

CHAPTER ONE

Inventory of Existing Conditions





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1.0 Inventory of Existing Conditions

1.1. Chapter Introduction

As the initial step in the long-term planning process, this inventory chapter documents comprehensive data and information regarding the background, local environment, facilities, physical assets, environmental factors, and activities of the Saint Paul Downtown Airport (STP or “the Airport”) and its surrounding area. This chapter outlines the current conditions of the Airport as of 2024. The information presented here is essential for understanding the context and establishing baseline data for subsequent analyses of aviation demand, facility requirements, and alternative options included in this Long-Term Plan (LTP) Update.

The data and information for this inventory were sourced from the Metropolitan Airports Commission (MAC), the City of Saint Paul, Airport tenants and stakeholders, the Federal Aviation Administration (FAA), the Minnesota Department of Transportation (MnDOT), and various other agencies and resources. Additionally, internet-based research, site visits, and interviews with Airport staff were conducted to supplement the provided information.

1.2. Airport Background and Setting

STP, also known as Holman Field, is a public-use general aviation (GA) airport located in Ramsey County just across the Mississippi River from downtown Saint Paul, Minnesota and is a strategic reliever airport for the neighboring Minneapolis-Saint Paul International Airport (MSP). STP is a popular base for corporate aircraft due to its location and because of 6,491 ft. primary Runway 14/32, which is the longest in MSP’s reliever airport system. The Airport employs over 400 direct employees, boasts a total economic output of over \$300 million, and hosts over 40,000 operations annually.¹

1.2.1. Ownership and Management

The Airport is owned and operated by the MAC, which also manages MSP and six other GA airports in the Twin Cities area. The MAC is governed by a board of commissioners, including a chairman and 14 commissioners who meet monthly to make decisions that represent the interests of the community.

The Airport itself is a key part of the MAC’s reliever airport system, designed to manage air traffic in the region and support corporate, charter, and GA activities. STP is also served by a dedicated Saint Paul Downtown Airport Advisory Council (DAAC) comprised of appointed STP Airport users and community representatives who reside in the Districts surrounding the Airport. The Council advises management to promote efficient operations at the Airport while also considering the impact on the surrounding community and environment.

1.2.2. History and Background

STP has a rich history that dates back to the early 20th century. It has also played a significant role in the region’s aviation history and continues to be a vital part of the Twin Cities’ airport system. The Airport

¹ Metropolitan Airports Commission, 2024 Annual Report.



was established as a grass strip in 1926 and named after Charles W. “Speed” Holman, a renowned stunt pilot, barnstormer, and airmail pilot. Holman was a prominent figure in early aviation, known for his daring feats and contributions to the field. He tragically died in an air show accident in 1931, but his legacy lives on through the Airport that bears his name.

Initially, STP’s airfield was constructed near the downtown area of Saint Paul to provide a competitive advantage to Saint Paul businesses within the Twin Cities. This strategic positioning led to the airfield becoming a prominent hub for airmail and airline services as well as for military aviation. In the 1930s, the Airport saw significant development including longer paved runways, improved hangar facilities, and the construction of the Holman Field Administration Building in 1939, which is now listed on the National Register of Historic Places.



Historic STP Terminal Building

Source: Jackie Sluss, 1990, Minnesota Historical Society

World War II brought further expansion and activity to Holman Field. Northwest Airlines, which had a significant presence at the Airport, employed thousands of workers to modify B-24 Liberator bombers for the war effort. These modifications included the installation of the highly classified H2X radar, which played a crucial role in the European theater. The Airport’s facilities were bustling with activity, contributing to the war effort and solidifying its importance in the aviation industry. The MAC was created in 1943 and assumed ownership of the Airport shortly after, in 1944, as the first step in a plan to acquire several area airports.

After the war, STP continued to serve as a key airport for the region. In the 1970s and early 1980s, commuter airline Lake State Airways offered scheduled flights between STP and MSP, providing convenient connections for travelers. The Airport also became a base for corporate aircraft, flight training schools, and the Minnesota Army National Guard aviation unit.

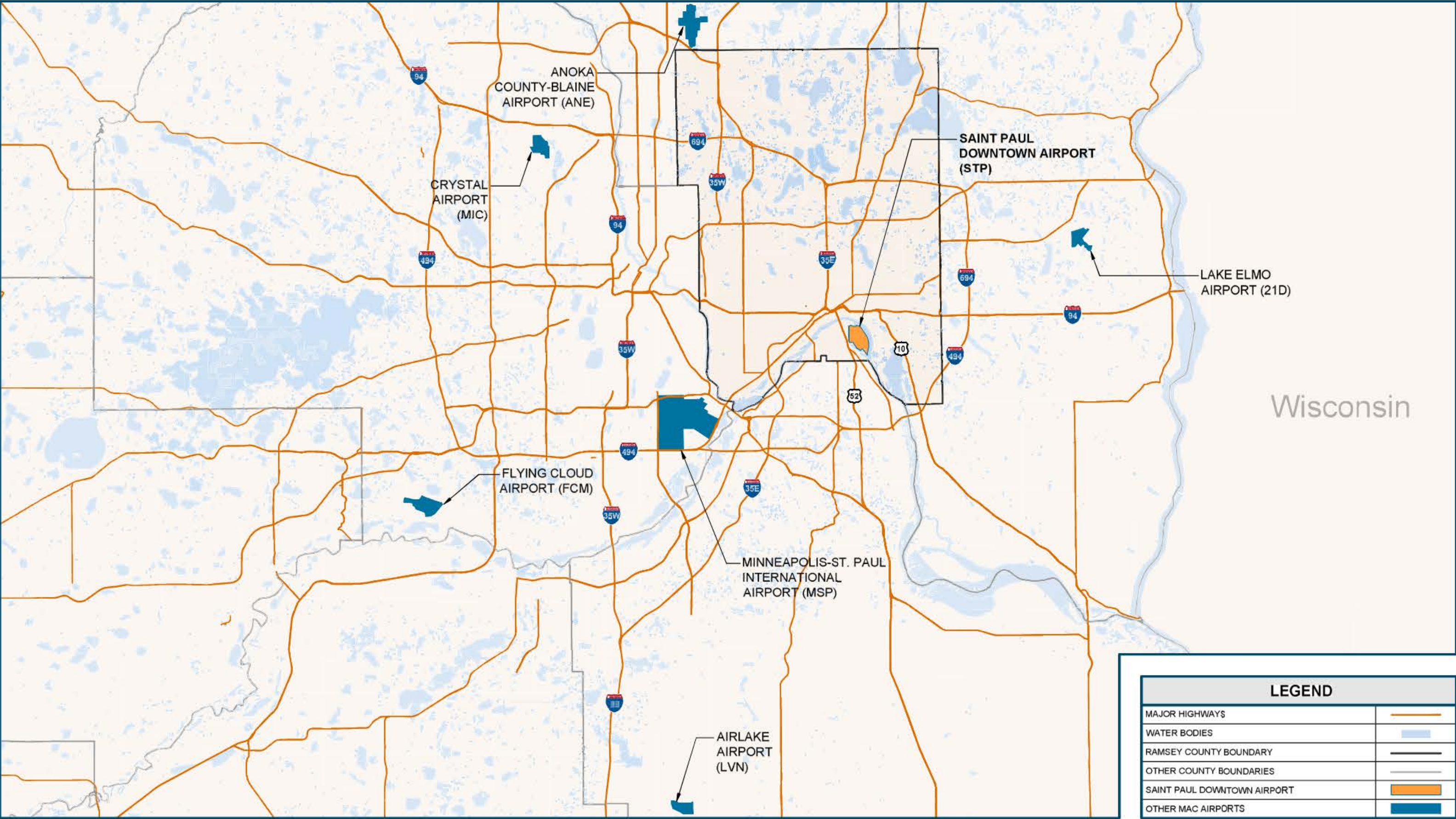
Today, the Airport is one of several reliever airports operated by the MAC. It covers an area of approximately 576 acres and features three asphalt runways: Runway 14/32, which is 6,491 feet long; Runway 13/31, which is 4,004 feet long; and Runway 9/27, which is 3,642 feet long. The Airport is equipped with precision instrument approaches, making it suitable for a wide range of aircraft operations. STP is home to two fixed-base operators (FBOs) that provide essential services such as fueling, maintenance, and aircraft storage. The Airport also offers charter services and has a restaurant, Holman’s Table, which is a popular spot for both pilots and the general public.

Throughout its history, the Airport has faced the recurring challenge of spring floods, which have inundated the airfield numerous times over the past century. Significant floods in 1952, 1965, 1969, 1997, and 2001 resulted in prolonged periods of inactivity at the Airport. Situated in a floodplain, the Airport’s infrastructure plans and developments have significantly influenced the local community’s infrastructure and future urban planning. In 2009, the Airport constructed a floodwall that is deployed only when there is an imminent risk of flooding, allowing an unobstructed view of the Mississippi River from the Airport for the rest of the year. The floodwall is discussed in detail in **Section 1.4.1**.



1.2.3. Airport Vicinity and Surface Transportation

STP's location provides easy access to major highways and urban centers to the north and west. This section outlines the transportation facilities in the vicinity of the Airport and the associated transportation planning initiatives. **Figure 1.1** presents a map of the Airport and its surrounding environment below.





1.2.3.1. Airfield Circulation and Vehicle Parking

STP's access roadways provide the main network between the regional roadway and the Airport facilities such as public and employee parking areas, commercial vehicle loading areas, and support and maintenance facilities.

The Airport is situated south of Interstate 94 and east of Interstate 35E. Access is provided via Highway 52 and Plato Boulevard, offering greater connectivity to the metropolitan area and surrounding region. For travelers arriving from downtown Saint Paul, the primary access to the Airport is via Robert Street to Plato Boulevard.

To the south, Eaton Street provides access to Signature Aviation FBO, and to three aircraft charter and rental services. Further north, Airport Road provides access to Saint Paul Flight Center and the Saint Paul Army Aviation Facility. Airport Road connects to Bayfield Street along the north and east sides of the Airport providing access to the Administration Building and tenant areas.

STP offers various parking options to accommodate different needs. A large parking lot is situated directly in front of the main terminal and administrative building, providing convenient access for visitors and patrons of the facility's restaurant. This paved lot can accommodate over 200 vehicles. Overall, the Airport offers over 400 parking spots available to the public. Additional parking is also available within private tenant leases.

Each FBO at STP has designated parking areas for their customers. The number of available spaces varies by facility, catering to the specific needs of their clientele. Located across Airport Road from their Saint Paul Army Aviation Facility, the Minnesota Army National Guard has a substantial parking lot with over 300 spaces. However, it's important to note that many of these spaces are on railroad right-of-way and are not on MAC property. Additionally, most of these spaces are gravel rather than paved. All privately owned hangars are accessed via taxilanes. Tenants typically park their vehicles adjacent to their individual hangars.

1.2.3.2 Pedestrian Corridors

The Airport has partnered with representatives from the City of Saint Paul and Dakota County on the completion of Robert Pira Regional Trail, a 3.7-mile paved trail bisecting the Airport land on its west side. The trails act as a connection between Harriet Island in Saint Paul and Kaposia Landing Park in South Saint Paul. It is a protected and safe route along the Mississippi River for pedestrians and bicyclists and connects to a larger network of trails and regional greenways.

1.2.4. Airport Role

The Airport's role within larger aviation systems is determined by federal, state, and local agencies. These classifications help assess current airport needs and plan for future improvements. This section will detail the specific roles assigned to STP.

1.2.4.1. National Plan of Integrated Airport Systems

The National Plan of Integrated Airport Systems (NPIAS) was established by the FAA to maintain development plans for public-use airports. The plan identifies airports within the national airport system, outlines their roles, and specifies the types and amounts of development eligible for federal funding

through the Airport Improvement Program (AIP) over a five-year period. Airports are categorized based on the services they provide and the number of passengers they handle, which determines their eligibility for federal funding.

In the 2023-2027 NPIAS, STP is classified as a public reliever national airport. The FAA defines reliever airports as those designated to alleviate congestion at Commercial Service Airports and to enhance GA access for the community.² As a reliever, STP helps reduce congestion at MSP by offering facilities and services for frequent GA traffic that requires a longer runway.

1.2.4.2. Minnesota State Aviation System Plan

The Minnesota State Aviation System Plan (MnSASP) is the state's long-term strategic plan dedicated to describing and assessing the state's aeronautic and systemic performance and was last updated in 2022. The MnSASP classifies airports to define their functions within local, regional, and statewide spheres. STP is classified as a Key GA Airport because it has a paved runway $\geq 4,900$ feet, and it accommodates most business jets, all single-engine aircraft, and larger multi-engine aircraft. Key GA Airports function in the state system to offer primary landing facilities for GA jets that serve business and air freight activity.³

The MnSASP measures the performance of airports within the system according to select state metrics. Currently, the MnSASP reports that most of the runway/airport design characteristics meet MnSASP standards, with the following exceptions:

- Master Plan/Airport Layout Plan (ALP): In need of an update (the last LTP was completed in 2010).
- Aircraft Parking: In need of additional tie-downs.
- GA Terminal: In need of additional pilot amenities.
- Clear Zone Ownership: Partially owned with a goal of fee-simple ownership.
- Obstructions: Obstructions present with a goal of all airspace surfaces clear of obstructions.

Additional service and facility deficiencies are addressed in greater detail in **Chapter 3 – Facility Requirements**.



MnSASP Technical Report
Source: MnSASP.org

1.2.4.3. Metropolitan Council Airport Classification

The Metropolitan Council, as the regional planning authority for the Twin Cities seven-county area, plays a critical role in shaping the region's transportation infrastructure, including its aviation system. One of its key responsibilities is classifying airports within the metropolitan area to ensure that each facility's role is clearly defined and aligned with broader regional goals. These classifications help planners and policymakers understand how each airport contributes to system mobility, economic development, safety, and environmental stewardship. This framework also complements state-level

² Federal Aviation Administration, Airport Categories, December 7, 2022.

³ Minnesota Department of Transportation, *State Aviation System Plan*, 2022.



classifications by MnDOT and federal designations under the NPIAS, ensuring that regional airports are integrated into both state and national aviation strategies.

The Metropolitan Council classifies STP as an intermediate airport, a designation rooted in state law and regional planning frameworks. This classification reflects STP's operational characteristics, particularly its role in accommodating reliever jet traffic, which meets the metrics typically associated with intermediate airports.

1.2.4.4. Other Transportation Planning

Considering the community's larger comprehensive plans during an airport long-term planning process is necessary for aligning with regional goals, promoting sustainability, and supporting economic development. It ensures the Airport's growth benefits the community, addresses environmental concerns, and enhances overall connectivity. Additionally, it facilitates access to funding and resources, anticipates future trends, and creates a more integrated, adaptable, and resilient transportation network. The following are larger transportation plans that pertain to the Airport and its surrounding environment.

Statewide Multimodal Transportation Plan

The Minnesota GO Vision is a 50-year statewide planning initiative aimed at aligning the transportation system with the expectations of Minnesotans regarding their quality of life, economy, and natural environment. This vision encompasses a series of transportation plans that impact various components of the system connecting Minnesota's key assets. One such plan is the Statewide Multimodal Transportation Plan (SMTP), which serves as a comprehensive policy guide for all users, modes, and jurisdictions involved in Minnesota's transportation network. The SMTP assesses the current state of the transportation system, identifies ongoing changes, and outlines the state's strategy for the next 20 years. This plan is mandated by both federal and state law and was most recently updated in 2022.

Saint Paul 2040 Comprehensive Plan

The 2040 Comprehensive Plan is Saint Paul's "blueprint" for guiding development in the city over the next 20 years and is divided into seven main chapters, one of which is transportation. The plan prioritizes working with agency partners, including the MnDOT and the MAC to maintain a regional aviation system that balances commercial demand and capacity while being compatible with the community, particularly in terms of safety and noise. It also includes a map depicting STP's Airport Safety Zones as a part of the Airport Safety Overlay District as well as the Airport's noise contours.

1.2.5. Airport Improvement Program and Recent Grants History

The FAA's AIP offers grants to support the planning and development of public-use airports across the U.S. **Table 1.1** summarizes the Airport projects funded at STP through AIP grants from 2014 to 2024. These projects have significantly shaped the existing conditions at the Airport today.

Table 1.1 - Airport Federal Grant History

Grant #	Fiscal Year	Project Description	Total
FAA AIP Grants^(a)			
3-27-0098-022-2014	2014	Taxiway Rehabilitation, Taxiway Lighting	\$615,687
3-27-0098-023-2015	2015	Taxiway Rehabilitation	\$615,634
3-27-0098-024-2016	2016	Runway Rehabilitation, Taxiway Construction	\$2,521,214
3-27-0098-025-2017	2017	Apron Reconstruction	\$465,378
3-27-0098-026-2018	2018	Service Road Reconstruction	\$181,289
3-27-0098-028-2020	2020	Access Road Rehabilitation	\$426,798
3-27-0098-029-2021	2021	Taxiway Lighting Installation	\$304,908
3-27-0098-030-2021	2021	CRRSA Act Funds	\$57,000
3-27-0098-031-2022	2022	General ARPA	\$148,000
3-27-0098-032-2022	2022	Runway Lighting Reconstruction	\$590,025
3-27-0098-033-2023	2023	Perimeter Fencing not Required by 49 CFR 1542 Reconstruction	\$353,988
3-27-0098-034-2023	2023	Airfield Guidance Signs, Taxiway Lighting Reconstruction	\$339,273
Total			\$6,619,194

Sources:

FAA Airport Improvement Program Grant Histories (Accessed August 2024).
Kimley-Horn, 2024.

Notes:

(a) The FAA Fiscal Year is the 12-month period beginning on October 1 and ending September 30 of the following year. State funds are not included in FAA AIP Grants.

1.2.6. Regional Socioeconomic Data

Local socioeconomic data play an integral role in assessing current demands on aviation facilities and planning for future growth. This section examines historical trends and future projections of population, employment, per capita personal income (PCPI), and gross regional product (GRP) for the Minneapolis-Saint Paul Metropolitan Statistical Area (MSA) and the state of Minnesota. These statistics are presented in **Table 1.2** and form the basis for several forecasting methodologies presented in the subsequent chapter.

The Minneapolis-Saint Paul MSA is a region that includes 15 counties across Minnesota and Wisconsin. It is officially designated by the United States Office of Management and Budget (OMB) and is the 16th-largest MSA in the U.S. with a population of approximately 3.69 million as of the 2020 census.⁴ This area encompasses the core cities of Minneapolis and Saint Paul, along with surrounding counties including Hennepin, Ramsey, Dakota, Anoka, and Washington in Minnesota, and Pierce and Saint Croix in Wisconsin.

Historical and forecast socioeconomic data for this MSA and for the state were obtained from the U.S. Census Bureau and Woods & Poole Economics, Inc., an independent firm that specializes in economic and demographic data projections. These data were used to calculate compound annual growth rates

⁴ U.S. Census Bureau (accessed September 2024).



(CAGRs) for each socioeconomic indicator. CAGR represents the annual growth rate over a certain time period and helps to analyze long-term trends. The four statistical categories are summarized below.

- **Population:** As shown in **Table 1.2**, both the MSA and the state of Minnesota saw population growth from 2014 through 2024, with CAGRs of 0.79% and 0.6%, respectively. Additionally, projections indicate that the populations will continue to rise from 2025 through 2045, with forecasted CAGRs of 0.63% for the MSA and 0.47% for the state.
- **Employment:** Employment boosts individual purchasing power and positively impacts the economy. Since 2014, the growth in employment in both the MSA and the state of Minnesota has surpassed population growth, with CAGRs of 1.29% and 1.02%, respectively. Projections indicate that employment will continue to increase at a faster rate than the population through 2045. This key metric suggests that labor markets are expected to remain robust in the region and across the state.
- **Per Capita Personal Income (PCPI):** PCPI offers a comprehensive measure of individual economic well-being and is a key indicator for assessing a community's economic growth. It reflects the general purchasing power of individuals for products and services, such as personal aircraft or corporate travel. As shown in **Table 1.2**, both the MSA and the State of Minnesota have seen increases in PCPI since 2014. Furthermore, projections suggest that PCPI for both the county and the state will continue to rise over the planning horizon.
- **Gross Regional Product (GRP):** GRP serves as a crucial indicator of a region's economic health. From 2014 through 2024, the MSA experienced a CAGR of 1.9%. Looking ahead, the forecasted CAGR through 2045 is 1.7%, highlighting the region's strong projected growth.



Table 1.2 - Historical Socioeconomic Data

Year	Population		Employment ^(a)		PCPI ^(b)		GRP (2024 Dollars) ^(c)
	Minneapolis Saint Paul Metro Area	MN	Minneapolis Saint Paul Metro Area	MN	Minneapolis Saint Paul Metro Area	MN	Minneapolis Saint Paul Metro Area
Historical							
2014	3,491,302	5,472,592	2,376,165	3,603,710	72,668	66,738	\$310,244,682,300
2015	3,522,597	5,508,935	2,424,290	3,662,855	75,584	69,278	\$321,543,743,800
2016	3,561,378	5,555,256	2,460,227	3,698,071	76,280	69,401	\$327,138,347,500
2017	3,602,277	5,604,167	2,495,653	3,735,311	77,271	70,389	\$332,105,648,800
2018	3,639,603	5,648,622	2,533,310	3,776,537	78,917	71,775	\$344,083,510,300
2019	3,671,341	5,684,899	2,540,499	3,783,402	79,648	72,455	\$347,823,455,900
2020	3,692,421	5,707,165	2,383,213	3,558,040	82,246	75,929	\$333,888,644,700
2021	3,690,512	5,707,390	2,525,173	3,752,502	82,635	75,280	\$350,371,251,700
2022	3,720,078	5,741,986	2,596,159	3,849,750	83,964	76,372	\$358,772,512,900
2023	3,748,986	5,775,690	2,667,140	3,946,943	85,294	77,470	\$367,184,616,300
2024	3,777,852	5,809,297	2,699,848	3,989,457	86,554	78,668	\$374,657,217,000
CAGR 2014-2024	0.79%	0.60%	1.29%	1.02%	1.76%	1.66%	1.90%

Sources:

U.S. Census Bureau (accessed September 2024).

Woods & Poole Economics, Inc., 2024.

Kimley-Horn, 2024.

Notes:

(a) Employment status includes population 16 years and over.

(b) Published data by Woods & Poole Economics, Inc., 2024. GRP in 2024 dollars was calculated by conversion from 2012 dollars.

(c) Published data by Woods & Poole Economics, Inc., 2024. GRP in 2024 dollars was calculated by conversion from 2012 dollars.

PCPI = Per capita personal income

GRP = Gross regional product

AAGR = Average annual growth rate



1.2.7. Meteorological Conditions

Climate and weather conditions play a crucial role in airport operations. This section outlines the prevailing meteorological trends and characteristics at the Airport.

1.2.7.1. Local Climate

STP experiences a humid continental climate, characterized by cold winters and warm summers. Winters are typically snowy and icy, while summers can be hot and humid. The Airport's location near the Mississippi River can also influence local weather patterns, particularly in terms of humidity, fog, and flooding.

The Airport's location in a floodplain means it's susceptible to rising river levels, especially during heavy rainfall or spring thaws. Additionally, the Airport's infrastructure, including runways and taxiways, may be situated at lower elevations than the surrounding areas, making them more vulnerable to inundation. These factors contribute to the potential for flooding at STP, necessitating careful planning and mitigation measures to minimize disruptions to airport operations.⁵

1.2.7.2. Wind Conditions

The desired orientation of a runway is when aircraft can take off and land facing into the wind, which improves aircraft efficiency. Therefore, it is important to understand the direction and speed of prevailing winds to determine adequacy of crosswind coverage and appropriate orientation of an airport's runway system.

The amount of crosswind that aircraft can tolerate is limited and depends on the type and design of the aircraft. According to the FAA, if an airfield system provides less than 95% wind coverage, consideration should be given to constructing a crosswind runway.⁶ To accommodate various aircraft types and activities, the runway system at STP needs to provide 95% wind coverage for multiple Runway Design Codes (RDCs) including C-III-4000, the RDC of primary Runway 14/32.⁷ The maximum allowable crosswind component for each RDC is indicated in **Table 1.3**.

Table 1.4 presents existing crosswind coverage data for each individual runway as well as all operational runway combinations. As shown, when Runway 14/32 is the sole active runway under Visual Flight Rules (VFR) conditions, or when any two runways are operational under all-weather or Instrument Flight Rules (IFR) conditions, crosswind coverage exceeds 95%. However, when Runway 14/32 operates alone at the Airport under IFR or all-weather conditions, it does not meet the 95% threshold. Instead, it achieves 94.91% coverage, which the FAA rounds up to 95%. This suggests that the Airport may operate with a single Runway 14/32 configuration, and that Runways 13/31 and 9/27 could be classified by the FAA as "additional" runways, making them ineligible for AIP funding unless otherwise deemed "legacy runways."⁸ It should be noted that MAC has identified the desire to potentially decommission one runway and create additional developable space for other needed facilities such as

⁵ National Weather Service website (accessed September 2024).

⁶ FAA, Advisory Circular 150/5300-13B, Change 1, Airport Design, 2024.

⁷ More is discussed on the RDCs of the Airport's runways in Section 1.4.1 and Chapters 2 and 3.

⁸ The FAA's AIP created a new designation for existing runways previously funded as crosswind runways that weren't parallel to the primary runway, allowing them to qualify for future funding under new rules (AC 150/5000-17).



aircraft storage hangars. Recommendations pertaining to runway orientation based on existing and future aircraft operational fleet mixes by each runway will be identified in **Chapter 3**.

Table 1.3 - Crosswind Components

Runway Design Code (RDC)	Allowable Crosswind Component
A-I and B-I	10.5 knots
A-II and B-II	13 knots
A-III, B-III, C-I through C-III D-I through D-III	16 knots
A-IV and B-IV, C-IV through C-VI, D-IV through D-VI	20 knots
E-I through E-VI	20 knots

Sources:

FAA, Advisory Circular 150/5300-13B, Change 1, Airport Design, 2024.
Kimley-Horn, 2024.

Table 1.4 - Crosswind Coverage

Wind Speed	RWY 14/32	RWY 13/31	RWY 9/27	RWY 14/32 RWY 13/31	RWY 14/32 RWY 9/27	RWY 13/31 RWY 9/27	Combined
All Weather Coverage							
10.5 knots	94.91%	95.17%	88.71%	96.75%	98.64%	97.17%	98.66%
13 knots	97.46%	97.73%	94.21%	98.49%	99.57%	98.93%	99.57%
16 knots	99.32%	99.43%	98.48%	99.64%	99.91%	99.77%	99.91%
20 knots	99.86%	99.89%	99.74%	99.93%	99.99%	99.97%	99.99%
VFR							
10.5 knots	95.01%	95.38%	88.64%	96.92%	98.76%	97.31%	98.78%
13 knots	97.57%	97.89%	94.28%	98.62%	99.64%	99.01%	99.64%
16 knots	99.38%	99.50%	98.58%	99.69%	99.94%	99.81%	99.94%
20 knots	99.88%	99.92%	99.77%	99.95%	99.99%	99.98%	99.99%
IFR							
10.5 knots	94.52%	94.14%	89.47%	95.88%	98.02%	96.43%	98.06%
13 knots	96.89%	96.92%	94.01%	97.80%	99.21%	98.50%	99.22%
16 knots	98.98%	99.01%	97.95%	99.33%	99.74%	99.54%	99.74%
20 knots	99.75%	99.70%	99.55%	99.82%	99.96%	99.91%	99.96%

Sources:

FAA ADIP Portal Wind Rose Generator 2025 (true runway headings of 146°, 326°, 128°, 308°, 91°, 271°).
NOAA's Integrated Surface Database (ISD).
Kimley-Horn, 2025.

Notes:

VFR = Visual Flight Rules

IFR = Instrument Flight Rules

Yellow text = wind coverage falls between 94 percent and 95 percent

Red text = wind coverage does not meet the FAA's 95 percent recommendation

Green cells = allowable crosswind component for that runway's RDC.

1.3. Land Use and Zoning

The land use and zoning in the vicinity of the Airport can have a significant impact on airport operations and future growth. Additionally, the future development of the Airport has the potential to impact surrounding communities and existing land uses. Identifying surrounding land use and residential areas near noise contours or potential externalities helps guide responsible community development. This section provides an overview of the current land uses and zoning in the area and examines how they may affect the development of the Airport.

1.3.1. City Zoning and Existing Land Uses

The land comprising the Airport property is subject to several zoning categories and overlays under the City of Saint Paul zoning code. The principal (underlying) zoning for the Airport property itself is generally classified as I1 Light Industrial and I2 General Industrial, which are common for airport and aviation-related uses in Saint Paul⁹. In addition to these base districts, the Airport is subject to multiple overlay zoning districts:

- **Airport Safety Zone Overlay District:** This overlay is specifically designed to regulate land use and development in areas surrounding airports, including STP, to ensure operational safety and compatibility with aviation activities.
- **Floodplain Management Overlay District:** Because STP is located adjacent to the Mississippi River, much of the Airport's property falls within the floodway and flood fringe overlay districts, which guide floodplain development and compliance with federal regulations. This is discussed in more detail in **Section 1.7.3.2**.
- **Mississippi River Corridor Critical Area Overlay District:** Portions of the Airport are also within this overlay, which sets additional standards for land use, environmental protection, and development along the river corridor.

The City of Saint Paul zoning code establishes these districts and overlays to balance aviation safety, industrial use, floodplain management, and river corridor protection. For the most definitive and current zoning information for a specific parcel within the Airport, the city's interactive zoning map and the Department of Planning and Economic Development should be consulted.

As shown in **Figure 1.2**, on-airport land uses include the airfield operations area, aeronautical uses, and non-aeronautical uses. Aeronautical uses consist of the GA tenant areas and terminal areas. Non-aeronautical uses encompass the remaining land surrounding the airfield operations and aeronautical areas, extending to the Airport property boundary.

The current land uses surrounding the Airport are primarily mixed use industrial, single family, multifamily, commercial, park/recreational, and undeveloped land as depicted in **Figure 1.3**. West and North of the Airport, across the Mississippi river, land is zoned as General Industrial. Northeast and east of the Airport is mostly zoned as T3 (Traditional Neighborhood), General Business, Residential, and High-Rise Multiple-Family Residential.

⁹ City of Saint Paul, Minnesota. Zoning Code, Section 60.301. Accessed March, 2025.



According to the FAA, the primary areas of concern with airport land use compatibility are noise levels in the community and the safety of persons and property both on the ground and in the air.¹⁰ It is usually considered that industrial or commercial land uses are compatible with aviation-related operations while residential and institutional land uses (e.g., schools, hospitals, churches, housing developments) are considered to be non-compatible.

- **East** of the Airport is mostly industrial land use. Across the river, residential uses densify, including schools (Saint Mary's School, Saint Joseph Academy, New Spirit Middle School) and hospitals (Regions Hospital, Miller Hospital, Saint Joseph's Hospital).
- **Northeast** of the Airport is primarily residential (single-family housing), open space, and park and recreation. The residential areas contain many elementary and high schools, as well as one hospital. A portion of the land along the Mississippi River is zoned industrial and contains various industrial plants and the Metropolitan Council.
- **Northwest** of the Airport is primarily open space or restricted use, and park and recreation. This area contains Indian Mounds Regional Park, Pig's Eye Park, and Pig's Eye Lake.
- **South** of the Airport, primarily below the Mississippi River is single family residential with some multifamily residential mixed in. This area also contains many elementary and high schools (Humboldt High School, Riverview School, Saint Matthews School).

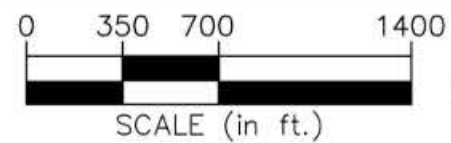
¹⁰ Federal Aviation Administration, Order 1050.1F Environmental Impacts: Policies and Procedures, 2015.



STP



SAINT PAUL DOWNTOWN AIRPORT
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Kimley»Horn

FIGURE 1.2

OCTOBER 2026

ON-AIRPORT LAND USE MAP





1.3.2. Minnesota Land Use Safety Zones

Land use safety zones are a provision of the airport zoning standards detailed in Minnesota Rules Chapter 8800.2400. These zones are designed to limit land uses that could endanger aircraft operations and to safeguard people and property in the vicinity of the Airport. The minimum safety zones differentiated by Safety Zone A, Safety Zone B, and Safety Zone C.

- **Safety Zone A:** Located in the approach zones of a runway, this zone extends outward from the end of the primary surface for a distance equal to two-thirds of the runway's length or its planned length.
- **Safety Zone B:** Also in the approach zones of a runway, this zone extends outward from the boundary of Safety Zone A for a distance equal to one-third of the runway's length or its planned length.
- **Safety Zone C:** This zone encompasses all land within the perimeter of the horizontal zone defined in subpart 3, item B, excluding areas covered by Safety Zones A and B.¹¹

It is important to note that STP does not have an existing zoning ordinance in-place. A zoning ordinance may be considered at the completion of both this LTP Update effort and future potential environmental action resulting from this planning process. New MnDOT zoning guidelines allow airports to enact either the Commissioner Standard or a custom zoning process in which a risk-based approach dictates the size and location of potential zoning areas. Other MAC reliever airports (Flying Cloud Airport, Crystal Airport, and Lake Elmo Airport) have custom zoning ordinances.

1.4. Airside Facilities

The airside facilities of an airport consist of various facilities and infrastructure that support aircraft operations, such as runways, taxiways, aprons, navigational aids (NAVAIDs), and airport lighting. This section provides an overview of the primary airside facilities and infrastructure at the Airport as of April 2024. Additionally, it highlights the meteorological conditions that can impact the usage of airside facilities and aircraft operations.

1.4.1. Flood Protection System

Before undertaking a detailed review of STP's airside facilities, it is essential to first understand the Airport's flood protection system (or "floodwall"). The design, configuration, and limitations of this system establish the foundation for determining which airside infrastructure can be reliably protected and remain operational during high water events.

The Airport exists within the Mississippi River floodplain which is an area that naturally collects floodwaters during high river stages. Floodplains are intended by nature to absorb and convey excess water, so any infrastructure in these areas is at risk. The Mississippi River has a long history of flooding, especially during spring snowmelt or after heavy rainfall events upstream. To address the flooding issue, the MAC designed a comprehensive flood protection system to protect the infrastructure at STP. The resulting perimeter floodwall, constructed between 2007 and 2008, is a central element of the Airport's flood protection strategy, designed to safeguard the airfield from a 100-year (one-percent annual

¹¹ Minnesota Administrative Rules, 8800.2400 Airport Zoning Standards, Subpart 5.

chance) flood event on the Mississippi River. The information on the floodwall system presented in this LTP Update was sourced from the STP Flood Fight Manual (revised in 2014), which serves as the Airport's official reference for flood protection infrastructure, deployment procedures, and operational guidelines.

The flood protection system's reference point is the United States Geological Survey (USGS) Gage at the Robert Street Bridge, and all activation levels are tied to this gage. The floodwall system is engineered to provide 1.46 feet of freeboard above the design flood at the system's lowest point, with the top of the full-height deployable wall at elevation 708.13 feet North American Vertical Datum of 1988 (NAVD88); a standardized vertical reference system used to define elevations above sea level. This means the wall is built 1.46 feet higher than the highest water level expected during a major flood, adding a buffer for safety.



Floodwall deployed during active flood, July 2024
Source: Kimley-Horn

The flood protection system is made up of several integrated components: earthen levees, permanent sheet pile floodwalls, deployable (temporary) floodwalls, slide gates and valves, a railroad closure gate, subdrain and pumping systems, and modifications to airfield lighting and utilities. Permanent sheet pile walls reach up to 9 feet above grade in some locations, while the deployable floodwalls are modular barriers assembled atop permanent concrete I-walls or half-walls. These deployable sections are stored on-site and can be rapidly installed in advance of a flood event.

Deployable floodwalls come in two heights: full-height sections are approximately 8.5 feet tall (12 stop logs) and are required at critical locations, while half-height sections are about 4.9 feet tall (7 stop logs) and can be used in less critical areas to speed deployment. The full-height wall is designed to be overtopped at river stage 25.5 at the Robert Street Bridge Gage, which corresponds to the top elevation of 708.13 feet NAVD88 at the system low point (near the intersection of Runway 9/27 and Taxiway E) with the ground elevation at that point being 699.63 feet NAVD88. All deployable components are stored in a dedicated building on the Airport's property, and a full deployment typically requires two 10-person crews working for about seven days. The features of this floodwall are summarized in **Table 1.5**.

The decision to deploy the floodwall system is made when river forecasts predict water levels exceeding "major stage" (17.0) at the Robert Street Bridge Gage. If forecasts indicate a river stage above 25.5, overtopping is expected and the effectiveness of deployment is reconsidered. When the system is deployed, Runways 9/27 and 13/31 are either shortened or closed, and Runway 14/32 operates from a shortened, temporary threshold. Airfield lighting and navigation aids are reconfigured or removed as needed, and pump stations and subdrain systems remain operational to manage water within the protected area.

Table 1.5 - Floodwall System Summary

Feature	Value/Description
Design Flood Event	100-year (1% annual chance)
Full-Height Deployable Wall Protection	8.5 ft above ground, 12 stop logs
Half-Height Deployable Wall Protection	4.9 ft above ground, 7 stop logs
Overtopping Elevation (Full)	708.13 NAVD88 (river stage 25.5)
Freeboard at Design Flood	1.46 ft
Deployment Lead Time	~14 days for full system
Storage	On-site, dedicated building
Pump Stations	3 permanent, 2 portable (as backup)

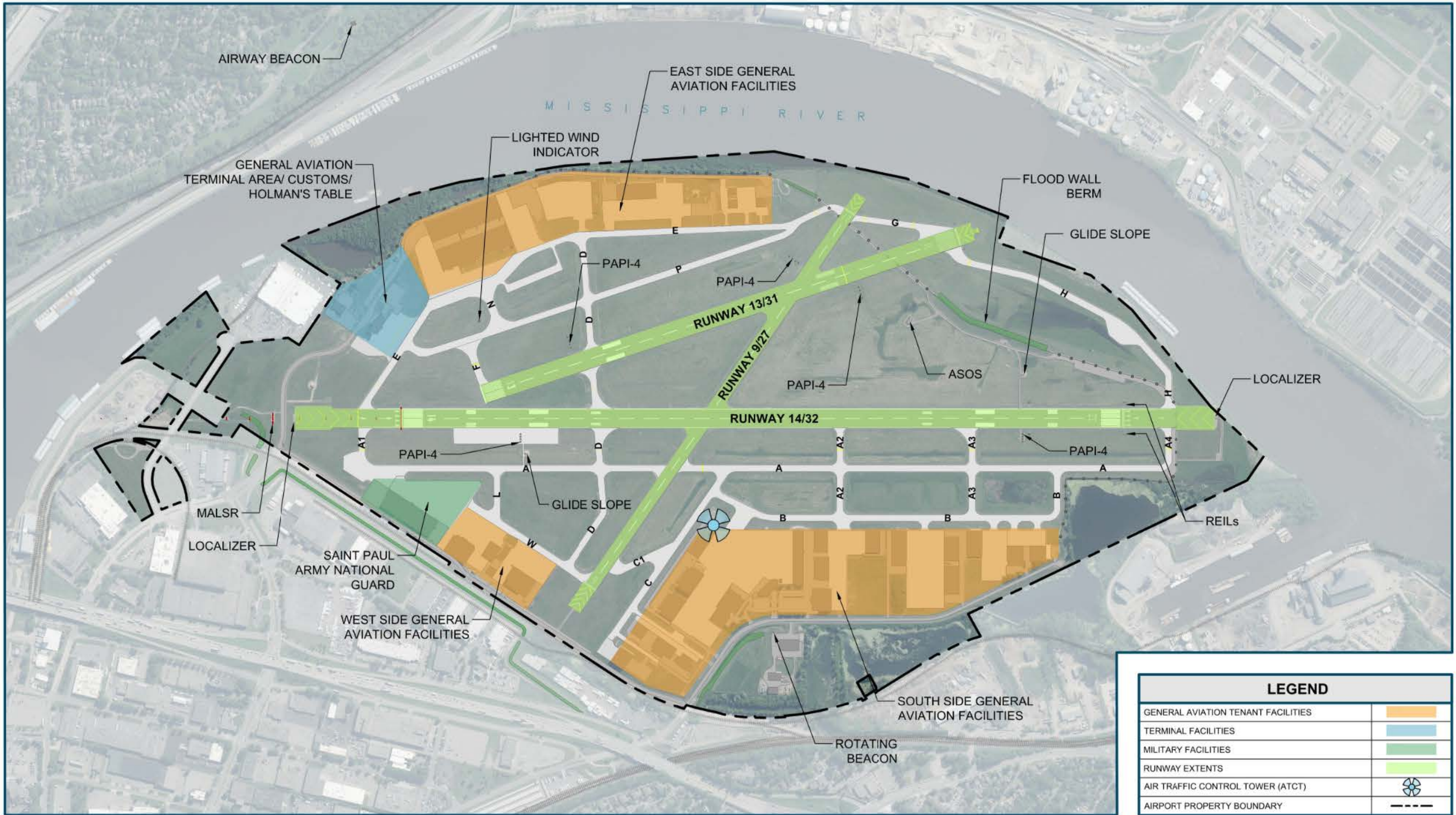
Sources:

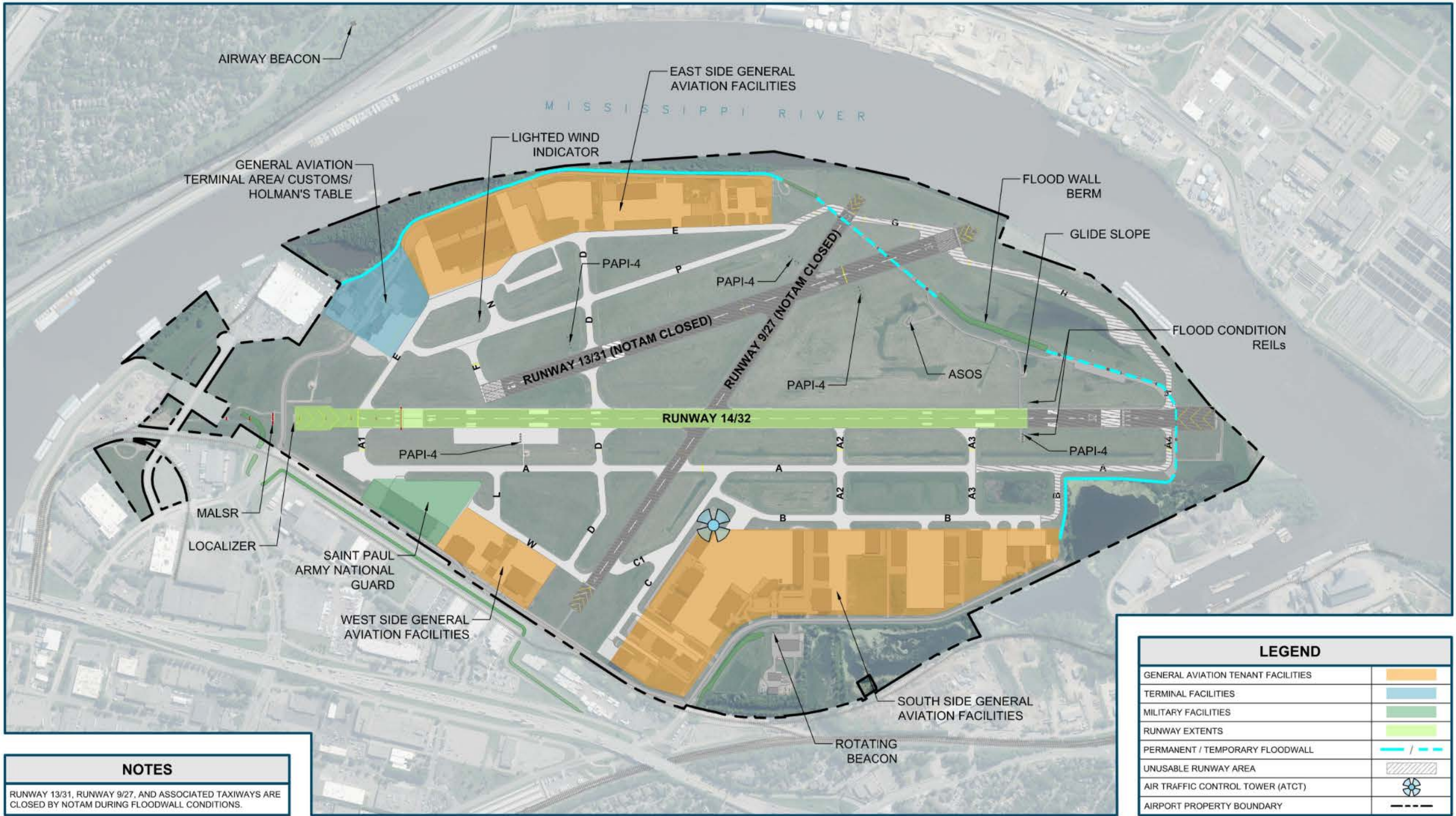
St. Paul Downtown Airport Flood Fight Manual, Revision 2, Issued October 2014.

Kimley-Horn, 2024.

Because the deployment of the temporary floodwall results in significant changes to the airfield's layout, operational restrictions, and available infrastructure, STP effectively has two distinct sets of existing conditions. Throughout this plan, the "standard configuration" refers to the airfield with the floodwall not deployed, while the "floodwall configuration" refers to the airfield with the temporary floodwall in place. Both conditions are referenced throughout the documentation to accurately reflect the operational realities and planning needs of the Airport.

Figure 1.4 below depicts the Airport's airside and landside facilities in standard configuration while **Figure 1.5** depicts the Airport in floodwall configuration.





1.4.2. Existing Airport Design Standards

Airside facility planning is primarily guided by criteria and standards established by the FAA. These criteria and standards aim to ensure safety, efficiency, and protect the federal investment in airport transportation infrastructure. They are outlined in the FAA Advisory Circular (AC) 150/5300-13B, Airport Design which addresses various aspects of airport infrastructure and their functions.

Airport sponsors that receive federal AIP grants are required to adhere to these FAA design standards unless they obtain approval for any modifications. The design standards are determined based on the designated critical aircraft and the Airport Reference Code (ARC) of the Airport. The critical aircraft, as defined in FAA Advisory Circular (AC) 150/5300-13B, is the most demanding aircraft that operates at least 500 times per year at the Airport, excluding touch-and-go activities. This aircraft, or a combination of similar aircraft with comparable physical and operational characteristics, represents the regular demand placed on airport facilities and services.

The ARC coding system, also defined in AC 150/5300-13B, relates airport design standards to the characteristics of the aircraft operating at the Airport. It consists of two components: the aircraft approach category (AAC) and the airplane design group (ADG). The AAC is based on the aircraft's approach speed, while the ADG is correlated to the aircraft's wingspan and tail height. Both AAC and ADG are also part of the RDC. The third component of the RDC is approach visibility, which refers to the minimum visibility requirements expressed in terms of runway visual range (RVR) in feet. The RDC provides information necessary to determine the design standards applicable to a specific runway. Criteria for AAC, ADG, and RVR can be found in **Table 1.6**, **Table 1.7**, and **Table 1.8**, respectively.

Table 1.6 - Aircraft Approach Categories (AAC)

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

Sources:

FAA Advisory Circular 150/5300-13B, Change 1, Airport Design, 2024.
Kimley-Horn, 2024.

Table 1.7 - Airplane Design Group (ADG)

Airplane Design Group	Tail Height (feet)	Wingspan (feet)
I	< 20	< 49'
II	20' - < 30'	49' - < 79'
III	30' - < 45'	79' - < 118'
IV	45' - < 60'	118' - < 171'
V	60' - < 66'	171' - < 214'
VI	66' - < 80'	214' - < 262'

Sources:

FAA Advisory Circular 150/5300-13B, Change 1, Airport Design, 2024.
Kimley-Horn, 2024.

Table 1.8 - Runway Visual Range (RVR)

Runway Visual Range (feet)	Visibility Minimums
VIS	Visual approach only
5,000	Not lower than 1 mile
4,000	Lower than 1 mile but not lower than 3/4 mile
2,400	Lower than 3/4 mile but not lower than 1/2 mile
1,600	Lower than 1/2 mile but not lower than 1/4 mile
1,200	Lower than 1/4 mile

Sources:

FAA Advisory Circular 150/5300-13B, Change 1, Airport Design, 2024.
 Kimley-Horn, 2024.

In the previous 2010 LTP Update, STP was designated an ARC of D-III, which was reaffirmed in the FAA-approved ALP published in 2016. The Gulfstream V was identified as the critical aircraft for the primary Runway 14/32. Additionally, these documents indicated that the crosswind Runways 13/31 and 9/27 had an ARC of B-II, with the Cessna Citation III and Beechcraft King Air B200 as their respective critical aircraft. Both the 2010 LTP Update and the ALP anticipated that these design standards would remain unchanged in the Airport's ultimate conditions.

A review of operational data from both the MAC Noise and Operations Monitoring System (MACNOMS) and the FAA's Traffic Flow Management System (TFMS) database shows that, in 2024, the Gulfstream V remains the current critical aircraft for Runway 14/32, recording 955 annual operations. However, on August 13th, 2024, the FAA recategorized the Gulfstream V from an AAC of D to an AAC of C. Because the Gulfstream V is the most demanding aircraft that routinely operates at the Airport, this means that, although the operational fleet mix of the Airport has not changed, its federal design standards have changed from those associated with AAC D to AAC C.

Additionally, operational counts for Runways 13/31 and 9/27 indicated an ARC of A-I (small), with the Cessna 172 as the critical aircraft for both runways. While these runways are equipped to handle larger aircraft, they primarily serve aircraft in the A-I (small) category. The Airport's future ARC and critical aircraft are evaluated in **Chapter 2 – Aviation Activity Forecast**.

Therefore, Runway 14/32, with an RVR of 4,000 feet, has an RDC of C-III-4000. Runways 13/31 and 9/27 are designated for visual approaches only, resulting in RDCs of A-I-VIS for both.

1.4.3. Air Traffic Control Tower

STP is one of four reliever airports in the MAC system that operates an air traffic control tower (ATCT). The tower plays a crucial role in managing the Airport's operations. The ATCT is operated by the FAA and is staffed from 6 a.m. to 10 p.m. on weekdays, and from 7 a.m. to 10 p.m. on weekends, providing Class D airspace services and sequencing for mixed-use traffic, including corporate jets, flight school aircraft, and military helicopters. The ATCT communicates on frequencies 119.1 and 257.8 and coordinates the safe and efficient movement of aircraft both on the ground and in the air. Additionally, the tower plays a crucial role in noise management, working with pilots to adhere to voluntary noise abatement procedures to minimize the impact on surrounding communities.



When the ATCT is closed, the Airport transitions from Class D to Class E airspace. Pilots are responsible for self-announcing on the Common Traffic Advisory Frequency (CTAF 119.1) and adhering to FAA guidance for non-towered operations. Lighting systems, including the Medium Intensity Approach Light System with Runway Alignment Indicator Lights (MALSR) on Runway 14, runway end identifier lights (REILs), and precision approach path indicators (PAPIs) on multiple runway ends, remain active and automatically set to high intensity to support safe operations.

Operational limitations during non-towered periods include the absence of air traffic control (ATC) separation services, requiring pilots to maintain vigilance and follow standard traffic patterns unless otherwise published. IFR clearances are available through Minneapolis Approach (121.675), though coordination may take longer than during towered hours. Noise abatement procedures remain in effect, including restrictions on repetitive training patterns at night and compliance with designated helicopter routes.

1.4.4. Runways

The Airport has three asphalt runways: Runway 14/32, which is the longest at 6,491 feet; Runway 13/31, measuring 4,004 feet; and Runway 9/27, which is 3,642 feet long. Under normal conditions, when the ATCT is operational, Runway 14/32 serves as the primary runway for most arrivals and departures due to its length and precision instrument approaches. Runways 13/31 and 9/27 function as secondary and crosswind options, accommodating lighter GA traffic and training operations.

Traffic patterns follow standard left-hand circuits unless otherwise published, but pilots must exercise heightened vigilance due to the proximity of Minneapolis Class B airspace and the presence of National Guard helicopter activity.

Runway 9/27 has a unique traffic pattern because of its alignment along the Mississippi River and surrounding urban development. To minimize noise impacts and avoid obstacles, operations on Runway 9 often require a right-hand traffic pattern instead of the standard left-hand flow. This deviation helps maintain safe separation from downtown Saint Paul and mitigates conflicts with the primary Runway 14/32 pattern. Pilots should review the Chart Supplement and local procedures before using Runway 9, as its limited length and non-standard pattern make it less suitable for larger aircraft and more sensitive to prevailing wind conditions.

When the floodwall is deployed at the Airport, the effective runway lengths are reduced because the floodwall encroaches on the approach and departure surfaces. This creates two distinct operational scenarios: standard configuration conditions, where full runway lengths and declared distances apply, and floodwall configuration conditions, where published lengths are shortened to maintain safety margins and obstacle clearance. The uniqueness lies in having two sets of published runway data, one for standard configuration and one for floodwall configuration, which is uncommon at most airports. This dual-condition approach ensures pilots have accurate performance planning information for both situations, but it also requires heightened awareness and careful review of Notice to Air Missions (NOTAMs) and the Chart Supplement before flight operations. Of note, Runways 13/31 and 9/27 are NOTAM'd closed when the floodwall is deployed, while Runway 14/32 remains open with restricted length and declared distances.

Table 1.9 summarizes the existing characteristics of all the Airport's runways in both standard configuration and floodwall configuration below.

Table 1.9 - Summary of Existing Runway Characteristics and Design Standards (2024)

Runway Component	Runway 14/32				Runway 13/31				Runway 9/27			
	Standard Configuration		Floodwall Configuration		Standard Configuration		Floodwall Configuration		Standard Configuration		Floodwall Configuration	
	14	32	14	32	13	31	13	31	9	27	9	27
Runway Length	6,491 ft		5,341 ft		4,004 ft		NOTAM'd Closed		3,642 ft		NOTAM'd Closed	
Runway Width	150 ft		Same		150 ft				100 ft			
Aircraft Approach Category (AAC)	C		Same		A				A			
Airplane Design Group (ADG)	III		Same		I (small)				I (small)			
Runway Visual Range (RVR)	4,000 ft	5000 ft	5000 ft	Same	Visual (VIS)				Visual (VIS)			
Runway Design Code (RDC)	C-III-4000	C-III-5000	C-III-5000	Same	A-I-VIS				A-I-VIS			
Critical Aircraft	Gulfstream V		Same		All A-I (small) aircraft				All A-I (small) aircraft			
Taxiway Type (associated with Runway)	Full Parallel		Partial Parallel		Partial Parallel				Partial Parallel			
Pavement Type	Asphalt		Same		Asphalt				Asphalt			
Pavement Markings	Precision	Precision	Non-precision	Non-precision	Non-precision	Non-precision			Basic	Basic		
Edge Lights	High Intensity Runway Lights (HIRL)		Same		High Intensity Runway Lights (HIRL)				Medium Intensity Runway Lights (MIRL)			
Declared Distances	Yes		Same		Yes				Yes			
Displaced Threshold	343 ft	382 ft	Same	No	None	None			None	None		
Runway End Elevation (above mean sea level)	704.0 ft	704.4 ft	Same	702.3 ft	704.5 ft	700.9 ft			700.4 ft	700.7 ft		
Approach Lighting System	MALSR	No	No	Same	None	None			None	None		
Runway End Identifier Lights (REILs)	No	Yes	Same	No	No	Yes			No	No		
Runway Visual Range (RVR) Equipment	Yes	Yes	No	No	No	No			No	No		
Visual Approach Aids	PAPI 4R	PAPI 4L	Same	No	PAPI 4L	PAPI 4L			No	PAPI 4R		
Runway Shoulder Width	20 ft		Same		10 ft				10 ft			
Blast Pad Length	500 ft	342 ft	Same	1,492 ft ^(a)	-	170 ft			225 ft	150 ft		
Blast Pad Width	150 ft	170 ft	Same	150 ft ^(a)	-	150 ft			120 ft	100 ft		
Runway Centerline to Holding Position Distance	250 ft		Same		250 ft				125 ft			
Runway Centerline to Parallel Taxiway Centerline	400 ft		Same		450 ft				250 ft			
Runway Centerline to Aircraft Parking Area	500 ft		Same		640 ft				320 ft			
Runway Safety Area (RSA) Width	500 ft		Same		120 ft				120 ft			
RSA Length Prior to Threshold	600 ft	600 ft	Same	Same	-	-			-	-		
RSA Length Beyond Runway End	340 ft ^(b)	500 ft ^(b)	Same	1,000 ft	240 ft	240 ft			240 ft	240 ft		
Runway Object Free Area (ROFA) Area Width	800 ft		Same		250 ft				250 ft			
ROFA Length Prior to Threshold	600 ft	600 ft	Same	Same	-	-			-	-		
ROFA Length Beyond Runway End	340 ft ^(b)	500 ft ^(b)	Same	1,000 ft	240 ft	240 ft			240 ft	240 ft		
Runway Obstacle Free Zone (ROFZ) Width	400 ft		Same		250 ft				250 ft			
ROFZ Length Beyond Runway End	200 ft	200 ft	Same	Same	200 ft	200 ft			200 ft	200 ft		
Approach/Departure Runway Protection Zone (RPZ) Length	1,700 ft	1,700 ft	Same	Same	1,000 ft	1,000 ft			1,000 ft	1,000 ft		
Approach RPZ Inner Width	1,000 ft	1,000 ft	500 ft	500 ft	250 ft	250 ft			250 ft	250 ft		
Approach RPZ Outer Width	1,510 ft	1,510 ft	1,010 ft	1,010 ft	450 ft	450 ft			450 ft	450 ft		
Departure RPZ Inner Width	500 ft	500 ft	Same	Same	250 ft	250 ft			250 ft	250 ft		
Departure RPZ Outer Width	1,010 ft	1,010 ft	Same	Same	450 ft	450 ft			450 ft	450 ft		

Sources:
FAA 5010 Airport Master Record, 2022.
FAA Advisory Circular 150/5300-13B, Change 1, Airport Design, 2024.
Kimley-Horn, 2024.

Notes:
(a) = Blast pad length increases to 1,492 feet with temporary runway end relocation during floodwall configuration. Conservative width assumed at 150 feet based on runway width.
(b) = While this distance is below the listed 1,000-foot standard, Advisory Circular 150/5300-13B, Change 1, Airport Design, 2024, allows for this protection surface to be reduced to the distance to the end of the Engineered Materials Arresting System (EMAS). Therefore, this is not a non-standard condition.
PAPI 2L = Precision approach path indicator – two lights



1.4.4.1. Runway 14/32

Runway 14/32 is the primary runway at STP and serves as the critical asset for most operations. It is 150 feet wide and constructed of asphalt, equipped with high-intensity runway edge lights (HIRL) and blast pads at both ends. Both runway ends feature Engineered Materials Arresting Systems (EMAS) for safety. The runway supports Gulfstream V as its critical aircraft and accommodates AAC C and ADG III. While the runway's operational characteristics vary between standard and floodwall configurations, core elements such as lighting, pavement type, and visual approach aids remain consistent.

In standard configuration, Runway 14/32 measures 6,491 feet in length, providing full declared distances for takeoff and landing. Both ends have precision instrument markings in good condition.

- **Runway 14:** True heading 146°, elevation 704 feet above mean sea level (MSL), displaced threshold of 343 feet (landing distance available (LDA) = 6,148 feet). Equipped with MALSR approach lighting and a PAPI 4R visual slope indicator at a 3° glide path.
- **Runway 32:** True heading 326°, elevation 704.6 feet MSL, displaced threshold of 382 feet (LDA = 6,109 feet). Features REILs and a PAPI 4L indicator at a 3° glide path.

Declared distances for takeoff and accelerate-stop remain at 6,491 feet for both ends, ensuring maximum operational flexibility for corporate and GA traffic.

When the floodwall is deployed, the runway length is reduced to 5,341 feet, and the configuration changes significantly. Pavement markings transition from precision to non-precision, and approach lighting systems such as the MALSR are unavailable. Declared distances for landing and takeoff are shortened, as presented in **Table 1.10**, and obstacle clearance requirements become more restrictive. For example, blast pad lengths and RSA dimensions adjust to accommodate the floodwall footprint, and approach/departure protection zones are modified.

The specifics of these characteristics and the changes that occur between configurations are further detailed above in **Table 1.9**. Additional runway lighting and NAVAID information is discussed in **Sections 1.4.11** and **1.4.12**, respectively.

Table 1.10 - Runway 14/32 Standard and Floodwall Configuration Declared Distances

Runway End	TORA (feet)	TODA (feet)	ASDA (feet)	LDA (feet)
Standard Configuration Declared Distances				
14	6,491	6,491	6,491	6,148
32	6,491	6,491	6,491	6,109
Floodwall Configuration Declared Distances				
14	5,341	5,341	5,341	4,998
32	5,341	5,341	5,341	5,341

Sources:

Saint Paul Downtown Airport FAA-Approved Airport Layout Plan, 2016.
Kimley-Horn, 2024.

Notes:

TORA = Takeoff run available
TODA = Takeoff distance available
ASDA = Accelerate-stop distance available
LDA = Landing distance available



1.4.4.2. Runway 13/31

Runway 13/31 is an additional runway at STP supporting GA traffic. It measures 150 feet in width and is equipped with HIRL. Both ends feature non-precision instrument (NPI) markings in good condition and visual approach aids to maintain safe operations. While the runway’s operational characteristics differ between standard and floodwall configurations, core elements such as lighting and pavement type remain consistent.

In its standard configuration, Runway 13/31 measures 4,004 feet in length, providing adequate capability for small to mid-size GA aircraft.

- **Runway 13:** True heading 128°, elevation 704.5 feet MSL, threshold crossing height of 40 feet above ground level (AGL), and a 3° visual glide path guided by a P4L visual slope indicator. The obstacle clearance slope is 20°, with no close-in obstacles.
- **Runway 31:** True heading 308°, elevation 700.9 feet MSL, threshold crossing height of 45 feet AGL, and a 3° glide path with P4L guidance. This end includes REILs and a marked blast pad. The controlling obstacle is brush, 9 feet above runway end, located 311 feet away with an obstacle clearance slope of 12°.

Both ends maintain non-precision markings and declared distances suitable for light jet and piston aircraft operations.

When the floodwall is deployed, Runway 13/31 is NOTAM'd closed as shown in **Table 1.11**. No part of Runway 13/31 is open for taxiing or aircraft operations in floodwall configuration.

Table 1.11 - Runway 13/31 Standard and Floodwall Configuration Declared Distances

Runway End	TORA (feet)	TODA (feet)	ASDA (feet)	LDA (feet)
Standard Configuration Declared Distances				
13	4,004	4,004	4,004	4,004
31	4,004	4,004	4,004	4,004
Floodwall Configuration Declared Distances				
13	NOTAM'd Closed			
31				

Sources:
Saint Paul Downtown Airport FAA-Approved Airport Layout Plan, 2016.
Kimley-Horn, 2024.

Notes:
TORA = Takeoff run available
TODA = Takeoff distance available
ASDA = Accelerate-stop distance available
LDA = Landing distance available

1.4.4.3. Runway 9/27

Runway 9/27 is an additional runway at the Airport, oriented east-west and primarily serving light aircraft and training operations. It measures 100 feet in width, is constructed of asphalt, and features marked blast pads on both ends. The runway is equipped with medium-intensity runway edge lights (MIRL) and basic markings in good condition. While its operational characteristics differ between standard and floodwall configurations, core elements such as lighting and pavement type remain consistent.

In its standard configuration, Runway 9/27 measures 3,643 feet in length, providing adequate capability for small GA aircraft.

- **Runway 9:** True heading 91°, elevation 700.4 feet MSL, controlling obstacle is a tree 33 feet above runway end, located 663 feet away with an obstacle clearance slope of 14°.
- **Runway 27:** True heading 271°, elevation 700.7 feet MSL, threshold crossing height of 40 feet AGL, and a 4° visual glide path guided by a P4R visual slope indicator. This end follows a right-hand traffic pattern, a unique feature designed to mitigate noise impacts and avoid conflicts with downtown airspace. The controlling obstacle is a tree, 12 feet above runway end, located 284 feet away with an obstacle clearance slope of 7°.

Both ends maintain basic markings and declared distances suitable for light piston aircraft and training operations.

When the floodwall is deployed, Runway 9/27 is closed by NOTAM, as indicated in **Table 1.12**. Aircraft are permitted to taxi across Runway 9/27 to access the south side of the airfield; however, taxiing along the length of the runway and all other aircraft operations on the runway are prohibited.

Table 1.12 - Runway 9/27 Standard and Floodwall Configuration Declared Distances

Runway End	TORA (feet)	TODA (feet)	ASDA (feet)	LDA (feet)
Standard Configuration Declared Distances				
09	3,642	3,642	3,642	3,642
27	3,642	3,642	3,642	3,642
Floodwall Configuration Declared Distances				
09	NOTAM'd Closed			
27				

Sources:

Saint Paul Downtown Airport FAA-Approved Airport Layout Plan, 2016.
Kimley-Horn, 2024.

Notes:

TORA = Takeoff run available
TODA = Takeoff distance available
ASDA = Accelerate-stop distance available
LDA = Landing distance available

1.4.4.4. Runway Protection Surfaces

Runway protection surfaces are established by the FAA in AC 150/5300-13B. The following criteria apply to runways and their surrounding areas.¹²

- **Runway Safety Area (RSA):** The Runway Safety Area (RSA) is a designated zone surrounding the runway, aligned with its centerline. Its primary purpose is to minimize potential damage to aircraft in the event of a runway undershoot, overshoot, or excursion. To ensure aircraft safety, the RSA must be cleared and leveled, free of any hazardous surface irregularities or objects, except those necessary for air navigation or ground maneuvering.
- **Runway Object Free Area (ROFA):** The Runway Object Free Area (ROFA) is a designated zone surrounding the runway, aligned with its centerline. All above-ground objects must be cleared from the ROFA, except those required for air navigation or aircraft ground maneuvering. It's important to note that taxiing and holding aircraft are permitted to operate within the ROFA.
- **Runway Obstacle Free Zone (ROFZ):** The Runway Obstacle Free Zone (ROFZ) is a specific airspace area that surrounds the runway and extends along its centerline. Its primary purpose is to ensure the safety of aircraft during takeoff and landing operations. The ROFZ extends 200 feet beyond each end of the runway and must remain clear of any aircraft or objects, except for NAVAIDs essential for air navigation. These NAVAIDs are permitted within the ROFZ because they provide crucial guidance for aircraft.
- **Runway Protection Zone (RPZ):** The Runway Protection Zone (RPZ) is a trapezoidal area on the ground, centered along the extended runway centerline. Its main purpose is to ensure the safety and protection of people and property on the ground. Each runway end features both an approach RPZ and a departure RPZ, with their specific locations determined by the landing and takeoff distances. The dimensions of the approach RPZ are also influenced by the type of aircraft and the visibility requirements for that particular runway end. To effectively enhance safety and protection, the FAA recommends that airport owners have control over the land within the RPZ. At STP, the size and location of RPZs differ based on whether the operation is a departure or an approach, the presence of a displaced threshold at the runway end, and the Airport's floodwall configuration.

The presence of the deployable floodwall at STP introduces a unique set of considerations for runway protection surfaces. When the floodwall is deployed, the geometry and usability of the RSA, ROFA, ROFZ, and RPZ are all affected. Most notably, the floodwall reduces the usable lengths of all three runways, which in turn alters the dimensions and effectiveness of the associated safety areas. For example, the floodwall physically penetrates the ROFA at the east end of Runway 32 (see **Table 3.12** and **Figure 3.4** in **Chapter 3**), and the southeast corner of the RSA for Runway 32 extends over the property line and river. The floodwall also creates non-standard conditions at the approach ends of Runways 31 and 27, where the lack of full-length runway usability limits the ASDA, LDA, TORA, and TODA for Runways 13 and 9 operations (see **Table 3.8**). These conditions are carefully documented and managed through NOTAMs and operational protocols during flood events.

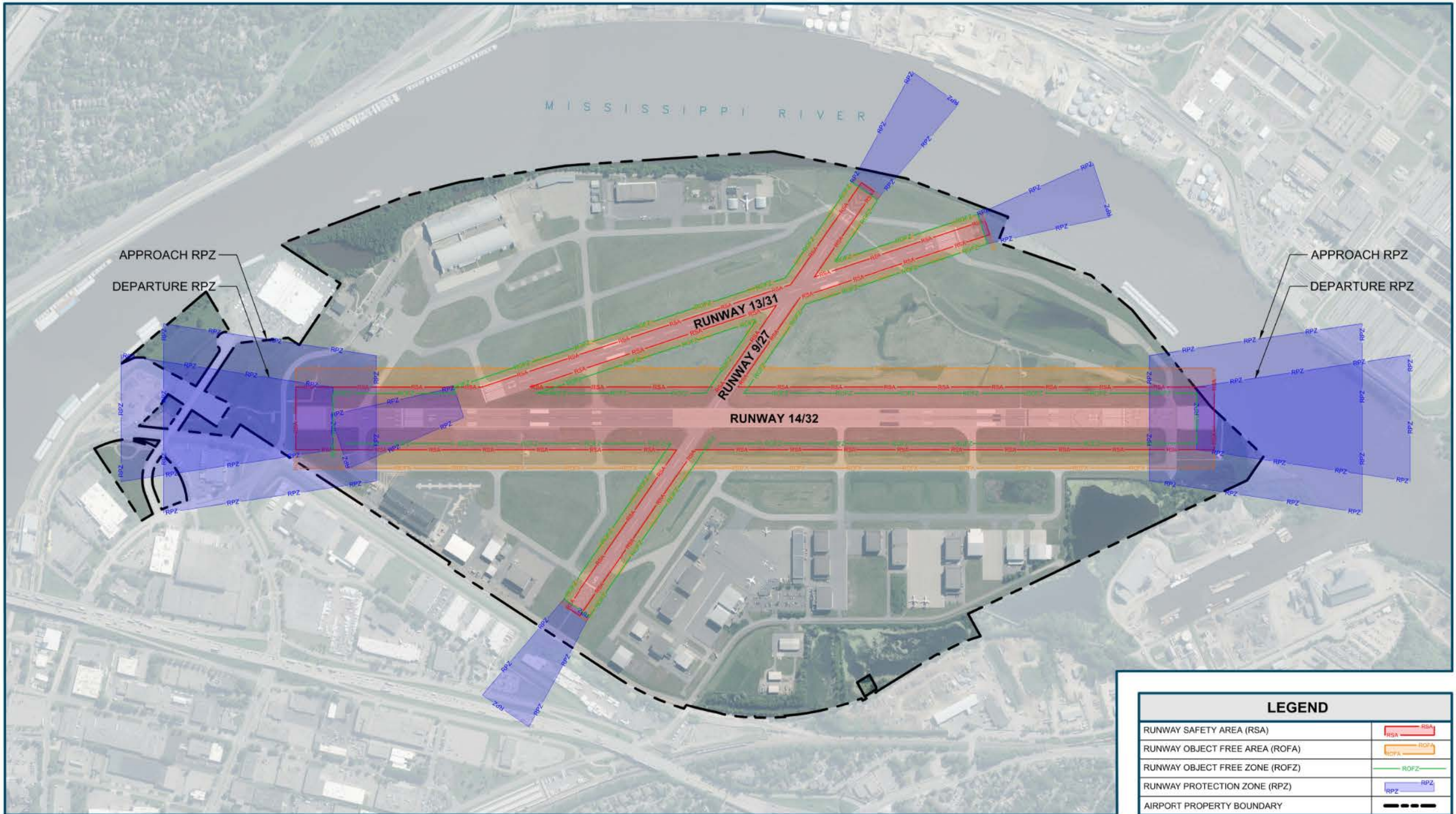
During floodwall deployment, the dimensions of the RSAs and ROFAs are reduced, and the floodwall itself is present within these protected areas at specific locations. These conditions are documented as deficiencies in the planning framework and are illustrated in **Figures 3.3** and **3.4**. **Chapter 3** provides

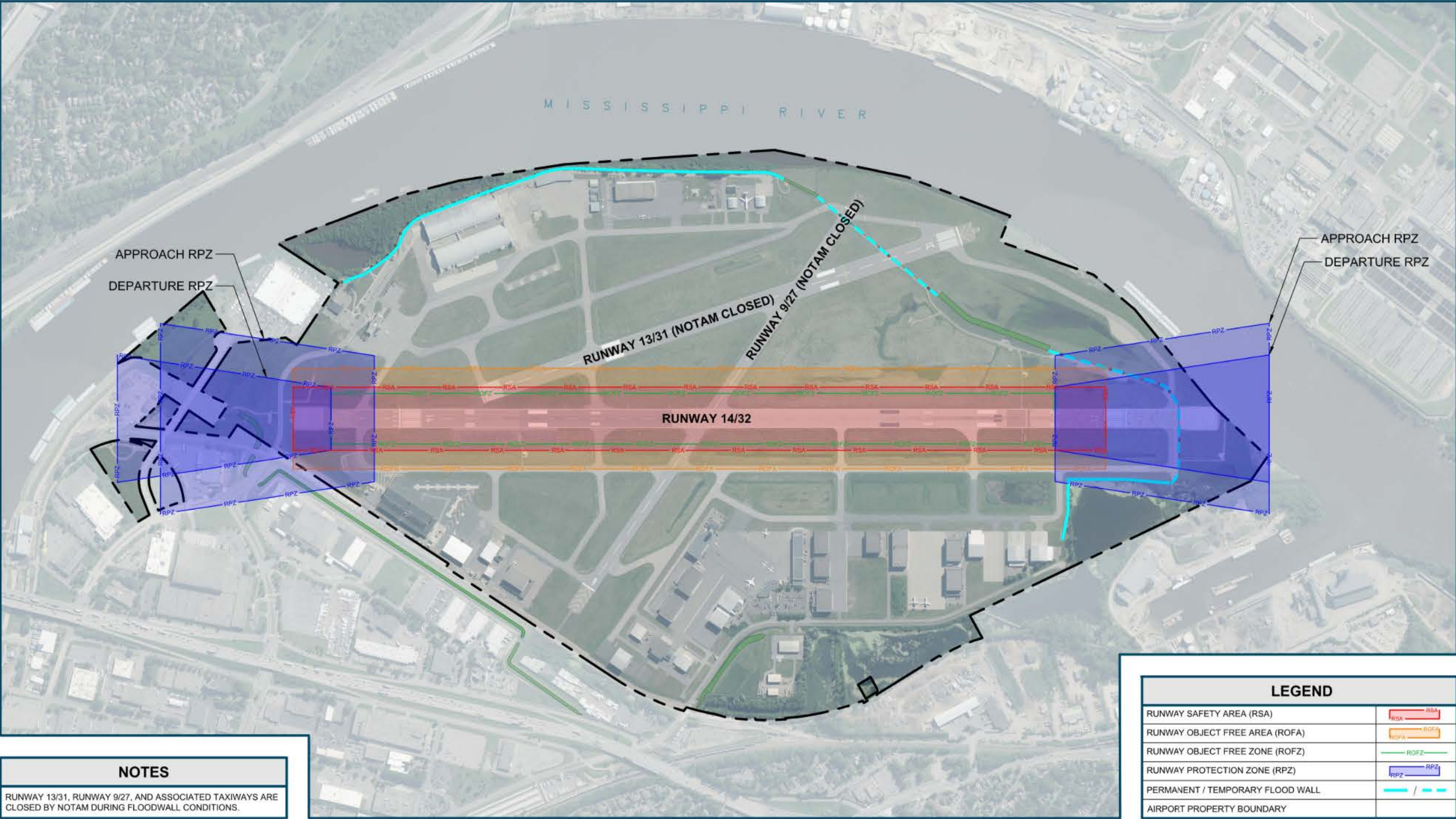
¹² Federal Aviation Administration, Advisory Circular 150/5300-13B, Airport Design, Change 1, 2024.



detailed tables and figures that specify the exact dimensional changes, identify all non-standard conditions, and present recommended mitigation strategies for each protection surface. For a comprehensive analysis of these impacts and guidance on maintaining safety and regulatory compliance under both standard and floodwall configurations, refer to **Section 3.3** and the associated exhibits in **Chapter 3**.

These existing surfaces at STP are depicted for standard configuration in **Figure 1.6**, are depicted for floodwall configuration in **Figure 1.7**, and are also included in the accompanying ALP.







1.4.5. Taxiways

Taxiways provide aircraft access between runways, aprons, hangars, terminals, and other airside facilities. The Airport has 13 operational Taxiways. The exceptions are as follows: Taxiway A is closed between Taxiway A3 and Taxiway A4 except for aircraft with a wingspan less than 101 ft. Taxiway B is also closed between the Minnesota Jet apron and the southern corner of Taxiway A except for aircraft with a wingspan less than 72 ft. due to the floodwall placement. Additionally, helicopter operations frequently occur on Taxiway A in view of the control tower, north to the approach end of Runway 14.¹³ The Airport's taxiways are summarized in **Table 1.13**. and illustrated in **Figure 1.8**.

1.4.6. Taxilanes

Taxilanes provide access between aircraft parking positions, hangars, apron areas, and the Airport's taxiway system. Unlike taxiways, taxilanes at STP do not have established airfield nomenclature or FAA-designated identifiers. To facilitate discussion, analysis, and exhibit development throughout this LTP, individual taxilanes were assigned planning-level identifiers. These identifiers are based on the names of Minnesota lakes and are used solely for planning purposes. The naming convention was selected to avoid confusion with existing taxiway letter designation and the phonetic alphabet commonly used in aviation communications. The Airport's taxilanes are summarized in **Table 1.14** and illustrated in **Figure 1.8**.

¹³ Saint Paul Downtown Airport Chart Supplement, November 27, 2025 to January 22, 2026.



Table 1.13 - Airport Taxiways

Taxiway	Segment Description	Type	TDG	ADG	Taxiway Width (feet)
A	TWY A1 ↔ TWY A4	Full Parallel	2B	III	50
A1	TWY A ↔ RWY 14/32	Runway Entrance	2B	III	50
A2	TWY B ↔ TWY A	Crossover	2B	III	50
	TWY A ↔ RWY 14/32	Runway Exit	2B	III	50
A3	TWY B ↔ TWY A	Crossover	2B	III	50
	TWY A ↔ RWY 14/32	Runway Exit	2B	III	50
A4	TWY A ↔ RWY 14/32	Runway Entrance	2B	III	50
B	TWY C ↔ TWY A3	Partial Parallel	2B	III	50
	TWY A3 ↔ TWY A	Crossover	2B	III	50
C	APRON ↔ TWY A	Partial Parallel	2B	III	50
C1	TWY C ↔ RWY 9/27	Runway Exit	2B	III	50
D	TWY W ↔ TWY D	Partial Parallel	2B	III	50
	TWY D ↔ TWY A	Crossover	2B	III	50
	TWY A ↔ RWY 32	Runway Exit	2B	III	50
	RWY 32 ↔ RWY 31	Runway Exit	2B	III	50
	RWY 31 ↔ TWY P	Runway Exit	2B	III	50
	TWY P ↔ TWY E	Crossover	2B	III	50
E	RWY 14/32 ↔ TWY P	Runway Entrance	2B	III	50
	TWY P ↔ TWY P	Mid-Field Connector	2B	III	50
	TWY P ↔ RWY 13/31	Runway Entrance	2B	III	50
F	TWY P ↔ RWY 13/31	Runway Entrance	2B	III	60
G	RWY 9/27 ↔ RWY 13/31	Runway Entrance	2B	III	50
H	TWY H ↔ RWY 32	Runway Entrance	2B	III	50
	TWY H ↔ TWY H	Mid-Field Connector	2B	III	50
	TWY H ↔ RWY 31	Runway Entrance	2B	III	50
L	TWY W ↔ TWY A	Crossover	2B	III	50
N	TWY E ↔ TWY P	Crossover	2B	III	50
P	TWY E ↔ TWY E	Partial Parallel	2B	III	50
W	TWY L ↔ TWY D	Apron	2B	III	50
	TWY D ↔ TWY 9/27	Runway Entrance	2B	III	50

Sources:

FAA Airport Diagram, Airport Data and Information Portal (ADIP).
Kimley-Horn, 2024.

Notes:

TDG = Taxiway Design Group
ADG = Airplane Design Group



Table 1.14 - Airport Taxilanes

Taxilane	TDG	ADG	Taxilane Width (feet)
Armstrong	1A	I	25
Bemidji	2A	II	30
Trout	2A	II	35
Daisy	3	III	50
Elmo	2A	II	35
Forest	1B	II	25
Gunflint	1B	II	25
Harriet	1B	II	25
Itasca	1A	I	25
Jefferson	1A	I	25
Koronis	1A	I	25
Loon	1A	I	20
Moose	1A	I	20
Nokomis	1A	I	25
Otter	1B	I	25
Pine	3	III	50
Vermilion	1A	I	25
Rose	1A	I	25
Sanborn	1B	I	25
Cedar	3	III	50

Sources:

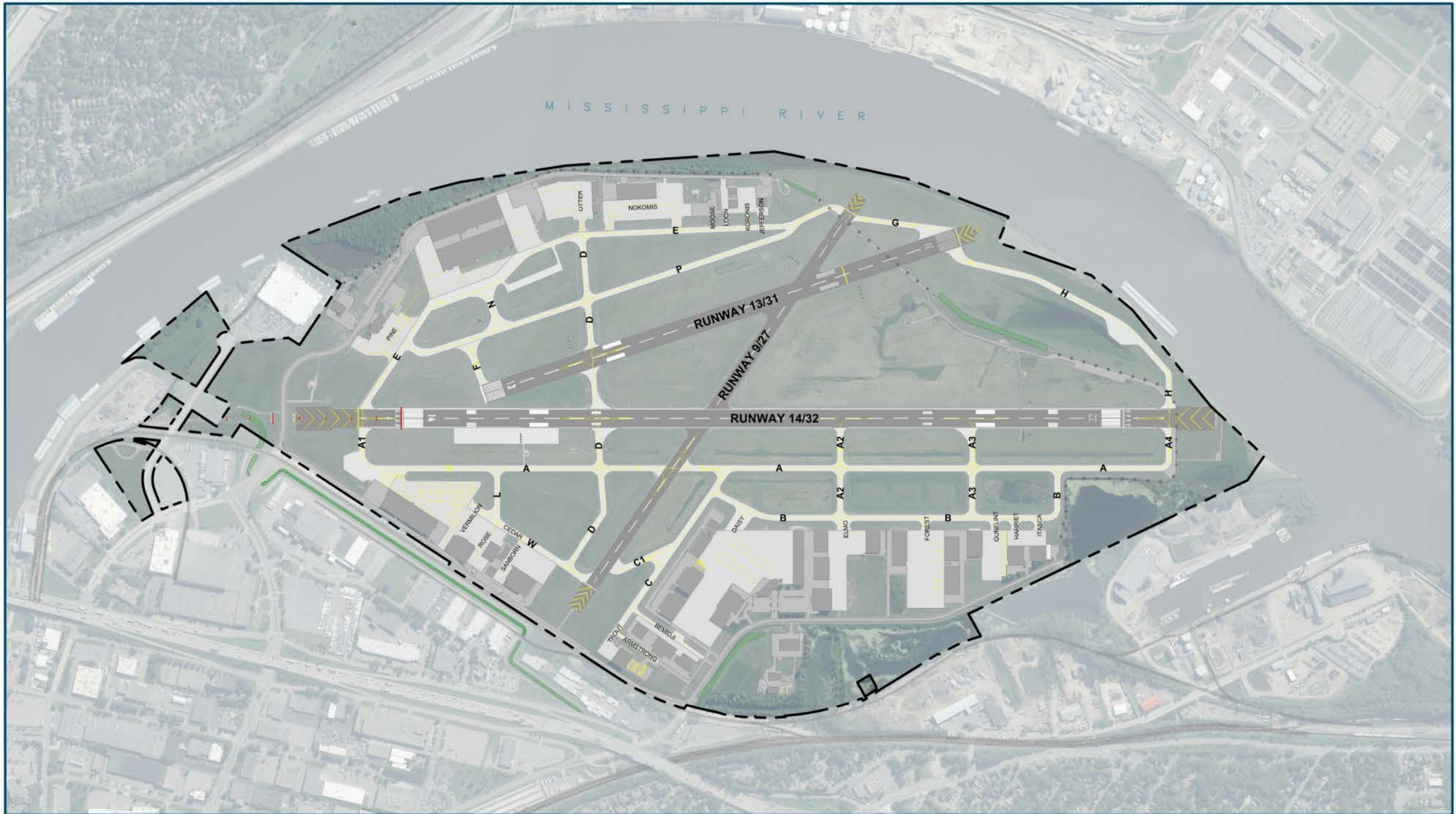
FAA Airport Diagram, Airport Data and Information Portal (ADIP).
Kimley-Horn, 2024.

Notes:

Taxilane names developed for planning purposes only

TDG = Taxiway Design Group

ADG = Airplane Design Group



1.4.7. Taxiway Design Standards

FAA guidelines for taxiway design are described in AC 150/5300-13B. These guidelines aim to enhance safety at airfields by providing direction on taxiway dimensions and layouts. Design criteria are based on the most demanding aircraft or grouping of aircraft that regularly utilize a taxiway determined by wingspan, tail height, main gear width (MGW) and the distance from the cockpit to the main gear (CMG).

1.4.8. Airfield Hot Spots

According to the FAA, airfield hot spots are specific locations on an airport's movement area that have a historical or potential risk of collision or runway incursion.¹⁴ These areas require heightened attention from pilots and drivers to ensure safety. Hotspots are typically complex or confusing intersections of taxiways and runways.

As of the time of this writing, STP has three FAA-published hotspots that require extra attention from pilots and ground personnel:

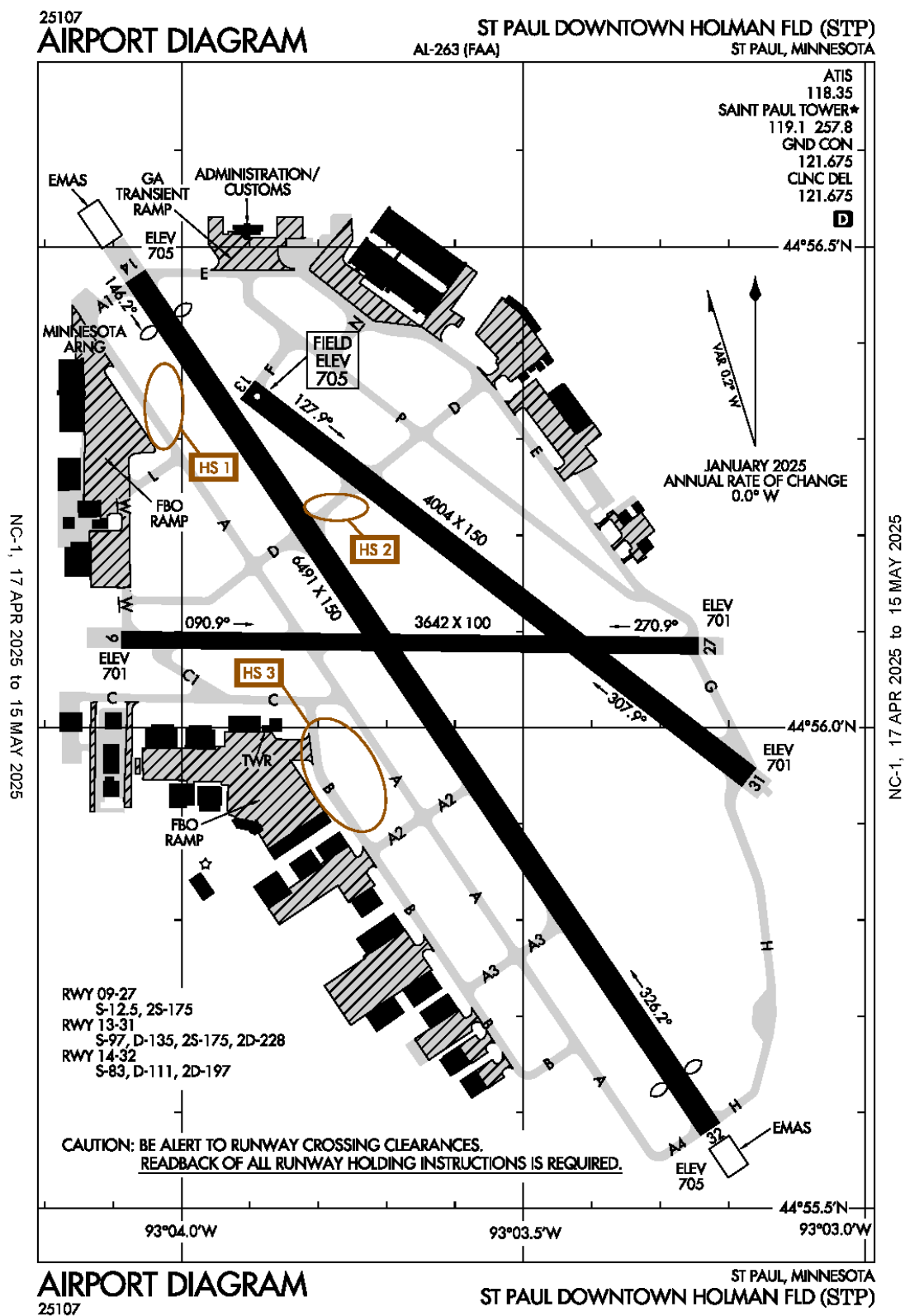
- **Hotspot 1 (HS 1):** Located on the northwest portion of the airfield along Taxiway A immediately to the east of the military apron used by the Minnesota Air National Guard. This area is frequently the site of military helicopter landings on Taxiway A.
- **Hotspot 2 (HS 2):** Found at the central segment of Taxiway D between Runway 14/32 and Runway 13/31. This area is complex because of the unusual placement of runway hold markings due to the overlapping runway safety areas of Runway 14/32 and Runway 13/31. This hot spot represents a high volume of traffic and the need for precise coordination between taxiing aircraft and those on the runway due to the taxiway segment's short length.
- **Hotspot 3 (HS 3):** Situated on Taxiway B immediately east of the Signature FBO ramp. This hot spot is challenging due to helicopter operations that frequently take place on this portion of the taxiway, requiring heightened vigilance to avoid conflicts.

These hot spots are marked on STP's airport diagram, shown in **Figure 1.9**, to help pilots navigate safely and avoid potential hazards.

Airfield hot spots are closely related to facility requirements because their presence often highlights areas where airfield geometry, signage, or operational procedures may need improvement to reduce risk and enhance safety. The identification and mitigation of hot spots can drive changes in taxiway layouts, marking standards, lighting, and ground control protocols, all of which are essential components of facility planning and design. At STP, the three FAA-published hot spots underscore the importance of ongoing evaluation and adaptation of airport infrastructure to address operational challenges. A more detailed analysis of these hot spots and their implications for facility requirements are provided in **Chapter 3**.

¹⁴ Federal Aviation Administration, Hot Spots webpage, https://www.faa.gov/airports/runway_safety/hotspots (accessed August, 2024).

Figure 1.9 - STP Airport Diagram





1.4.9. Apron Areas

The Airport contains approximately 196,350 square yards of apron space distributed across various portions of the airfield. Aprons are designated non-movement areas adjacent to the passenger terminal and hangar complexes, serving as zones for aircraft unloading, loading, parking, and servicing. The largest apron on the airfield is located directly south of Runway 9, measuring approximately 5,440 square yards and accessible via Taxiway C and Taxiway B. Additional apron areas are situated on both the east and west sides of the Airport, including a substantial 2,086 square yard military apron in front of the Saint Paul Army Aviation Facility. Select portions of these apron areas are constructed of concrete, such as the private aprons utilized by the 3M company, built in 1999 on the south side of the airfield, while the majority of apron surfaces are asphalt.

Outdoor aircraft parking is available on these aprons, primarily intended for transient aircraft. STP offers approximately 35 outdoor aircraft parking spaces distributed between the St. Paul Flight Center and Signature Aviation FBOs. As the outdoor parking remains an important component of apron utilization and transient aircraft accommodation, the requirements and future needs for outdoor aircraft parking, including tie-downs and transient capacity, will be discussed in greater detail in **Chapter 3**.

1.4.10. Aircraft Hangars and Parking

STP offers approximately 894,000 square feet of corporate and box hangar space for based aircraft. However, hangar storage for transient aircraft is limited at approximately 40,000 square feet and is provided by the Airport's two FBOs. Many hangars are privately owned and are not available to the public. The south hangar area is allocated for corporate jet storage. **Table 1.15** provides a summary of the existing aircraft storage hangars at the Airport.

Table 1.15 - Indoor Aircraft Storage Summary

Facilities	Number of Hangar Buildings	Combined Square Footage (approximate)
North/East		
Facilities and Tenants include: <i>Riverside Hangars</i> <i>Momentum Aeronautics</i> <i>Learning Jet</i>	11	286,000
West		
Facilities and Tenants include: <i>Saint Paul Flight Center</i> <i>Saint Paul Army Aviation Facility</i>	10	222,000
South		
Facilities and Tenants include: <i>Signature</i> <i>MnDOT</i> <i>Duncan Aviation</i> <i>JetCorp Solutions</i> <i>Global Air Charters</i> <i>Best Jet</i> <i>Minnesota Jet</i>	15	386,000
Totals	36	894,000

Sources:
Aerial Imagery.
Kimley-Horn, 2024.

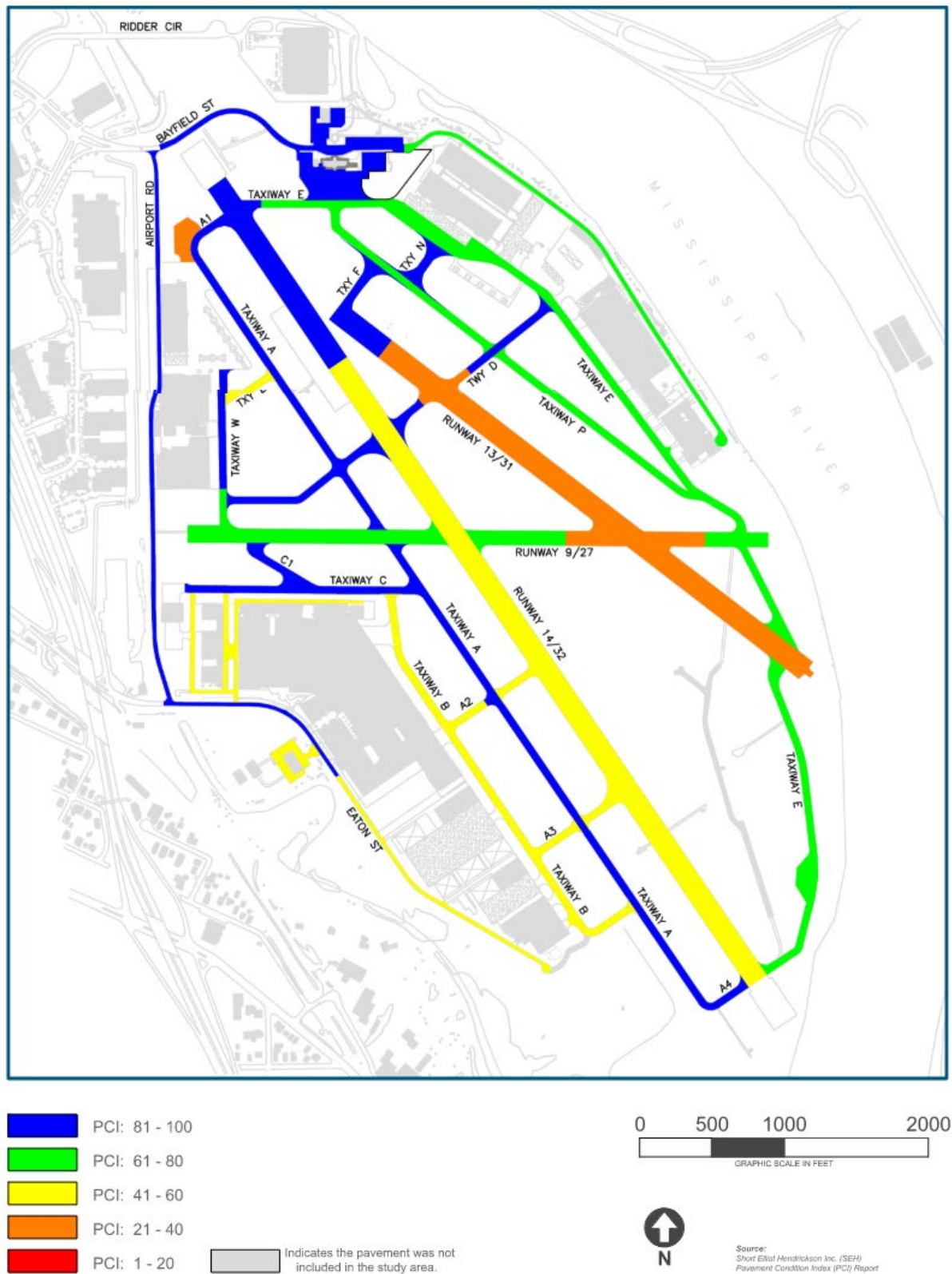


1.4.11. Airfield Pavement Condition

Asphalt makes up most of the airfield pavements at STP. The south hangar area was constructed with concrete in 1999 as well as a few other portions of the Airport. All pavements are inspected routinely and assessed a Pavement Condition Index (PCI) value; a crucial metric used to assess not only the current condition of airfield pavements, but also an indication when specific improvements may be needed in the future. This index operates on a scale from 0 to 100, where a score of 0 to 40 indicates a pavement in need of reconstruction, a score of 41 to 70 indicates a pavement in need of rehabilitation, and a score of 71 to 100 indicates that only preventative maintenance is needed. To determine the PCI, inspectors conduct thorough visual examinations of the pavement surface, identifying various types of distresses such as cracks, potholes, and surface wear. Each observed distress is evaluated for its severity and extent, which then contributes to a deduct value. This deduct value is subtracted from 100 to yield the final PCI score. The more severe and widespread the distresses, the lower the PCI.

The last pavement condition inspection at STP took place in 2024, though it should be noted that not all Airport pavements were included in the assessment. Inspected pavements with PCI values are depicted in **Figure 1.10**. As shown, the main terminal apron, the northernmost portions of Runways 14/32 and 13/31, and taxiways A, C, D, F, N, and W all have PCI's in the 81-100 range, indicating that they are in the "good" to "satisfactory" range. Areas of minor concern (PCI's in the 41-60 range) include the southern majority of Runway 14/32, and taxiways B, L, A2 and A3, while most of Runway 13/31 and a small eastern portion of Runway 9/27 have PCI's in the 21-40 range, indicating a need for major reconstruction. Of note, Runway 14/32 is slated for full reconstruction in summer of 2025.

Figure 1.10 - Pavement Condition Index (2024)



1.4.12. Airfield Lighting

Airfield lighting is essential for the safe and efficient operation of aircraft at night and during periods of low visibility. **Table 1.16** outlines the Airport's airfield lighting systems. Locations for these facilities are depicted in **Figure 1.4** and on the ALP that accompanies this LTP Update.

Table 1.16 - STP Airfield Lighting Systems

Airfield Lighting System	Facilities Equipped
High Intensity Runway Edge Lights (HIRLs)	Runways 14/32 and 13/31
Medium Intensity Runway Edge Lights (MIRLs)	Runway 9/27
Runway End Identifier lights (REILs)	Runways 31 and 32
Precision Approach Path Indicators (PAPIs)	Runways 14, 32, 13, 31, and 27
Medium Intensity Approach Light System with Runway Alignment Indicator Lights (MALSR)	Runway 14
Medium Intensity Taxiway Lights (MITLs)	All Taxiways

Sources:

FAA 5010 Airport Master Record, 2022.
Kimley-Horn, 2024.

Air traffic control personnel can adjust the intensity of the runway and taxiway lighting. When the ATCT is closed, pilots can use the aircraft's radio transmitter to turn on and modify the intensity of the lights for Runway 14/32. All airfield lighting systems are operational and in good condition.

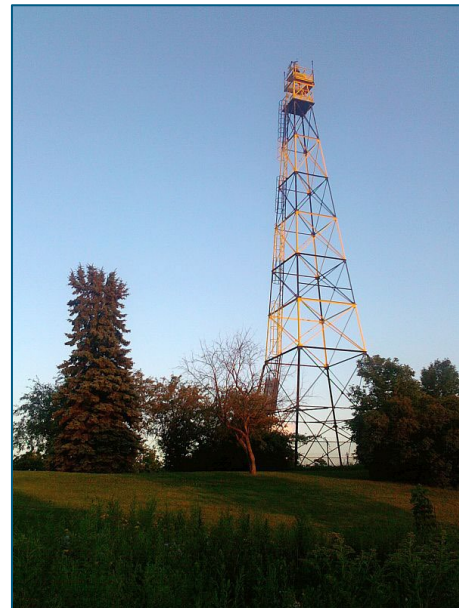
1.4.13. Navigational Aids (NAVAIDs)

NAVAIDs are essential components of airport infrastructure, providing critical guidance to aircraft during various phases of flight, including takeoff, en-route navigation, and landing. These systems ensure that pilots can navigate safely and efficiently, even in poor weather conditions or low visibility. NAVAIDs at the Airport are depicted in **Figure 1.4** and on the ALP that accompanies this LTP Update. These NAVAIDs include the following:

- **Rotating Beacon:** Rotating beacons display alternative flashing lights to provide airport identification to pilots at night or during periods of low visibility. STP has a rotating beacon that is located west of the Airport immediately across Eaton Street from the Signature Flight Support entrance which operates sunset to sunrise.
- **Stand Alone Wind Indicator:** A stand alone, lighted wind indicator is located to the southeast of the Administrative building in the grassy patch between Taxiways E and P.
- **Automated Surface Observation System (ASOS):** An ASOS is a crucial weather monitoring system found at STP on the southeast side of the airfield between Runways 14/32 and 13/31. Operated by the National Weather Service (NWS), the FAA, and the Department of Defense (DOD), ASOS units provide continuous, real-time weather data including temperature, wind speed and direction, visibility, cloud cover, and precipitation, which is vital for safe and efficient flight operations.



- **Instrument Approach Procedures:** A precision instrument approach is a landing procedure that uses navigational aids, including distance measuring equipment (DME), to provide both lateral and vertical guidance to pilots, ensuring a safe and accurate descent to the runway, especially in low visibility conditions. STP is equipped with two precision approaches: an Instrument Landing System (ILS) approach with $\frac{3}{4}$ mile visibility minimums to Runway 14, and an ILS approach with 1 mile visibility minimums to Runway 32. Additionally, STP has two non-precision instrument approach procedures, which provide lateral guidance but lack vertical guidance. RNAV GPS approaches are available for Runways 14 and 32, with visibility minimums of $\frac{3}{4}$ mile and 1 mile, respectively.
- **Airway Beacon:** STP features the nation's last operational Airway Beacon. This historic beacon, located in Mounds Park across the Mississippi River to the north, was part of a nationwide system guiding nighttime airmail carriers. Originally built in 1929, it remains a unique landmark, its 110-foot tower and 24-inch beacon still flashing the original white light pattern. While radio navigation replaced airway beacons by the 1970s, this one has been preserved due to a cooperative restoration effort in 1995.



Mounds Park Airway Beacon
Source: Wikimedia Commons

1.4.14. Airspace

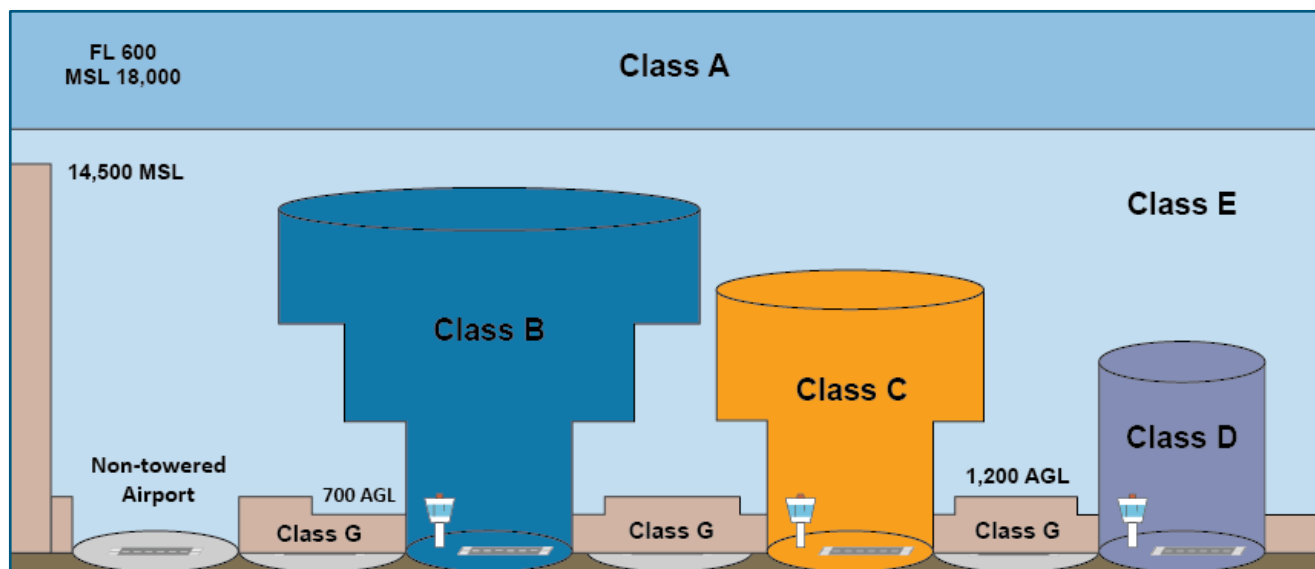
This section identifies and describes airspace environs surrounding STP, as well as imaginary surfaces that protect aircraft operating at and around the Airport. An Airport Geographic Information Systems (AGIS) survey was conducted in Summer 2024 that also included evaluation of potential obstructions to airspace and imaginary surfaces. These obstructions are depicted on the ALP that accompanies this LTP Update with dispositions.

1.4.14.1. Airspace Classifications

The National Airspace System (NAS) is divided into various classifications based on the level of service and operating rules, which impose specific requirements on aircraft operations, such as visibility minimums, cloud clearance, communication with ATC, and specific aircraft equipment. Airspace is generally categorized as controlled or uncontrolled, and special use or other airspace. Controlled airspace (Classes A, B, C, D, and E) is where ATC services are provided, while uncontrolled airspace (Class G) is where ATC has no authority or responsibility to control. These airspaces are depicted in **Figure 1.11** below.

Special use airspace designates areas where certain activities occur or where limitations must be imposed, and other airspace refers to the remaining airspace not covered by the aforementioned classifications. These classifications and operating requirements are designed to ensure the NAS operates at maximum levels of safety and efficiency.

Figure 1.11 - Airspace Classifications

**Sources:**

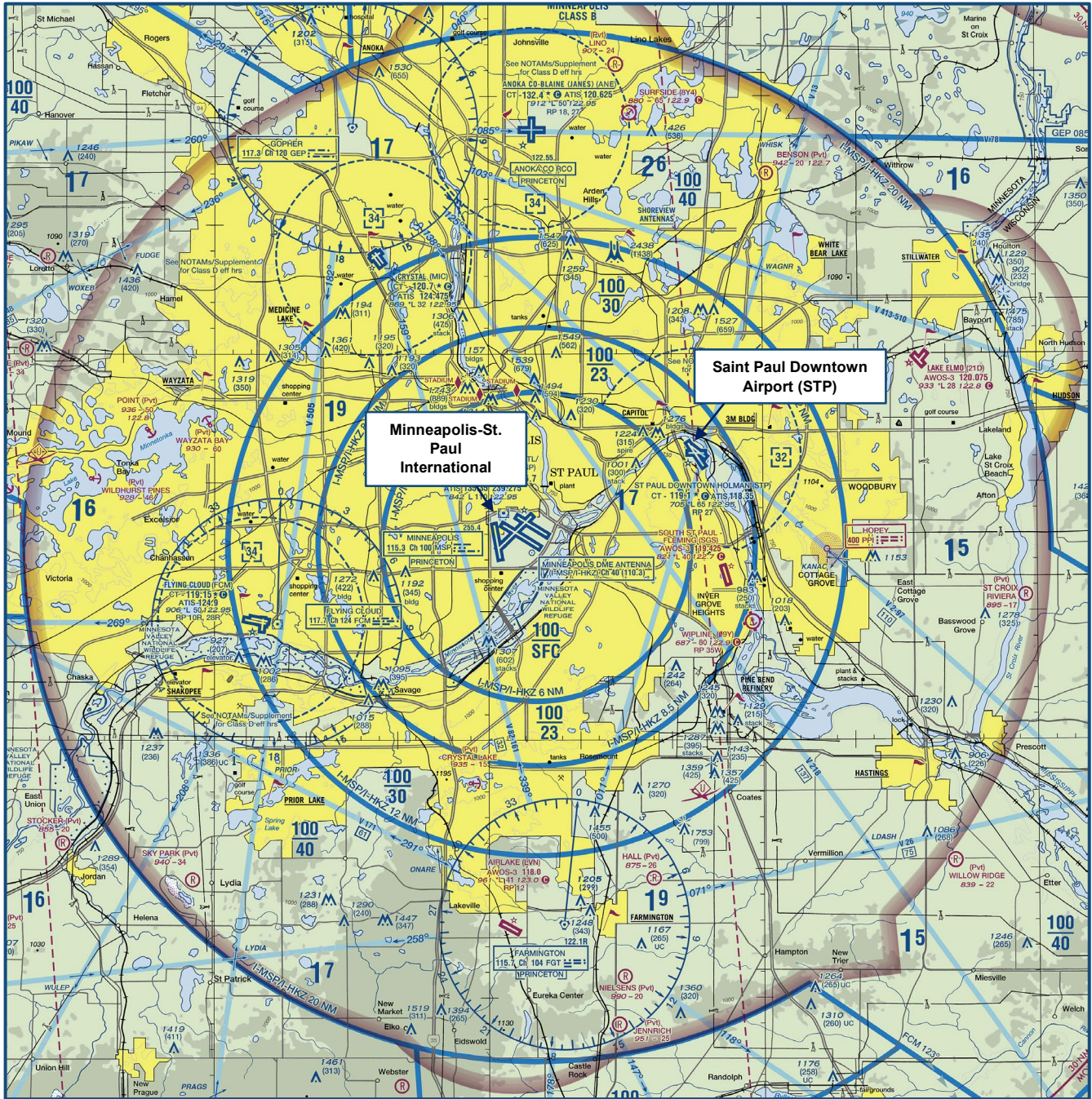
Federal Aviation Administration, Advisory Circular 150/5300-13B, Change 1, Airport Design, 2024.
 Kimley-Horn, 2024.

The airspace immediately surrounding STP is classified as Class D when the ATCT is operational (6:00 am to 10:00 pm Monday through Friday and 7:00 am to 10:00 pm Saturday and Sunday) and is Class E airspace at other times. Aircraft operating in the Class D airspace surrounding the Airport must maintain radio contact with the ATCT. This airspace is a circular area extending five miles from the Airport, reaching an altitude of approximately 2,500 feet AGL. At STP, the Class D ceiling is at 3,200 feet MSL, or 2,495 feet above the Airport's elevation.

As depicted in **Figure 1.12**, STP is situated approximately 8 miles from MSP such that the Airport lies beneath a portion of MSP's Class B airspace. This Class B airspace extends upward from various altitudes to 10,000 feet above MSL, with specific operating procedures for pilots. The Class B airspace above STP has a floor elevation of either 2,300 or 3,000 feet MSL, depending on the aircraft's location. By staying below these altitudes, pilots navigating to and from STP can avoid entering MSP's Class B airspace.



Figure 1.12 - Airspace Surrounding STP

**Sources:**

FAA Twin Cities Visual Flight Rules (VFR) Sectional, March 2022
Kimley-Horn, 2024.

1.4.14.2. Standard Flight Procedures

An airport's standard flight procedures regulate the movement of arriving and departing aircraft near airports. These procedures enhance airspace safety and efficiency, ensuring the orderly flow of traffic. FAR Part 91 outlines two primary flight rules: VFR and IFR. VFR is applicable under generally favorable weather conditions, characterized by adequate visibility.

Aircraft operations at STP are predominantly flown under VFR. Unlike IFR operations, VFR aircraft pilots bear the responsibility for ensuring adequate separation. The local traffic pattern altitude at STP is 1,905 feet MSL, which corresponds to 1,200 feet above the Airport elevation. All runways adhere to a standard left traffic pattern, with the exception of Runway 27, which utilizes a right traffic pattern. The ATCT will direct runway usage during calm wind conditions (winds less than 5 knots).

1.4.14.3. Instrument Flight Procedures

IFR is invoked when visibility decreases to less than three statute miles and/or cloud ceilings drop below 1,000 feet AGL. In IFR conditions, ATC is responsible for maintaining separation from other aircraft and obstacles. Instrument Flight Procedures (IFPs) assist pilots operating under IFR in determining their position, navigating between waypoints, and executing approaches and departures at airports. This section outlines the existing IFPs at STP.

Instrument Approach Procedures

The Airport is served by four Standard Instrument Approach Procedures (SIAP)¹⁵ that are described below.

Instrument Landing System (ILS) or Localizer (LOC) Approach – Runway 14:

An ILS is a precision approach that uses ground-based equipment to provide precise horizontal and vertical guidance to approaching pilots. This approach is aligned with Runway 14, has a descent path of 3.00 degrees, and supports AAC A through D. The approach begins 10.8 NM prior to the runway threshold at an altitude of 3,000 feet MSL. Alternatively, this approach may be flown as a LOC approach, which only employs the horizontal guidance component of the system. This then becomes a non-precision approach in which the pilot must rely on their own judgment for vertical guidance. Runway 14 is also equipped with a MALSR, designed to provide visual guidance to pilots and ensure accurate alignment with the runway centerline during the final approach phase.

Area Navigation (RNAV) Global Positioning System (GPS) Approach – Runway 14:

An RNAV GPS approach is a non-precision instrument approach procedure that utilizes a minimum descent altitude and a GPS receiver to provide accurate navigation and guidance for aircraft. RNAV refers to the ability of aircraft to navigate along a desired route that is not necessarily restricted to airways or radial routes. Unlike an ILS approach, no vertical guidance is offered. This approach is aligned with Runway 14, has a descent path of 3.00 degrees, and supports AAC A through D. The approach begins 11.8 NM prior to the runway threshold at an altitude of 3,000 feet MSL. As mentioned, Runway 14 is also equipped with a MALSR.

¹⁵ Federal Aviation Administration, Airport Data and Information Portal (accessed August 2024).



ILS or LOC Approach – Runway 32:

This approach is aligned with Runway 32, has a descent path of 3.00 degrees, and supports AAC A through D. The approach begins 10.2 NM prior to the runway threshold at an altitude of 2,500 feet MSL. As with the ILS approach to Runway 14, the pilot has the option to utilize the non-precision LOC approach to Runway 32 while relying on their own judgment for vertical guidance. However, unlike Runway 14, Runway 32 is not equipped with a MALSR.

RNAV GPS Approach – Runway 32:

Pilots may also utilize an RNAV GPS approach aligned with Runway 32. This approach has a descent path of 3.00 degrees, and supports AAC A through D. The approach begins 11.5 NM prior to the runway threshold at an altitude of 3,000 feet MSL.

Instrument Departure Procedures

Instrument Departure Procedures (IDPs) are preplanned routes designed for IFR operations. These procedures ensure that aircraft can safely transition from the Airport environment to the en route phase of flight by providing clear and obstacle-free paths. IDPs are crucial for maintaining safety, especially in poor weather conditions or low visibility, as they guide pilots through specific altitudes, headings, and waypoints to avoid terrain and obstacles. Additionally, these procedures help manage air traffic efficiently, reducing the risk of mid-air collisions and streamlining the flow of departing aircraft.

STP has seven published IDPs: COULT SEVEN, ORSKY THREE, ROCHESTER ONE, WLSTN SEVEN, ZMBRO SEVEN, SCHEP ONE, and KBREW TWO. These IDP charts can be found at the FAA's Airport Data and Information Portal (ADIP) or in the Terminal Procedures Publication (TPP).

1.4.14.4. Noise Abatement

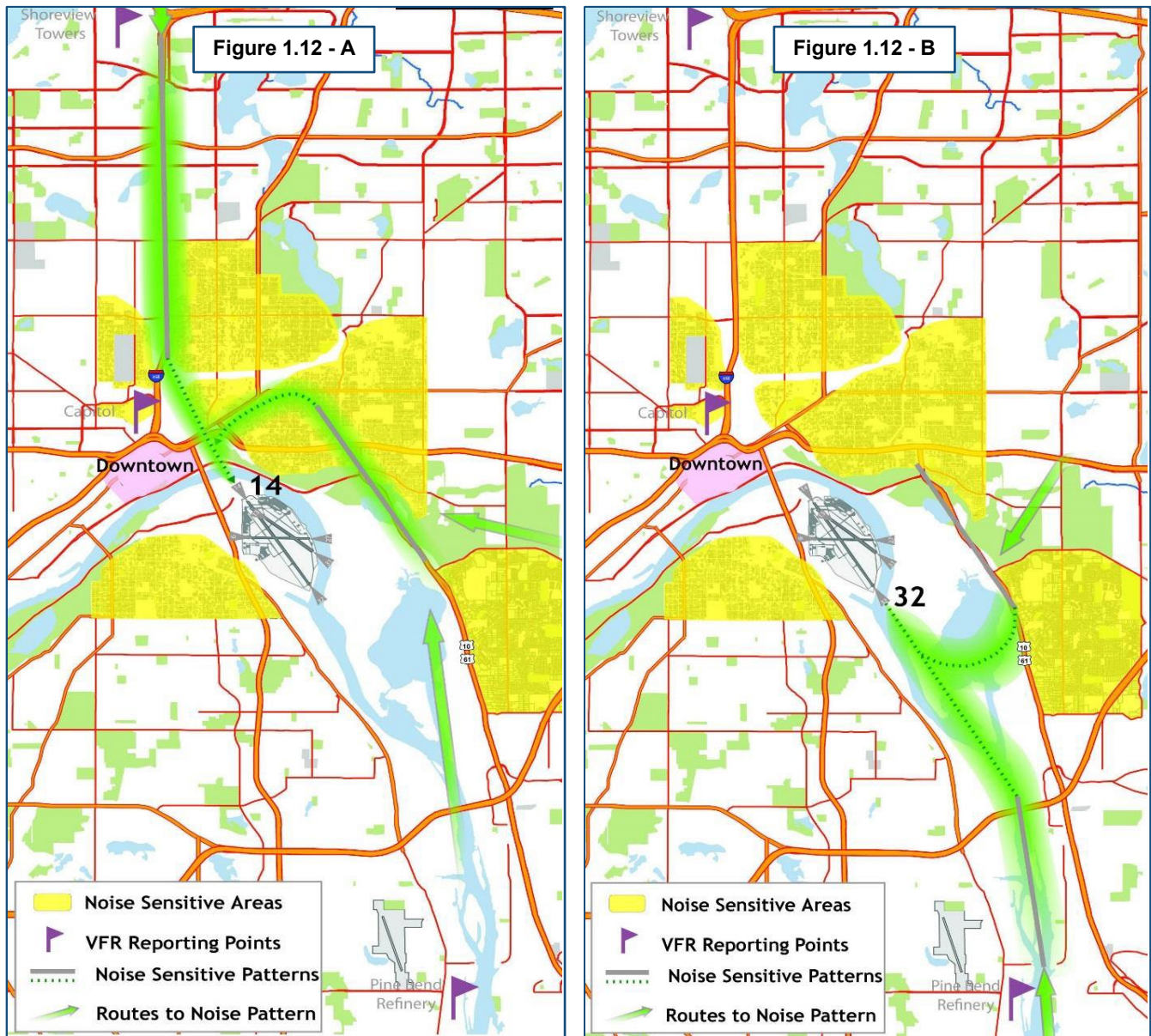
The noise abatement plan for the Airport was updated in 2015. Originally, it was developed to enhance environmental compatibility between the Airport and the surrounding community. The primary objective of the noise abatement plan is to route most STP traffic over sparsely populated areas, such as the Mississippi River Valley, nearby interstate highways, or railroad areas, to minimize flights over residential zones. Additionally, raising the traffic pattern altitude to 1,200 feet helps to reduce noise levels over sensitive areas. The procedures in the plan are recommendations and are not intended to replace safe aircraft operations or compliance with Federal Aviation Regulations (FARs).

The plan is the result of a collaborative effort involving airport users, businesses, the Saint Paul Downtown Airport Advisory Council, City of Saint Paul officials, FAA representatives, and the MAC. It also incorporates provisions and recommended procedures from the June 19, 2006 Supplemental Conditions of Agreement for the floodwall at STP.

Among the various procedures included, the plan designates Runway 14/32 for jet operations, identifies runway 14 as the preferred "calm wind" runway, designates two locations for maintenance run-ups and engine tests, and specifies that, during non-tower hours, aircraft should follow the preferred noise abatement arrival and departure routes and avoid noise sensitive residential areas. **Figure 1.13** depicts the preferred noise abatement arrival routes for Runway 14 (**Figure 1.13 - A**) and Runway 32 (**Figure 1.13 - B**). Likewise, **Figure 1.14** depicts the preferred noise abatement departure routes for Runway 32

(Figure 1.14 - A) and Runway 14 (Figure 1.14 - B). The Airport also discourages intersection takeoffs at all times and prohibits them between the hours of 10:00 pm and 7:00 am local time.¹⁶

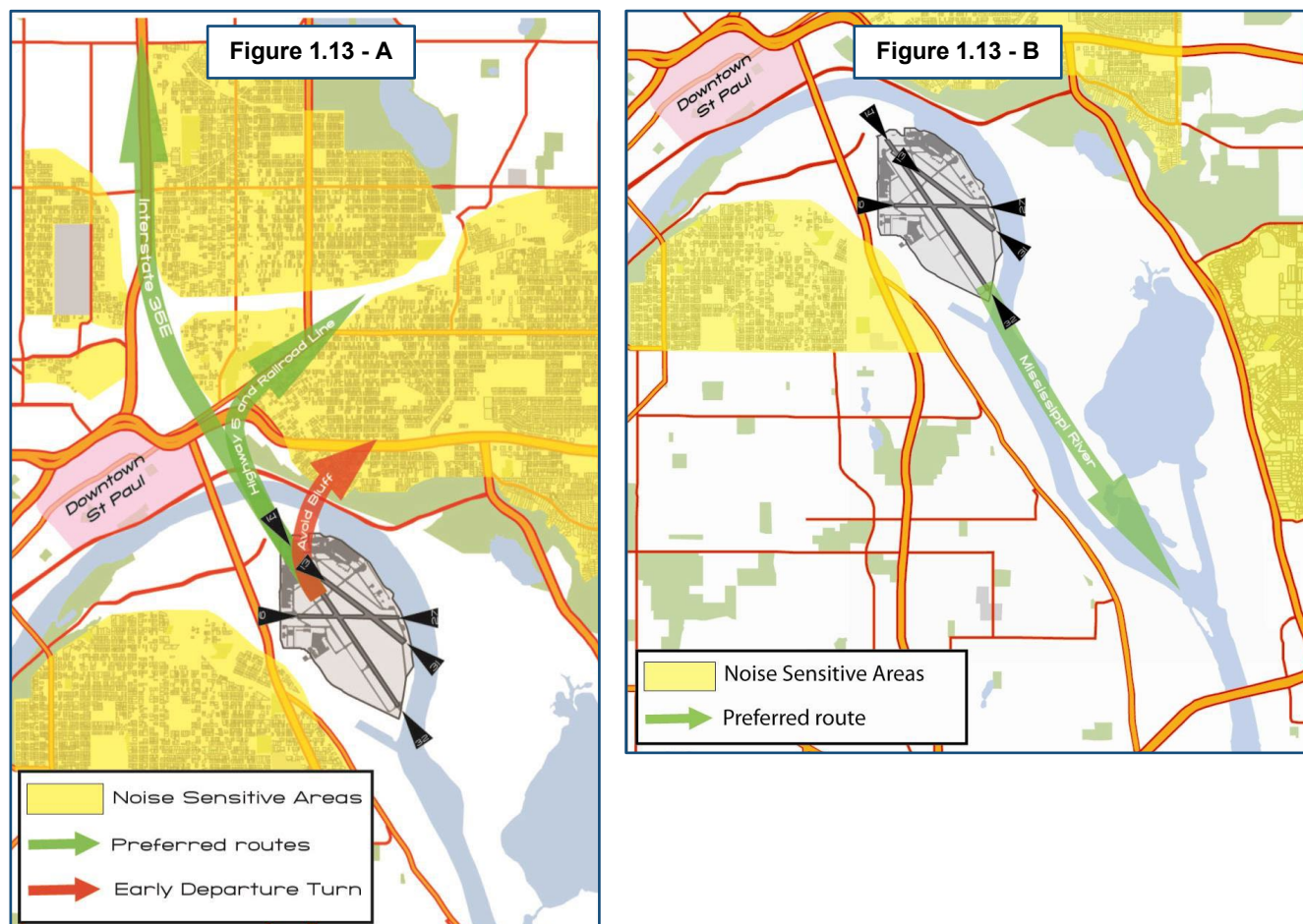
Figure 1.13 - Preferred Noise Abatement Arrival Routes



Sources:
 Noise Abatement Plan Saint Paul Downtown Airport, Updated 2015.
 Kimley-Horn, 2024.

¹⁶ Metropolitan Airports Commission, *Noise Abatement Plan Saint Paul Downtown Airport*, Updated 2015.

Figure 1.14 - Preferred Noise Abatement Departure Routes



Sources:
 STP Noise Abatement Plan, Revised September 16, 2015.
 Kimley-Horn, 2024.

1.5. General Aviation

Landside facilities at GA airports encompass a range of essential services and infrastructure designed to support the smooth operation of the Airport and enhance the experience of airport users. These facilities typically include parking areas, access roads, terminal buildings, and administrative offices. They provide critical operational functions and access points to the Airport. Please refer to **Figure 1.4** and the ALP that accompanies this LTP update for locations and depictions of these facilities.

1.5.1. Holman Field Administration and Terminal Building

The Holman Field Administration Building, located on the northeast corner of the airfield, was constructed in 1939. Designed by Clarence Wigington and built by the Works Progress Administration (WPA), this building is a prime example of Moderne architecture and has been carefully preserved and repurposed by the MAC. The approximately 19,500 square foot building originally served as the



Airport's control center and passenger terminal. Today, it continues to function as an administrative hub, housing various airport operations and services including a public restaurant (Holman's Table). Its historical significance is recognized by its listing on the National Register of Historic Places, making it not only a functional space but also a cherished landmark in Saint Paul.

1.5.2. U.S. Customs and Border Protection (CBP)

STP is designated as a landing rights airport for U.S. Customs and Border Protection (CBP), and international arrivals are processed at a GA Facility (GAF). As of the time of this writing, the Airport is the only reliever airport in the MAC system with international capabilities. Currently, customs operations are handled in a small CBP office within the administration building, but a new, purpose-built CBP GA Facility is currently under construction adjacent to the terminal on the north end of the Airport. This new 4,800-square-foot facility (expected opening in 2026-2027) is designed to meet both CBP and MAC standards for current and future operations, and will include waiting rooms, passenger processing areas, officer offices, utility rooms, restrooms, and dedicated search and interview rooms, along with advanced sustainability features such as geothermal heat pumps, solar panels, and a green roof. The MAC will pursue LEED Gold certification for this new facility.

CBP inspection services are available daily from 7:00 a.m. to 9:00 p.m., but the location is not regularly staffed; officers are dispatched as needed for approved arrivals. The new facility is expected to handle 100 to 150 international flights per year, operating for about 200 hours annually, with CBP staff continuing to travel from MSP for arrivals.

1.5.3. Fixed Base Operator (FBO) Facilities

An FBO is a business granted the right by an airport to provide a range of essential aeronautical services. These services typically include aircraft fueling, hangar storage, tie-down and apron parking, aircraft rental, maintenance, and flight instruction. FBOs primarily support GA, which encompasses private and recreational flying, by ensuring that aircraft, passengers, and crew have the necessary services and amenities for safe and efficient operations. They play a crucial role in maintaining the infrastructure and operational efficiency of airports, especially those with high to moderate traffic volumes. STP currently has two FBOs and one vacant space for an additional FBO.

1.5.3.1. Signature Aviation

Signature Aviation is the world's largest network of FBOs and currently operates a location on the south side of the Airport. This FBO offers the various flight support services and amenities including:

Flight Support Services

- | | |
|--------------------------|--------------------------------------|
| • Aircraft Cleaning | • Catering 3rd Party |
| • Aircraft Maintenance | • Catering Refrigeration |
| • Aircraft Parking | • Concierge Services |
| • Aircraft Rental | • Conference Room |
| • 200,000 sq. ft. Hangar | • Courtesy Crew Transportation |
| • 57,800 sq. yards Apron | • Customs and Immigration On Airport |
| • Avionics Service | • Defueling |
| • 24 Hour Surveillance | • Deicing/Anti-ice |
| • Business Center | • Engine Preheat |



- Flight Planning
- Fuel Farm
- 100LL Line Service
- Crew Room
- International Trash Disposal
- Internet (Wi-Fi) Access
- Laundry Service - Off Site
- Lavatory Service
- Limousine Service
- Kitchen
- Lockers

Amenities

- Jet-A Line Service
- Fuel System Icing Inhibitor (Prist)
- Heated Hangar
- Helicopter Handling
- Overnight Hangar
- Quick Turns
- Transient Hangar Space
- Long Term Vehicle Parking
- Ramp Side Vehicle Access
- Rental Cars
- Restrooms
- Short Term Vehicle Parking
- Showers
- Weather Planning Service
- Snooze Room
- Taxi Service
- VIP/Head of State Handling
- Wheelchairs & Lift

1.5.3.2. Saint Paul Flight Center

Saint Paul Flight Center is a full service FBO located on the west side of the Airport. This FBO offers various flight support services and amenities including:

Flight Support Services

- Aircraft Cleaning
- Aircraft Maintenance
- Aircraft Parking
- Aircraft Rental
- 64,000 sq. ft. Hangar
- Avionics Service
- Customs and Immigration On Airport
- Engine Preheat
- Flight Planning
- Fuel Farm
- 100LL Line Service
- Jet-A Line Service
- Heated Hangar
- Overnight Hangar
- Quick Turns
- Ramp Space
- Transient Hangar Space
- Weather Planning Service

Amenities

- Business Center
- Catering 3rd Party
- Catering Refrigeration
- Computers
- Concierge Services
- Conference Room
- Courtesy Crew Transportation
- Crew Room
- Internet (Wi-Fi) Access
- Lavatory Service
- Limousine Service
- Kitchen
- Lockers
- Long Term Vehicle Parking
- Ramp Side Vehicle Access
- Rental Cars
- Rental Office Suites
- Restrooms
- Short Term Vehicle Parking
- Showers
- Snooze Room
- Taxi Service

1.6. Support Facilities

An airport's support facilities are integral to maintaining the safety, efficiency, and reliability of airport operations. This section describes the ancillary and support facilities and infrastructure at the Airport, including aircraft fuel storage, emergency response facilities, and maintenance infrastructure.

1.6.1. Fuel and Storage Facilities

The Airport has a total fuel and oil storage capacity of 267,550 gallons, distributed across various underground and aboveground facilities. Of this total, 47,550 gallons are stored in aboveground tanks (both fixed and mobile) while 220,000 gallons are stored in underground tanks. A breakdown of storage capacity by fuel type is provided in **Table 1.17**.

Table 1.17 - Storage Capacity by Fuel Product

Product Stored	Capacity (Gallons)
AvGas (100 Low Lead)	30,000
Jet-A Fuel	235,250
Diesel	200
Unleaded Gasoline	300
Used Oil	1,800
TOTAL	267,550

Sources:
Individual Operator Reports, 2024.
Kimley-Horn, 2024.

Both 100 Low Lead Aviation Gas (AvGas) and Jet-A fuel are publicly available on-site through the Airport's two FBOs:

- Signature Flight Support provides:
 - AvGas from a 12,000-gallon underground tank.
 - Jet-A fuel from three underground tanks: two with 15,000 gallons each and one with 20,000 gallons.
 - Additional fuel and oil are stored in mobile trucks with a combined capacity of 1,750 gallons.
- St. Paul Flight Center offers:
 - AvGas and Jet-A fuel from two 12,000-gallon aboveground tanks, one for each fuel type.

In addition to FBO-operated facilities, private fuel storage exists throughout the airport, primarily in underground tanks. Notably, Best Jets operates a 20,000-gallon aboveground Jet-A fuel tank located on the south side of the Airport.

Historical fuel sales data for STP, covering Fiscal Years 2019 through 2023, is presented in **Table 1.18**.

Table 1.18 - Historical STP Aviation Fuel Flowage (Gallons)

Year		
	2,714,713	31,985
2021	3,737,206	55,672
2022	4,330,244	57,641
2023	3,924,537	73,874
TOTAL	18,882,093	276,782

Sources:
 Individual Operator Reports, 2024.
 Kimley-Horn, 2024.

1.6.2. Aircraft Repair and Maintenance

STP is the home to several providers offering aircraft repair and maintenance services:

- **Signature TECHNICAir:** Signature TECHNICAir is an FAA Part 145 repair station located on the south side of the airfield adjacent to the main Signature FBO building. They provide a range of services including light to moderate maintenance, inspections, and repairs. They also offer mobile service units that can cover various airports in the region.
- **Duncan Aviation:** Located just to the east of Signature TECHNICAir, Duncan Aviation specializes in avionics line maintenance, troubleshooting, upgrades, and installations. They also provide maintenance assists and data analysis.
- **Saint Paul Flight Center:** This full-service FBO is housed on the west side of the airfield, just south of the Saint Paul Army Aviation Facility. It offers support services for corporate and GA including routine aircraft maintenance and repair.

1.6.3. Airport Maintenance and Equipment Storage Facilities

The MAC is responsible for snow removal, upkeep, and general maintenance of the Airport. Four maintenance and equipment buildings support the efficacy of these operations. One is located at the north end of the main terminal parking lot. The other three are function specific and are located adjacent to the south hangar area near the airfield beacon. One is an equipment and parts building that includes a private fuel farm with diesel and unleaded fuel for MAC equipment as well as an area dedicated to recycling and disposal of used aircraft oil. Another houses snow removal equipment, and the third serves as a storage facility for the Airport's temporary flood wall materials. Maintenance crew office space, break rooms, restrooms, and showers are also available in these facilities.¹⁷

¹⁷ A list of maintenance/SRE equipment is being provided by the Airport.



1.6.4. Emergency Response¹⁸

Title 14 Code of Federal Regulations Part 139 (14 CFR Part 139) requires airports that handle scheduled or unscheduled air carrier aircraft with more than 30 seats, or those serving scheduled air carrier aircraft with 9 to 31 seats, to provide on-airport aircraft rescue and firefighting (ARFF) equipment and services during operations.¹⁹ Since STP's current operations do not include these services, on-airport ARFF equipment is not necessary. However, the MAC has established a mutual aid agreement with the City of Saint Paul to provide ARFF and emergency response services.

1.6.5. Deicing Areas

The Airport offers aircraft deicing and anti-icing services primarily through its on-site FBOs, which are located on the west and south sides of the airfield. These FBOs (St. Paul Flight Center and Signature Aviation) provide line services that include deicing for GA and corporate aircraft. Deicing operations are typically conducted on designated ramp areas adjacent to the FBO facilities, where trained personnel apply glycol-based fluids to remove ice and prevent accumulation on aircraft surfaces prior to departure. Most aircraft at STP can be stored inside heated hangars, which reduces the frequency and volume of outdoor deicing required. For those aircraft that do require deicing, services are arranged directly with the FBOs during the Airport's operating hours.

The Airport's environmental management practices address the potential impacts of deicing chemicals on water quality and surrounding ecosystems. FBOs are responsible for maintaining their own stormwater discharge permits from the Minnesota Pollution Control Agency (MPCA), along with Storm Water Pollution Prevention Plans (SWPPP) and Spill Prevention Control and Countermeasure (SPCC) plans. The MAC also maintains a general stormwater discharge permit and implements best management practices for protecting stormwater conveyances, wetlands, and groundwater.

Minor amounts of urea may be used on runways during icing conditions, while salt is avoided due to its corrosive nature. Sand is applied on a limited basis depending on weather. The Airport's drainage system, upgraded in 2005, includes infiltration basins and reduced direct outlets to the Mississippi River, which helps manage runoff and limit the environmental impact of deicing and other chemicals. These measures, combined with the limited use of deicing fluids, result in minimal impact on water quality from airport operations.

1.6.6. Airport Fencing and Security

STP maintains security infrastructure to ensure the safety of its operations. The Airport is partially enclosed by a chain link security fence along the non-Mississippi perimeter of the property, providing a physical barrier to unauthorized access. The Airport is also equipped with a full perimeter wildlife fence. Additionally, an access control system is in place to regulate entry to the Airport Operating Areas (AOA), ensuring that only authorized personnel can access sensitive zones. Complementing these measures, a comprehensive CCTV security system is employed to monitor activities in the Terminal, enhancing overall security and situational awareness.

¹⁸ This section is being updated pending additional information on the Airport's Emergency Response Plan.

¹⁹ Federal Aviation Administration, Airport Safety, 2020.

1.6.7. Utility Infrastructure

The Airport benefits from robust utility infrastructure that supports airport operations, tenant needs, and future development. Water service is provided by Saint Paul Regional Water Services, which supplies drinking water to the Airport and surrounding areas. Tenants are billed directly by the utility, and the system is self-supporting through service fees rather than local taxes.

Electricity at STP is supplied by Xcel Energy, the region's primary electric utility. Xcel Energy provides both single-phase and three-phase power to the Airport, with capacity for future expansion to support emerging needs such as electric aviation and increased electrification of airport operations. Electric lines are located both above and below ground, depending on the location and operational requirements. According to the Airport's previously FAA-approved ALP, one utility pole located across the Mississippi River to the south of Runway 32 is listed as an obstruction, clearing the threshold siting surface by 24 feet. Other above-ground electrical lines near the Airport do not pose a hazard to air navigation.

Natural gas service is provided by CenterPoint Energy, which is the largest natural gas utility in Minnesota. Most tenants at the Airport rely on natural gas and electricity as their primary energy sources. CenterPoint Energy's infrastructure supports heating, hot water, and other operational needs for airport facilities and tenants.

Utility lines and infrastructure are managed in coordination with the MAC and the City of Saint Paul. The Airport's utility systems are designed to minimize hazards and maintain compliance with FAA and city standards. Utility work within the Airport and adjacent public right-of-way requires coordination with city permitting processes to ensure safety and operational continuity.

1.7. Environmental Overview

This section provides an overview of the environmental setting at STP and its surrounding area, highlighting key environmental factors that may be influenced by future airport development. The information presented is based on a review of environmental documents, agency databases, and previous studies. While environmental considerations are an important part of long-term planning efforts and help guide the identification of potential projects in the LTP Update, it is important to note that a comprehensive assessment of environmental impacts is ultimately conducted through the National Environmental Policy Act (NEPA) process after the LTP Update is completed and specific projects are funded or programmed. The subsections that follow are intended to inform planning decisions and identify areas of potential concern, but do not constitute a formal environmental review.

1.7.1. Air Quality

Under the Clean Air Act (42 U.S.C. 7401-7671q), the U.S. Environmental Protection Agency (EPA) has set National Ambient Air Quality Standards (NAAQS) for six key air pollutants that pose risks to public health and the environment: carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO₂), ozone (O₃), particulate matter (PM_{2.5} and PM₁₀), and sulfur dioxide (SO₂).²⁰ Areas where air pollutant levels exceed these standards are designated as "nonattainment areas." State and local governments in these

²⁰ U.S. Environmental Protection Agency, NAAQS Table, 2016.

areas have three years to create implementation plans detailing how they will achieve and maintain the standards by reducing air pollutant emissions.²¹

In Minnesota, the MPCA is responsible for monitoring air quality and ensuring compliance with the EPA's NAAQS. Based on the EPA's Nonattainment/Maintenance Status Report (as of August, 2024) Ramsey County, MN, is currently designated as a maintenance area for carbon monoxide (CO) and particulate matter (PM-10). This means that while it was previously classified as a nonattainment area, it has since achieved compliance with the NAAQS and is now maintaining those standards.

1.7.2. Federal and State Inventory Of Endangered and Threatened Species

The Endangered Species Act (16 U.S.C. 1531-1544, 87 Stat. 884) and the Fish and Wildlife Coordination Act (16 U.S.C. 661-667e, 48 Stat. 401) mandate that agencies must ensure that their actions do not put endangered or threatened species or their habitats at risk. The U.S. Fish and Wildlife Service (USFWS) is responsible for federally endangered and threatened species in Minnesota. Under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act, the USFWS designates specific bird species as Birds of Conservation Concern. These bird species are considered to have the highest priority for conservation efforts. In Minnesota, the state agency responsible for monitoring and managing endangered and threatened species is the Minnesota-Wisconsin Ecological Services Field Office.

Due to the Airport being built on property that was previously marsh land, and being in close proximity to the Mississippi River, the Airport is home to a variety of threatened and endangered species and migratory Birds of Conservation concern. According to the USFWS's Information for Planning and Consulting tool, and as depicted in **Table 1.19**, there are 7 federally listed endangered or threatened species, no critical habitats, two species of eagle, and 23 migratory birds within the general vicinity of the Airport (approximately a 5-mile radius).

Table 1.19 - Endangered, Threatened, and Birds of Concern Species within the Airport's Environs

Common Name	Scientific Name	Status/Breeding Season
Mammals		
Northern Long-eared Bat	Myotis septentrionalis	Endangered
Tricolored Bat	Perimyotis subflavus	Proposed Endangered
Birds		
Whooping Crane	Grus americana	Proposed experimental population, Non-essential
Clams		
Higgins Eye (pearlymussel)	Lampsilis higginsii	Endangered Species
Salamander Mussel	Simpsonaias ambigua	Proposed Endangered
Insects		
Monarch Butterfly	Danaus plexippus	Candidate
Rusty Patched Bumble Bee	Bombus affinis	Endangered

Sources:

U.S. Fish and Wildlife Service Information for Planning and Consultation tool (accessed April 2024).
Kimley-Horn, 2024.

²¹ U.S. Environmental Protection Agency, Nonattainment Areas for Criteria Pollutants Green Book, 2024.



1.7.3. Water Resources

1.7.3.1. Stormwater Management

Significant volumes of stormwater runoff from airport infrastructure and operations can affect local water resources. STP is located in the Lower Mississippi River watershed. This watershed is a significant part of the region, influencing local water resources and ecosystems. At STP, industrial activities such as aircraft and vehicle maintenance, deicing, equipment cleaning, fueling and defueling, outdoor material and waste storage, and construction are common. These activities involve the storage, transfer, use, and disposal of materials like fuel, solvents, degreasers, lubricants, adhesives, and paints.

Section 401 of the Clean Water Act (33 U.S.C. 1251, et seq.) and the National Pollutant Discharge Elimination System (NPDES) set quality standards and guidelines for water discharges from industrial facilities, construction sites, and municipal storm sewer systems. The MPCA also regulates industrial stormwater through a Permit Program, overseeing the discharge of stormwater related to industrial activities into Minnesota's waters in line with state requirements. To comply with federal and state regulations, airports must assess the impact of their activities on local water resources and implement measures to mitigate or prevent negative environmental effects. The MAC holds a general stormwater discharge permit for STP from the MPCA. Additionally, it maintains a Water Management Plan for the Airport along with a SWPPP and a SPCC. These plans direct the stormwater management projects at the Airport. FBOs must also have their own general stormwater discharge permit from the MPCA, as well as their own SWPPP and SPCC plans based on their activities.

In 2013, the Airport launched several projects aimed at enhancing the stormwater removal system, reducing groundwater infiltration, repairing structurally compromised areas, and decreasing the need for additional pumping during floods. The MAC conducted a preliminary engineering investigation, which included inspecting the storm system. The investigation aimed to identify operational deficiencies and provide recommendations and cost estimates for future improvements. The study focused on four main elements: the outlet sluice gate, storm sewer structures, storm sewer pipes, and the system's overland drainage path to the Mississippi River.

The investigation findings recommended that the MAC program for several prioritized phases of improvements to the storm sewer system that serves the west building area and portions of the south building area. The investigation findings suggested that the MAC should plan for several prioritized phases of improvements to the storm sewer system serving the west building area and parts of the south building area.

While this section provides a high-level overview of stormwater management and related environmental practices at STP, it is important to recognize that the information presented here is intended to inform long-term planning and guide future decision-making. A more detailed and project-specific analysis of environmental impacts, including stormwater, water quality, and regulatory compliance, will be conducted through the NEPA process after the LTP Update is adopted and individual projects are integrated into the Capital Improvement Program (CIP). This ensures that all environmental considerations are thoroughly evaluated and addressed before any project moves forward.

1.7.3.2. Floodplains

The Federal Emergency Management Agency (FEMA) defines floodplains as low-lying, relatively flat areas adjacent to inland and coastal waters that have a 1% or greater chance of flooding in any given year. These areas are delineated on FEMA's Flood Insurance Rate Maps (FIRM) to support the National Flood Insurance Program and guide local land use decisions. At STP, the FEMA FIRMs place the majority of airport property within the Mississippi River's special flood hazard area, with a portion of the southeast airfield located in the river's regulatory floodway. The Airport's location within the Lower Mississippi River Watershed Management Organization adds complexity to its environmental context, presenting both challenges and opportunities for future development, as depicted in **Figure 1.15**.

Flooding has historically posed a significant operational risk for STP. Major flood events in 1965, 1969, 1993, 1997, and 2001 resulted in extended airfield closures, collectively rendering the Airport inoperable for 210 days and impacting airport tenants, local businesses, and the broader Twin Cities air system. More recently, high water events have occurred with increasing frequency, including in 2010, 2011, 2014, 2019, 2023, and 2024. The Airport's floodwall system (discussed in **Section 1.4.1**) provides substantial protection against these events so the Airport can remain within the mapped floodplain, but it does not eliminate all risk, especially from floods exceeding the design threshold.

The Saint Paul Downtown Airport Flood Fight Manual, initially created for the MAC in 2010 following construction of the floodwall, was updated in October 2014. This revision incorporated changes to the flood protection infrastructure and included lessons learned from previous flood fight efforts. The manual aims to provide the Flood Fight Coordinator, Engineer, and Flood Fighter with detailed procedures for maintaining the flood protection system, preparing for and conducting a flood fight, and recovering after a flood event at the Airport. It also offers recommendations on critical decision points to ensure timely implementation of flood protection measures to safeguard the airfield and the environment.

To provide context for flood risk and airfield vulnerability, **Table 1.20** summarizes significant flood events at STP, including the maximum recorded river crest for each year and the corresponding river elevation (NAVD88). The river level (NAVD88) is calculated by adding the USGS gauge reading to the gauge datum (683.26 ft NAVD88), allowing direct comparison to airport elevations and floodwall thresholds. For context, the floodwall protection system low point on the airfield is 699.63 feet NAVD88. When the river approaches or exceeds this airfield elevation, flooding and operational disruptions become likely. This table helps illustrate the relationship between river stage, floodwall deployment, and airfield impacts over time.

**Table 1.20 - Historical Flooding Events at STP**

Year	Flood Event	Max River Crest (ft, Gauge)	River Level (ft, NAVD88)	Airfield Impact
1965	Major Flood	26.01	709.27	Airfield Closure
1969	Major Flood	24.52	707.78	Airfield Closure
1993	Major Flood	19.15	702.41	Airfield Closure
1997	Major Flood	22.37	705.63	Airfield Closure
2001	Major Flood	23.76	707.02	Airfield Closure
2010	Spring and Autumn High Water Events	18.6	701.86	Floodwall Deployed, No Full Closure
2011	High Water Event	19.0	702.26	Floodwall Deployed, No Full Closure
2014	High Water Event	20.13	703.39	Floodwall Deployed, No Full Closure
2019	High Water Event	20.19	703.45	Floodwall Deployed, No Full Closure
2023	High Water Event	18.13	701.39	Floodwall Deployed, No Full Closure
2024	High Water Event	20.17	703.43	Floodwall Deployed, No Full Closure

Sources:*St. Paul Downtown Airport Flood Fight Manual, Revision 2, Issued October 2014.*USGS Water Data for St. Paul, MN (05331000): <https://waterdata.usgs.gov/monitoring-location/05331000/>NOAA/NWS Historic Crests: <https://water.weather.gov/ahps2/crests.php?wfo=mpx&qage=stpm5>

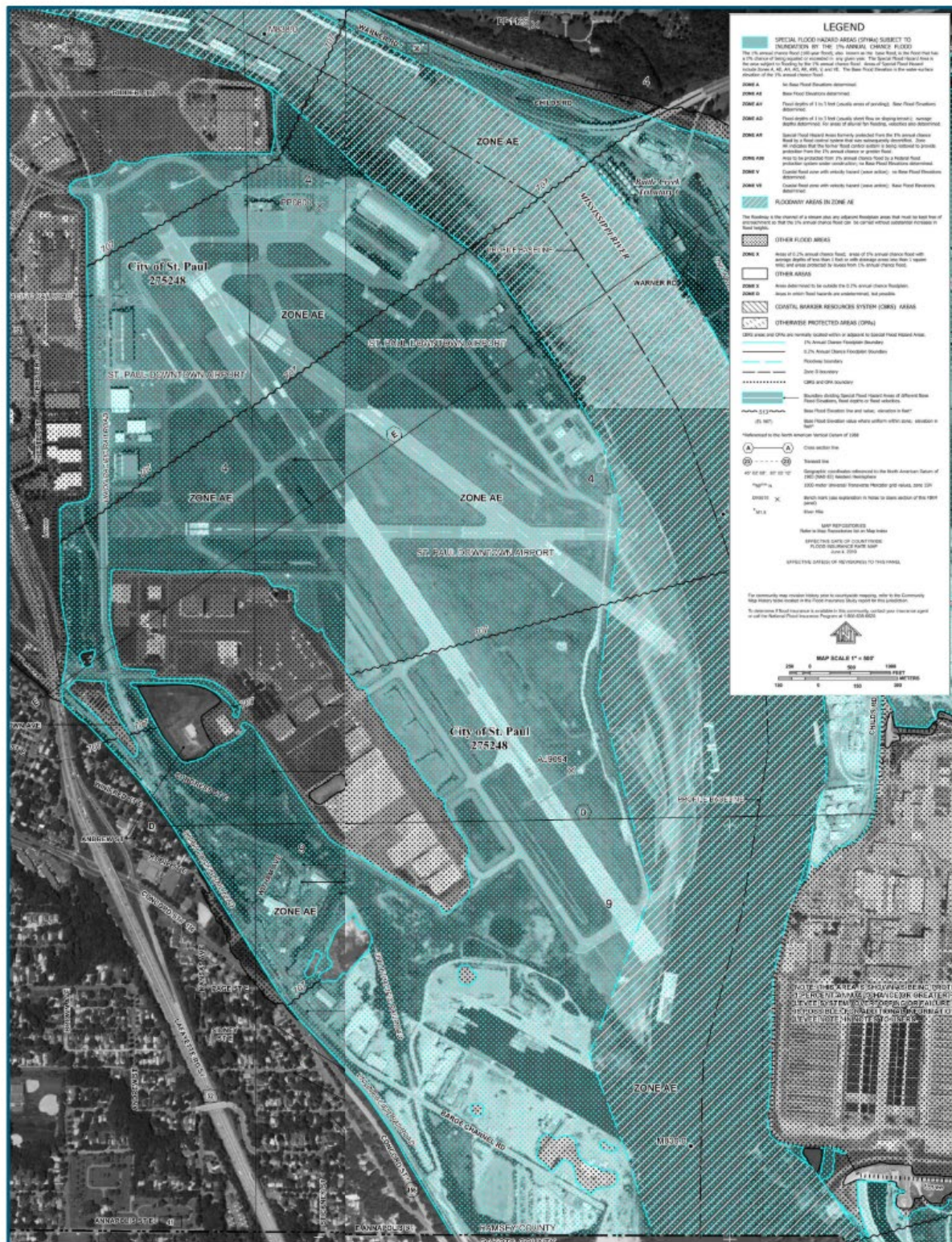
Internal MAC records.

Kimley-Horn, 2024.

While this overview provides a high-level understanding of floodplain context and historical flood risk at STP, it is important to note that detailed flood risk assessments and mitigation strategies are addressed through dedicated studies and the NEPA process after the LTP Update is adopted and specific projects are programmed. As part of this LTP Update, a formal floodwall feasibility study was conducted. Findings are summarized in **Chapter 3**, with the full report included in **Appendix B**.

The findings of the floodwall feasibility study are integral to the LTP analysis going forward. By quantifying the protection provided by the floodwall and identifying the remaining vulnerabilities, the study informs how flood risk should be considered in future airport forecasts and operational planning. In particular, the analysis of floodwall deployment and river level thresholds directly influences the assessment of runway length needs, as the Airport must plan for two distinct operational scenarios: one with the airfield in its standard configuration, and another with reduced runway lengths and limited access during floodwall deployment. These dual conditions are unique to STP and require careful consideration in both facility requirements and long-term development alternatives. As the LTP process advances, the floodwall study will help evaluate how proposed projects or airfield modifications might interact with floodplain constraints, ensuring that future plans are resilient, regulatory-compliant, and responsive to both historical experience and projected climate trends.

Figure 1.15 - Mississippi River Floodplain Map



Source:
Federal Emergency Management Agency
National Flood Insurance Program, Flood Insurance Rate
Map (FIRM), Ramsey County, MN, Map Repository.

1.7.3.3. Wetlands

The EPA defines wetlands as areas where water covers the soil either fully or partially, such as marshes, swamps, bogs, and fens. “Waters of the U.S.” encompasses various water bodies, including traditional navigable waters, interstate waters, territorial seas, impoundments, tributaries, and vegetated wetlands adjacent to these waters. This definition was recently updated to align with the U.S. Supreme Court’s decision in the case of *Sackett v. Environmental Protection Agency*.²² Wetlands and Waters of the U.S. are protected under Sections 401 and 404 of the Clean Water Act (33 U.S.C. 1251, et seq.) and Executive Order 11990, Protection of Wetlands. Federal mandates require agencies to avoid impacts to wetlands and Waters of the U.S. as much as possible. If impacts are unavoidable, agencies must demonstrate that no practical alternative exists and provide measures to mitigate the unavoidable impacts of the proposed development.

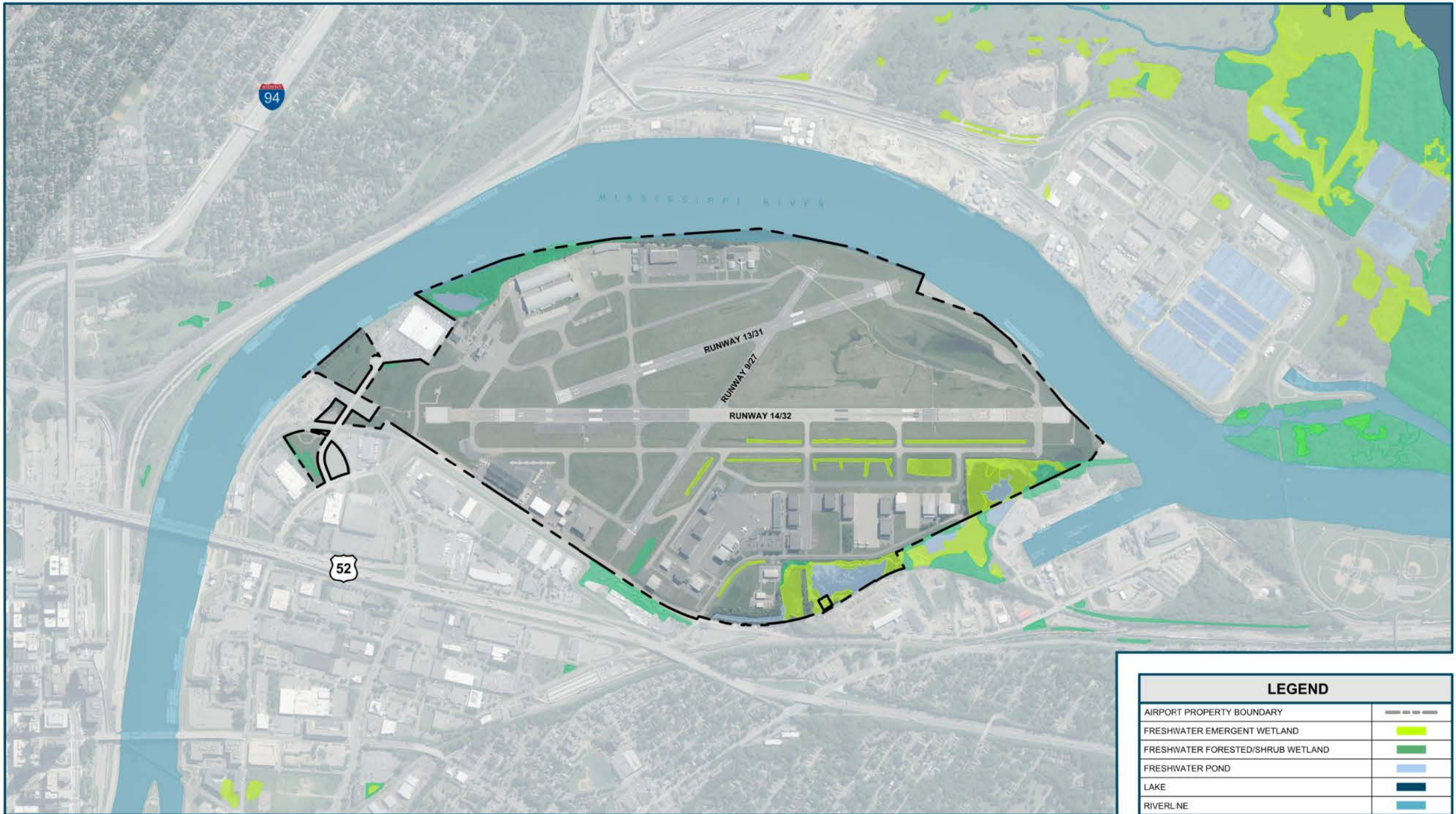
The USFWS National Wetlands Inventory (NWI) identifies three wetland areas on or intersecting the Airport’s property as depicted in **Figure 1.16**. Two of these wetlands are located southwest of the airfield near the south hangar area. They are classified as PEM1C/F (a freshwater emergent wetland) and PFO1A (a freshwater forested/shrub wetland). These wetlands are remnants of pre-existing wetlands left in place after the construction of Runway 14/32 and the south hangar area. A small portion of this wetland also remains near the south end of Runway 32, between Taxiways A and B. The third wetland area is situated near the northeast side of the Airport, between the north hangar area and the river, and is classified as PFO1C (a freshwater forested/shrub wetland).²³ Any potential airport development impacting these wetlands would require coordination with the U.S. Army Corps of Engineers to determine if they are considered Waters of the U.S. under the Navigable Waters Protection Rule and subject to Sections 401/404 of the Clean Water Act.²⁴

In addition to informing the LTP Update and guiding the NEPA process, the identification and protection of wetlands and Waters of the U.S. at the Airport have ongoing relevance for airport management and future planning efforts. Regulatory requirements and best practices for wetland stewardship extend beyond the adoption of the LTP, influencing how the Airport approaches maintenance, capital improvement programming, and long-term land use decisions. As federal and state definitions or permitting processes evolve, continued coordination with resource agencies will be necessary to ensure compliance and to support sustainable airport operations.

²² Sackett v. Environmental Protection Agency, May 25, 2023 (<https://www.epa.gov/system/files/documents/2023-05/Sackett%20Opinion.pdf>).

²³ National Wetlands Inventory, Wetlands Mapper (accessed August, 2024).

²⁴ Environmental Protection Agency, Current Implementation of “Waters of the United States,” 2024.



1.7.4. Soil Information

Two categories of soil can be found on airport property. According to the Ramsey County GIS Portal, the Airport is predominantly Udorthents, wet substratum soil to the north and along the east and western perimeter. These soils are typically found in areas that were previously tidal marshes, river flood plains, bays, harbors, and swamps. The fill material in these areas often consists of rubble, refuse, and mixed soil materials like sand, gravel, and channel dredgings. On the south side of the airfield Chaska silt loam can also be found. This type of soil is found primarily in flood plains and is characterized by being very deep and somewhat poorly drained. This soil type formed in recent calcareous loamy alluvium, which means it has a mix of sand, silt, and clay, and contains calcium carbonate. Chaska silt loam has moderate permeability, allowing water to pass through at a moderate rate.²⁵

Understanding the types and distribution of soils on airport property is important for ongoing airport management and future planning efforts. Soil characteristics influence drainage, construction feasibility, flood resilience, and long-term maintenance needs for both airside and landside facilities. As the Airport considers future development, infrastructure upgrades, or flood mitigation strategies, continued awareness of underlying soil conditions will help inform design decisions, minimize environmental impacts, and ensure regulatory compliance. Additionally, as best practices and regulatory requirements evolve, maintaining up-to-date soil information will support adaptive management and sustainable land use.

1.7.5. Section 4(f) Resources

Section 4(f) originates from the U.S. Department of Transportation Act of 1966, requiring the consideration of parks, recreation areas, wildlife and waterfowl refuges, and historic sites in transportation project planning. Codified in 49 U.S.C. §303 and 23 U.S.C. §138, this law prohibits the Secretary of Transportation from approving any project that uses publicly owned land from parks, recreation areas, wildlife and waterfowl refuges, or historic sites of national, state, or local significance, unless there is no feasible alternative and all possible planning efforts are made to minimize harm. Section 4(f) does not apply to properties that are privately owned and designated for future development in a master plan.

Indian Mounds Regional Park in Saint Paul is a Section 4(f) property. This park is home to STP's historic airway beacon, previously discussed in **Section 1.4.12**. However, the park is owned and operated by the City of Saint Paul Division of Parks and Recreation, and there are no airport development plans associated with the property. Other Section 4(f) properties in Saint Paul include Como Park and historic Summit Avenue. Similarly, none of these properties are owned by the Airport or are affected by airport development plans.

Even when no direct impacts are anticipated from airport development, maintaining awareness of nearby Section 4(f) properties ensures that future airport initiatives remain sensitive to protected resources and comply with federal requirements. As transportation needs, land use, or regulatory interpretations evolve, continued coordination with local agencies and stakeholders will help the Airport

²⁵ United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) Official Soil Series Descriptions (OSDs).

proactively address Section 4(f) obligations and support responsible stewardship of public and historic lands well into the future.

1.7.6. Hazardous Materials

Hazardous materials are federally regulated by the Resource Conservation and Recovery Act (RCRA) (42 U.S.C. 6901, et seq.), the Comprehensive Environmental Response, Compensation, and Liability Act (42 U.S.C. Section 9601), and the Community Environmental Response Facilitation Act (Public Law 102-426). Additionally, the MPCA enforces the proper treatment, storage, and disposal of hazardous waste under the RCRA and Minnesota hazardous waste rules. Hazardous waste generators must report the waste annually to the MPCA or their metropolitan county, pay a fee, and obtain a license for the subsequent year.

The most frequently used hazardous substance at the Airport is aircraft fuel. Additionally, smaller quantities of other hazardous materials are utilized, such as lubricants, solvents, aircraft deicing agents, used oils, filters, cleaning residues, spent batteries, and various other products related to aircraft operations and maintenance.

Considerations related to hazardous materials management influence ongoing airport operations, facility maintenance, and future development. As regulations and best practices evolve, the Airport must remain vigilant in tracking, reporting, and safely handling hazardous substances to ensure compliance and protect both human health and the environment. Continued coordination with the MPCA and other regulatory bodies will be essential for adapting to new requirements, supporting safe airport operations, and minimizing environmental risk over the long term. This proactive approach to hazardous materials management will help the Airport remain resilient and responsible as it plans for future growth and operational changes.

1.7.7. On-Site Environmental Studies and NEPA Documents

Environmental compliance is a core element of this LTP Update. All proposed improvements will proceed in accordance with NEPA and applicable FAA environmental orders and guidance. FAA's NEPA framework, implemented through orders such as Order 1050.1F and the Airport-specific environmental procedures, establishes the tiered documentation approach of Categorical Exclusion (CATEX), Environmental Assessment (EA), or Environmental Impact Statement (EIS), and the analytical standards that will govern STP's planning and project development.

Noise modeling for existing conditions is actively in progress; the modeling effort is being built on updated forecasts and CY 2024 flight track data to ensure alignment with FAA-approved tools and inputs. This work is also being coordinated with concurrent development of future runway and airfield alternatives so that subsequent NEPA evaluation can reflect a recommended concept once stakeholder input is incorporated. As the LTP advances from facility requirements into alternatives, the environmental program will expand to include topic-specific reviews, such as floodplain/wetland considerations, consistent with FAA practice.

STP's NEPA documentation will be organized and tracked through Exhibit N4, which identifies the required environmental reviews and assessments and sets expectations for the type and timing of documentation in relation to development actions. Exhibit N4 references the need for appropriate

environmental studies (e.g., EA, cultural and biological surveys) and confirms that documentation must precede construction or federal approvals tied to airport development.

Environmental coordination will continue throughout the LTP Update process. The FAA will review and approve the appropriate NEPA documentation for federal actions at STP; coordination with state and local agencies (e.g., MPCA) will occur as needed based on resource topics and permitting requirements. Public involvement is planned for phases that require it under NEPA, such as EA/EIS processes, and will be integrated with STP's broader stakeholder engagement activities led by MAC and the project team.

1.7.8. Noise Exposure

The FAA regulates aircraft noise exposure through a comprehensive set of programs and regulations intended to mitigate impacts on surrounding communities. One of the primary frameworks is Noise Compatibility Planning under 14 CFR Part 150, which provides guidance for airports to develop noise exposure maps and noise compatibility programs. These programs are typically applied at airports with significant commercial service or where noise impacts warrant formal mitigation planning.

However, Part 150 does not apply to STP. As a GA airport with limited scheduled commercial service, STP is not required to prepare Part 150 noise compatibility plans or associated noise exposure maps. Instead, noise considerations for the Airport are addressed through the NEPA process and project-specific environmental reviews conducted as part of the LTP and ALP updates. These reviews ensure compliance with FAA noise standards without invoking the formal Part 150 program.

Additionally, the FAA sets stringent noise certification standards for new aircraft under 14 CFR Part 36. These standards have become increasingly rigorous over time, leading to the development and use of quieter aircraft. The Airport Noise and Capacity Act of 1990 (ANCA) further supports noise management by restricting airports' ability to impose noise-related operating restrictions on aircraft without FAA approval, ensuring a balanced approach to noise management and airport capacity.

The Day-Night Average Sound Level (DNL) is used as the primary metric to measure cumulative noise exposure from aviation activities. DNL accounts for all noise events over a 24-hour period, with a 10-decibel penalty added to nighttime noise events (between 10 PM and 7 AM) to reflect the increased sensitivity to noise during these hours. The DNL 65 dB has been adopted by the FAA as the threshold of significant exposure. Therefore, residential land uses are considered compatible only if located outside of the DNL 65 noise contour. While the Airport does receive noise complaints, they are fairly infrequent. Updated existing and future noise contours will be developed as part of this LTP Update to fulfill ALP requirements.

Noise compatibility is a key factor in guiding land use decisions around the Airport. While STP is not subject to a formal Part 150 Noise Compatibility Program, the principles of compatible land use remain central to long-term planning. Residential development is generally considered incompatible within the FAA's DNL 65 dB contour, and this threshold will inform how future development opportunities, particularly non-aeronautical uses, are evaluated once aeronautical needs identified in the LTP are met. Maintaining compatible land use helps preserve operational flexibility and minimize community impacts, ensuring that airport growth aligns with both regulatory standards and local planning objectives. Noise considerations will be further addressed in the Environmental Considerations chapter, where updated contours and potential mitigation strategies will be discussed in greater detail.