonconforming uses. Hazards that cannot be removed must be marked and lighted. The ordinance does not explicitly address light or lighting devices, glare, or dust which may also restrict visibility in the Safety Zones.

The City's Airport Zoning ordinance, created as part of their larger Zoning document, was approved by MnDOT on May 12, 1975. The ordinance was adopted by a Joint Airport Zoning Board, created and established by joint action of the City Council of the City of Tracy and the Board of County Commissioners of Lyon County. Since that time, many improvements have been made to the airport, including fuel systems, lighting, marking, paved taxiways and taxilanes, A/D building, and a new apron with tiedowns. These improvements can impact the relevance of the current ordinance, but further, it is vitally important that the Airport Zoning ordinance and associated map be updated to reflect the desired Ultimate Facility in order to protect the area surrounding the airport for future development by TKC. Representatives of MnDOT are prepared to assist TKC in the completion of this document and expect the adoption of an updated ordinance and map upon completion of the Master Plan.

It is vitally important that the Airport Zoning ordinance and associated map be completed to reflect the desired Ultimate Facility in order to protect the area surrounding the airport for future development by TKC.

Tracy City Code, Section 9.12 Airport Board. This chapter establishes the creation of a managing Airport Board, describing who should be a member, their meetings and responsibilities, and their powers.

Taken overall, there is little in any of the documents described above that limits development around the airport. Adjacent land development could impact current or future planned expansion of airport surfaces unless the proper zoning documents are put in place to protect MnDOT safety zones or FAR Part 77 surfaces.

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2 | Section 4 – Description of Existing Facilities

2.4.1 Existing Airport Layout

Figure 2-16: Aerial View of Existing Facilities; Source: Woolpert, Inc.

The Tracy Airport property consists of almost 38 acres. The key elements and current amenities include:

- Paved runway 11/29
- Turf runways 6/24 and 17/35
- Taxiway and apron areas
- Aircraft tie-downs
- Public T-hangar – 8 units
- Public Conventional hangar
- Arrival/departure building
- Fuel facility
- Navigational aids
- Automobile parking areas

These features are depicted in the Airport Layout Drawing (Figure 2-17).

Figure 2-17: Airport Layout Drawing of Existing Facilities

2.4.2 Existing Design Criteria

2.4.2.1 Existing Conditions

The current aircraft using TKC are primarily single-engine and experimental aircraft such as the Piper PA22 and PA28 Arrow, Cessna 172, Stinson 108, and other similarly-sized craft. The experimental aircraft include craft such as the Sixchuter SR7XL and Rocky Mountain Wing Ridge Runner IV. An aircraft that is often seen at TKC is the Beechcraft KingAir C90, a twin-engine turboprop craft with a wingspan of 50'-3", height of 14'-3", can include up to 9 passenger seats, and has a maximum takeoff weight of 10,100 pounds. Sanford Hospital utilizes TKC 1-2 times per month to bring doctors and other staff to Tracy's hospital.

A review of the existing facility indicates that TKC is currently designed to accommodate aircraft in Approach Category "B Small Aircraft" and Aircraft Design Group "II," resulting in an ARC of **B-II (Small).**

Figure 2-18: Beechcraft KingAir C90 on TKC's apron

Airfield design standards are based upon an **Airport Reference Code** (ARC) for the most demanding aircraft with greater than or equal to 500 annual operations currently using or forecasted to use the airport. The type of approaches offered at the airport (in this case, visual and non-precision instrument) also affect design criteria. The ARC is used for planning only and does not limit the aircraft that may be able to operate safely on the airport.

A review of the existing facility indicates that TKC is currently designed to accommodate aircraft in Approach Category "B (Small) Aircraft" and Aircraft Design Group "II," resulting in an ARC of *B-II (Small)*. However, a great majority of the aircraft that use the airport are those with an approach speed of less than 91 knots, wingspans less than 49 feet, and tail heights of less than 20 feet, which fall into the A-I (Small) category.

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Figure 2-19: Based aircraft at TKC

Understanding Design Criteria

The Airport Reference Code (ARC) is used for planning and design. Unlike the Runway Design Code (RDC), it does not limit the aircraft that may be able to operate safely on an airport.

The ARC consists of two components. The first component is the Aircraft Approach Category (AAC) which relates to approach speed of the aircraft. The second relates to either the aircraft wingspan and/or tail height and is known as the Airplane Design Group (ADG). According to the FAA AC 150/5300-13A, *Airport Design*, the following criteria determine the AAC and ADG.

Aircraft Approach Category (AAC):

Approach Speed (V_{REF})	
A	Less than 91 knots
B	91 knots - 120 knots
C	121 knots - 140 knots
D	141 knots - 165 knots
E	166 knots or more

Airplane Design Group (ADG):

	Tail Height (feet)	Wingspan (feet)
Group I	Less than 20	Less than 49
Group II	20 - 30	49 - 79
Group III	30 – 45	79 - 118
Group IV	45-60	118 - 171
Group V	60-66	171 - 214
Group VI	66-80	214 - 262

Tracy's Current ARC: B-II (Small)

The following table describes the typical aircraft based at TKC or using their facilities along with their associated ARC.

Aircraft	ARC	Approach Speed (knots)	Wingspan (feet)	Height (feet)	Max. Takeoff Weight (lbs)
Beechcraft KingAir C90	B-II	100	50	15	10,100
Beechcraft Bonanza K35	A-I	72	33	7.5	3,125
Cessna 172E Skyhawk	A-I	75	36	9	2,450
Piper PA-22-160 Tri-Pacer	A-I	56	29.33	8.25	2,000
Piper PA-28-181 Arrow	A-I	70	30	8	2,491

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Aircraft	ARC	Approach Speed (knots)	Wingspan (feet)	Height (feet)	Max. Takeoff Weight (lbs)
Piper PA-28-180 Cherokee	A-I	65	32	7.3	2,450
Rocky Mountain Wings Ridge Runner (Ultralight)	A-I	32	26	5.25	900
Six Chuter SR7XL - Skye Ryder Aerochute (Ultralight)	N/A	N/A	39.5	7	1,100
Stinson Voyager 108	A-I	73	34	6.5	2,230
Emigh A-2 Trojan	A-I	42	31.5	6.5	1,450

Table 2-20: Typical Aircraft Operating at TKC

If a third component, the **Visibility Minimum** (RVR), is added to the ARC, the code then becomes a **Runway Design Code** (RDC), which signifies the design standards to which a runway is to be built. These RVR values are expressed in feet as noted in the table below. Runways designed for visual approach only are designated "VIS." **In the case of Runway 11/29, the Visibility Minimum is 5000, or not lower than one mile. Turf runways 6/24 and 17/35 are Visual Approach only.**

RVR (feet)	Instrument Flight Visibility Category (statue mile)
5000	Not lower than 1 mile
4000	Lower than 1 mile but not lower than ¾ mile
2400	Lower than ¾ mile but not lower than ½ mile
1600	Lower than ½ mile but not lower than ¼ mile
1200	Lower than ¼ mile
VIS	Visual approach only

Table 2-21: FAA Visibility Minimums; Source: AC 150/5300-13A

In addition, the **Taxiway Design Group** (TDG) must be considered. The TDG is used to determine taxiway width, shoulder width, fillets, and in some cases, taxiway to taxiway separation. The TDG is based on the outer-to-outer main gear width (MGW) and the cockpit to main gear distance (CMG). **The existing taxiway, at 50 feet wide, conforms to a TDG-3 standard.**

The existing taxiway, at 50 feet wide, conforms to a TDG-3 standard.

2.4.2.2 Airport Operating Certificate

Tracy is not a commercial airport and does not have a Part 139 Airport Operating Certificate, though it is a licensed public airport through MnDOT.

2.4.2.3 Wind Analysis

Winds are the traditional factor in determining runway orientation, generally aligning with the direction of the prevailing wind.

Wind data analysis considers wind speed and direction related to the existing and forecasted operations, both during VFR and IFR weather conditions. An ideal runway is aligned with the prevailing wind for the greatest percentage of time. A crosswind runway is recommended by the FAA when the primary runway orientation provides less than 95% wind coverage. In this case, a crosswind runway may be justified and eligible for Federal funding.

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Wind coverage is the percent of time that crosswind components are below an acceptable velocity in a certain direction. This coverage is calculated based on the crosswind component not exceeding the allowable value listed in Table 3-1 of AC 150/5300-13A. Appropriate application of data from the wind analysis will enhance the safety and utility of the airport.

The crosswind component of wind direction and velocity is defined as the resultant vector which acts at a right angle to the runway centerline, and is equal to the wind velocity multiplied by the sine of the angle between the wind direction and the runway direction.

Runway 11/29 provides sufficient wind coverage in a 10.5 knot, 13 knot, and 16 knot crosswind 80 to 95% of the time. …Due to the variety of runway orientations at TKC, pilots have several options to consider when preparing to land or take off to compensate for crosswinds.

The existing Runway Design Code for Runway 11/29 is currently B-II-5000, but smaller aircraft regularly use the runway. Based on FAA standards for B-II, the allowable crosswind component for this runway is 13 knots. Generally, smaller aircraft are more affected by wind conditions, contributing to accidents, and given the significant number of slightly smaller aircraft (A-I) anticipated to visit TKC in the foreseeable future, the runway has been evaluated for 10.5, 13, and 16 knot crosswind components.

Based on this analysis, Runway 11/29 provides coverage between 80% and 95% of the time for the reviewed crosswind components in all weather conditions. Runway 17/35 provides the best coverage, between 91% and 99%. Runway 06/24 has the poorest coverage, between 78% and 94%, and is rarely used, according to airport staff. Due to the variety of runway orientations at TKC, pilots have several options to consider when preparing to land or take off to compensate for crosswinds.

The FAA considers the National Oceanic and Atmospheric Administration's (NOAA) National Climatic Data Center (NCDC) as the best source of wind data for these calculations. Wind data has been collected at TKC and used in the calculations below.

2007-2016 Wind Data	10.5 knots	13 knots	16 knots
Runway 11/29			
IFR	80.26%	89.05%	95.67%
VFR	80.19%	87.92%	95.19%
All Weather	80.17%	88.02%	95.22%
Runway 06/24			
IFR	70.54%	79.59%	89.86%
VFR	79.58%	87.28%	94.67%
All Weather	78.58%	86.43%	94.12%
Runway 17/35			
IFR	91.72%	95.7%	98.48%
VFR	91.59%	95.93%	98.78%
All Weather	91.59%	95.9%	98.74%

Table 2-22: Wind Coverage; Source: National Climatic Data Center FAA Standard wind analysis tool. Wind data from Tracy Municipal Airport, October 2017.

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2.4.2.4 Approach Procedures

In a **Visual Flight Rules** (VFR) approach, the pilot is responsible for maintaining aircraft separation, navigation, and choosing the arrival and departure flight paths to and from and airport. The results of individual pilot navigation for sequencing and collision avoidance are that aircraft do not fly a precise flight path to and from the airport. Therefore, aircraft can be found flying over a wide area around the airport for sequencing and safety reasons.

While aircraft can be expected to operate over most areas of the airport, the density of aircraft operations is higher near the airport. This is the result of aircraft following the established traffic patterns for the airport. The **traffic pattern** is the traffic flow that is prescribed for aircraft landing or taking off from an airport. The components of a typical traffic pattern are upwind leg, crosswind leg, downwind leg, base leg, and final approach, which essentially define which side of the runway aircraft will operate.

- **Upwind Leg:** A flight path parallel to the landing runway in the direction of the landing.
- **Crosswind Leg:** A flight path at right angles to the landing runway off its departure end.
- **Downwind Leg:** A flight path parallel to the landing runway in the direction opposite to landing. The downwind leg normally extends between the crosswind leg and the base leg.
- **Base Leg:** A flight path at right angles to the landing runway at its approach end. The base leg normally extends from the downwind leg to the intersection of the extended runway centerline.
- **Final Approach:** A flight path in the direction of landing along the extended runway centerline. The final approach normally extends from the base leg to the runway.

Under VFR conditions, pilots may approach each of the runways from any direction, using a standard left visual pattern with an altitude of 2000 feet above mean sea level.

While the traffic pattern defines the direction of turns that an aircraft will follow on landing or departure, it does not define how far from the runway an aircraft will operate. The distance an aircraft operates laterally from the runway centerline or the distance from the end of the runway is at the discretion of the pilot, based on the operating characteristics of the aircraft, number of aircraft in the traffic pattern, and meteorological conditions. The actual ground location of each leg of the traffic pattern varies from the aircraft operation to aircraft operation for reasons of safety, navigation and the sequencing described above. The distance that the downwind leg is located laterally from the runway will vary based mostly on the speed of the aircraft. Slower aircraft can operate closer to the runway as their turn radius is smaller.

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The direction in which aircraft approach and depart is generally dependent on wind conditions. Both approaches and departures should be performed into the predominant wind direction. When wind is not a factor, approach and departure runways are typically at the discretion of the pilot unless there are local flight regulations prescribing otherwise.

Instrument Flight Rules (IFR) for Tracy will be discussed in Section 2.4.4.7, *Navigational Aids.*

2.4.3 Airspace

2.4.3.1 Airspace Description

Class E Airspace was established at TKC per 14 CFR Part 71 standards, effective July 7, 2005.

The Federal Aviation Administration Act of 1958 established the FAA as the responsible agency for the control and use of navigable airspace within the United States. The FAA established the **National Airspace System** (NAS) to protect people and property on the ground and establish a safe and efficient airspace environment for civil, commercial, and military aviation. This includes the network of airspace such as air navigation facilities, airports and landing areas, aeronautical charts, associated rules, regulations and procedures, and technical information.

Airspace is broadly classified as "controlled" or "uncontrolled," the difference being primarily related to requirements for pilot qualifications, ground-to-air communications, navigation and air traffic services, and weather conditions. See Figure 2-23: *Understanding Airspace* for a description of the five classes of "controlled" airspace, A-E. Class G airspace is considered "uncontrolled."

According to the Federal Register (www.federalregister.gov) Class E Airspace was established at TKC per 14 CFR Part 71 standards, effective July 7, 2005. Controlled airspace is necessary to accommodate Area Navigation (RNAV) Standard Instrument Approach Procedures at the airport, enhancing the safety and management of Instrument Flight Rule (IFR) operations. The controlled airspace area extends upward from 700 feet above the surface within a 6.4-mile radius of the airport.

Class E airspace includes airspace corridors identified as federal airways or which accommodate jet traffic at low altitudes. The Class E controlled airspace around TKC starts at 700 feet Above Ground Level (AGL) and extends vertically to 18,000 Means Sea Level (MSL) when it reaches Class A airspace. Figure 2-25 depicts the Class E airspace surrounding TKC. Established IFR, en route airways and associated reporting points near the airport can be seen in Figure 2-26.

Victor airways are low-altitude airways, defined in straight-line segments, each of which is based on a straight line between either two VHF omnidirectional range (VOR) stations or a VOR and a VOR intersection. The nearby Victor airways can be seen in Figure 2-26.

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2.4.3.2 Air Traffic Control (ATC) Procedures and Communications

The Tracy airport does not have an FAA Air Traffic Control Tower (ATCT), therefore approach and departure service is provided by the Minneapolis Air Route Traffic Control Center via the Redwood Falls Remote Center Air/Ground Communications facility. The service provides radar separation on all aircraft operating on IFR fight plans within controlled airspace, and principally during the en route phase of flight to and from TKC. Ground control and separation of the VFR aircraft operating near TKC is performed by the pilot under visual flight rules, who states his or her intentions via the CTAF.

Airport Communications	Frequencies
CTAF	122.9
Minneapolis ARTCC	127.1/290.2
AWOS-3	120
AWOS-3 at MML (Marshall)	111.0
AWOS-3 at DVP (Slayton)	118.55
AWOS-3 at MWM (Windom)	118.525

Table 2-23: Airport Communications

Notes: CTAF-Common Traffic Advisory Frequency
ARTCC-Air Route Traffic Control Center
AWOS-Automated Weather Observing System
ASOS-Automated Surface Observing System

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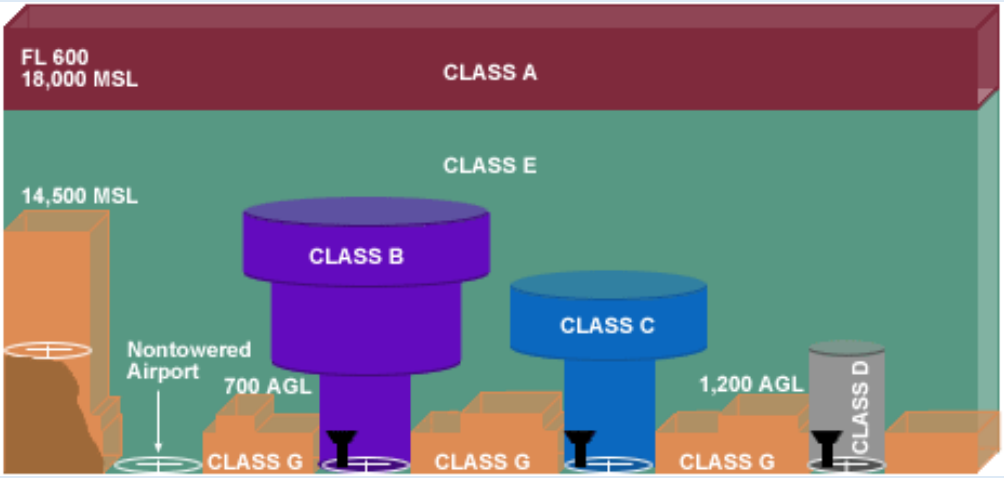
Understanding Airspace

The airspace over the United States, to an altitude of approximately 60,000 feet MSL (Flight Level – FL600), is separated into two parts, terminal and en route airspace. Terminal airspace is that area around the nation's major airports extending to a specified altitude that may encompass an area of 60 miles in diameter and include several airports. En route airspace is the area within which aircraft transit from one terminal airspace to another. There is no specified bottom altitude for en route airspace and the top extends to the upper performance limits of civil aircraft. U.S. airspace is further divided into several different categories, each with its own rules and regulations.

The airspace categories are designated Class A, B, C, D, E, and G, transition areas and continental control area. The Class B, C, and D areas are ascribed to Airport Traffic Areas (ATA). Each class of ATA has a given radius, with Classes B and C having extensions (transition areas) to encompass the final portion of an instrument approach procedure.

Victor airways are low altitude airways, used by both VFR and IFR aircraft traffic, defined in straight line segments between either two very high frequency omnidirectional range (VOR) stations, or a VOR and a VOR intersection. Victor airways have a floor of 1,200 feet above ground level (AGL) and a ceiling of 17,999 feet MSL. They are normally eight nautical miles wide.



Airspace Features	Class A	Class B	Class C	Class D	Class E	Class G
ATC Facility	ARTCC	TRACON	TRACON or ATCT	ATCT	ARTCC	None
Operations Permitted	IFR	IFR & VFR	IFR & VFR	IFR & VFR	IFR & VFR	IFR & VFR
Entry Requirements	ATC Clearance	ATC Clearance	ATC Clearance for IFR. All require radio contact	ATC Clearance for IFR. All require radio contact	ATC Clearance for IFR. All require radio contact	None
VFR Minimum Distance from Clouds	N/A	Clear of clouds	500' below, 1,000' above, and 2000' horizontal	500' below, 1,000' above, and 2000' horizontal	500' below, 1,000' above, and 2000' horizontal	Clear of clouds
Aircraft Separation	All	All	IFR, SVFR, and runway operations	IFR, SVFR, and runway operations	IFR and SVFR	None

Figure 2-24: Federal Airspace Classifications; Source: Federal Aviation Administration

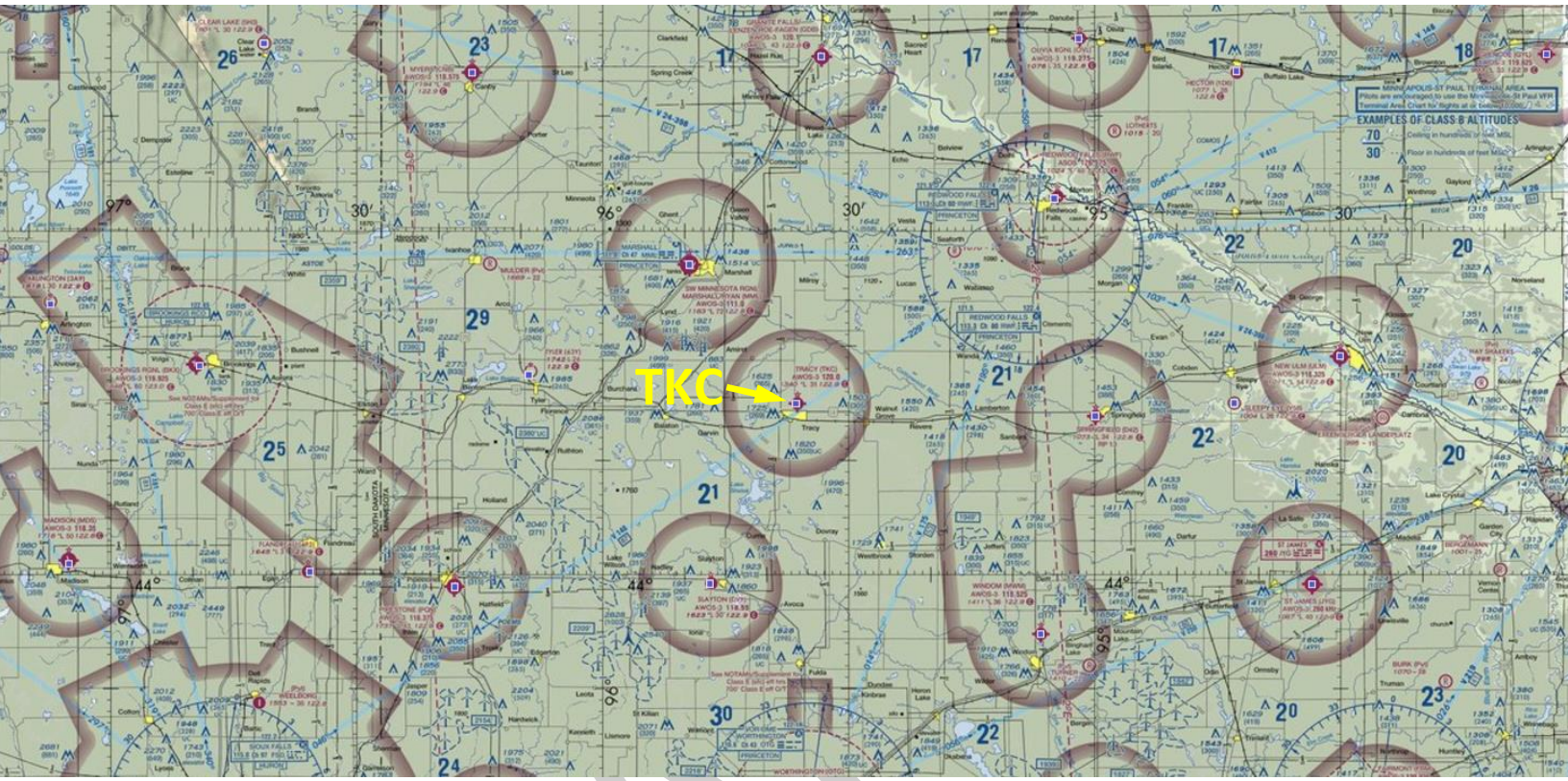


Figure 2-25: VFR Airspace and Class "E" Airspace surrounding TKC; Source: vfrmaps.com

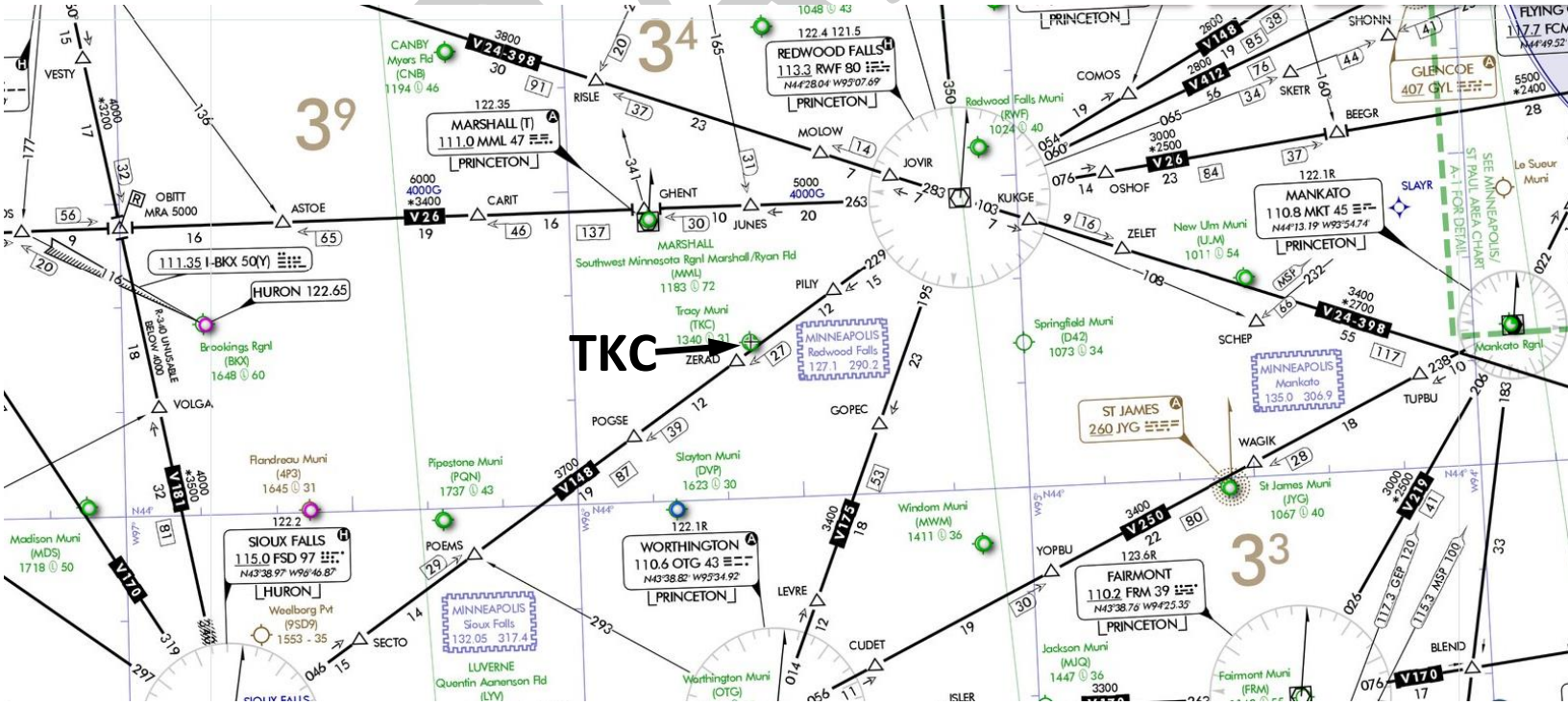


Figure 2-26: IFR Airspace and Air Traffic Control around TKC; Source: Skyvector.com

2.4.3.3 FAR Part 77 Imaginary Surfaces

The FAA has established standards for determining obstructions to airports in Part 77 of the Federal Aviation Regulations. These standards identify "civil imaginary surfaces" which are described below.

Primary Surface. The Primary Surface is a surface longitudinally centered on the runway. When the runway has a specially-prepared hard surface, the primary surface extends 200 feet beyond either end of the runway, but when the runway has no specially-prepared surface, the primary surface ends at the physical end of the runway. The elevation of any point on the primary surface is the same as the elevation of the nearest point on the runway centerline. Primary surface widths vary with the classification of the runway; however, the width is uniform throughout and is based on the most precise approach existing or planned for either end of that runway.

Approach Surfaces. Approach Surfaces extend outward from the primary surface at each end of the runway. The Visual approach surfaces for Runways 6/24 and 17/35 extend outward and upward at a 20:1 slope from the center point of the runway threshold, because it is not a paved runway. This means that for every 20 feet measured outward (horizontally), the Approach Surface slopes upward (vertically) one foot. The surface expands outward from an inner width of 250 feet to a width of 1,250 feet at a distance of 5,000 feet.

The Non-Precision Instrument approach surfaces for Runways 11/29 extend outward and upward at a 20:1 slope from a point which is located 200 feet beyond the threshold and at the same elevation as the threshold. Their Approach Surfaces have an inner width of 500 feet with and outer width of 2,000 feet at a distance of 5,000 feet.

Horizontal Surface. A horizontal plane 150 feet above the established Airport Elevation, the perimeter of which is constructed by swinging arcs of specified radii from the center of each end of the Primary Surface of each runway. Tangents then connect the adjacent arcs. Size of arcs are as follows: For all runways designed Visual or Utility, the radius of each arc is 5,000 feet. For PIR and Non-Precision Instrument runways, the radius of each arc is 10,000 feet. The radius of the arcs specified for each end of a runway will have the same numerical value, that value being the highest determined for either end of the runway. When a 5,000 foot arc is encompassed by tangents connecting two adjacent 10,0000 arcs, it shall be disregarded.

Conical Surface. This surface extends upward and outward from the outer limits of the Horizontal Surface for a horizontal distance of 4,000 feet. The slope of the conical surface is 20:1 measured in a vertical plane.

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Transitional Surfaces. Surfaces extending outward and upward, at right angles to the runway centerline, from the sides of the primary surface and the approach surfaces. The slopes of the transitional surfaces are 7:1 and the surface extends until it intersects the Horizontal or Conical Surface. A PIR Approach Surface projects beyond the limits of the Conical Surface and extends a distance of 5,000 feet measured horizontally from the edge of the Approach Surface, sloping at 7:1.

Understanding FAR Part 77 Imaginary Surfaces

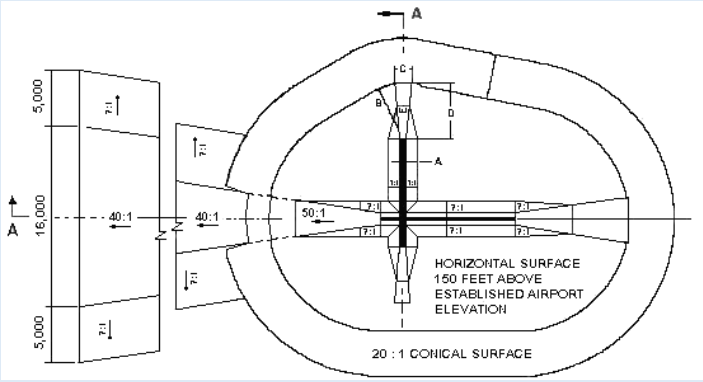
FAR Part 77:

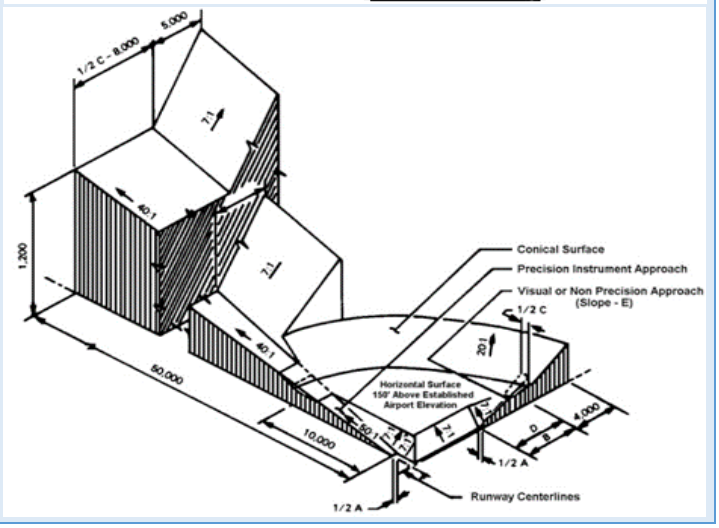
1. **Establishes standards for determining obstructions in navigable airspace.**
2. **Sets forth the requirements for notice to the Administrator of certain proposed construction or alteration.**
3. **Provides for aeronautical studies of obstructions to air navigation to determine their effect on the safe and efficient use of airspace.**
4. **Provides for public hearings on the hazardous effect of proposed construction or alteration on air navigation.**
5. **Provides standards for establishing antenna farm areas.**

Obstructions to air navigation are any existing or proposed objects, fixed or mobile. In greater height than the imaginary surfaces outlined within FAR Part 77.23. Civil airport imaginary surfaces established under FAR Part 77 for each runway include:

- **Primary Surface**
- **Approach Surface**
- **Transitional Surface**
- **Horizontal Surface**
- **Conical Surface**

Existing penetrations to the FAR Part 77 surfaces are considered hazards unless they have been studied by FAA and determined not to be hazards. The determination of whether a proposed obstruction is a hazard is accomplished through an aeronautical study. The standards apply to all objects, whether manufactured, natural growth, or terrain.





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Fixed or mobile objects which are of greater height than the surfaces described in FAR Part 77 are considered "obstructions to navigation" until they have been reviewed by the FAA, and which may be required to be removed or marked and lighted, depending on the nature of the obstruction and the feasibility of its removal. To fully protect TKC from these potential hazards to air navigation, an obstruction analysis will be conducted to evaluate penetrations based on Part 77 Imaginary Surfaces. This analysis will be performed as part of the Master Planning effort.

Dimensional criteria related to the imaginary surfaces can vary depending on the critical aircraft (weight and approach speed) using the airport. Turf runways 6/24 and 17/35 are considered Visual Runways, while Runway 11/29 is an IFR Runway.

OBSTRUCTION IDENTIFICATION SURFACES
FEDERAL AVIATION REGULATIONS PART 77

DIM	ITEM	DIMENSIONAL STANDARDS (FEET)					
		VISUAL RUNWAY		NON - PRECISION INSTRUMENT RUNWAY			PRECISION INSTRUMENT RUNWAY
		A Turf	B	A 11/29	B C	B D	
A	WIDTH OF PRIMARY SURFACE AND APPROACH SURFACE WIDTH AT INNER END	250	500	500	500	1,000	1,000
B	RADIUS OF HORIZONTAL SURFACE	5,000	5,000	5,000	10,000	10,000	10,000
		VISUAL APPROACH		NON - PRECISION INSTRUMENT APPROACH			PRECISION INSTRUMENT APPROACH
		A Turf	B	A 11/29	B C	B D	
C	APPROACH SURFACE WIDTH AT END	1,250	1,500	2,000	3,500	4,000	16,000
D	APPROACH SURFACE LENGTH	5,000	5,000	5,000	10,000	10,000	*
E	APPROACH SLOPE	20:1	20:1	20:1	34:1	34:1	*

- A - UTILITY RUNWAYS
- B - RUNWAYS LARGER THAN UTILITY
- C - VISIBILITY MINIMUMS GREATER THAN 3/4 MILE
- D - VISIBILITY MINIMUMS AS LOW AS 3/4 MILE
- * - PRECISION INSTRUMENT APPROACH SLOPE IS 50:1 FOR INNER 10,000 FEET AND 40:1 FOR AN ADDITIONAL 40,000 FEET

Figure 2-27: Dimensional Standards for Obstruction Identification Surfaces
Source: www.ngs.noaa.gov/AERO/oisspec.html
Note: Runway 11/29 is Non-Precision; Runways 6/24 and 17/35 are Visual only.

According to FAR Section 77.2, Runway 11/29 is a **Non-Precision Instrument Runway**:

> "… A runway having an existing instrument approach procedure utilizing air navigation facilities with only horizontal guidance, or area type navigation equipment, for which a straight-in non-precision instrument approach procedure has been approved, or planned, and for which no precision approach facilities are planned, or indicated on an FAA planning document or military service military airport planning document."

It is also considered a **Utility Runway**:

> "… A runway constructed for and intended to be used by propeller-driven aircraft of 12,500 pounds maximum gross weight and less."

Turf Runways 6/24 and 17/35 would be considered both **Utility Runways** and a **Visual Runways:**

> "… A runway intended solely for the operation of aircraft using visual approach procedures, with no straight-in instrument approach procedure and no instrument designation indicated on an FAA approved airport layout plan, a military service approved military airport layout plan, or by any planning document submitted to the FAA by competent authority."

Each runway has its own set of surfaces with unique dimensions which will be examined in greater detail later in this document.

2.4.3.4 Runway Protection Zones

Runway Protection Zones (RPZs) are airfield design elements intended to protect airspace, prevent incompatible land uses, and protect people and property on the ground within the vicinity of a runway end. These zones are trapezoidal areas located at both the approach and departure ends of the runway within the innermost portion of the FAR Part 77 Approach Surface. The dimensions of these areas are based upon the types of aircraft expected to use a runway and its approach visibility minimums. The FAA requires airports to control, to the greatest extent possible, the land within the RPZs to prevent the creation of hazards to arriving and departing aircraft in the future. Per AC 150/300-13A, "control" is procured through the acquisition of property interests, as well as the clearing and maintaining of RPZ areas of incompatible objects and activities.

The RPZs for each of the runways are not completely owned in fee simple title, which is contrary to FAA guidance regarding airport control of RPZs. While the innermost portions of the RPZs fall within the bulk of the airport property, the outermost portions of some of them cross CSAH 11 and County Road 56 or into private property. Recommendations to gain control of those RPZ areas in fee or easement will be included in *Chapter 4, Facility Requirements.*

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The FAA issued a Memorandum on September 27, 2012 titled *Interim Guidance on Land Uses within a Runway Protection Zone.* It was issued to help clarify issues raised with the new Airport Design Advisory Circular (150/5300-13A) regarding new guidance on runway protection zones. The memorandum discusses land use with respect to existing conditions verses proposed or modified conditions. Referring to this memorandum, there are incompatible uses in the existing RPZs of runways 6, 11, 17, 24, and 36.

Runway Designation	Incompatible Land Use	Disposition
6	Public Highway – CSAH 11	On Airport Property
11	Public Highway – CSAH 11	On Airport Property
17	Public Highway – County Road 56	On Airport Property
24	Wastewater Treatment Ponds*	On Airport Property
29	None	
35	Recreational Land Use – Swift Lake Park	On Airport Property

Table 2-28: Incompatible Land Uses within Runway RPZs
**Note: The City of Tracy is in the process of relocating the City Wastewater Treatment Ponds, which will then be outside of the existing RPZ and off airport property.*

Of particular concern are the wastewater treatment ponds on airport property. These ponds are in the process of being moved to the north side of County Road 56, at which time they will all be outside of airport RPZs. They should be operational in 2019 and decommissioned in 2020 or possibly later. When they are decommissioned, they will be filled so as not to contain water. At this time, any berms surrounding the ponds that interfere with appropriate Object Free Areas and Runway Safety Zones should be reviewed and leveled as necessary to bring the landscape into compliance. The decommissioned pond areas should also be seeded with turf appropriate to airport use and maintained to deter wildlife from feeding or nesting in the vicinity. There is currently no established schedule for decommissioning and restoration of the ponds by the City of Tracy.

The memorandum notes that the FAA will work with the airport sponsor to remove or mitigate the existing incompatible land uses where practical. Any proposed changes to the RPZs must consider the incompatible land uses outlined in the memorandum. This Master Plan will evaluate opportunities to eliminate incompatible land uses from the RPZs, as may be practicable, in Chapter 5, *Alternatives Analysis.*

The figures below depict the airport data included in the 2007 ALP update. Appropriate design standards will be considered after establishing the Existing and Ultimate Critical Design Aircraft in Chapter 3, *Aviation Demand Forecasts.*

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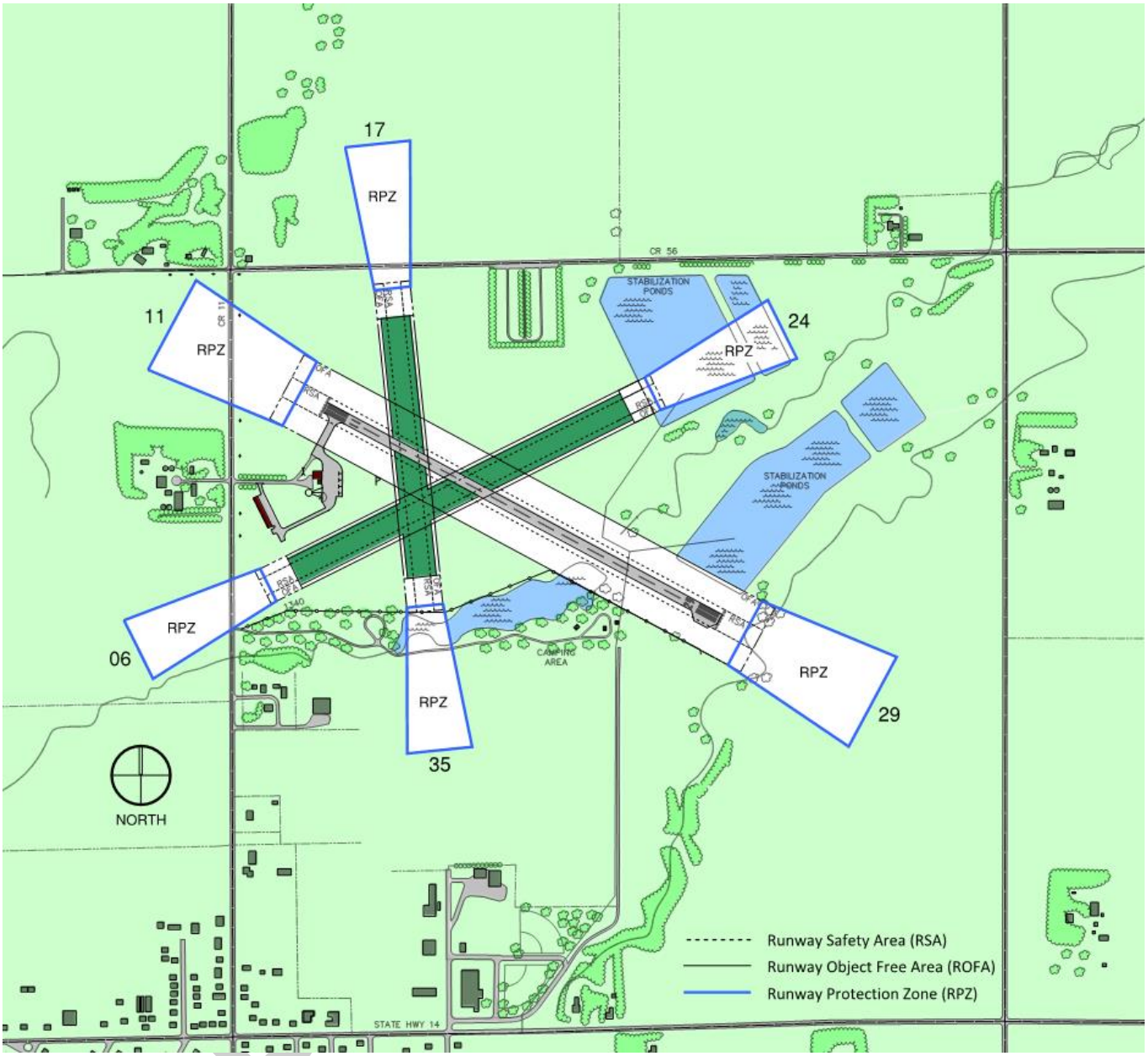

Figure 2-29: Existing Runway Protection Zones per the 2007 ALP update

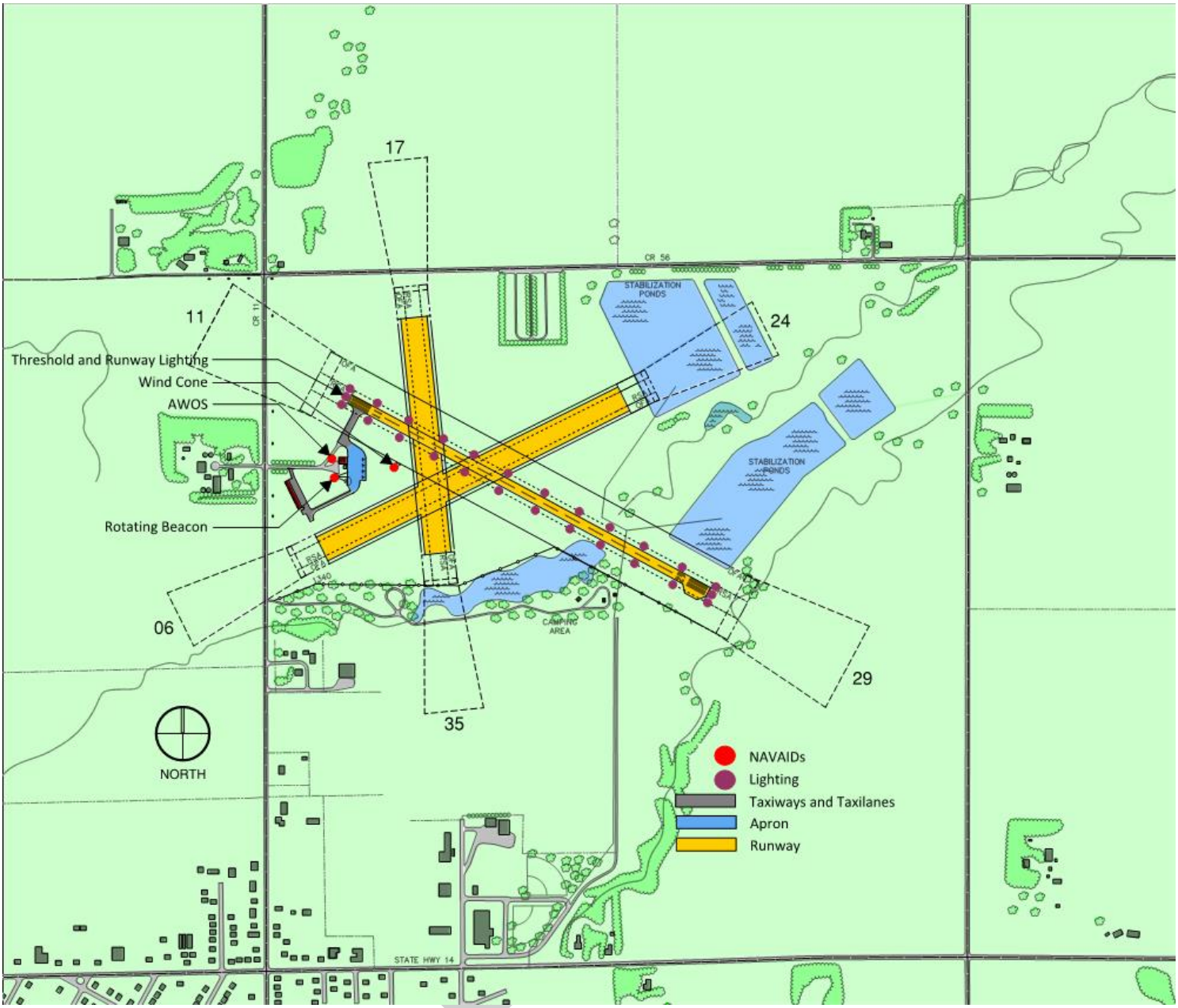

Figure 2-30: Existing Airside Facilities per 2007 ALP update

2.4.4 Airside Facilities

Airside Facilities at Tracy include:

- Primary Runway 11/29
- Turf runways 6/24 and 17/35 (Summer only)
- Taxiway A and Taxilanes
- Airfield Markings
- Aprons
- Airfield electrical and lighting components
- NAVAIDs

In this section, each of these components have been inventoried and assessed for the existing condition using Good, Fair, or Poor condition designations. A facility rated as "Good" may be assumed to be substantially adequate throughout the planning period, with normal maintenance. A "Fair" rating means the item will likely require major upgrades or replacement sometime during the period, and a "Poor" rating indicates the item is not adequate for its intended use at the present time.

Existing Condition: **Good** **Fair** **Poor**

2.4.4.1 Primary Runway

Tracy's Runway 11/29 is 3,097 feet long and 75 feet wide. It is oriented in a northwest-southeast direction and its characteristics are listed in Table 2-31. The runway is open all year long and is plowed in the winter months. Approaches for this runway are both VFR and non-precision IFR.

Runway numerals for each runway end are determined from the approach direction to the runway end and should be equal to one-tenth the magnetic azimuth of the runway centerline, measured in the clockwise direction from magnetic north. Although the true bearing of the runway will not change over time, the magnetic bearing will change as the location of magnetic north shifts.

Table 2-31 provides a summary of the true (geographic) compass readings for each runway end and notes the magnetic declination required to adjust to the magnetic compass readings. Based on an analysis performed on November 21, 2017 using the online calculator for the National Centers for Environmental information (NCEI), formerly known as the National Geophysical Data Center, the rate of change to the magnetic declination in this area is 0° 5'W per year. At this rate, TKC's runway designation will remain stable into the foreseeable future.

	Runway 11	Runway 29
Length x Width	3,097 feet x 75 feet	
Surface	Asphalt	
Displaced Threshold	None	
Elevation (MSL)	1335.69	1335.69
Runway End - Elevation (MSL)	1335.69	1331.22
Runway End - Latitude	44°15'02.89"N	44°14'48.34"N
Runway End - Longitude	95°36'40.85"W	95°36'03.42"W
Lighting	MIRL	
Marking	Non-Precision	Non-Precision
Visual Aid	None	None
Instrument Approach	RNAV (GPS)-1 Mile	
Magnetic Declination	2°14'E	2°14'E
Magnetic Heading	116°	296°
Approach Surface Slope (AC 150/5300-13A Table 3-2)	20:1	20:1
Approach Type	IFR/VFR	IFR/VFR

Table 2-31: Existing Runway 11/29 Data per 2007 ALP update

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Note that an existing, cased sewer line runs underneath Runway 11/29 to the existing sewer ponds. This line will continue to be used to serve the wastewater ponds in their new location. This line may or may not be required to be relocated during any future runway extension or reconstruction project, and will be discussed further later in this MP.

2.4.4.2 Turf Runways

Tracy's Runway 6/24 is 2,541 feet long and 200 feet wide, and it is oriented in a northwest-southeast direction. Anecdotally, airport staff has said that this strip is rarely used. Tracy's Turf Runway 17/35 is 1,778 feet long and 200 feet wide, and it is oriented in a north-south direction. Both runways' characteristics are listed in Table 2-32. These runways are not open in the winter months. Approaches for these runways are both VFR.

Runway numerals for each runway end are determined from the approach direction to the runway end and should be equal to one-tenth the magnetic azimuth of the runway centerline, measured in the clockwise direction from magnetic north. Although the true bearing of the runway will not change over time, the magnetic bearing will change as the location of magnetic north shifts.

Table 2-32 provides a summary of the true (geographic) compass readings for each runway end and notes the magnetic declination required to adjust to the magnetic compass readings. Based on an analysis performed on November 21, 2017 using the online calculator for the National Centers for Environmental information (NCEI), formerly known as the National Geophysical Data Center, the rate of change to the magnetic declination in this area is 0° 5'W per year. At this rate, TKC's turf runway designations will remain stable into the foreseeable future.

	Runway 6	Runway 24	Runway 17	Runway 35
Length x Width	2,541 feet x 200 feet		1,778 feet x 200 feet	
Surface	Turf		Turf	
Displaced Threshold	None		None	
Elevation (MSL)	1340.85	1340.85	1334.77	1334.77
Runway End - Elevation (MSL)	1340.85	1323.63	1326.65	1334.77
Runway End - Latitude	44°14'51.69"N	44°15'02.78"N	44°15'08.86"N	44°14'51.39"N
Runway End - Longitude	95°36'43.57"W	95°36'12.25"W	95°36'34.01"W	95°36'31.60"W
Lighting	None		None	
Marking	Visual	Visual	Visual	Visual
Visual Aid	None	None	None	None
Instrument Approach	None		None	
Magnetic Declination	2°14'E	2°14'E	2°14'E	2°14'E
Magnetic Heading	61°	241°	172°	352°
Approach Surface Slope (AC 150/5300-13A Table 3-2)	20:1	20:1	20:1	20:1
Approach Type	VFR	VFR	VFR	VFR

Table 2-32: Turf Runways 6/24 and 17/35 Data per 2007 ALP update

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2.4.4.3 Taxiways and Taxilanes

Runway 11/29 is accessed by a single taxiway (Connecting Taxiway A) which is located approximately 310 feet from the north (11) end of the runway and is 50 feet wide, which is wider than the FAA recommended 35 feet. It connects to a taxilane which provides access to the apron, hangar, T-hangar, and the airport's fuel and A/D building. The taxiway has minimal lighting and the pavement is in good condition, but it provides semi-direct access to the runway, which is not recommended for pilot situational awareness and increases the likelihood of runway incursions.

Taxilane A, which connects the apron to the existing T-hangar, is in good condition between the main apron and the hangar, but is in poor condition directly in front of the hangar itself, per the 2016 Pavement Condition Report (see Section 2.4.4.9, *Pavement Condition*). Otherwise, the Taxilane functionally serves the accessibility of the hangar from the main apron.

2.4.4.4 Airfield Markings

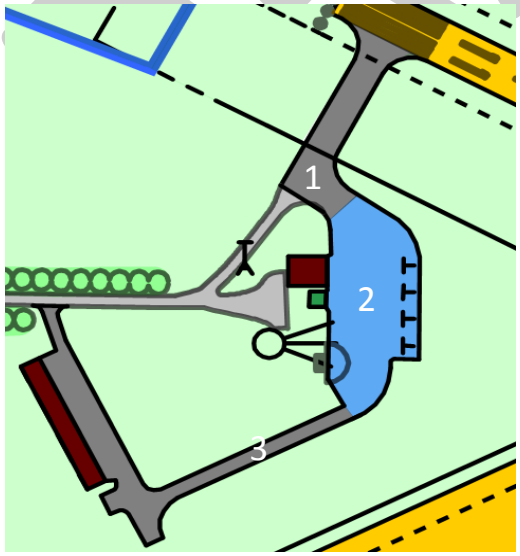
Runways 11 and 29 have non-precision markings which are in good condition.

2.4.4.5 Apron

The apron is that part of the airport intended to accommodate the loading and unloading of passengers and cargo, refueling, servicing, maintenance, and parking of aircraft, and any movement of associated aircraft, vehicles, and pedestrians.

There is one apron area at TKC equaling approximately 21,000 square feet and providing access to the multi-aircraft hangar and the Arrival/Departure building. The public T-hangar is accessed from Taxilane A. This apron includes space for taxiing, parking, and contains four tie-down spaces. Aircraft may temporarily park in front of the multi-aircraft hangar as needed. The fueling station is on the south end of the apron.

Figure 2-33 depicts the apron, taxiway, and taxilane as identified by the 2016 Pavement Condition Report. Please see Section 2.4.4.9, *Pavement Condition*, for more information about the apron's condition.



ID	Component	Area (SF)
1	Connecting Taxiway A	26,000
2	Apron w/4 Tiedowns	21,000
3	Taxilane A	32,805

Figure 2-33: Existing Aprons, Taxiways, and Taxilanes
Source: TKC 2016 Pavement Condition Report

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2.4.4.6 Airfield Electrical and Lighting

Airfield electrical and lighting systems at the Tracy Airport aid the pilot in locating and operating on the airport. All airport lighting should be inspected on a daily and monthly basis. Please see the following descriptions of commonly used airfield electrical and lighting components.

Understanding Electrical and Lighting

- **Runway Lighting**: Outline the edges of runways during periods of darkness or restricted visibility conditions. These light systems are classified according to the intensity or brightness they can produce and are identified as High Intensity Runway Lights (HIRL), Medium Intensity Runway Lights (MIRL), or Low Intensity Runway Lights (LIRL).
- **Taxiway Lighting**: Outline the edges of taxiways during periods of darkness or restricted visibility conditions.
- **Airfield Signage**: Not typically associated as a NAVAID but serves as an important navigational element for movement of aircraft on the ground. Airfield signage indicates distance remaining on a runway, and identifies the location of runways, taxiways, aprons, and other airfield destinations.
- **Segmented Circle**: A ground-based marking indication the traffic pattern, wind direction, and wind strength to pilots en route. A segmented circle features a series of white or orange markings arranged in a circle with traffic pattern indicators protruding from the circle to specify the direction of the traffic pattern. A lighted wind indicator is placed inside the segmented circle markings to indicate the direction and intensity of the wind.
- **Wind Cone**: Orange fabric cones that indicate the strength and direction of the wind. These NAVAIDs assist pilots in making navigational corrections to adjust for surface prevailing winds moments before touchdown or prior to departure.
- **Rotating Beacon**: A high-intensity light that rotates 360 degrees and is operated at night and in inclement weather conditions to assist pilots in identifying the location of an airport from a distance in the air. The beacon is equipped with a green and a white lens separated 180 degrees from one another that emits alternating white and green flashes indicating an airport is available for public use.
- **MALSR**: A 2,400-foot approach lighting system that provides visual reference to the runway end. The first 1,400 feet are steady burning lights and the last 1,000 feet are synchronized flashing lights.
- **Runway End Identifier Lights (REIL)**: A pair of synchronized flashing lights located on each side of the runway threshold. REILs provide a rapid and positive identification of the approach end of a particular runway. REILs may be either omnidirectional or unidirectional.
- **Precision Approach Path Indicator (PAPI)**: A system of lights arranged to provide visual descent guidance information during the approach to a runway. These lights are visible from three to five miles during the day and up to 20 miles at night. The visual glide path of the PAPI provides safe obstruction clearance within plus or minus 10 degrees of the extended runway centerline and to 4 nautical miles for the runway threshold. The basic principle of the PAPI is that of color differentiation between red and white. Each light unit projects a beam of light having a white segment in the upper part of the beam and a red segment in the lower part of the beam. The light units are arranged so that the pilot using the PAPIs during an approach will see a combination of the red and white light segments to determine the glide slope the aircraft is flying.

a. Runway Edge Lighting *(2015)*

Runway 11/29 is equipped with white-yellow bi-directional halogen Medium Intensity Runway Lighting (MIRL) with frangible connections. This lighting is preset on Low Intensity, but intensity can be increased and Runway End Identifier Lighting activated by pilots using the Common Traffic Advisory Frequency (CTAF) at TKC (122.9Mhz). The runway lighting system is in good condition.

Turf runways 6/24 and 17/35 have no runway lighting but instead use yellow turf cones to define the runways' edges.

b. Taxiway Lighting *(2015)*

The Connecting Taxiway A accessing Runway 11/29 has blue omnidirectional halogen MIRL lighting with frangible connections. The taxiway lighting system is in good condition.

Turf runways 6/24 and 17/35 have no taxiways or taxiway lighting.

c. Airfield Signage *(2015)*

TKC has installed a lighted sign identifying Runway 11/29 at the hold position for the taxiway/runway intersection. TKC does not have an FAA-approved Signage Plan at this time. This sign has frangible connections and is in good condition.

d. Segmented Circle

TKC does not currently have a segmented circle.

e. Wind Cone *(2017)*

The wind cone, which is lighted, is located between the apron and Runway 11/29. The wind cone is in good condition.

f. Rotating Beacon *(2015)*

The rotating beacon, alternating clear-green, is mounted atop a pole near the Arrival/Departure building. The beacon operates from sunset to sunrise and is in good condition. It was installed as part of the runway lighting project in 2015.

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g. Threshold Lighting *(2015)*

Runway 11/29 has a set of eight halogen threshold lights at each end. The green-red REILs are bidirectional, are powered from the Runway 11/29 lighting circuit and tied to the lighting control system for the runway. These units have frangible connections and are in good condition.

h. Airfield Electrical Equipment *(2015)*

The airport's electrical systems are fed from an electrical room located inside the AD building. The vault uses constant current regulators (CCRs) that power the runway lights, taxiway lights, and airfield signs. There is no backup generator system for the airport. The equipment is in good condition.

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2.4.4.7 Navigational Aids

Tracy's navigational aids, other than lighting, are minimal and are related to the RNAV/GPS non-precision approach procedures at the airport. TKC does not provide a localizer, glide scope, or non-directional beacon. Runway 11/29's approach plates are included here. There are no approach plates or departure procedures for turf runways 6/24 and 17/35.

Understanding NAVAIDS

Navigational aids (NAVAIDs) are designed to assist pilots in identifying and navigating to an airport. NAVAIDs are most useful in nighttime conditions or when a pilot's visibility is limited. While most NAVAIDs are ground-based equipment that are installed on an airfield, some are satellite-based that provide navigational signals for properly equipped aircraft.

- **Instrument Landing System/Localizer (ILS)**: a precision approach landing system designed to provide an approach path for exact alignment with the runway and a vertical guidance system to provide descent information for an aircraft on final approach to a runway. The ILS is used when instrument meteorological conditions (IMC) require the pilot to employ instrument flying rules (IFR).
- **The Non-direction Beacon (NDB)**: the least complicated and least expensive of the types of electronic NAVAIDs available. The NDB antenna radiates a "non-directional" signal similar to that of a commercial AM radio station. This signal is received by the automatic direction finder (ADF) indicator on the aircraft which has a needle pointing toward the NDB station.
- **Global Positioning System (GPS)**: a space-based radio-navigation system. It consists of 24 satellites, which orbit the earth at 12,500 miles, as well as ground stations. GPS provides users with accurate information on position, velocity, and time anywhere and in all weather conditions. There are three GPS airport instrument approach procedures: the overlay approach, the GPS-only approach, and the Area-Navigation (RNAV) approach.
- **Area Navigation (RNAV)**: is used to fly point to point and on non-precision approaches. An onboard navigation data base and a flight management system are required to use this approach. This method of navigation allows the pilot to choose any path within a network of navigation beacons, rather than navigating to and from them directly, conserving flight distance, reducing congestion, and allowing flights into airports without beacons.
- **Wide Area Augmentation System (WAAS)**: developed by the FAA to augment GPS navigation to improve its accuracy, integrity, and availability, and enabling pilots to reply on GPS for all phases of flight, including approaches. It uses a network of ground-based and satellite stations to measure small variations in the GPS satellites' signals, make corrections in that data, and transmit the corrected data to WAAS-enabled GPS receivers. These receivers then use the corrections while computing their positions to improve accuracy of the data provided to pilots.

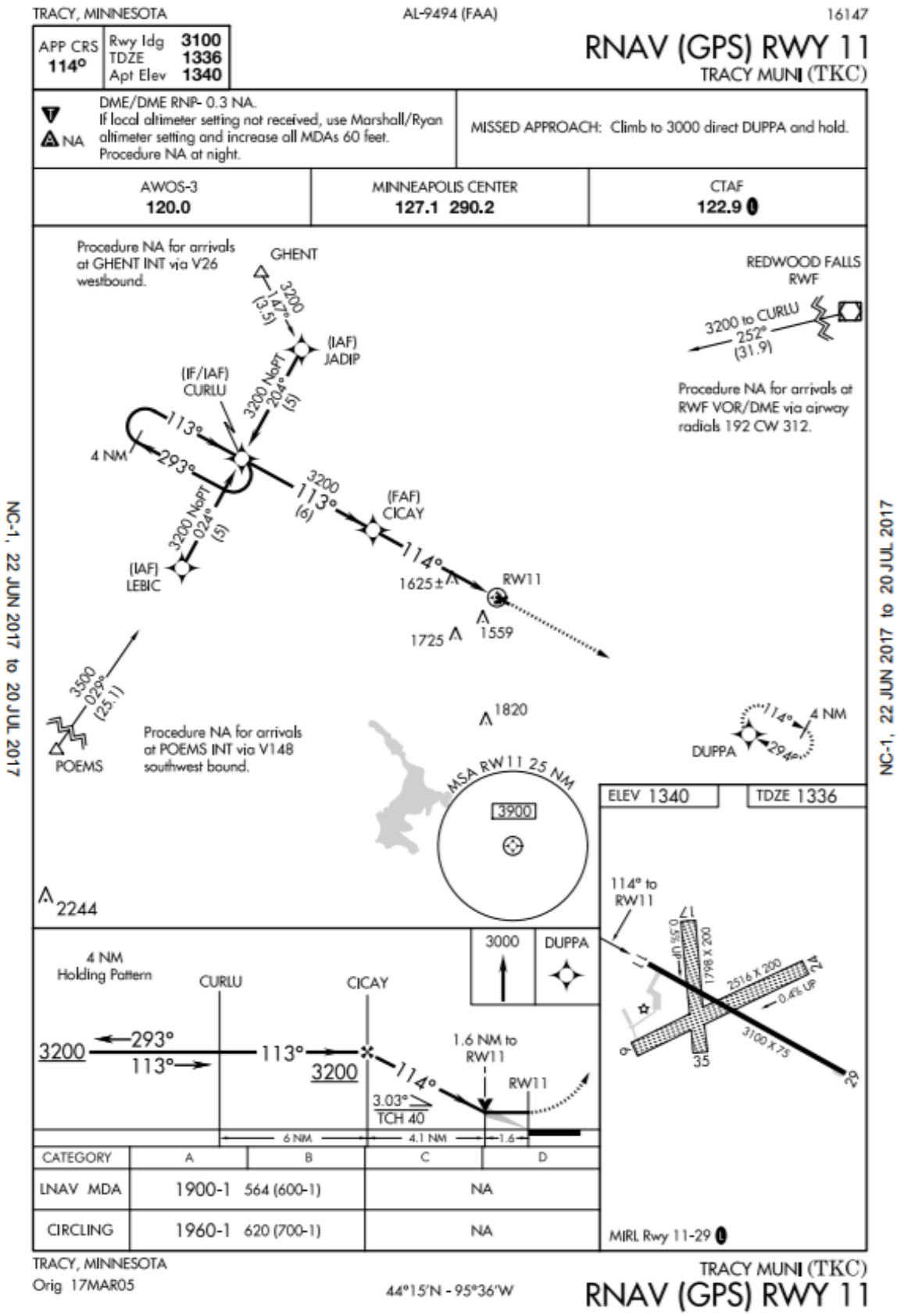

Figure 2-34: RNAV/GPS Approach Procedure, Runway 11

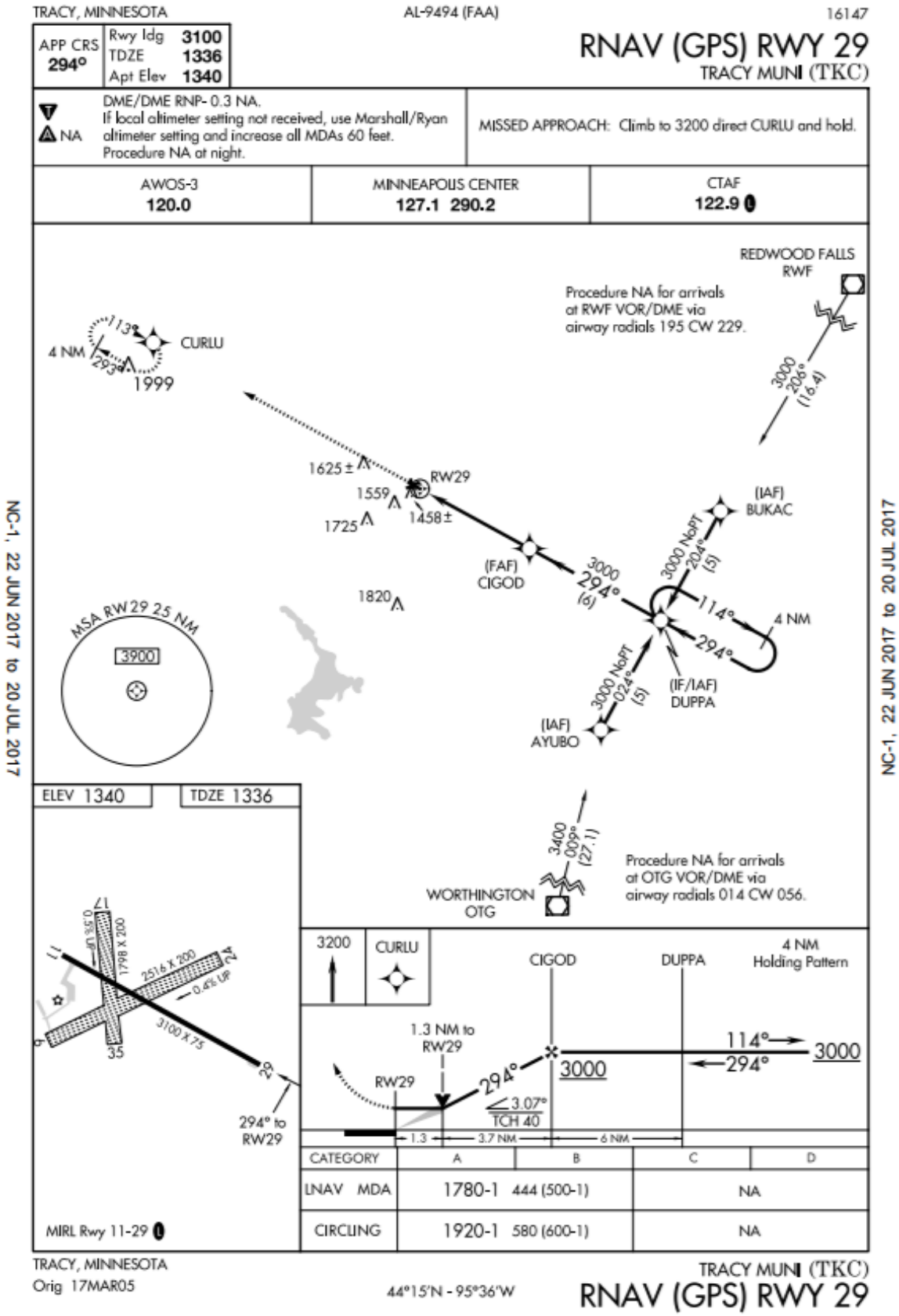

Figure 2-35: RNAV/GPS Approach Procedure, Runway 29

NAVAID	Year	Condition	Owner
AWOS	2003	Fair	MnDOT
Beacon	2015	Good	TKC
Runway Lighting	2015	Good	TKC
Taxiway Lighting	2015	Good	TKC
Threshold Lighting	2015	Good	TKC
Signage	2015	Good	TKC
Wind Cone	2017	Good	TKC

Figure 2-36: NAVAIDs Age, Condition, and Ownership Summary

2.4.4.8 Instrument Approaches

Instrument Approach Procedures are a series of predetermined maneuvers established by the FAA, using electronic navigational aids that assist pilots in locating and landing at an airport, especially during instrument flight conditions. The capability of an instrument approach is defined by the visibility and cloud ceiling minimums associated with the approach. **Visibility minimums** define the horizontal distance the pilot must be able to see in order to complete the approach. **Cloud ceilings** define the lowest height a cloud layer (defined in feet above ground) can be for a pilot to complete the approach. TKC's Runway 11/29 includes IFR procedures using RNAV/GPS.

Area Navigation (RNAV) in conjunction with GPS and the FAA's WAAS is used to navigate.

The Global Positioning System (GPS) was initially developed by the United States Department of Defense for military navigation around the world, but is now used extensively for a wide variety of civilian uses, including civil aircraft navigation. GPS uses satellites placed in orbit around the globe to transmit electronic signals, which pilots with properly-equipped aircraft can use to determine their altitude, speed, and other navigational information. This tool allows the pilot more freedom in flight planning and more direct routing from one place to another.

The FAA has augmented the GPS signal to improve accuracy, coverage, availability, and integrity. This includes the development of the **Wide Area Augmentation System** (WAAS), instituted in 2003. WAAS uses a system of reference stations to fine-tune signals from GPS satellites for improved navigation and approach capabilities, including en route navigation and instrument approaches with course and vertical navigation. The WAAS system allows for approaches with lower cloud ceilings and visibilities restricted to ¾ mile.

As noted above, TKC does not employ an instrument landing system/localizer or a non-directional beacon. Instead, Area Navigation (RNAV) in conjunction with GPS and the FAA's WAAS is used to navigate.

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2.4.4.9 Pavement Condition

The most recent study in Tracy was conducted in 2016.

Airfield pavements are designed, constructed, and maintained to support the critical loads imposed on them and produce a smooth and skid-resistant riding surface necessary for the safe operation of aircraft in all weather conditions. Immediately after construction, these pavements begin to gradually degrade over time due to surface weathering, fatigue effects, and differential movement in the underlying sub-base. With this in mind, pavements require continual routine maintenance, rehabilitation, and reconstruction. The FAA has issued Advisory Circular AC 150/5380-7B, *Airport Pavement Management Program (PMP),* in October 2014 to guide pavement management planning.

The PMP serves as a quantifiable basis to guide the formation and implementation of programs aimed at effectively and efficiently maintaining and preserving airfield pavement. The Minnesota Department of Transportation Office of Aeronautics requires pavement condition studies for Minnesota's airports. The most recent study in Tracy was conducted in 2016 by Applied Research Associates, Inc. (ARA). The paving surfaces were visually inspected in May of that year, with distress type, severity, and quantity recorded for each of the sample units. The data was then entered into the MicroPAVER database and a Pavement Condition Index (PCI) calculated for various locations around the airfield, ultimately determining overall pavement grades for specific pavement areas of the airport. This 2016 Pavement Condition Report is included as an Appendix to the Master Plan document.

Per the PMP criteria, pavement condition is assessed using the PCI, a value range from 0 (Failed) to 100 (Excellent). If a PCI rating for a particular area of pavement falls below 60, routine crack sealing and patching may no longer be adequate. Between the ratings of 40 and 60, major repairs such as overlays are needed, while below 40, reconstruction is typically the required activity.

Reviewed pavement areas included Runway 11/29, the connector Taxiway A, Apron A, and Taxilane A equaling 320,055 square feet. Some of these areas were considered in more than one "section," which is the smallest management unit used for maintenance and rehabilitation. Table 2-37 illustrates the various pavement branches with their area and the number of sections in each branch.

The largest pavement area at TKC is Runway 11/29 at 240,250 square feet, which was determined to be in Very Good condition.

All pavement evaluated at TKC is asphalt cement (AC) for a total of 320,055 square feet of surface area.

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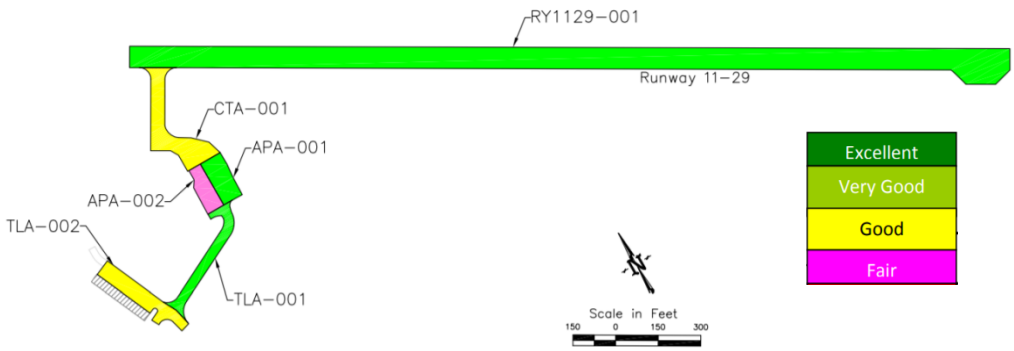

Figure 2-37: PCI Map; Source: 2016 Pavement Condition Report by ARA, Inc.

Branch ID	Name	Surface Type	Number of Sections	Area (SF)
APA	Apron A	AC	2	21,000
CTA	Connecting Taxiway A	AC	1	26,000
RY1129	Runway 11/29	AC	1	240,250
TLA	Taxilane A	AC	2	32,805
			Airport Total	**320,055**

Table 2-38: Pavement Area, Type, and Number of Sections by Branch
Source: TKC 2016 Pavement Condition Report

Table 2-39 illustrates the age of the last construction date of pavement sections and indicates the overall percentage of pavement at the given age. All pavements at TKC are more than 10 years old.

LCD	No. of Sections	Percent of Total Area	Area (SF)
1992	4	90%	287,250
2005	2	10%	32,805

Table 2-39: Pavement Area by Age, Source: TKC 2016 Pavement Condition Report
LCD = Last Construction Date (original construction, last overlay, or reconstruction – whichever is most recent)

According to the 2016 Pavement Condition Report, Runway 11/29 has a PCI of 72. The Apron, divided in to two sections, have PCIs of 71 and 50 – the most degraded area of pavement. Connecting Taxiway A has a PCI of 70, Taxilane A's two sections have PCIs of 74 and 62. While most sections are therefore considered to be in Very Good or Good condition, the exception is one section of the apron which is considered Poor. The Report states that this section is in immediate need of major rehabilitation. Regular maintenance such as crack sealing and patching are recommended for the remainder of the pavements to maintain the highest quality pavement possible and prevent major repairs or reconstruction in the near future.

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The overall area-weighted PCI for TKC is 71, which indicates that most airfield pavement at TKC is in Very Good condition, but nearing the Good category. There are no areas which are in Poor or Very Poor condition, and there is no Failed pavement. The PCI ratings for individual sections of pavement are illustrated below in Figure 2-40.

Overall pavement condition at TKC is Very Good with a PCI of 71.

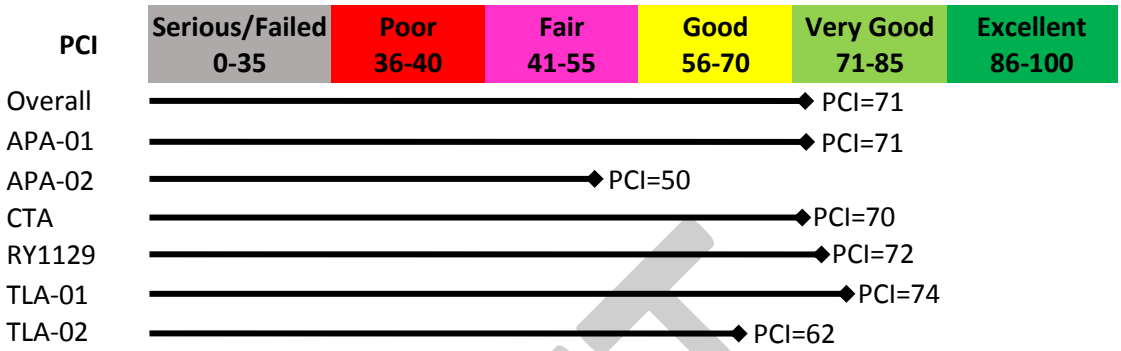

Figure 2-40: Pavement Condition Index

To ensure that TKC's pavement investment remains in the best condition for as long as possible, near term maintenance is needed as recommended in the Pavement Condition Report. This maintenance includes crack sealing and deep patching. As deterioration continues and repairs are made, pavements should be routinely inspected and the maintenance plan re-evaluated. Some pavements may require more substantial rehabilitation, with Apron A section 2 needing major rehabilitation within the next five years.

2.4.4.10 Non-Standard Conditions

FAA Advisory Circular 150/5300-13A, *Airport Design*, provides design standards for airport geometrical layout, runway and taxiway/taxilane design, and associated elements. The guidance provided by this AC references many other AC documents for specific applications and is complemented by FAR Part 77, which establishes standards for determining obstructions in navigable airspace and provides for aeronautical studies of potential hazards to air navigation. As part of the master planning process, non-standard conditions will be reviewed for recommendations to bring the elements into compliance with FAA standards.

The FAA does not currently report any documented non-standard conditions at TKC. Any non-standard conditions discovered during the course of this study will be documented and addressed later in this plan.

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2.4.4.11 Weather Equipment *(2003)*

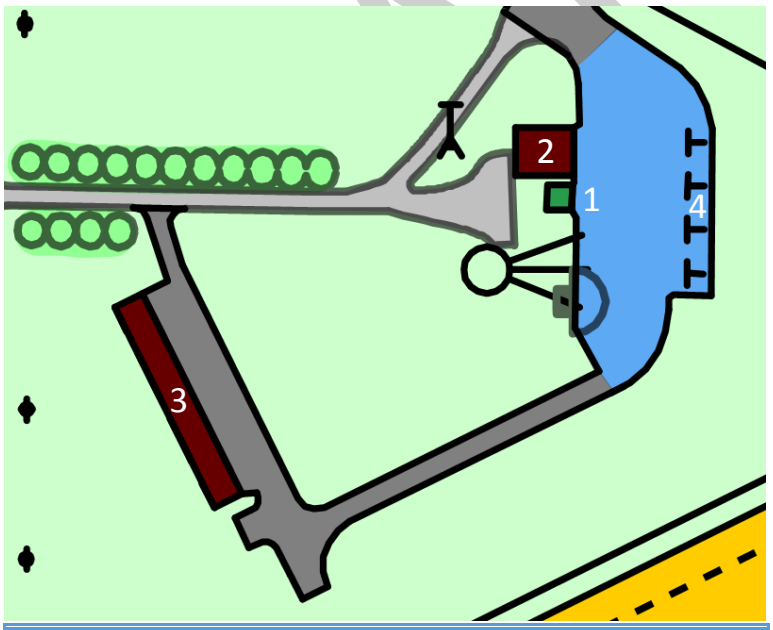
Tracy has a Vaisala Level III P/T (Present Weather/Thunderstorm) Automated Weather Observation System (AWOS). The system reports present weather such as current wind data, temperature, dew point, density altitude/barometric pressure, visibility, cloud/ceiling data, type of precipitation, and lightning strike data. This system was installed 2003. It provides real-time weather data to pilots via a recorded message accessed by a specified radio frequency or telephone number. This information is also available on a display in the A/D building. The AWOS is inspected three times a year by a MnDOT contractor and is currently in fair condition. The airport manager reported that it has gone down three times since the Fall of 2017. MnDOT is currently looking into this issue.

2.4.5 Landside Facilities

Airside facilities at Tracy Airport include:

- Arrival/Departure Building
- Aircraft Storage

Within this section, each of these components has been inventoried and assessed for the existing condition as Good, Fair, or Poor condition designations.



ID	Component	Year Built	Area (SF)
1	A/D Building	1960's	702
2	Conventional Hangar	1960's	3,120
3	T-Hangar	1950's	7,360
4	Tiedowns (4)	2012	

Figure 2-41: Existing Landside Facilities

2.4.5.1 Arrival/Departure Building *(1960's)*

ID #1:

The Arrival/Departure building is located on the west side of the apron and includes an office, restroom, pilot information bulletin board, electrical/ mechanical room, and pilot's lounge with sink and countertop. The one-story building is adequate to serve current demand at approximately 700 square feet. It was moved on to the airport site in the 1960's and remodeled in 2010.

The building is in fair condition. Our assessment is that the roof cladding, gutters and downspouts are in good condition, but the vinyl siding is in poor condition, appearing to be brittle with broken planks near the bottom of the walls. On the interior, amenities are minimal. There are loose vinyl composition floor tiles near the two exterior doorways, where it appears that the glue was inadequate or has released from the floor slab, possibly due to water coming in at the thresholds. Mechanical systems and electrical systems were upgraded at the time of building remodel, and the remaining electrical equipment was replaced with the lighting upgrade project in 2015. Some minor revisions to the restroom are recommended to bring it in to compliance with the Minnesota Accessibility Code. The amenities to pilots are minimal with only a dorm-sized refrigerator and small sink for a kitchenette.

2.4.5.2 Aircraft Storage

a. T-Hangar *(1950's)*

ID #3:

TKC includes one T-hangar, which is a nested aircraft storage building, capable of accommodating one aircraft per T-shaped unit. These hangars can house single engine and small twin-engine aircraft only, while larger aircraft are usually stored in conventional hangars. T-hangars are usually simple steel structures that may not even have its own floor or perimeter foundation system.

The T-hangar at TKC is one of these simpler hangars. It was built in the 1950's with no floor slab and with bi-fold doors. Some tenants of the units have poured small concrete or bituminous areas for the wheels of their aircraft, while others have laid down carpet or plywood on the dirt floor. The hangar accommodates at least eight aircraft in 7,360 square feet. Small ultralight craft are often stored along with piston engine aircraft in some of the units. While the staff at TKC has worked diligently to maintain this building, it is in poor condition. The bare, galvanized-steel finish on the steel cladding has many areas of rust, and there is significant damage to the steel panels around the perimeter of the building. Daylight can be seen under the hangar doors in many areas, and there is evidence of animals living in the building. Gutters and downspouts have not been provided. Lighting on the interior is minimal or non-existent

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and there are no windows for natural light. Electrical systems within the building are minimal and in need of an upgrade.

Hangar	ID	Area (SF)	No. of Units
T-Hangar	3	7,360	8

Table 2-42: Size and Description of T-Hangars

b. Public Conventional Hangar *(1960's)* ID #2:

The single, conventional hangar at TKC is in relatively good condition. At this time, there are two aircraft being stored in the space. It has a bi-fold door, concrete slab-on-grade floor, prefinished metal panels on the interior, and prefinished steel exterior cladding and roof. This newer prefinished steel was applied in the 1990's. Overall, the building is in good condition, but there is minor cracking in some areas of the floor slab and some damage to the steel siding on the exterior. The floor slab is smooth and flat. The hangar is heated with a ceiling-hung cabinet unit heater and has an appropriate number of electrical receptacles available. Lighting is provided with incandescent bulbs in "jelly jars." Additional lighting for this space is recommended.

Hangar	ID	Area (SF)	No. of Units
Conventional Hangar	2	3,120	1

Table 2-43: Size and Description of Private Hangars

c. Tie-Downs *(2012)* ID #4:

Four aircraft tie-down locations on the aircraft parking apron are provided at TKC for temporary use. The location of these tie-downs is shown in Figure 2-41. There are also tie-down locations in the grass between the apron and the T-hangar. These tie-downs are not preferred by users due to the grass surface. The airport manager reports that they are only used for long-term and overflow parking.

Tie-downs both on the apron and grass are sized to accommodate ADG I aircraft.

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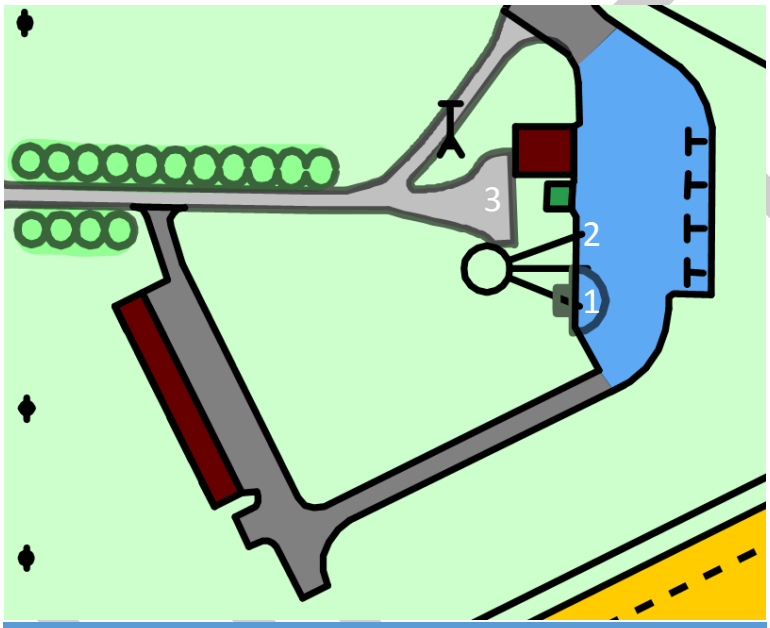
2.4.6 Support Facilities and Services

Support Facilities and Services at Tracy include:

- Fuel Storage and Dispensing
- Maintenance and Snow Removal
- Ground Support Equipment and Storage
- Airfield Security
- Ground Access
- Parking

Within this section, each of these components has been inventoried and assessed for the existing condition as Good, Fair, and Poor condition designations.



ID	Component	Remarks
1	Fuel Facility	-
2	Security Fence	130 LF
3	Parking	6 spaces

Figure 2-44: Existing Support Facilities

2.4.6.1 Fuel Storage and Dispensing *(2013)*

TKC's 24-hour self-service fuel station is located south of the A/D building, on the west side of the apron. This facility is owned and operated by the City of Tracy. The 3,000-gallon 100LL above-ground tank is double-walled with an interstitial space monitor which is read in the A/D building. There are no additional containment measures. Staff check the fuel tank monitor two to three times a week. The fuel facility is inspected by MnDOT for conformance to 14CFR Part 139 for safe handling, storage, and dispensing of aviation fuel and by the Minnesota Pollution Control Agency. The fuel is delivered to TKC via bulk container vehicles from City Service Valcon.

A staff member unlocks the fill port and remains with the fuel delivery personnel while the product is being offloaded into the fuel tank.

Pilots purchase fuel from the 24-hour pump with a credit card. The payment machine with receipt printer was new in 2013 and remains in good condition. A marked emergency shut-off button is located nearby on the wall of the A/D building.

The fuel station equipment is in good condition.

2.4.6.2 Air Rescue and Fire Fighting (ARFF)

TKC does not currently have air rescue or firefighting equipment. Fire protection service is provided by the city of Tracy's Fire Department, stationed approximately 1 ½ miles from the airport.

2.4.6.3 Maintenance/Snow Removal Equipment *(1987, 2004)*

The airport has a small inventory of equipment to maintain the airport grounds and facilities. Due to the climate and geographic location of TKC, the City of Tracy uses Street Department snow removal equipment, such as plows, graders, skid steers, brooms, loaders, and blowers to aid in the removal of snow and ice from airfield surfaces. The airport's mower, a Toro 580 Groundmaster, was purchased in 2004 with grant money from MnDOT. The mower is older but well-maintained and remains in good condition.

An FAA-approved Snow Removal Plan is not required at TKC because it is not a Part 139 certificated airport and does not accommodate passenger service. Snow Removal Plans guide the use of personnel, equipment and supplies in removing snow and ice from airfield surfaces. These plans prioritize areas for removal of snow, assignment of personnel, and use of equipment and apparatus during snow removal operations.

2.4.6.4 Ground Support Equipment and Storage

TKC does not have an equipment storage building. Currently, all equipment, such as the mower and plow, are stored at the City Public Works Shop. Equipment purchased by MnDOT or FAA grant money is for airport use only and should be kept on site.

2.4.6.5 Airport Board Meeting Space

There are no designated Airport Board Offices at TKC. The airport board holds their meetings at the Tracy City Hall. The pilot's lounge is sometimes used for informal meetings if needed. Board records and files are stored at City Hall and at the Public Works building.

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2.4.6.6 Airfield Security *(2008)*

Airfield Security is minimal. A short length of chain link fence is present at the A/D building, but does not prevent any member of the public from walking or driving on to the apron. While the condition of the fence is good, the level of security provided by the fencing is fair to poor. The addition of secure perimeter fencing will be studied in this Master Plan document.

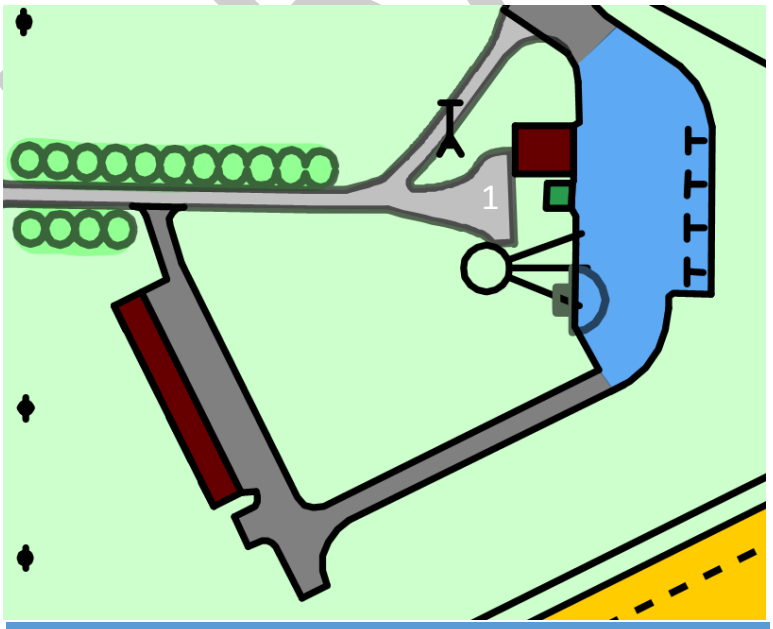
The A/D building is unlocked at all times, but all computer, weather, NAVAID, and lighting equipment are behind locked doors. Direct entry to the office is via an exterior door on the west side or an interior door, both of which require a key. NAVAID and lighting equipment are locked in the mechanical/electrical room.

2.4.6.8 Ground Access

US Highway 14 and CSAH 11 run through Tracy, which is located less than 50 miles north of Interstate Highway 90. The Canadian Pacific Railway line runs between the main body of the city and the airport. These well-used routes make TKC easily accessible to the public and connect Tracy to regions throughout the State of Minnesota.

2.4.6.9 Parking

Six parking spaces are provided on an unpaved gravel surface adjacent to the A/D building. Bituminous paving in this area is recommended. There is no charge for the use of this parking area.



ID	Component	No. of Spaces
1	Public Parking	6

Figure 2-45: Existing Automobile Parking

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2.4.7 Utilities

2.4.7.1 Electrical Power

120/240v single-phase electrical power to the Airport is supplied by Xcel Energy. The airport does not have an emergency generator in case of power outages.

Electrical power to the airport comes via underground lines along CSAH 11, turning to run on the south side of Homer Dobson Lane.

2.4.7.2 Propane

TKC uses propane, supplied by CHS, Inc., for heating needs at the A/D building and the conventional hangar. There are no natural gas lines serving the airport.

2.4.7.3 Telephone and Internet

TKC's telephone service is provided by Century Link. The internet service is provided by Exede/Wild Blue, paid for by the State of Minnesota. The airport manager reports that the internet frequently cuts out with poor weather.

2.4.7.4 Potable Water

Potable water for the airport is supplied by the City, with the service line having been replaced in 2010. The existing well on site, located southwest of the A/D building, has been capped. The well pump and underground structures still exist near the airport beacon.

2.4.7.5 Sewer

There is no municipal sewer system at the airport. A septic tank with a drainfield has been installed on the south side of the A/D building to serve its restroom and kitchenette sink. There are no drains, sinks, or restrooms in either of the hangars.

2.4.7.6 Solid Waste and Recycling

The airport has no trash pickup service. City staff hauls any trash on airport grounds to City dumpsters. Without passenger service at TKC, the creation of solid waste is low and easily manageable.

All vehicle and equipment maintenance is completed at the Tracy City Shop. Oil filters are picked up by Hoffman Recycling from St. James, MN, while waste oil is provided to local service shops to burn for heat. Fluorescent lighting is taken to the Lyon County Hazardous Waste facility for proper disposal. There are no floor drains or flammable waste traps in the hangars.

There is no established recycling program at TKC, but when household recyclables are collected, they are taken to the Lyon County Recycling Center.

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2 | Section 5 – Historic Levels and Trends of Aviation Demand

In order to accurately predict the future demand at Tracy Municipal Airport, it is useful to review the number of enplanements, based aircraft, and operations counts during the life of the airport. This information will be briefly summarized here, with greater detail provided in Chapter 3, *Aviation Demand Forecast.*

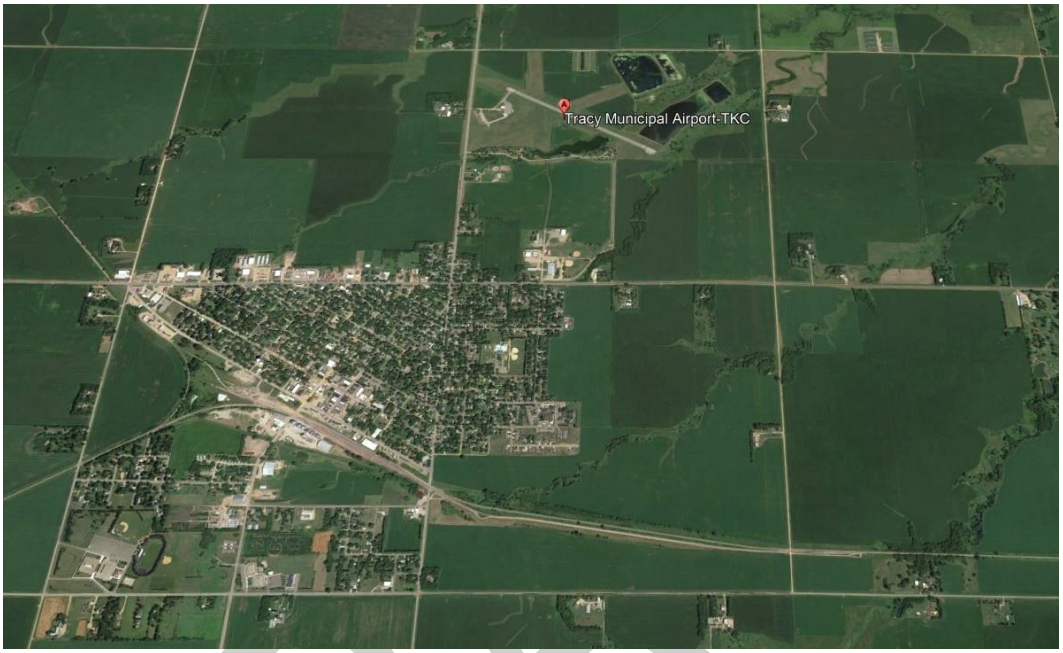

Figure 2-46: Aerial View of TKC in Local Context; Source: Google Earth

2.5.1 Enplanements

Enplanements are passenger boardings of commercial service aircraft for both scheduled and unscheduled service. Tracy does not accommodate any regular commercial service, therefore has no enplanement counts to report.

2.5.2 Based Aircraft

General Aviation capacity demand is most often determined by aircraft storage space for based aircraft. A **based aircraft** is an aircraft that is operational and air worthy, which is typically based at a facility for the majority of the year. In April 2018 there were 12 based aircraft at TKC as reported on the *basedaircraft.com* website. For additional information related to historic rates of based aircraft at TKC, please see Chapter 3, *Aviation Demand Forecast*.

2.5.3 Operations

Because there is no control tower or reliable operations record keeping at TKC, counts must be estimated. In the absence of this sort of direct counting method, the number of operations occurring on a yearly basis must be calculated using information gathered from the airport manager, sponsor, tenants, fuel sales, and other sources of state and federal documentation. Chapter 3 investigates historic operations at TKC in greater detail.

2 | Section 6 – Environmental Review

This section provides an overview of environmental baseline conditions at TKC. It identifies existing environmental sensitivities, provides a benchmark of existing environmental impacts, and will inform potential environmental considerations during the creation of the proposed development alternatives during the master planning effort.

A review of publicly available data and previous environmental analyses serves as the source of information used in this section. No environmental field studies were conducted during this master planning effort. This section includes a review of each of the environmental impact categories included in FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures* which are listed below. While the thresholds which determine whether an impact is considered significant are discussed in this section, the assessment of impacts is not included here.

2.6.1 Air Quality

Significance Threshold: The action would cause pollutant concentrations to exceed one or more of the National Ambient Air Quality Standards (NAAQS), as established by the Environmental Protection Agency under the Clean Air Act, for any of the time period analyzed, or to increase the frequency or severity of any such existing violations.

The U.S. Environmental Protection Agency (EPA) has established two primary laws that apply to air quality: The **Clean Air Act** (CAA) and the **National Environmental Policy Act** (NEPA). At this time, no known air quality studies have been conducted in the Tracy or Lyon County area.

Understanding Air Quality

The National Ambient Air Quality Standards (NAAQS) has six air pollutant criteria:

- **Carbon Monoxide (CO)**
- **Ozone (O3)**
- **Lead (PB)**
- **Particulate Matter (PM)**
- **Nitrogen Dioxide (NO2)**
- **Sulfur Dioxide (SO2)**

Geographical areas are classified as attainment, non-attainment, and maintenance areas based on whether they are meeting, above, or have recently-improved to within the NAAQS standards respectively. Federal agencies cannot fund or approve projects within non-attainment and maintenance areas unless they demonstrate general conformity with the State Improvement Plan (SIP).

2.6.1.1 Clean Air Act

In accordance with the CAA, Lyon County meets the levels of the six criteria air pollutants (Ozone, Particulate Matter, Sulfur Dioxide, Lead, Carbon Monoxide, and Nitrogen Dioxide) which make up the National Ambient Air Quality Standards (NAAQS). This status was verified using the EPA's website www.epa.gov/green-book in December 2017.

Being located within Lyon County, TKC is within an attainment area, and therefore is not subject to further demonstration of general conformity with the Minnesota State Implementation Plan (SIP) in order to be eligible for federal funding and approval.

2.6.1.2 National Environmental Policy Act (NEPA)

The National Environmental Policy Act (NEPA) of 1969 was one of the first laws to establish the national framework for protecting the environment. Through NEPA, congress has required federal agencies to consider the environmental effects of airport projects using Environmental Assessments or Environmental Impact Statements to assess alternative courses of action. There are also public involvement requirements prescribed in the document.

NEPA requires consideration of air quality impacts for reasonable alternatives throughout the planning period. According to the FAA Aviation Emissions and Air Quality Handbook, NAAQS analysis would be required if TKC's proposed project required FAA involvement, if the project would cause or create a foreseeable increase in air emissions, if the area is considered Non-attainment or Maintenance Status, and if there are any agency or public concerns regarding air quality. A search of the EPA's EnviroMapper database (www.epa.gov/emefdata/em4ef.home) in December 2017 indicated that Lyon County is not in Non-attainment or Maintenance Status for the six criteria air pollutants. Since the airport is within an attainment area, no further analysis is required.

2.6.2 Biological Resources: Fish, Wildlife, and Plants

Significance Threshold: The U.S. Fish and Wildlife Service or the National Marine Fisheries Service determines that the action would be likely to jeopardize the continued existence of a federally listed threatened or endangered species, or would result in the destruction or adverse modification of a federally designated critical habitat.

Section 7 of the **Endangered Species Act** requires federal agencies to ensure that any proposed action does not jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of associated habitat.

A data search conducted in July 2018 on the USFWS Information, Planning, and Conservation (IPaC) system (https://ecos.fws.gov/ipac) listed one Threatened animal species that could be potentially affected by development at the airport: the Northern Long-eared Bat (Myotis septentrionalis). The Prairie Bush-clover (Lespedeza leptostachya) is also listed as a Threatened flowering plant in the area. Josh Fitzpatrick of FAA has indicated that the Prairie Bush Clover is not found in Lyon County at this time and need not be considered, but the Threatened Dakota Skipper butterfly (Hesperia dacotae) and the Endangered Powershiek Skipperling butterfly

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(Oarisma poweshiek) are found in the County (https://www.fws.gov/midwest/endangered/index.html).

In addition, the IPaC search also indicated that the Bobolink (Dolichonyx oryzivorus), a migratory bird, could be impacted. The search did not identify any critical habitats within the vicinity of the airport.

Of the migratory birds that may be impacted, most are drawn to the site due to the abundant water resources at the water treatment ponds and Swift Lake Park. Certain birds are protected under the Migratory Birds Treaty Act of 1918 and the Bald and Golden Eagle Protection Act of 1940.

A Wildlife Hazard Site Visit was completed at TKC in September 2017 by Timothy Pugh, a Qualified Airport Wildlife Biologist of Midwest Wildlife Services, LLC. In the resulting report, Mr. Pugh made several recommendations regarding mitigation practices that TKC can employ in order to make the airport and the flying public safer and more secure. These include, but are not limited to:

- Follow grass management guidelines to discourage foraging and loafing birds;
- Convert airfield cropland to grass if feasible;
- Improve airfield drainage to remove standing water;
- Remove all trees within 300’ feet of the runway and remove all dead trees from airport property;
- Develop a hazing program to discourage waterfowl, gulls, and hawks from using the airfield, resorting to lethal control as needed;
- Relocate the City’s stabilization ponds at least 5,000 feet away from the airfield;
- Haze and prevent Canada Geese from nesting at the ponds, before and after relocation if necessary;
- Secure permits from USFWS and MNDNR to take certain birds off the airfield and stabilization ponds; and
- Enclose the airfield with a deer-proof perimeter fence.

The final Wildlife Hazard Site Visit Report with complete analysis and recommendations will be included in the Appendix of this document. Active steps such as harassment, pest management, invertebrate control, waterfowl control, and waste management (both food and mulch waste) are recommended. As a last resort, depredation and controlled hunting can be employed. Coordination with the appropriate agencies (including the USFWS and Mn DNR) should be conducted before any proposed development takes place.

A Wildlife Hazard Management Plan, created collaboratively by TKC, Midwest Wildlife Services, and Bollig Inc will also be completed in the Master Plan process and will be included in the Appendix.

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2.6.3 Coastal Resources

Significance Threshold: None established.

Federal activities involving or affecting coastal resources are governed by the **Coastal Barriers Resources Act** (CBRA), the **Coastal Zone Management Act** (CZMA), and Environmental Order (EO) 13089, *Coral Reef Protection*. Lyon County is not located within any coastal zone, therefore future development on the airport is not anticipated to affect federally or state-protected coastal areas.

2.6.4 Department of Transportation Act: Section 4(f)

Significance Threshold: The action involves more than a minimum physical use of a Section 4(f) resource or constitutes a "constructive use" based on an FAA determination that the aviation project would substantially impair the Section 4(f) resource.

The resources that are protected by Section 4(f) are publicly owned land from a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance; and publicly or privately-owned land from an historic site of national, state, or local significance. Substantial impairment occurs when the activities, features, or attributes of the resource that contribute to its significance or enjoyment are substantially diminished.

Tracy's nine City Parks, the Greenhead State Wildlife Management Area, and the Tracy Golf Course are all within the area surrounding the airport. The United States Fish and Wildlife Service (USFWS) lists 20 Wildlife Refuges and Wetland Management Districts within the state of Minnesota (www.fws.gov/refuges), none of which are in Lyon County.

Understanding DOT Section 4(f)

Section 4(f) of the Department of Transportation Act of 1966 states that a federally-funded project requiring the use of land from:

- **A publicly-owned land from a public park or recreation area**
- **A national or state wildlife or waterfowl refuge**
- **A historic site of national state, or local significance**

…Shall not be approved unless there is no feasible and prudent alternative for the use of such land. A significant impact would occur pursuant to NEPA when a proposed project either involves more than a minimal physical use of a Section 4(f) property or is deemed a "constructive use" substantially impairing the 4(f) property.

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The state of Minnesota also maintains waterfowl refuges and sanctuaries, which were established to:

- Protect production, migration, and wintering habitats;
- Provide security, feeding, and resting areas;
- Maintain traditions of bird use;
- Distribute birds, hunters, and harvest; and
- Support limited forms of public use compatible with the primary purpose of the refuge.

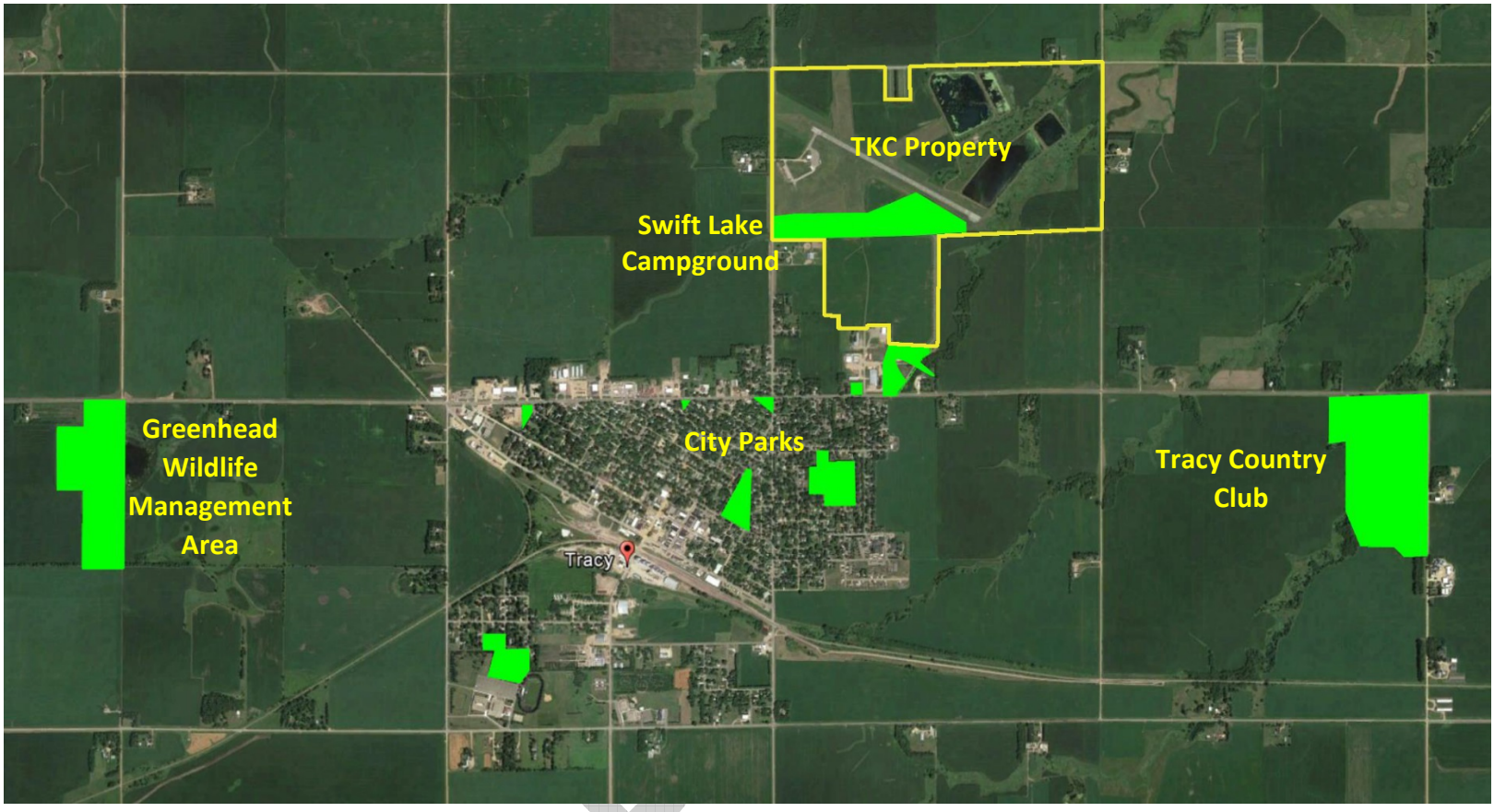

Figure 2-48: Nearby Section 4(f) Properties

According to the state DNR website (www.dnr.state.mn.us/sildlife/shallowlakes/refuges.html) a 1985 inventory of all refuge types in Minnesota documented 116 waterfowl refuges totaling slightly over one million acres, or 2% of land in the state. A new inventory is currently ongoing. These include State Game Refuges, Migratory Waterfowl Refuges, State Duck Refuges, and State Wildlife Sanctuaries.

There are over 1,600 Wildlife Management Areas in Minnesota (www.dnr.state.mn.us/wmas/index.html) equaling 1.29 million acres of habitat. Lyon County includes 48 of these, but the previously-mentioned Greenhead Wildlife Management Area is the site most likely to be impacted by any future development at TKC.

2.6.5 Farmlands

Significance Threshold: The total combined score on Form AD-1006, "Farmland Conversion Impact Rating," ranges between 200 and 260 points.

The **Farmland Protection Policy Act** (FPPA) of 1981 regulates federal actions with the potential to convert farmland to non-agricultural uses. While the Airport property does not meet the definition of farmland contained in the FPPA, there are prime farmlands near the airport property. Coordination with the US Department of Agriculture (USDA) may be necessary for any development proposed on farmlands adjacent to the airport.

2.6.6 Hazardous Materials, Solid Waste, and Pollution Prevention

Significance Threshold: None established.

2.6.6.1 Airport Property

Hazardous substances on the airport property include aircraft fuel, ground equipment fuel and oil. Fuel is transported to the site by mobile tankers. There are no floor drains or flammable waste traps in either of the hangars. Vehicle and equipment maintenance is completed at the City Shop. Pilots are required to remove any waste from their hangars on their own.

TKC was the site of an aviation fuel tank leak, or release of petroleum products, in 1990 as documented in the "What's in My Neighborhood" website of the Minnesota Pollution Control Agency (MPCA) (http://pca-gis02.pca.state.mn.us/wimn2/index.html). Cleanup occurred in 1991, and the site is now considered closed by the MPCA.

2.6.6.2 Airport Vicinity

A search of the EPA's EnviroMapper database (www.epa.gov/emefdata/em4ef.home) conducted in January 2017 indicated that there are 22 facilities in the Tracy area reporting to the EPA. The MPCA "What's In My Neighborhood" website (https://cr.pca.state.mn.us/wimn/search.cfm)

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indicates there is one Superfund site related to the DM&E Railroad, and seven brownfield sites. There are a number of facilities generating small amounts of hazardous waste, such as gas stations, industrial sites, and medical/dental centers.

Tracy's solid waste dump site, west of the airport, was closed in 1971. Tracy's Compost Facility has Permit by Rule status, meaning that it is used for a short term or with limited volume, less than 15,000 cy per year.

Other permitted sites which may be affected by future airport development are the Tracy wastewater treatment ponds which are currently on airport grounds, but will be moved to the north side of County Road 56 in 2018-2019, as discussed previously in Section 2.4.3.4, Runway Protection Zones.

2.6.7 Historical, Architectural, Archaeological and Cultural Resources

Significance Threshold: None established (based on current surveys completed as of July 2018).

The **National Historic Preservation Act** of 1966, as amended, and the **Archeological and Historic Preservation Act** of 1974 are the two laws that establish the requirements for determining historic, architectural, archaeological, and cultural resource significance within the airport vicinity.

There is one property in Tracy listed on the National Register of Historic Places. The First National Bank (82002987) was listed on March 15, 1982, located approximately 1.3 miles from the airport, and built in 1897 for Lyon County's first bank. It is a Romanesque Revival commercial building constructed of local Sioux Quartzite. This property is not expected to be adversely affected by any future development at the airport.

Other historic structures or archaeological sites previously identified within a 1.5-mile radius of the airport are listed in the following table. None of these properties have been evaluated for listing in the National Register of Historic Places as of July 2018. Please note that some of the properties listed in the State's Cultural Resources database, listed below, may no longer exist or may be known by other names.

Property Name	Address	Twp-Range-Sec	ID#
Tracy Station		109-40-12	21LY0128
Tracy Whistle Stop		109-40-23	21LY0125
George Tracy Poultry and Produce Warehouse		109-40-23	21LY0127
Faith Lutheran Church	3rd Street	109-40-23	LY-TRC-003
St. Mark's Episcopal Church	Center Street	109-40-23	LY-TRC-008
Zion Lutheran Church	Emory Street	109-40-23	LY-TRC-011
Tracy Hospital	2nd Street	109-40-23	LY-TRC-012
Ret House	124 Emory Street	109-40-23	LY-TRC-013
Bandshell	Tracy Park	109-40-23	LY-TRC-014

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Property Name	Address	Twp-Range-Sec	ID#
Municipal Building/Fire Department	2nd Street	109-40-23	LY-TRC-018
Hotel	Morgan Street	109-40-23	LY-TRC-019
United Methodist Church	162 Morgan Street	109-40-23	LY-TRC-020
Bank	163 3rd Street	109-40-23	LY-TRC-021
City Hall	3rd Street	109-40-23	LY-TRC-022
Hotel	4th Street	109-40-23	LY-TRC-023
HC Heine & Rogers Railroad Building		109-40-23	LY-TRC-024
Hayes-Lucas Building Materials	South Street	109-40-23	LY-TRC-026
Hollywood Theater	3rd Street	109-40-23	LY-TRC-028
St. Mary's Catholic Church	6th Street	109-40-23	LY-TRC-031
First Presbyterian Church		109-40-23	LY-TRC-033
Church of Christ	Rolland Street	109-40-23	LY-TRC-036
Lau Seed Store	MN Hwy 14 & 8th Street	109-40-14	LY-TRC-037
Grain Elevator	South Street	109-40-23	LY-TRC-038
Valentine Clinic Building	117 3rd Street	109-40-23	LY-TRC-039
HJ Partridge Building	169 3rd Street	109-40-23	LY-TRC-040
Commercial Building	3rd Street	109-40-23	LY-TRC-041
Masonic Building		109-40-23	LY-TRC-042
Grain Elevator	South Street	109-40-23	LY-TRC-043
Stone Filling Station	MN Hwy 14 & Center St.	109-40-23	LY-TRC-045
Commercial Building/First National Bank	101 3rd Street	109-40-23	LY-TRC-047
Water Tower	6th Street	109-40-23	LY-TRC-048
Various Houses (19)			

Table 2-49: Historic Properties in Airport Vicinity not listed in NRHP
Source: MN State Historical Society

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The first runway at the airport, a grass strip, was built in the 1920's. Depending on the type of projects in the future, particularly if there is ground disturbance in a new area, a cultural resources survey may need to be completed prior to construction.

2.6.8 Land Use

Significance Threshold: None established.

2.6.8.1 Public Safety and Noise Compatibility

As summarized within the Airport Background and Regional Context, Section 2.3.4, *Surrounding Land Use*, the land uses around the airport are for the most part Agricultural, with smaller areas zoned for Residential and Industrial. See Figure 2-13. Except for Residential, the above-mentioned land uses are generally considered to be compatible with airport operations. The presence of Residential

uses can create a conflict with noise impacts which will be further investigated in Section 2.6.10, *Noise and Noise-Compatible Land Use.*

The Runway Protection Zones (RPZs) for two of the six runways (24 and 35) are controlled by the airport through fee-simple acquisition per FAA guidelines. The remaining four RPZs (06, 11, 17, and 29) include property owned by others.

The state of Minnesota has adopted aeronautics Statues and Rules regarding the safety of the public and property on the ground.

MN Statues – Chapter 360, Airports and Aeronautics. This Chapter describes the prevention of Airport Hazards, "which endanger the lives and property of users of the airport and of occupants of land in its vicinity, and may reduce the size of the area available for the landing, takeoff, and maneuvering of aircraft, thereby impairing the utility of the airport and the public investment therein. It is also found that the social and financial cost of disrupting existing land uses around airports in built up urban areas, particularly established residential neighborhoods, often outweigh the benefits of a reduction in airport hazards that might result from the elimination or removal of those uses." It further gives authority to create airport zoning boards who are granted the ability to establish rules to prevent airport hazards in the zoning areas while working to ensure the minimum disruption of existing land uses to the extent consistent with reasonable standards of safety. It describes the required conditions for the issue of permits and of variances, as well as hazard marking and lighting, and the conditions for the acquisitions of air rights as a means to prevent airport hazards.

MN Administrative Rules – Chapter 8800, Aeronautics. Section 8800.1200, *Criteria for Determining Air Navigation Obstructions,* describes in a prescriptive way how obstructions to navigation are identified in relation to the Primary Surface, Horizontal Surface, Conical Surface, Approach Surfaces, and Transitional Surfaces, as well as marking and lighting of those items deemed obstructions that cannot be removed. Section 8800.2400, *Airport Zoning Standards*, describes both Airspace Zones and Land Use Safety Zones A, B, and C. Each of these safety zones includes corresponding land use restrictions, creating sufficient open space so as to protect life and property in case of an accident, and to prevent land uses which create or cause interference with the safe communications and operation of an aircraft during landing, taking off, or maneuvering of the aircraft. This section also addresses the establishment of noise sensitivity zones when requested by the commissioner or governmental unit having airport zoning powers.

2.6.8.2 Operational Safety

Wildlife and bird attractants, such as wetlands, bodies of open water, waste disposal sites, and certain crops, can cause safety hazards at airports. The Greenhead Wildlife Management Area is home to deer, small game, pheasants, doves, and waterfowl.

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Figure 2-50: Greenhead Wildlife Management Area;
Source: www.dnr.state.mn.us/wmas

The **National Wetlands Inventory** (NWI) data indicates that TKC is surrounded by wetlands of varying types – ponds, emergent wetlands, forested/shrub wetlands and riverine areas. In addition, the Greenhead Wildlife Management Area is located west of Tracy (Figure 2-49), and the City of Tracy's water treatment ponds are to the north and east of the runways. Each of these are significant attractants to wildlife, especially birds, at all times of the year. Greater detail regarding attractants and mitigation solutions are discussed in the Wildlife Hazard Site Visit Report, found in the Appendix of this document.

2.6.9 Natural Resources and Energy Supply

Significance Threshold: None established.

Executive Order 13123, *Greening the Government through Efficient Energy Management*, encourages federal agencies to expand the use of renewable energy within its facilities and in their activities and to encourage the development of facilities that exemplify the highest standards of design including the principles of sustainability. Any proposed development at TKC should be examined to identify any proposed major changes in stationary facilities or the movement of aircraft and ground vehicles that would have a measurable effect on local supplies of energy or natural resources. The City has made efforts to reduce energy use by converting their security lighting to light-emitting diode (LED) fixtures and upgrading their runway lighting during the 2015 project.

The on-airport electrical vault supplies the electricity needed for airport lighting and operations. Sustainable measures will be further discussed within the proposed alternatives described in Chapter 5, *Alternatives Analysis.*

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2.6.10 Noise and Noise-Compatible Land Use

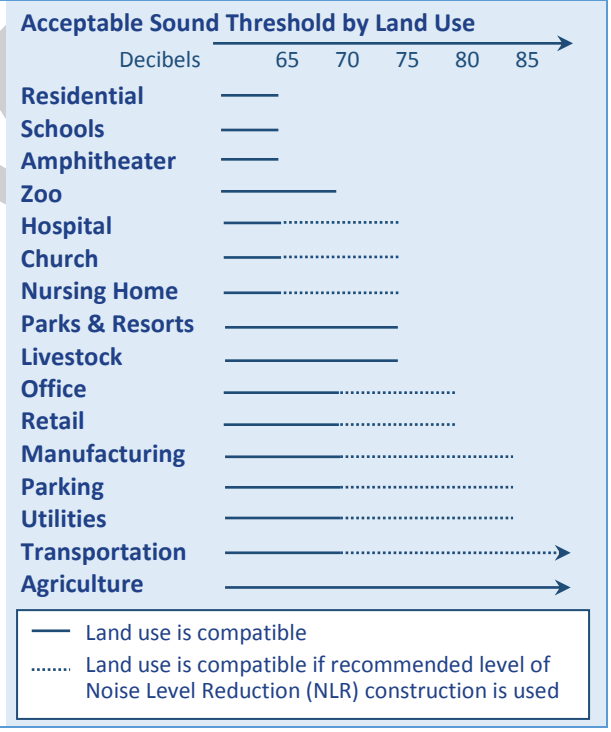
Significance Threshold: The action would increase noise by ***Day-Night Average Sound Level*** *(DNL) 1.5 dB or more for a noise sensitive area that is exposed to noise at or above the DNL 65 dB noise exposure level, or that will be exposed at or above the DNL 65 dB level due to a DNL 1.5 dB or greater increase, when compared to the no-action alternative for the same timeframe.*

Generally, the FAA considers DNL 75 and higher to be incompatible with most land uses, while below 65 is compatible with most land uses. Above 65 DNL, noise sensitive land uses (such as residential, schools, churches, and hospitals) are typically discouraged. At this time, there have been no noise impact studies conducted at the airport. Noise impacts to surrounding agricultural and commercial properties are minimal and there should not be any issues with non-compatible land use.

The FAA's 1050.1F *Desk Reference* indicates no noise analysis is required for projects involving Design Group I and II aircraft in Approach Categories A through D, operating at airports whose forecast operations do not exceed 90,000 annual propeller operations. This number well exceeds any expected future number of operations at TKC, thus a noise analysis is not required at this time.

Understanding Noise Impacts

Noise is typically the most significant off-airport environmental impact associated with aircraft operations. Noise is measured in decibels (dB). The Day Night Average Sound Level (DNL or Ldn) is an average cumulative sound level that provides a measure of the total sound energy during a 24-hour period.



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2.6.11 Socioeconomics, Environmental Justice, and Children's Environmental Health and Safety Risks

Significance Threshold: None established.

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, and the accompanying Presidential Memorandum, and Order DOT 5610.2, *Environmental Justice*, require the FAA to provide for meaningful public involvement by minority and low-income populations, and analysis that identifies and addresses potential impacts on these populations which may be disproportionately high and adverse. In addition, pursuant to Executive Order 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, federal agencies are directed as appropriate to prioritize environmental health risks which may disproportionately affect children. Any proposed development at TKC must be analyzed to assess impacts to low-income or minority populations, or to children's health and safety.

The USEPA EJSCREEN tool was used to determine detailed information about the area within a one-mile buffer around the airport in January 2018. The EJSCREEN tool combines and displays demographic indicators with a single environmental indicator using publicly available data, including US Census Bureau Data from 2010-2014.

The demographic indicators studied with this tool include:

- Percent low-income,
- Percent minority,
- Less than high school education,
- Linguistic isolation,
- Individuals under age 5, and
- Individuals over age 64.

The population within this one-mile buffer is reported to be 737 people, of which 11% are determined to be of a minority group, and 32% are considered low-income. 73% of the housing units in the area are owner-occupied, with 42% reporting a yearly base income of $50,000 or more. This data suggests that minority and low-income households may not be disproportionately affected by any proposed development at the airport.

2.6.12 Visual Effects: Light Emissions and Visual Resources/Visual Character

Significance Threshold: None established.

Larger airports emit a significant amount of light, especially from the approach lighting systems. Visual impacts are difficult to assess due to their subjectivity and may be annoying to people in the vicinity or interfere with their normal activities. The airport property is immediately surrounded by agricultural and industrial land uses, which are generally considered compatible with airport operations involving lighting. There are no residences near the airport which should be considered

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during future development at the airport. Any project involving installation, replacement, or relocation of airfield lighting should be evaluated for adverse light emissions and visual impacts to the surrounding community.

2.6.13 Water Resources: Wetlands, Floodplains, Surface Waters, Groundwater, and Wild and Scenic Rivers

The **Clean Water Act** provides the authority to establish water quality standards, control discharges, develop waste treatment management plans and practices, and prevent or minimize the loss of wetlands. Water quality regulations and the issuance of permits before construction projects at TKC will normally identify any deficiencies in the proposed development with regard to water quality or any additional information necessary to make judgments on the significance of impacts.

2.6.13.1 Wetlands

Significance Threshold: The action would:

- *Adversely affect a wetland's function to protect the quality or quantity of municipal water supplies, including surface waters, and sole source and other aquifers;*
- *Substantially alter the hydrology needed to sustain the affected wetland system's values and functions or those of a wetland to which it is connected;*
- *Substantially reduce the affected wetland's ability to retain floodwaters or storm runoff, thereby threatening public health, safety or welfare (the term welfare includes cultural, recreational, and scientific resources or property important to the public);*
- *Adversely affect the maintenance of natural systems supporting wildlife and fish habitat or economically important timber, food, or fiber resources of the affected or surrounding wetlands;*
- *Promote development of secondary activities or services that would cause the circumstances listed above to occur; or*
- *Be inconsistent with applicable state wetland strategies.*

The USFWS **National Wetland Inventory** (NWI) data consulted in January 2018 reports numerous wetland areas on airport property and within the airport vicinity. There are lakes and freshwater ponds of varying quality and size encircling the airport, some which are associated with Freshwater Emergent wetland areas, as well as a Riverine wetland which crosses the south end of Runway 11/29. Tracy's water treatment ponds and Swift Lake surround Runway 29. There have been no wetland delineations in the airport area. An updated delineation to ascertain current wetland location and extents is recommended before any airport construction begins.

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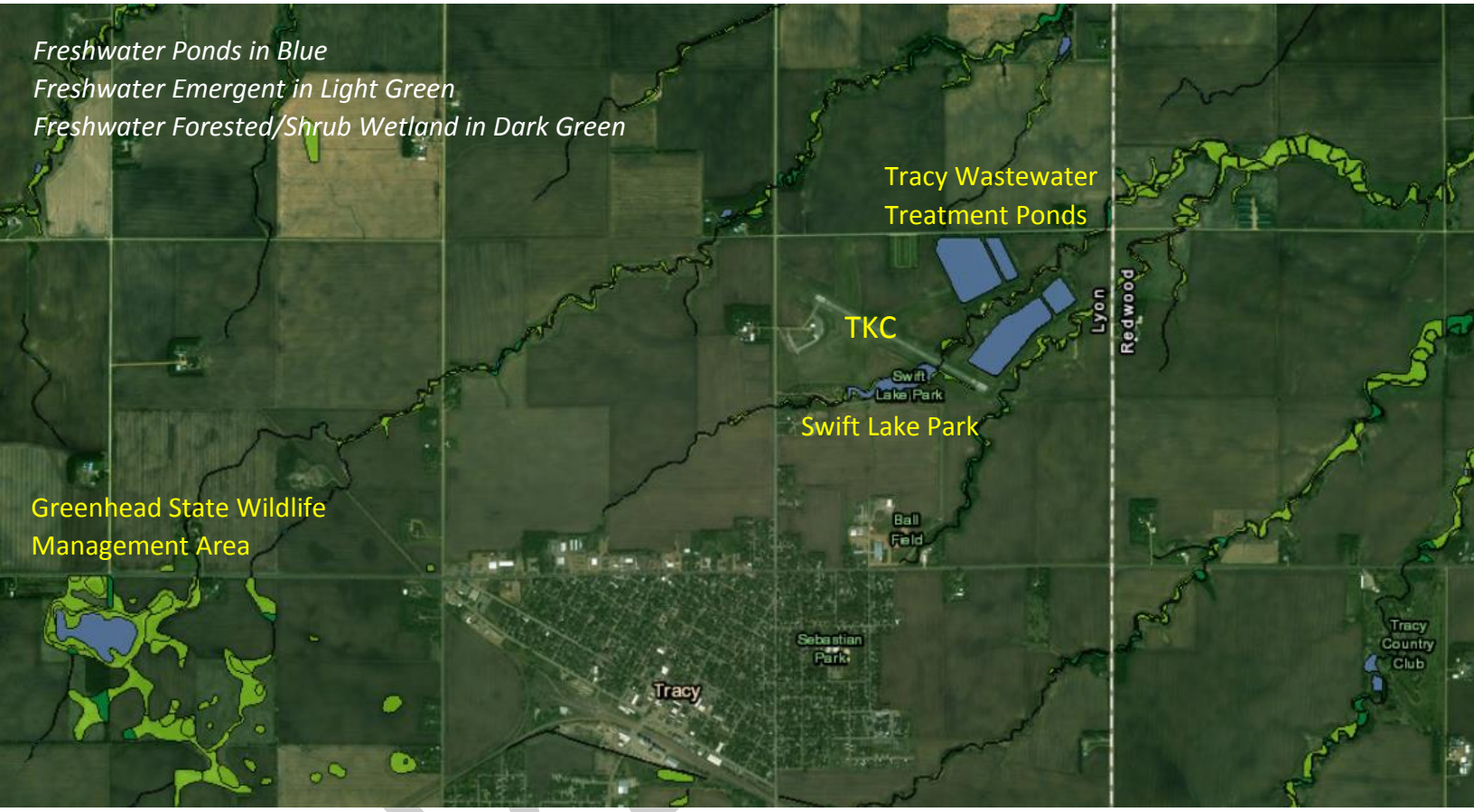

Figure 2-51: Wetlands near TKC
Source: USFWS National Wetlands Inventory Mapper, January 2018

There are no MnDNR Protected Waters basins or watercourses on or off airport property impacted by proposed development at TKC. Per Luke Olson at the Lyon County Soil and Water Conservation District on July 9, 2018, there have been no wetland delineation projects in the airport area and there are no DNR jurisdictional watercourses in the immediate airport property (See Figure 2-52 below). He stated that there are no special considerations or exemptions for FAA Safety Zones and regulations as they apply to development which may impact wetlands.

The City of Tracy and Lyon County have no shoreland ordinances that place restrictions on land use and construction on or near wetlands, such as Swift Lake or the two watercourses that run through airport property.

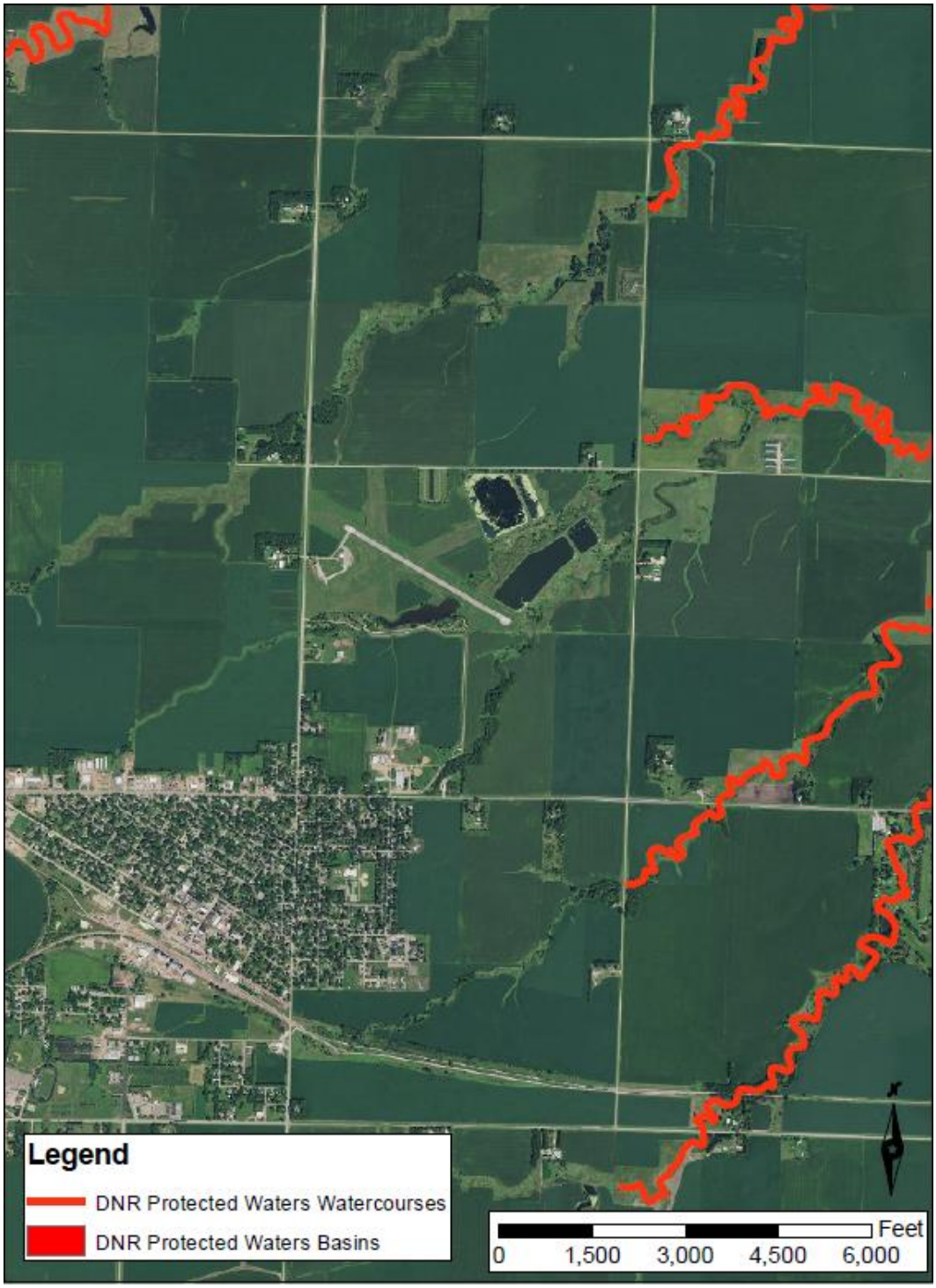

Figure 2-52: DNR Protected Waters; Source: MN DNR Public Waters Inventory Maps (www.dnr.state.mn.us/waters/watermgmt_section/pwi/maps.html)

2.6.13.2 Floodplains

Significance Threshold: The action would cause notable adverse impacts on natural and beneficial floodplain values.

Executive Order 11988 directs federal agencies to take action to reduce the risk of flood loss, minimize the impact of floods on human safety, health and welfare, and restore and preserve the natural and beneficial values served by floodplains. As of September 2017, there have been no studies by FEMA to determine flood hazards for the City of Tracy. The FEMA maps 27083C0500D and 27083C0625D (November 2010) which include the airport property, do not include any Special Flood Hazard Areas. At this time, the 100-year floodplain boundary for this area has not been determined, and there is no indication the airport property or surrounding area would be categorized as Zone D or Zone X.

2.6.13.3 Surface Waters

Significance Threshold: The action would:

- *Exceed water quality standards established by Federal, state, local, and tribal regulatory agencies; or*
- *Contaminate public drinking water supply such that public health may be adversely affected.*

The City of Tracy has no ordinances that place restrictions on land use and construction on or near shorelines for lakes and rivers.

The City of Tracy has no ordinances that place restrictions on land use and construction on or near shorelines for lakes and rivers.

Bollig spoke with Lucas Youngberg, Region 4 Area Hydrologist for the Marshall, MN area, on February 14, 2018. Though it is not a Protected Public Water under the MN Department of Natural Resources (DNR), he had a number of concerns about the possibility of modifying the streambed that passes south and east of the end of Runway 29. He recommended that the stream be left in as natural a state as possible, minimizing disturbances to avoid creating a cascade of issues further downstream. DNR offered to assist with analysis and natural channel design work to minimize environmental impacts on the waterway. Specifically, he requested that any intervention with the stream leave it in its original place as much as possible and that it not restrict water flow, even during seasonal flooding, such as using a large box culvert.

Another area of concern is Swift Lake, which is actually a stream that has been dammed. The dam and a portion of the lake fall within the Runway Object Free Area of Runway 11/29.

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2.6.13.4 Ground Water

Significance Threshold: The action would:

- *Exceed groundwater quality standards established by Federal, state, local, and tribal regulatory agencies; or*
- *Contaminate an aquifer used for public water supply such that public health may be adversely affected.*

A review of the Minnesota Pollution Control Agency's groundwater data (https://pca-gis02.pca.state.mn.us/eda_groundwater/index.html) in January 2018 revealed that the nearest Drinking Water Supply Management Areas are the Marshall 26 and Balaton DWS areas. The nearest border of the Marshall DWSMA over 9 miles northwest of the airport, while the nearest border of the Balaton DWSMA is 11 miles west. The MPCA maintains groundwater monitoring stations in three locations near Tracy, the closest being 3.4 miles away from the airport.

The City of Tracy has no ordinances that place restrictions on land use and construction near aquifers, other than prohibiting groundwater from entering the municipal sanitary sewer system.

Future construction at the airport is not expected to impact the drinking water of Tracy or any other municipality.

Future construction at the airport is not expected to impact the drinking water of Tracy or any other municipality. Lyon County's Area Hydrologist, Lucas Youngberg, remarked in February 2018 that care should be taken around the streams around the runways at TKC, though they are not Protected Public Waters under the Department of Natural Resources. Any work in this area should be in concert with the Minnesota Wetland Conservation Act and reviewed with the Hydrologist and the US Army Corps of Engineers.

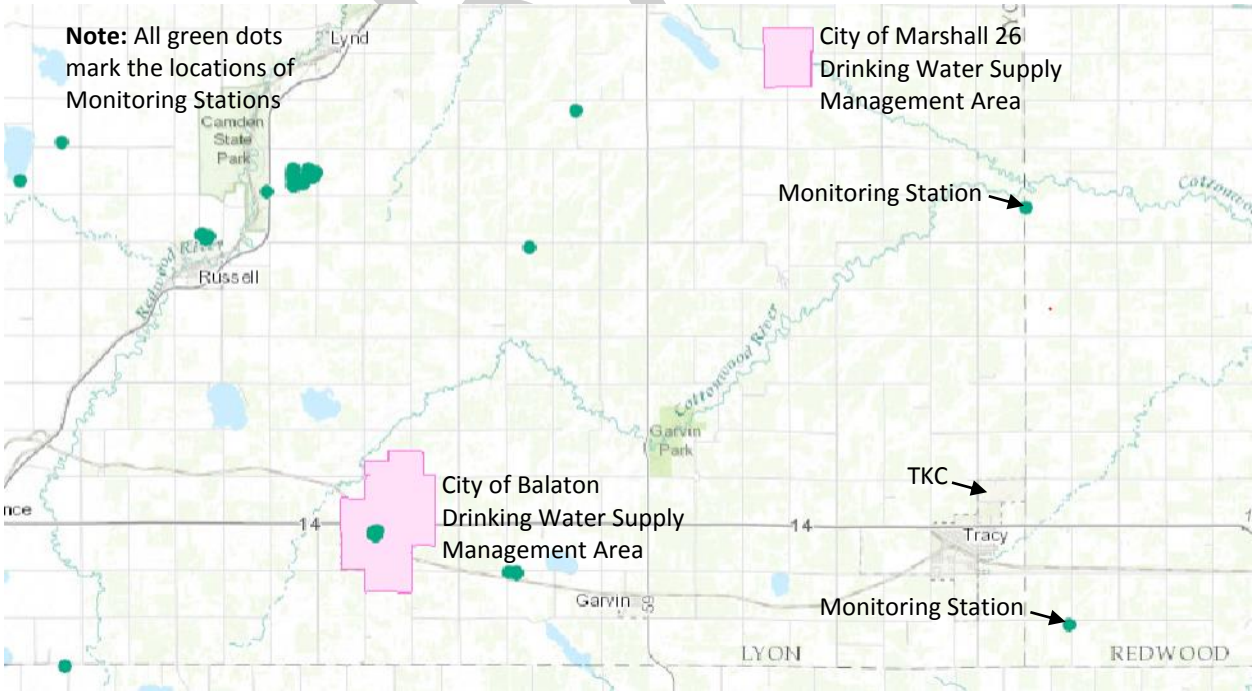

Figure 2-53: Drinking Water Supply Management Areas
Source: MPCA Groundwater Monitoring Data

2.6.13.5 Wild and Scenic Rivers

Significance Threshold: None established.

The **Minnesota State Wild and Scenic Rivers Program** was established in 1973 to protect rivers which have outstanding natural, scenic, geographic, historic, cultural, and recreational value. The six rivers currently designated in Minnesota are the Minnesota, North Fork Crow, Mississippi, Rum, Kettle, St. Croix, and Cannon Rivers. There are no designated Minnesota State Wild and Scenic rivers in Lyon County. The St. Croix River also carries a National Wild and Scenic Rivers designation, but it is not located in Lyon County.

Projects at Tracy Airport are not anticipated to impact any Wild and Scenic rivers, or other federally-listed river segment.

2.6.14 Other Construction Impacts

Airport construction may cause various environmental effects primarily due to dust, aircraft, and heavy equipment emissions, storm water runoff containing sediment and/or spilled or leaking petroleum product, among other impacts. Significant construction impacts would most likely occur when unusual circumstances exist (e.g., excavating environmentally sensitive areas, construction-induced traffic congestion that would substantially degrade air quality). A significant impact would occur when the severity of construction impacts cannot be mitigated below FAA's threshold levels for the affected resource (i.e., air quality, water quality, etc.). The anticipated construction impacts of the proposed development must be considered during the environmental effort.

2.6.15 Secondary (Induced) Impacts

Major development proposals can involve the potential for induced or secondary impacts on surrounding communities. Examples of these impacts include shifts in patterns of population movement and growth, public service demands, and changes in business and economic activity to the extent influenced by airport development. The nature of expected projects at TKC are not anticipated to create secondary impacts on nearby communities.

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2 | Section 7 – Financial Data, Businesses, and Tenants

Tracy's City Administrator, under the supervision of the Tracy City Council, acts as the fiscal agent for the airport and is responsible for maintaining it's budgetary as well as revenue and expenditure accounts. The designated Airport Board offers guidance to the City Council in financial and management matters.

Each year, the City Administrator prepares an annual budget for consideration and ultimate adoption by the City Council. The City of Tracy operates the Airport out of its own fund within the General fund, and also relies on other revenue sources to support operation, maintenance, and development of the airport. It does not have its own budget from which expenses and revenues are calculated. Any expenses come out of the Airport General Fund, and any income from fuel, rental fees, or crop land leases goes back into this fund.

Annual Distribution	
2013	$25,631
2014	$33,269
2015	$27,123
2016	$36,202

Figure 2-54: Annual Distribution from Tracy's General Fund

The City offers hangar space for rental, the rates for which are set by the City Council annually. The council looks at other area hangar rental rates as a guide, then reduces the fee to account for the poor condition of the T-hangar.

At this time, there are no commercial tenants at TKC.

Current Hangar Quarterly Rental Rates	
T-Hangar	$180
Conventional Hangar	$435

Figure 2-55: TKC Hangar Rental Rates

The City holds land leases which allow agricultural activity meeting FAA guidance for land use to be conducted on airport property. The rates per acre are set by the City Council, comparably with prime lease rates in the area, but reduced slightly due to the small parcel sizes which make them a little less efficient to plant and harvest. The current leaseholders are under contract with the City until 2019 at a rate of $175/acre/year.

This analysis offers the airport a baseline evaluation of revenues and expenses in order to provide a framework for understanding future expenditure and revenue streams. It is not intended to serve as a true airport profit and loss statement; instead, it offers insight to emerging trends that could impact the future financial performance of TKC. The techniques utilized in this analysis are consistent with industry practices for similar studies. While it is believed that the approaches and assumptions are reasonable, it

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should be recognized that some assumptions regarding future trends and events may not come to pass.

2.7.1 Historical Airport Revenues

Tracy is part of the National Plan of Integrated Airport Systems (NPIAS) and is eligible to receive Federal grants under the Airport Improvement Program (AIP). It also includes estimates of the amount of AIP money needed to fund infrastructure development projects that will bring the included airports up to current design standards and add capacity to congested airports. The FAA is required to provide Congress with a five-year estimate of AIP eligible development every two years.

Tracy is currently categorized as a Local General Aviation Airport which is eligible for up to $150,000 in entitlements each fiscal year, though Tracy was not able to take advantage of these entitlements in 2015 and 2016 because it's designation dropped to "Unclassified" due to insufficient numbers of based aircraft. This entitlement could change in the future depending on Congressional action. Under the Entitlement Program, Tracy can obtain more grant allocation if other airports do not use their funding in each of the fiscal years, and they are successful in obtaining a transfer of another airport's entitlement funds.

TKC is also eligible for State grants through the Minnesota Department of Transportation including the Airport Construction Grant Program, the Airport Maintenance and Operation Program, and the Hangar Loan Revolving Account Program. The programs are described below.

Airport Construction Grant Program. The State Construction Grant Program funds most capital improvements at state system airports based on a determination that the improvement is a justifiable benefit to the air-traveling public. State funding participation may vary from year to year.

The Construction Grant Program funds projects such as airport infrastructure, revenue-generating facilities, fencing, obstruction removal, land purchase for clear zones, and some utilities.

Airport Maintenance and Operation Program. The State Airport Maintenance and Operation Grant Program has in the past provided 2/3 State reimbursement to the state system airports for their documented, routine maintenance expenses up to a certain ceiling amount that is categorized by airport infrastructure. This amount has been increased to 75% for FY2019. The day-to-day labor, material, equipment, and utility expenses of maintaining airport pavements, airport grounds, lighting systems, buildings, and maintenance equipment are eligible costs.

Hangar Loan Revolving Account Program. The State Hangar Loan Revolving Account Program provides an 80% interest-free loan to State system airports for building new hangars. The loans are paid back in equal monthly installments over 20 years. Payment receipts, as they become available, are then loaned out again to other airports needing hangars. The hangar loan may be used to fund hangar site

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preparation as well as the hangar building. Hangar site preparation, including the hangar floor, may also be funded with a State grant at current participation rates, if funds are available. However, for site prep to be considered for this grant, it must be shown as a proposed project in the Sponsor's Airport CIP in the fiscal year of proposed construction.

Year	MnDOT Grant History	MnDOT, FAA or Combined Funding
1948	Grading, Drainage, Reseed, Water and Sewer Improvements	MnDOT only
1948	Power Line	MnDOT only
1949	Bituminous Apron	MnDOT only
1968	Ext WNW-ESE Strip	MnDOT only
1968	Surf and Light WNW-ESE	MnDOT only
1972	Bituminous Surface Treatment	MnDOT only
1977	Slurry Seal Coat	MnDOT only
1992	Bituminous Reconstruction, Drainage, Fuel Facility	MnDOT only
1992	Sod Runway Markers (40)	MnDOT only
1994	Bifold Hangar Door	MnDOT only
1994	Stormwater Pollution Prevention Plan	MnDOT only
1996	Airport Beacon Refurbishment	MnDOT only
2001	Crack Mill and Fill	MnDOT only
2002	Overlay Rwy 11/29, Taxiway, and Apron	MnDOT and FAA
2004	Pilot Controlled Lighting, Rwy 11/29	MnDOT and FAA
2004	Purchase Mower	MnDOT only
2005	Airport Layout Plan 03-04	MnDOT and FAA
2006	Taxiways and Hangar Taxilane 04-05	MnDOT and FAA
2007	Fence, Crack Repair, Seal Coat 05-06	MnDOT and FAA
2009	Rehab A/D Building – Engineering and Construction	MnDOT and FAA
2011	Repair Water Line	MnDOT only
2013	Rehab Rwy 11/29, Install Tiedowns, Replace WC	MnDOT and FAA
2015	Airfield Lighting Upgrade	MnDOT and FAA
2016	Reconstruct Apron and Update Master Plan/ALP	MnDOT and FAA

Figure 2-56: MnDOT Grants Awarded to TKC

Each year the MnDOT Office of Aeronautics establishes the Grant Rates at which it will offer funding for the year. Please see an excerpt of the current letter, shown below in Figure 2-57.

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Airport Funding Rates FY 2019

September 8, 2017

STATE GRANT, STATE SHARE PERCENTAGE

PROJECT TYPE	NPIAS				NON-NPIAS			
	Under 5000		Over 5000		Under 5000		Over 5000	
	Existing FYs 16/17	New FYs 18/19	Existing FYs 16/17	New FYs 18/19	Existing FYs 16/17	New FYs 18/19	Existing FYs 16/17	New FYs 18/19
Air Service Marketing	70	**70**	70	**70**	70	**70**	70	**70**
M & O	75	**75**	75	**75**	75	**75**	75	**75**
Fuel Systems and Fuel Trucks	60	**70**	60	**70**	60	**70**	60	**70**
Equipment	80	**75**	80	**70**	80	**90**	80	**85**
Construction, Planning, Zoning, Environmental, Land	80	**75**	80	**70**	90	**95***	90	**95***
Navigational Systems	100	**75**	100	**70**	100	**90**	100	**90**
AWOS	100	**100**	100	**100**	100	**100**	100	**100**

*** 95% will be limited to the first $150,000 in each year or $600,000 in four years to imitate the FAA AIP program, thereafter the rate will revert to 90%.**

FEDERAL GRANT, STATE SHARE PERCENTAGE

PROJECT TYPE	NPIAS			
	Under 5000		Over 5000	
	Existing FYs 16/17	New FYs 18/19	Existing FYs 16/17	New FYs 18/19
90% FAA Participation	5	**5**	5	**5****
95% Federal Participation	2.5	**2.5**	2.5	**2.5****

**** Match will be limited based on total project funding**

- **When all items are FAA eligible, the State 5% will be capped for projects over $4M.**
- **When FAA ineligible items exist, but are eligible for SAF, the State will participate in those items at the state rate. The State 5% will then be limited. If the FAA ineligible exceeds $200,000, the 5% will reduce to zero.**

Figure 2-57: Airport Funding Rates letter; Source: Minnesota Department of Transportation; Office of Aeronautics and Aviation, dated September 8, 2017

Tracy has been the recipient of several grants from the FAA to be used for airport development, maintenance, and planning. The following table outlines these grants from the FAA.

Grant Number/Year	FAA Grant Description	Amount
001-2001	Rehabilitate Runway and Apron	$110,940
002-2003	Install Runway Lighting	$8,266
003-2004	Update Airport Master Plan	$52,155
004-2005	Construct Taxiway	$178,283
005-2006	Install Perimeter Fencing, Rehab 11/29 & Taxiway	$96,034
006-2009	Rehabilitate A/D Building	$61,218
007-2012	Construct Fuel Farm, Install NAVAIDS, Rehab Apron and Runway 11/29	$228,014
008-2015	Rehabilitate Runway Lighting	$175,373
009-2017	Airport Master Plan	$363,015

Table 2-58: FAA Grant History; Source: FAA

The date of the first grant awarded to the City by FAA is the benchmark for FAA Grant Assurances. Only the property which is owned by the airport on that date shall be encumbered by the FAA's Grant Assurances. Those properties will be identified during research for the Exhibit A document as part of this Master Plan.

Other sources of revenue for the airport include leases for hangar storage space, land leases, a profit on each gallon of aviation fuel sold at the airport, and a maintenance grant which is in addition to the previously-mentioned grants from the MnDOT and the FAA.

TKC's fuel system includes a 3,000 gallon tank. At each re-fill, which happens once every 12 to 18 months, 2,000 gallons are purchased. The price of fuel is currently $3.99 per gallon, which includes a 59-cent markup. This profit is offset by credit card processing fees, which equal approximately 10 cents per gallon. The price is set by the City Council and checked against other area airport fuel rates but may be adjusted over the course of the year.

As demonstrated in Table 2-59 below, fuel sales have increased over the last five years, due to more recreational use of the airport.

Year	Quantity (gallons)	Avg. Price/gallon	Value of Fuel Sold	Fuel Expenditure
2013	548	$5.95	$3,258.29	$9,964.71
2014	676	$5.93	$4,012.65	$9,042.53
2015	1223	$5.65	$6,911.98	$255.55*
2016	1015	$5.50	$5,463.57	$7,517.03
2017	2167	$4.76	$9,977.10	$7,034.79

**Fuel tank was not filled in 2015*

Table 2-59: Fuel Sales; Source: City of Tracy Revenue/Expenditure Audit

Aerial spraying companies who temporarily base out of TKC during spraying season bring their own Jet A fuel, since TKC cannot provide it. These spraying companies are charged a flat fee of $500 for the use of the airport.

Maintenance and operations money from State of Minnesota equaled $28,286 for FY2017. Improvements are reimbursed by State Airport Fund (SAF) to 75%, to be matched 25% by the City. New state match rates maximized the use of FAA AIP dollars at federally eligible airports in MN in FY2017. In addition, Minnesota airports not eligible for federal funds also experienced rate increases for their projects.

The FAA's Airport Improvement Program (AIP) covers 90% to 95% of eligible costs, with a 5% match from the City.

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Source of Revenue	Comments	Annual Amount
City of Tracy	Avg. Distribution from General Fund	$5,000
T-Hangar Rental	8 Units (all currently rented)	$5,800
Box Hangar Rental	2 renters currently sharing hangar (2017)	$1,700
Land Leases	Leased to individuals for crops (2017)	$19,300
Airport Use	$500 fee from spraying companies (2017)	$500
Fuel Sales	59-cent markup per gallon sold	$800
Public Donations	Average from 2016-2017	$3,100
MnDOT	2018-2019 Maintenance Grant	$28,200
	Total Revenues	**$64,400**

Table 2-60: Historical Airport Revenue Sources

In addition, the airport receives $150,000 in entitlements each year from the FAA through the Airport Improvement Program.

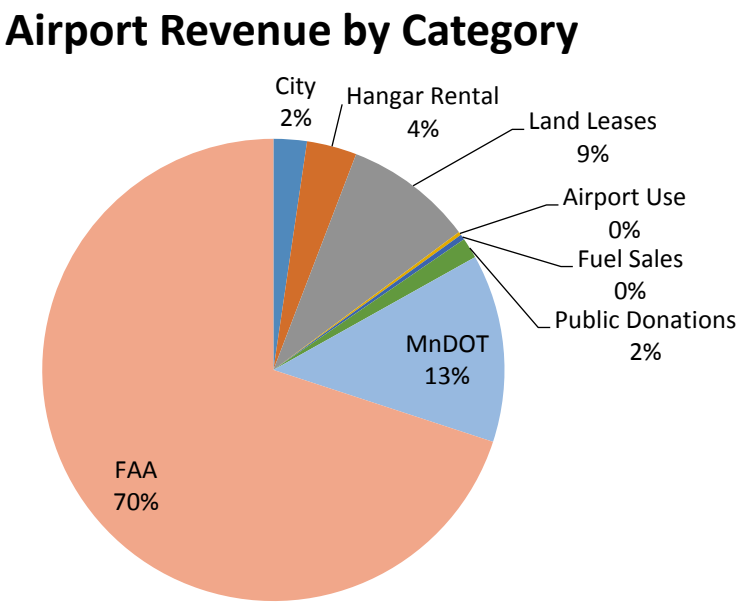

Figure 2-61: Airport Revenue by Category (Historical used to project 2018)

2.7.2 Historical Operating Expenses

The City of Tracy budgets for airport needs within their General Fund each year. These expenditures include all necessary maintenance activities, utilities, outside contracted labor, legal expenses, fuel purchases, and annual grant matches.

Source of Expense	Comments	Annual Amount
Repairs and Maintenance	Includes labor, parts and supplies; Average of 2016-2017	$31,800
Utilities and Telephone	Average of 2016-2017	$4,800
Insurance, License, Taxes	Property, Liability, and Equipment Insurance; Average of 2016-2017	$6,700
Fuel Purchases	Average over last 5 years	$7,000
MnDOT	Maintenance Grant Match	$7,000
	Total Expenditures	**$57,300**

Table 2-62: Historical Airport Operating Expenses

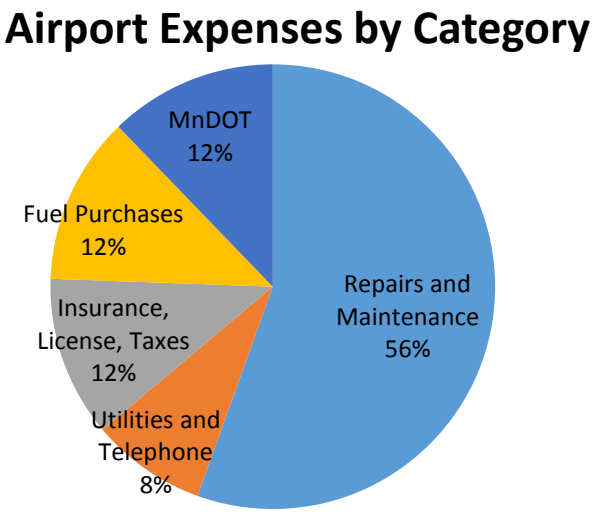

Table 2-63: Airport Operating Expenses by Category (Historical used to project 2018)

2 | Section 8 – Summary of Existing Conditions

Information collected during the inventory effort of the master planning process provides a method to evaluate the conditions of existing airport facilities and provide a baseline to measure how well current infrastructure will be able to accommodate future aviation demand. Through a review of the inventory information presented in this chapter, subsequent study tasks can be conducted to determine what improvements will be necessary at TKC to meet the air transportation requirements of the region over the next 20 years. In comparison with future aviation demand projection and demand/capacity analyses, alternatives can be developed to identify a plan for how TKC will address the required improvements. This study effort will help direct the prospective growth and expansion of existing facilities at TKC to meet future aviation needs.