

Final Draft MSP Airport 2040 Long-Term Plan

Volume 1 of 2 - Narrative Report



Executive Summary



Table of Contents

Executive Summary	1
ES 1. Introduction	1
1.1.1 History	1
1.1.2 2040 LTP Objectives	2
ES 2. Process	2
ES 3. Forecast	4
ES 4. Existing Facilities and Requirements	7
1.1.3 Landside Inventory	8
1.1.4 Terminal Inventory	10
1.1.5 Airside Inventory	12
ES 5. Preferred Alternative	15
1.1.6 Near-Term	18
1.1.7 Mid-Term	21
1.1.8 Long-Term	24
ES 6. Project Cost Estimates	26
ES 7. Environmental Overview	26
1.1.9 Aircraft Noise	26
1.1.10 Air Quality	29
1.1.11 Sanitary Sewer and Water	29
1.1.12 Other Environmental Considerations	29
ES 8. Stakeholder and Public Engagement Process	30

List of Tables

Table ES-1: Summary of Updated Forecast Results	6
Table ES-2: Terminals 1 and 2 Curbside Requirements	8
Table ES-3: Airport Parking Facilities	9
Table ES-4: Rental Car Facilities	9
Table ES-5: Aircraft Gate Demand	10
Table ES-6: T1 Processor Functions	11
Table ES-7: T2 Processor Functions	12
Table ES-8: Meetings and Events Conducted During Draft LTP Development (1 of 2)	30
Table ES-8: Meetings and Events Conducted During Draft LTP Development (2 of 2)	31

List of Exhibits

Exhibit ES-1: Process Flow.....3
Exhibit ES-2: Comparison of Original and Updated Enplaned Passengers Forecasts.....5
Exhibit ES-3: Comparison of Original and Updated Passenger Aircraft Operations Forecasts5
Exhibit ES-4: Comparison of Original and Updated All-Cargo Operations Forecasts.....6
Exhibit ES-5: Metropolitan Airports Commission – Airport System.....7
Exhibit ES-6: Airfield Standards Overview 13
Exhibit ES-7: Annual Service Volume Ranges 14
Exhibit ES-8: Preferred Development Alternative 3.1A – Overview..... 17
Exhibit ES-9: Preferred Development Alternative 3.1A – Near-Term20
Exhibit ES-10: Preferred Development Alternative 3.1A – Mid-Term23
Exhibit ES-11: Preferred Development Alternative 3.1A – Long-Term25
Exhibit ES-12: 2040 Forecast Scenario Contour Range.....28

Executive Summary

ES 1. INTRODUCTION

This executive summary provides a concise overview of the key findings and recommendations from the 2040 Long-Term Plan (LTP) for the Minneapolis-Saint Paul International Airport (MSP). The 2040 LTP should be consulted for additional information on the technical analyses, assumptions, and methodologies supporting the findings and recommendations. A glossary of airport planning terms and acronyms are provided in Appendix H of this document.

The 2040 LTP is a crucial planning document for airport management and operations, as it sets the course for the airport's future growth and development within a strategic framework that reflects the Metropolitan Airports Commission's (MAC) priorities, the operational characteristics of the airport, anticipated use, and other relevant factors. The LTP serves as a roadmap to accommodate aviation demand efficiently over the foreseeable future while maintaining the adaptability necessary to respond to changing industry conditions, the regulatory environment, and the characteristics of airport activity.

The 2040 LTP provides a blueprint for the long-range infrastructure development necessary to accommodate the growth in commercial aviation demand at MSP through 2040, while prioritizing safety, efficiency, and environmental sustainability. The 2040 LTP addresses the Airport's commercial air passenger terminal, airfield, and landside facility requirements to maintain an acceptable level of service (LOS). The plan's long-term concept supports logical and purposeful development to meet the Airport's needs efficiently and safely, minimizing the likelihood of incompatible or conflicting development. Preserving future development areas, both in size and functional/operational location, allows the MAC to make prudent development decisions as demand or other conditions dictate or as opportunities are presented.

The previous MSP Airport long-term plan (2030 LTP) was completed in 2010 and used 2030 as the forecast horizon. Since that time, aviation has changed significantly. These changes include the evolution of airline aircraft fleets, growth in non-traditional airline companies, the development of the ride-share industry, changes in passenger characteristics and travel patterns, and the need for flexibility in development plans to accommodate demand. These factors were considered in the 2040 LTP to define a future development plan that accommodates forecast demand, both in magnitude and characteristics, while providing flexibility for the MAC to respond to future changes.

1.1.1 History

As a result of passenger demand growth throughout the 1970s and 1980s in the Minneapolis-St. Paul region, the Minnesota Legislature passed the Metropolitan Airport Planning Act in 1989, which established the Dual Track Airport Planning Process. Managed by the MAC and the Metropolitan Council (Met Council), the almost seven-year planning process analyzed various options for either providing adequate air service capacity and facilities within the region or building a new airport to meet demand.

After completing the analysis and submitting recommendations to the Minnesota Legislature in 1996, the *Long-term Comprehensive Plan Minneapolis-St. Paul International Airport Act* was passed on April 2, 1996, recommending the expansion of the existing airport instead of moving

to a new location. The MAC thus ceased further study of a new airport development and implemented the MSP 2010 LTP. The LTP included more than an estimated \$3.1 billion in Airport developments and improvements for gates, automobile parking, rental car facilities, and a new runway, Runway 17-35, opened in 2005 because of the 2030 LTP.

The 2030 LTP recommended the reassignment of airlines between Terminal 1 (T1) and Terminal 2 (T2) to balance passenger demand and improve efficiency and customer service of both facilities through 2030. The 2030 LTP recommended utilizing T1 to accommodate Delta Air Lines and its partner airlines while relocating all other airlines to T2. Specific terminal capital programs were recommended based on this terminal re-assignment.

In 2019, the MAC launched a process to complete the 2040 LTP, which reflects upon previous planning studies/findings and adapting them to changes in the Airport's existing and future needs.

1.1.2 2040 LTP Objectives

Met Council guidelines require regular updates to the LTP to integrate pertinent information regarding the planning, development, and operation of the region's airports for compatibility with the surrounding areas. The primary objectives for the 2040 LTP are the following:

- **Objective 1:** Plan for future facilities that will meet forecast Planning Activity Levels (PALs) in a manner that maintains and enhances customer service, while facilitating a seamless "one-journey" experience.
- **Objective 2:** Produce a development plan that positions the MAC to meet future demand levels, enhances financial strength, leverages environmental stewardship, and infuses sustainable thinking.
- **Objective 3:** Conduct the planning process in a manner that includes meaningful stakeholder engagement.

The 2040 LTP provides a blueprint for the long-range infrastructure development necessary to accommodate growth in commercial aviation demand at MSP through 2040, while prioritizing safety, efficiency, and environmental sustainability. The 2040 LTP addresses the airport's commercial air passenger terminal, airfield, and landside facility requirements to maintain an acceptable level of service (LOS). The purpose of the 2040 LTP is to update the recommended capital improvements proposed in the MSP 2030 LTP, reflecting updated aviation forecasts, industry trends, and stakeholder expectations.

ES 2. PROCESS

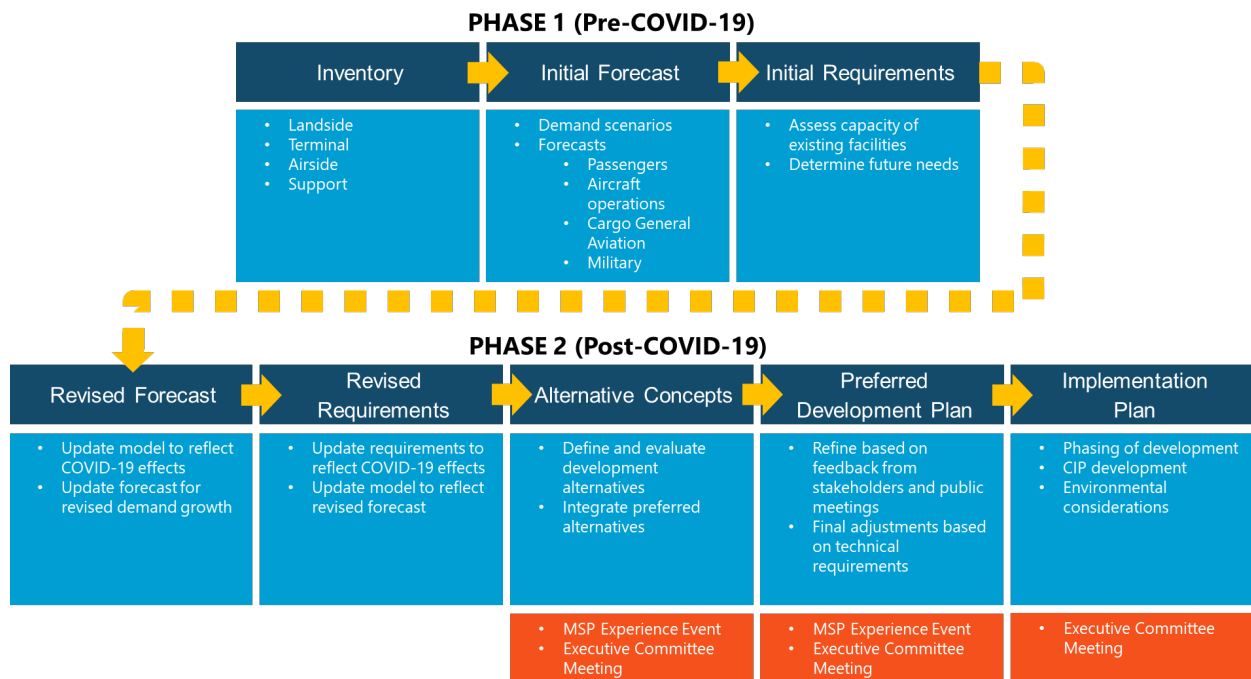
The 2040 LTP was completed in two phases, which included an approximate 15-month pause of analysis due to COVID-related impacts. The intent of the 2040 LTP was to assess future Airport needs by presenting a 20-year plan that would address near-term, mid-term, and long-term needs of airport infrastructure. The first phase of development for the 2040 LTP included a surveying existing Airport infrastructure; assessing the capacity of the current gate and Airport facilities; developing the aircraft and passenger demand forecasts; developing an airfield simulation and capacity; conducting a passenger facility gap analysis; and determining aircraft gating requirements.

Preliminary tasks in the 2040 LTP included an inventory of airfield conditions, aviation activity forecasts, and an airfield capacity simulation study. In March of 2020, COVID-19 hit the United States and subsequently the MAC paused the planning process.

In October 2021, the MAC reengaged 2040 LTP efforts. The forecast completed at the beginning of the study was updated to incorporate COVID-19 pandemic impacts on aviation demand. Elements of the 2040 LTP completed after October 2021 included:

- a revision of the demand forecast to account for changes resulting from the pandemic;
- estimating the long-term (2040) infrastructure needs with activity-based evaluation points for the short-term and mid-term periods;
- evaluating potential alternative options;
- selecting a preferred plan; and
- outlining a general timeline for implementing enhancements and expansion projects at near-term, mid-term, and long-term points throughout 2040.

Exhibit ES-1: Process Flow



ES 3. FORECAST

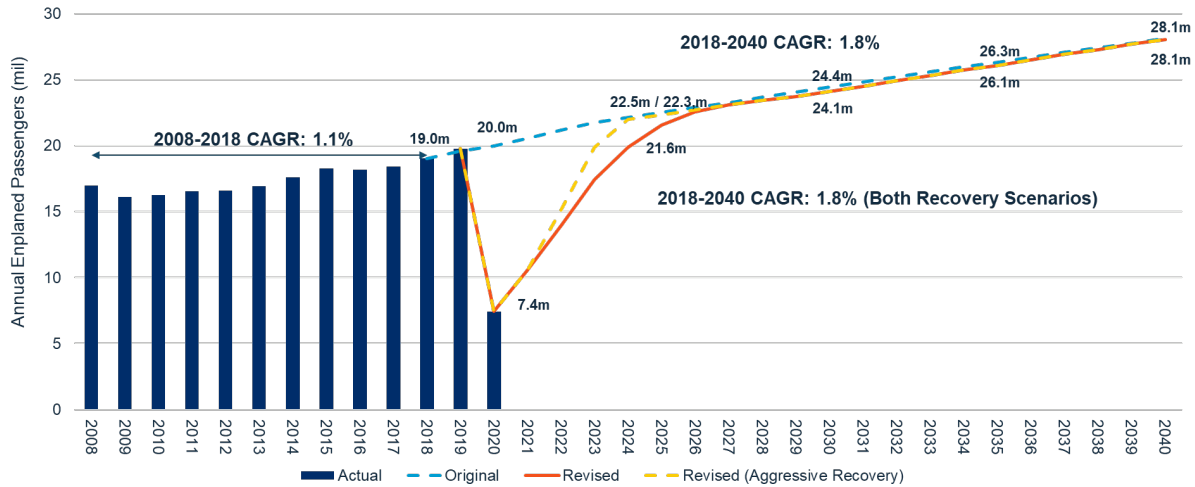
Both the original and COVID-updated forecasts were developed for passenger-related activity (passenger volumes and aircraft operations) and non-passenger-related activity (air cargo, general aviation (GA) / air taxi, and military aircraft operations) by year between 2018 and 2040. As the effects of the pandemic subside, passenger demand is expected to return to pre-pandemic levels. However, the return to that point will not be immediate, and the timing will depend on factors such as regional economic recoveries, seat capacity allocation decisions by airlines, and local or national travel restrictions. The return to pre-pandemic growth will likely be uneven across markets and passenger types. As such, pre-pandemic factors used in aviation activity forecasting were used rather than pandemic-related concerns. These factors included qualitative and quantitative elements regarding:

- airline capacity and load factor recovery at MSP;
- airline capacity recovery at airports served by MSP and in the industry overall;
- economic recovery projected for the region and in regions served from MSP;
- historical revenue produced by passengers in the individual markets served from MSP; and
- other forecasts developed for the Airport and the industry.

As modeled, pandemic-related influences continue to impact certain segments of passenger activity through 2026 (although growth continues during that period), after which a return to pre-pandemic activity prevails throughout the remainder of the forecast period. A more aggressive forecast of recovery was also developed that considered more favorable economic conditions and airline response. In the more aggressive scenario, pandemic-related influences were modeled to cease by the end of 2024. The more aggressive results are presented as the updated forecasts that serve as the basis of the Design Day Flight Schedule (DDFS) development. Comparisons of the pre-pandemic and post-pandemic forecasts are depicted in **Exhibits ES-2** through **ES-4**. A summary of the Revised Aggressive Recovery Results is included in **Table ES-1**.

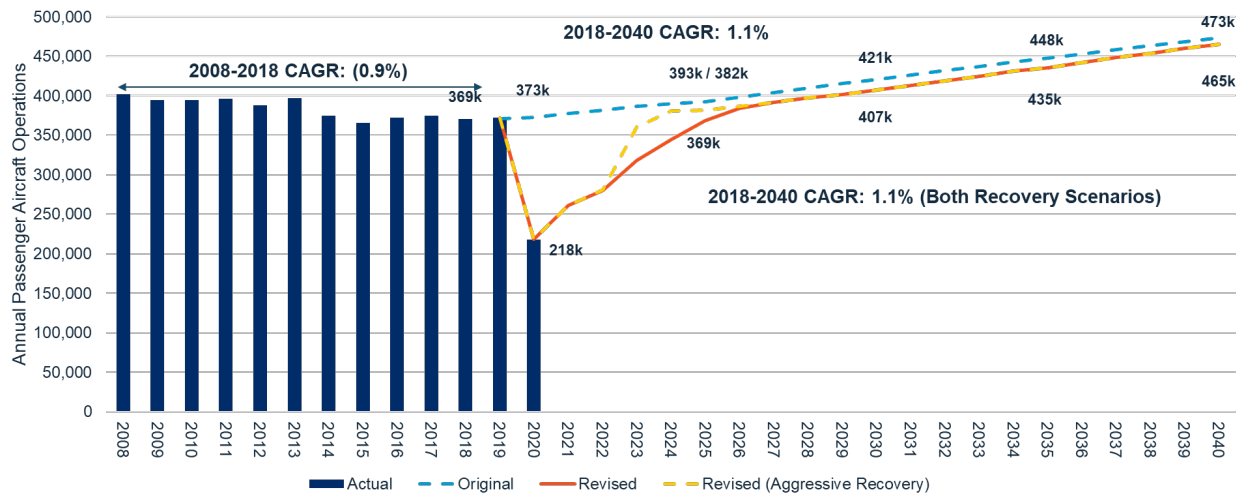
Annual forecasts are often used to create planning timelines that correlate improvement projects with specific calendar years. Using Planning Activity Levels (PALs) instead of forecast years removes timeframes from the analysis and focuses on implementing projects when the Airport reaches certain activity levels. For most planning purposes, the timing for capacity-related improvements should correlate to activity levels. Actual activity may vary from the forecasts as the result of unforeseen events or changes in the operational characteristics of MSP, airline business changes, or economic uncertainties in the region or nation.

Exhibit ES-2: Comparison of Original and Updated Enplaned Passengers Forecasts



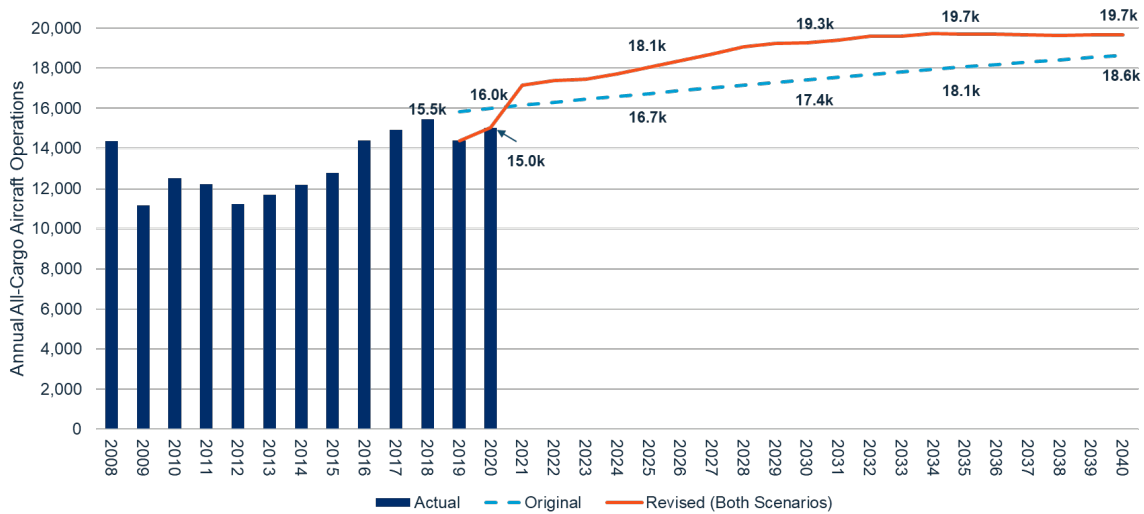
NOTES: CAGR – Compound Annual Growth Rate;
The Federal Aviation Administration’s Terminal Area Forecasts reflect the federal fiscal year (October through September).
SOURCES: MAC Activity Reports (actual); Ricondo & Associates, Inc., 2021 (Long-Term Plan forecasts); U.S. Department of Transportation, Federal Aviation Administration, 2022 Terminal Area Forecast, 2023

Exhibit ES-3: Comparison of Original and Updated Passenger Aircraft Operations Forecasts



NOTE: CAGR – Compound Annual Growth Rate
SOURCES: MAC Activity Reports (actual); Ricondo & Associates, Inc., 2021 (forecast).

Exhibit ES-4: Comparison of Original and Updated All-Cargo Operations Forecasts



SOURCES: MAC Activity Reports (actual); Ricondo & Associates, Inc., 2021 (forecast).

Table ES-1: Summary of Updated Forecast Results

	2018	2025	2030	2040
	Base Year	PAL 1	PAL 2	PAL 3
Annual				
Passenger Aircraft Operations (000)	369	382	407	465
Total Aircraft Operations (000)	407	423	450	510
Total Passengers (mil)	38	44.7	48.2	56.1
Enplaned Passengers (mil)	19	22.3	24.1	28.1
Summer Design Day				
Daily Passenger Aircraft Operations	1,186	1,254	1,350	1,526
Peak Hour Passenger Aircraft Operations	99	102	103	124
Total Daily Passengers (000)	128	157	172	195
Total Peak Hour Passengers (000)	9.9	13.4	12.7	15.3
Spring Design Day				
Daily Passenger Aircraft Operations	1,113	1,154	1,256	1,406
Peak Hour Passenger Aircraft Operations	85	93	96	111
Total Daily Passengers (000)	119	142	157	179
Total Peak Hour Passengers (000)	9	10.8	12.1	14.3

NOTES: PAL – Planning Activity Level

The base year spring design day is in 2018.

Sources: MAC Activity Reports; U.S. Department of Transportation, 2021; Ricondo & Associates, Inc., 2021.

ES 4. EXISTING FACILITIES AND REQUIREMENTS

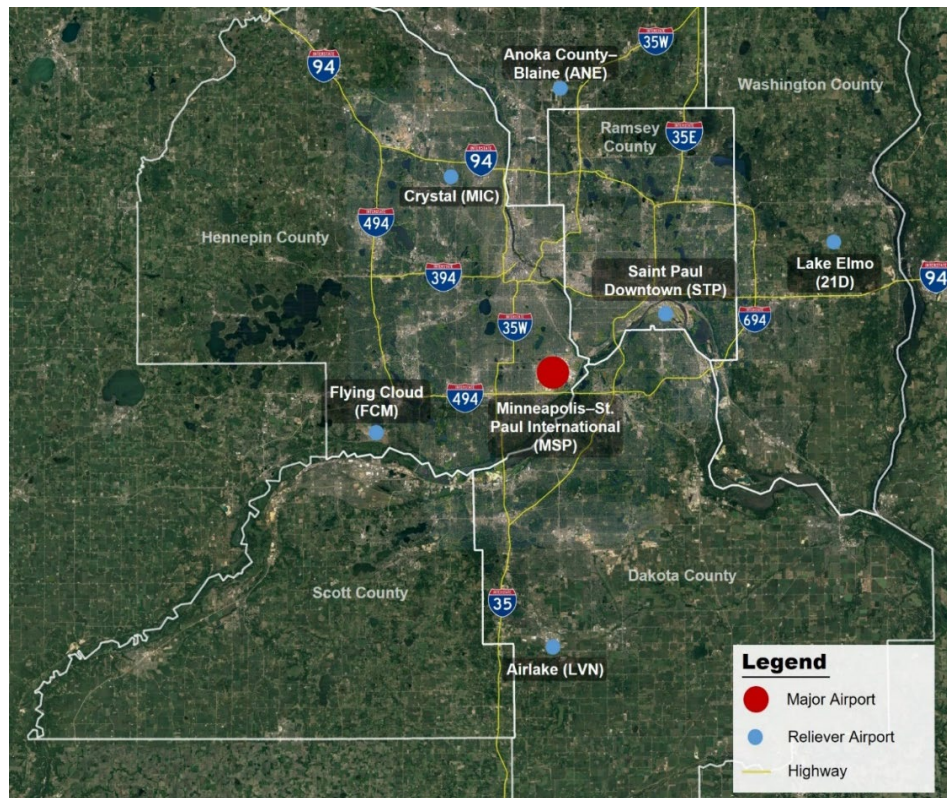
MSP is a commercial service airport that supports the Minneapolis-St. Paul metropolitan area. The Airport is located approximately 5.5 miles south of downtown Minneapolis, Minnesota, and approximately 6 miles southwest of downtown Saint Paul, Minnesota. The Airport property covers approximately 3,400 acres and is owned and operated by the Metropolitan Airports Commission (MAC).

MSP's primary function is to serve commercial and cargo aircraft traffic for the region while hosting both the United States Air Force and Minnesota National Guard. The airport serves most of the commercial operations through its two passenger terminals and four runways. The Airport includes Fixed Base Operator (FBO) facilities as well. Cargo facilities are located in several areas within the Airport's property boundary.

Both terminals include full landside facilities interconnected to Minneapolis' freeway network. Additionally, both terminal facilities are connected to Metro Transit via light rail stops.

The MAC also operates six general aviation (GA) reliever airports in the Twin Cities region. These airports support MSP by relieving some demand through attracting non-commercial and business traffic away from MSP and relieving some demand. All six of the reliever airports are within 35 miles of downtown Minneapolis and Saint Paul.

Exhibit ES-5: Metropolitan Airports Commission – Airport System



SOURCES: Google Earth, 2022 (aerial image); Metropolitan Airports Commission, 2022.

1.1.3 Landside Inventory

Landside facilities directly serving MSP passengers and visitors include terminal area roadways, terminal curbsides, parking facilities, rental car facilities, and commercial ground transportation areas at T1, T2, and other locations on the Airport campus.

The Airport is surrounded by a comprehensive highway network. State Highways MN 5 and MN 77 lie directly to the east and west of the Airport, respectively. State Highway MN 62 and Interstate 494 (I-494) run along the north and south borders of the Airport, respectively. The landside access for passengers is divided into two areas, one for T1 and another for T2. Primary access to T1 is provided via MN 5 and Glumack Drive. T2 is accessed from I-494 and 34th Avenue South, and it egresses via 72nd Street. Both terminals are also accessible via Metro Transit’s light rail system and bus service.

Terminal curbside facilities for T1 use Glumack Drive in front of the T1 passenger terminal which is divided into an upper- and lower-level roadway. The upper-level roadway curbside provides drop-off space for originating passengers (departures) and some commercial vehicle operations. The west upper-level roadway supplies 830 linear feet of departures curbside. The west lower-level roadway provides 700 linear feet of pick-up space for terminating passengers (arrivals).

Terminal curbside facilities for T2 use Humphrey Drive in front of T2, which provides 1,200 linear feet of curbside, a shared drop-off space for originating passengers (departures) and pick-up space for terminating passengers (arrivals).

Curbside for both terminals have deficits in both PAL 1 and PAL 3. PAL 1 depicts the near-term need to expand T1 curbside. PAL 3 curb requirements increase substantially over PAL 1 which depicts the long-term need for curbside expansion at both terminals.

Table ES-2: T1 and T2 Curbside Requirements

	Existing	PAL 1	Surplus / (Deficit)	PAL 3	Surplus / (Deficit)
T1 Departures	830'	840'	(10')	1,130	(300')
T1 Arrivals	700'	815'	(115')	1,130'	(430')
T2 Departures	700'	440'	260'	690'	10'
T2 Arrivals	450'	715'	(265')	940'	(490')

NOTES:

PAL – Planning Activity Level

SOURCE: Kimley-Horn and Associates, Inc., 2022.

The Airport provides parking spaces in nine parking ramps distributed between T1 and T2. The parking ramps also include rental car facilities at both terminals. T1 has 5 parking ramps: Gold/Brown Ramp, Green/Pink Ramp, Red Ramp, Blue Ramp, and Silver Ramp. The parking facilities are connected to T1 with an underground walkway area and/or the Hub Tram. T2 has two parking ramps: Orange Ramp and Purple Ramp. The parking facilities are connected to T2 with the elevated skyway and an at-grade crosswalk. Parking facilities will need to be expanded to achieve PAL 3 requirements.

Table ES-3: Airport Parking Facilities

Surplus/(Deficit)	-	3,810	1,660	(2,880)

SOURCE: Kimley-Horn and Associates, Inc., 2021.

Each terminal has its own set of nearby rental car facilities. The Customer Service Building (CSB) at T1 is located on Level 1 of the Silver Ramp. The Silver Ramp also houses the T1 ready/return area on Levels 2 through 5. The rental car facilities in the Silver Ramp are accessed via the Hub Tram and underground walkways. The T1 Quick Turn Around (QTA) facilities are located on Level 1 of the Red and Blue Ramps.

The T2 customer service operations and ready/return area occupy a portion of Level 1 and the Mezzanine Level of the Purple Ramp. The QTA facility is located on the south side of East 72nd Street near the Purple and Orange Ramps.

Commercial operators at MSP include taxis, limousines, Transportation Network Companies (TNCs), Airport-operated shuttles, private shuttles, buses, and public transit. Most of these functions are located within the T1 Ground Transportation Center (GTC). This area serves taxis, TNCs, limousines, Quick Ride Ramp shuttles, and various hotel and regional shuttles. The Transit Center, located on Level 1 of the Silver Ramp, serves charter buses, employee shuttles, Metro Transit buses, and off-site rental car and parking shuttles.

T2 has a similar mix of commercial ground transportation operators, which are consolidated on Level 1 of the Purple Ramp. Dedicated parking areas on Post Road provide additional space for commercial vehicle staging.

Table ES-4: Rental Car Facilities

Facility	Existing Supply	Surplus/(Deficit)			
		Base Year	PAL 1	PAL 2	PAL 3
Customer Service Counter Positions	77	22	16	9	2
Ready/Return Stalls	2,715	1,065	860	725	440
Fueling Positions	100	8	(2)	(9)	(25)
Wash Bays	20	(4)	(6)	(7)	(12)
QTA Storage (On-Site Vehicles)	1,260	100	(50)	(140)	(350)

NOTES:

PAL – Planning Activity Level

QTA – Quick Turnaround

SOURCE: Kimley-Horn and Associates, Inc., 2022.

1.1.4 Terminal Inventory

The Airport has two commercial passenger terminals: T1 and T2. Together, they provide approximately 3.33 million square feet of terminal facilities and 118 contact aircraft gates.

T1 is located between the Airport’s parallel Runways 12R-30L and 12L-30R. T1 is comprised of seven concourses, designated A through G, that contain 102 contact gates and two ground-loaded gates. 10 contact gates are connected by sterile corridors to the T1 Federal Inspection Station (FIS) facility on Concourse G. Passenger movement is enhanced by moving sidewalks along Concourses G and C, and an automated people mover (APM) system along the front face of Concourse C, from Gate C1 to Gate C27.

T2 is located between Runway 17-35 and Runway 12R-30L in the southern portion of Airport property below Runway 4-22. T2 has one concourse, designated H, that contains 16 contact gates. Five of these gates are connected by sterile corridors to the T2 FIS.

Both terminals need expanded gate facilities to meet demands of PAL 2. Gate needs in PAL 3 slightly decrease in T1, while needs slightly increase at T2.

Table ES-5: Aircraft Gate Demand

Terminal	Existing Gate Count	PAL 2	Surplus / (Deficit)	PAL 3	Surplus / (Deficit)
T1	102	133	(31)	130	(28)
T2	16	17	(1)	20	(4)

NOTES:

PAL – Planning Activity Level

Gate requirements based on exiting airline allocations at T1 and T2

SOURCE: Ricondo & Associates, Inc., 2022.

The T1 check-in inventory includes four banks of baggage acceptance points: two primary check-in banks on Level 2 and two landside check-in banks on Level T. The T1 check-in inventory also includes a single bank of baggage acceptance points on Level 1.

The main Safety and Security Checkpoint (SSCP) banks located after check-in are split between two locations in T1: north and south. Each SSCP includes both Automated Screening Lanes (ASLs) and non-ASLs for passenger processing, as well as an employee screening lane. Each location in T1 contains 9 screening lanes for a total of 18 screening lanes in T1. Within the T1 complex, there are three other checkpoints: the recheck facility on Concourse G used for international inbound passenger processing, the skyway checkpoint with 2 lanes and the hotel T1 access point with 1 lane.

The T1 domestic baggage claim is located on Level 1 of the terminal. The baggage claim, located on the non-secure side, includes 11 individual devices ranging from 120 linear feet to 180 linear feet. Each claim unit is connected to an individual stripping belt in the cart staging area.

There are 104 holdrooms in the seven concourses at T1. The holdrooms of Concourses A through E support domestic Airplane Design Group (ADG) II and ADG III aircraft. Concourse F supports a range of ADG II to ADG V domestic aircraft. Concourse G holdrooms are configured for a range

of aircraft, from ADG III to ADG V aircraft with Gates G1 through G10 capable of accommodating international arrivals. Holdrooms in T1 are generally undersized for gauge of aircraft served at the terminal.

Baggage screening is split between two locations in T1: T1 west and T1 south. Each baggage screening point has a bank of 5 and 2 inline screening units, respectively. Expansion space is reserved for 2 additional units at T1 south.

The FIS in T1 supports 10 international-capable gates, Gates G1 through G10. The FIS facility includes 2 bag claim devices with a total of 290 linear feet presentation length for each device. The existing facilities do not meet the requirements for PAL 2 and PAL 3.

Table ES-6: T1 Processor Functions

Function	Processor	Existing	PAL 2	PAL 3
Check-in Positions	Positions	77	57	62
Security Screening¹	Lanes	18	16	18
Checked Baggage Screening	Devices	6	5	5
Outbound Makeup	Carts	189	167	203
Holdrooms²	Sq Ft	180,176	196,000	196,000
Domestic Baggage Claim	Devices	11	11	11
Federal Inspection Station	Sq Ft	5,750	6,772	7,430

NOTES:

Screening lanes at the CBP recheck, hotel, and skyway are limited use screening areas and not included in the total count
Holdroom requirements are based off existing holdroom sizing and do not include additional gates' holdroom requirements
SOURCE: Ricondo & Associates, Inc., June 2020.

The T2 domestic baggage claim is located on Level 1 of the T2 headhouse. The baggage claim, located on the non-secure side, includes 2 individual devices with 200 linear feet of presentation length each. Each claim unit is connected to an individual stripping belt in the cart staging area.

Security screening is split between two locations in T2: Checkpoint 1 and Checkpoint 2. Checkpoint 1 is the primary passenger screening location, and Checkpoint 2 is infrequently used/staffed. The T2 employee screening is completed in a TSA checkpoint on the south end of the passenger ticketing area and is behind a secure door. Checkpoint 1 contains 6 screening lanes and Checkpoint 2 contains 4 lanes, for a total of 10 screening lanes in T2.

There are 14 holdrooms in T2. Holdroom areas are spread along the concourse which are configured for ADG III aircraft. Gates H3 through H7 holdrooms are grouped in clusters for shared use and can accommodate up to ADG V aircraft for Gates H3 through H7. Gates H3 through H7 can also accommodate international arrivals.

Baggage screening is split between two locations in T2: T2 checked Baggage Inspection System (CBIS) and T2 out of gauge (OOG). Each baggage screening point has 2 inline screening units, respectively. Expansion space is reserved for 2 additional units in the T2 CBIS. Requirements for both PAL 2 and PAL 3 show the need for an additional screening device.

Both T1 and T2 contain FIS facilities. The T1 FIS facility supports 10 international-capable gates at T1 including Gates G1 through G10. The FIS facility includes 2 bag claim devices with a total of 290 linear feet of presentation length for each device. The T2 FIS facility supports 5 international-capable gates at T2, Gates H3 through H7. The FIS facility includes 2 bag claim devices with a total of 200 linear feet of presentation length for each device.

Table ES-7: T2 Processor Functions

Function	Processor	Existing	PAL 2	PAL 3
Check-in Positions	Positions	58	45	50
Security Screening	Lanes	10	7	7
Checked Baggage Screening	Devices	2	3	3
Outbound Makeup	Carts	64	68	66
Holdrooms ¹	Sq. Ft.	65,777	45,207	45,207
Domestic Baggage Claim	Devices	4	4	4
Federal Inspection Station	Sq. Ft.	54,920	1,883	2,910

NOTES:

Holdroom requirements are based off existing holdroom sizing and do not include additional gates' holdroom requirements

SOURCE: Ricondo & Associates, Inc., June 2020.

1.1.5 Airside Inventory

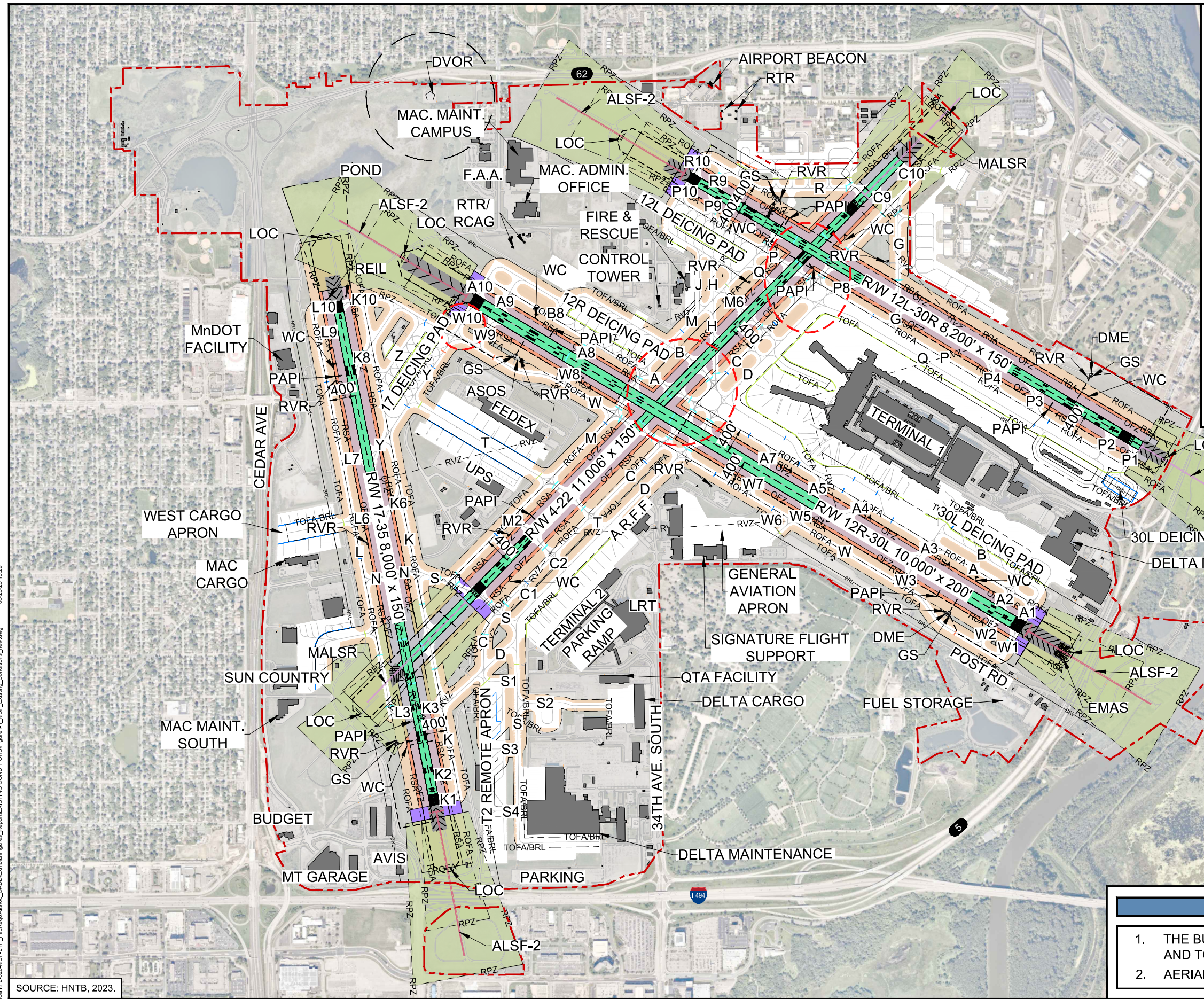
1.1.5.1 Runways

MSP has four runways, including one set of parallel runways. Runway 4-22 is the Airport's longest runway; it measures 11,006 feet long with a 1,550-foot displaced arrival threshold on the Runway 4 approach end and a 1,000-foot displaced arrival threshold on the Runway 22 approach end. Runway 12L-30R measures 8,200 feet long with a 200-foot displaced arrival threshold on the Runway 30R approach end. Runway 12R-30L measures 10,000 feet long by 200 feet wide. Runway 17-35 measures 8,000 feet long. The existing critical design aircraft at MSP is the Airbus A330-900neo, an ARC D-V aircraft. The future critical design aircraft has been identified as the Airbus A350-1000. The A350-1000, also a D-V aircraft, is the most demanding aircraft with forecast operations greater than 500 per year. Based on forecast operations and the critical design aircraft through 2040, additional runways or runway length at MSP is not required.

1.1.5.2 Taxiways

The taxiway and taxilane system provide aircraft connections between runways and aprons throughout the airfield. Like runway standards, taxiway standards are derived from the size and type of aircraft expected to use the taxiways. The existing critical design aircraft (A330-900neo) is Taxiway Design Group (TDG) 5. The future critical design aircraft (A350-1000) is TDG 6. The future shift to TDG 6 standards will have marginal impacts on taxiway pavement surfaces and will be in focused areas of the airfield based on future use and taxi-routes of the A350-1000.

DRAWING LEGEND	
RUNWAY PAVEMENT	
EXISTING TAXIWAY / APRON PAVEMENT	
AIRPORT PROPERTY LINE	
EXISTING BUILDING - ON AIRPORT	
RUNWAY SAFETY AREA (RSA)	
RUNWAY OBSTACLE FREE ZONE (OFZ)	
PRECISION OBSTACLE FREE ZONE (POFZ)	
RUNWAY OBJECT FREE AREA (ROFA)	
RUNWAY PROTECTION ZONE (RPZ)	
TAXIWAY OBJECT FREE AREA (TOFA)	
35' BUILDING RESTRICTION LINE (BRL) (1)	
RUNWAY HOLDING POSITION (PATTERN A)	
ILS HOLDING POSITION (PATTERN B)	
INTERMEDIATE HOLDING POSITION (PATTERN C)	
NON-MOVEMENT AREA BOUNDARY	
APPROACH LIGHTING SYSTEM (MALSR)	
APPROACH LIGHTING SYSTEM (ALSF-2)	
NAVAID CRITICAL AREA	
HOT SPOT	
AIRPORT BEACON	

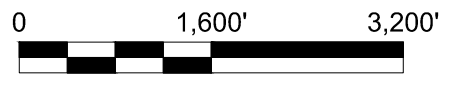


- NOTES**
1. THE BUILDING RESTRICTION LINE FOLLOWS ANY NAVAID CRITICAL AREA, RPZ AND TOFA WHERE OVERLAPPING.
 2. AERIAL IMAGERY: NEARMAP (SEPTEMBER 2022)

SOURCE: HNTB, 2023.



MINNEAPOLIS-SAINT PAUL INTERNATIONAL AIRPORT
2040 LONG-TERM PLAN



FEBRUARY 2023

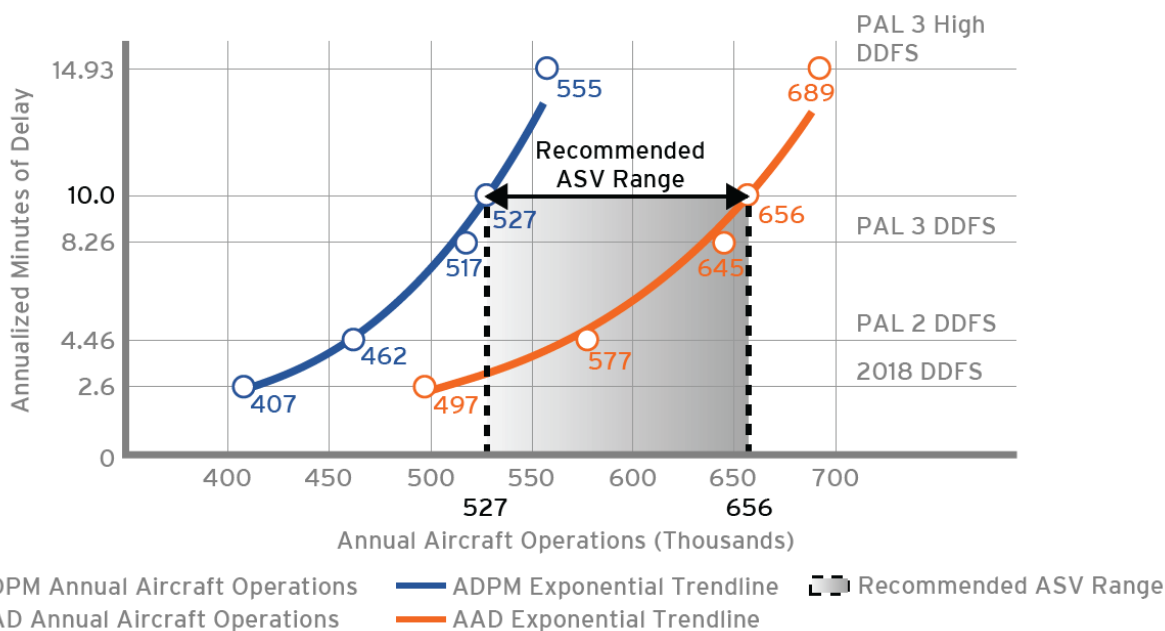
ES-6
EXISTING AIRFIELD CONFIGURATION

\\saw001\usac318180_MAC_OnCall\IP_LTP_FacRec&Analysis\00_CADD\Drawings\Drawings\Figure1_1_MSP_Existing_Conditions_new.dwg 05/23/23 13:29

1.1.5.3 Airfield Capacity

A summer Design Day Flight Schedule (DDFS), developed with the forecast materials in **Section ES 3**, was used to complete a comprehensive airfield capacity assessment for the 2040 LTP. This capacity study evaluated estimated aircraft demand on an Average Annual Day (AAD), and an Average Day Peak Month (ADPM) basis. Both metrics present variations in the determination of Annual Service Volume (ASV) and annualized delay.

Exhibit ES-7: Annual Service Volume Ranges



NOTES:

PAL – Planning Activity Level
DDFS – Design Day Flight Schedule
ADPM – Average Day Peak Month
AAD – Average Annual Day
ASV – Annual Service Volume

SOURCES: HNTB Corporation, 2020 (analysis); MSP Long-Term Plan Airfield Capacity Study, December 2020.

1.1.5.4 Remain Overnight Parking and Deicing Pads

MSP has two designated remain overnight (RON) parking areas. RON A is located southeast of T1 Concourse G, accessible by Taxiway B, and is used by Delta Air Lines for narrowbody RON parking. RON A can accommodate a maximum of seven narrowbody aircraft or a combination of widebody aircraft and reduced narrowbody positions. RON B is located east of Runway 35 with access from Taxilane S. While this location is available for RON operations, the area’s primary use is as a deicing pad. The LTP identified and addresses the need for additional RON capacity based on airline needs. The existing deicing capability meets the future demand of aircraft operations. An additional deicing pad is proposed in the preferred airfield layout (**Exhibit ES-8**) north of the T2 expansion. This is to acknowledge the increase in gates at T2 and to reduce the number of runway crossings during winter months.

1.1.5.5 Air Traffic Control Tower

Because MSP is a Part 139-certified airport with an operating air traffic control tower (ATCT), personnel require an unobstructed view from the cab of the tower to the movement area. This includes taxiways and runways, as well as the non-movement area boundary line. The ATCT and top cab should be located to provide a view to all points of the movement area and should preclude parked aircraft, buildings, and equipment from obstructing a controller's view.

The LTP does not propose any improvements to or relocation of the ATCT. Existing line-of-sight concerns related to seeing the far ends of Concourses A and G may be mitigated by local Ramp Control at the far ends of the concourses where aircraft can be directed to a designated location prior to contacting Ground Control.

1.1.5.6 Cargo

Air cargo facilities at MSP are located on the west and south sides of the Airport with on-airport cargo handling and processing generally occurring in four primary locations: 1) FedEx and UPS facilities, 2) the DHL facility (Amazon/DHL) and Sun Country facility, 3) Air Cargo Center, and 4) Main Delta Cargo facility. The existing cargo facilities at MSP represent approximately 523,000 square feet of total cargo building area designated for air cargo activities. The growing demand of e-commerce will require an enhanced future cargo footprint. The remaining cargo demand (freight, belly) are accommodated with existing facilities through the planning cycle.

ES 5. PREFERRED ALTERNATIVE

The alternative development process first focused on the terminal footprint, as aircraft gates and terminal space were the highest priorities identified in the 2040 LTP. Airside and landside concepts were later integrated into a consolidated list of potential terminal layouts that balance the needs of all three airport functions, while also acknowledging the geographical limitations of the airfield. The preliminary terminal layouts that were created focused on:

1. FIS function and location between T1 and T2; and
2. Gate expansion capabilities that would not overly burden airside functions. Expansion opportunities were considered on the basis of airline preferential gating (one gate assigned exclusively to one airline) or common-use gating (multiple airlines operating out of one gate).

The three basic terminal concepts were:

- Alternative 1A: Single FIS at T1; Preferential gating
- Alternative 2A: Single FIS at T2; Common-use gating
- Alternative 3A: FIS at both T1 and T2; Preferential gating

From there, airside and landside elements were incorporated into the terminal concepts.

An extensive stakeholder engagement process was conducted to share and solicit feedback on the three concepts. The project team conducted more than 15 meetings with airlines, tenants, agencies, MAC operational staff, MAC senior leadership, the Long-Term Plan Stakeholder

Advisory Panel (SAP), and members of the public. Stakeholder input was used to refine the concepts and inform decision-making for the preferred alternative.

Alternative 3.1A was selected as the preferred development alternative. This concept incorporates multiple elements from each of the three preliminary consolidated alternatives and addresses the balance between airside, landside, and terminal functions. Preferred Alternative 3.1A, shown on **Exhibit ES-8**, assumes FIS function remains at both T1 and T2 and balances the need for both preferential gating at T1 and a strategy to continue implementing common-use gating at T2.

This alternative addresses the concerns of airport congestion in the landside, terminal, and airside through a series of projects. Landside projects at both terminals – as well as the surrounding feeder roadways – were developed to reduce traffic congestion around the airport and at curbside areas. Parking will be expanded to accommodate the forecasted demand and acknowledge the need for reconstructing T1 parking facilities (Green/Gold) that are reaching the end of useful life.

Terminal projects are also intended to address increased demand for narrowbody aircraft parking (ADG III) while maintaining an optimal level of service for passengers.

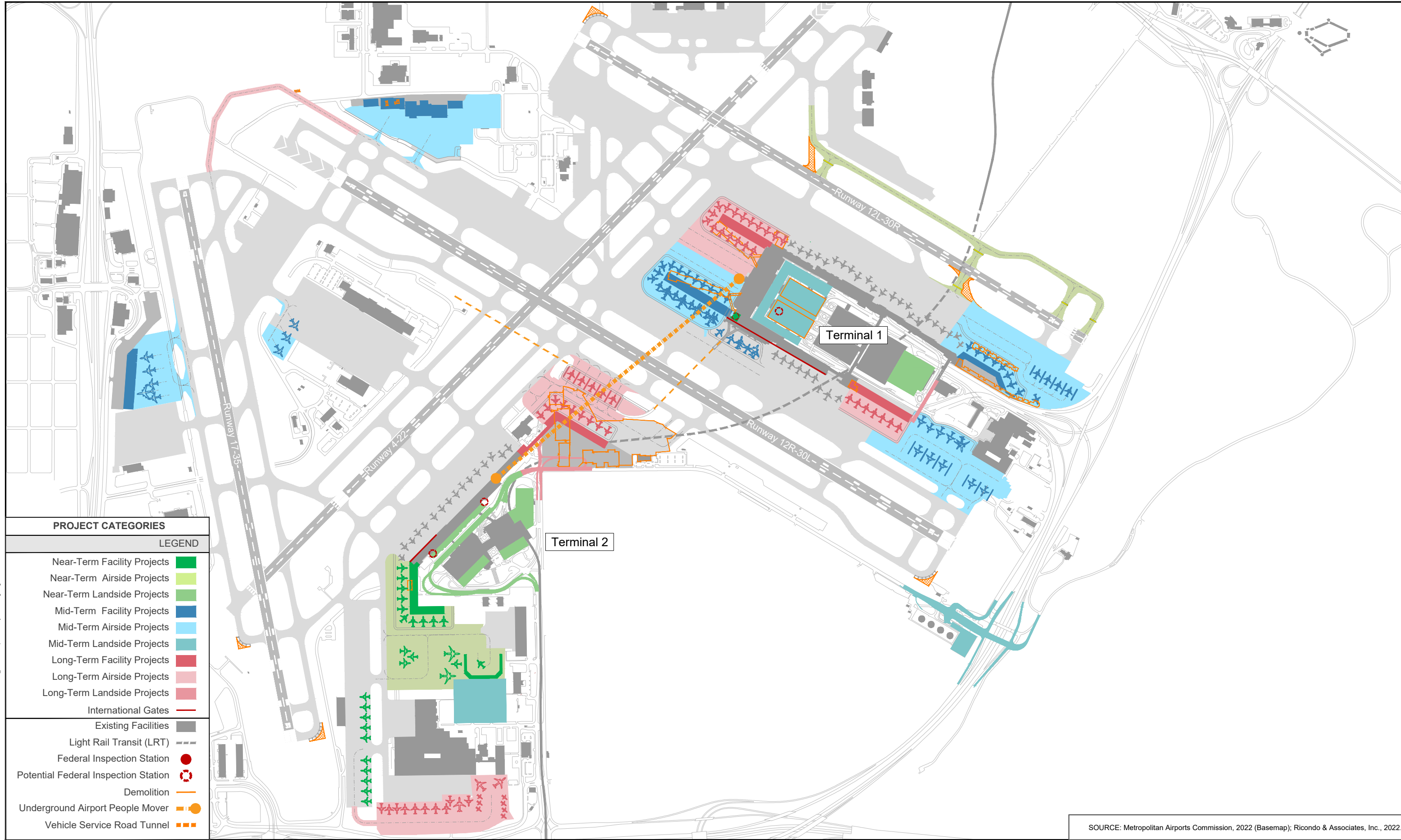
Airfield modifications were identified to improve efficiencies in aircraft ground maneuvering, specifically in areas where current design standards have been prohibitive, and to reduce runway crossings for aircraft accessing Runway 17-35. Projects include reconfiguring taxiways, expanding deicing and RON aircraft aprons, and relocating and expanding some support facilities.

A phased high-level implementation strategy was developed to categorize near-term, mid-term, and long-term projects. Phasing was determined by need and targeted demand.

- Near-term projects are primarily focused on increasing capability of existing facilities while creating areas for development staging.
- Mid-term projects are focused on increasing the capability of the Airport to accommodate projected demand.
- Long-term projects provide additional expansion for demand and increasing operational flexibility through inter-terminal connectivity.

The division between near-, mid-, and long-term development plans was established to characterize development that has a higher likelihood of justification and implementation within the 2040 planning cycle. However, it is important to recognize that the division in these windows of development is approximate and dynamic and will be subject to change as the MAC begins to implement the LTP. Needs and opportunities may evolve, and many supporting projects would also be needed to fully implement this program.

P:\Project-Alexandria\MS701_On-Call\2018\2040_LTCP\08-Documents\Exhibits\CAD\EX-ES8-ES9-ES10-ES11_MSP-Concept_3.1A_Project Phasing.dwg 06/22/23 12:11



PROJECT CATEGORIES

LEGEND

- Near-Term Facility Projects ■
- Near-Term Airside Projects ■
- Near-Term Landside Projects ■
- Mid-Term Facility Projects ■
- Mid-Term Airside Projects ■
- Mid-Term Landside Projects ■
- Long-Term Facility Projects ■
- Long-Term Airside Projects ■
- Long-Term Landside Projects ■
- International Gates —
- Existing Facilities ■
- Light Rail Transit (LRT) — — —
- Federal Inspection Station ●
- Potential Federal Inspection Station ○
- Demolition —
- Underground Airport People Mover ●
- Vehicle Service Road Tunnel — — —

SOURCE: Metropolitan Airports Commission, 2022 (Basemap); Ricondo & Associates, Inc., 2022.



**MINNEAPOLIS-SAIN'T PAUL
INTERNATIONAL AIRPORT**
2040 LONG-TERM PLAN



MARCH 2023

EXHIBIT ES-8

Preferred Development Alternative 3.1A - Overview

DRAFT WORKING DOCUMENT | NOT FOR DISSEMINATION

1.1.6 Near-Term

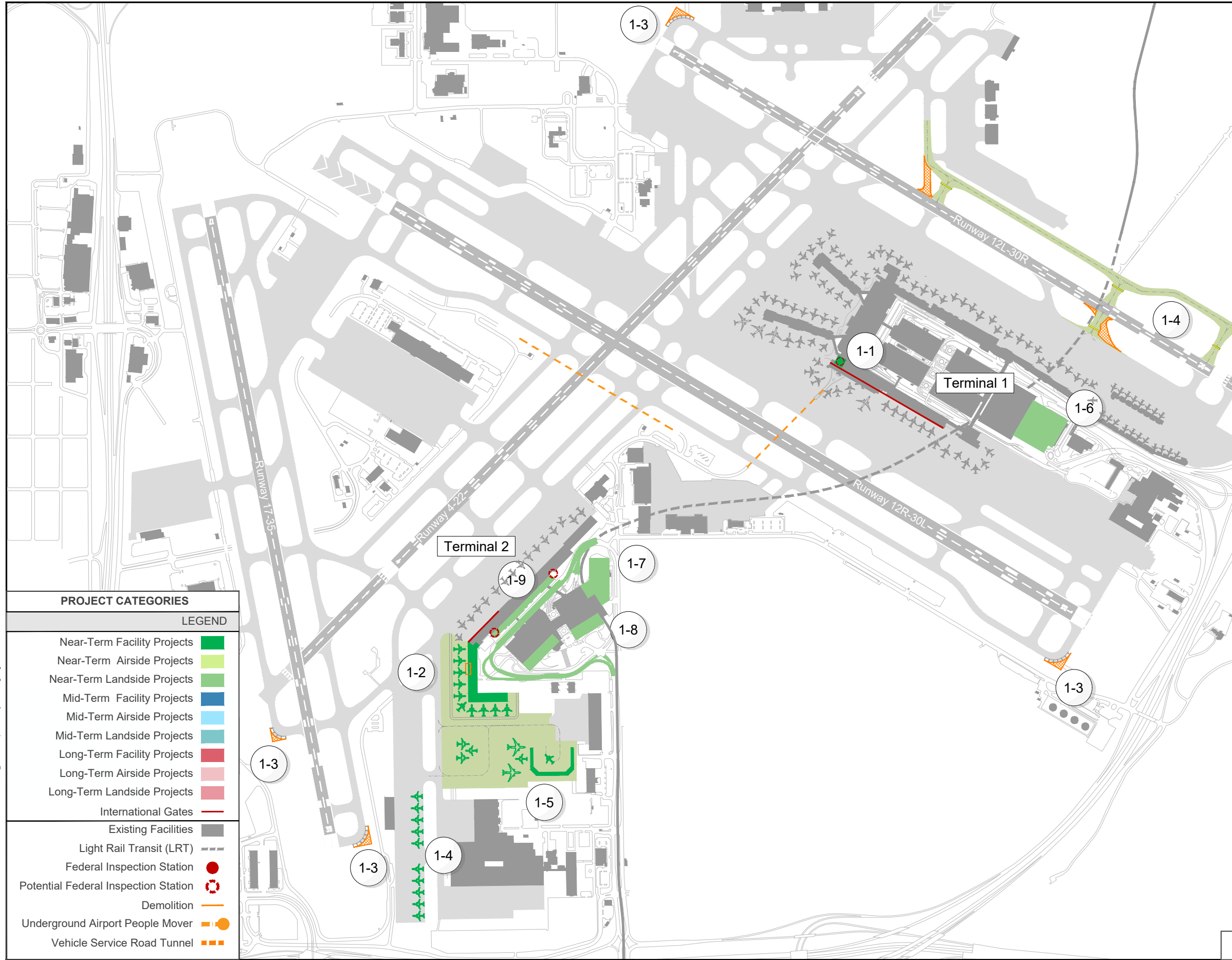
Recommended near-term projects were selected because they provide continuity from previous LTP efforts, address imminent needs, or are prerequisites for mid- and/or long-term projects.

- Project 1-1: T1 Federal Inspection Services Facility Enhancements – Enhancements to the existing FIS inside T1 will help improve passenger throughput and make incremental improvements to existing capacity until the FIS function can be centrally located.
- Project 1-2: T2 South Terminal Expansion – An expansion of contact gates at T2 is proposed to the south and will consist of 11 gates. The phasing of the south concourse expansion occurs in the near-term to provide swing gates for staging future terminal projects. This project was brought forward in previous LTP efforts and was approved in the 2013 Environmental Assessment (EA).
- Project 1-3: Taxiway Edge Geometry – The taxiway edge geometry project will remove the existing 90-degree edge of pavement corners at the ends of Taxiway R and Taxiway R10, Taxiway W and Taxiway W1, Taxiway K and Taxiway K1, and Taxiway L and Taxiway L1. Revising the edge of pavement from a 90-degree corner to a rounded corner makes the taxiway easier to see and distinguishes it from the runway for pilots on approach, reducing the chances of a wrong-surface landing.
- Project 1-4: Runway 12L-30R Partial Parallel Taxiway and Taxiway P3 Reconfiguration – Existing Taxiways P and Q are wingspan restricted for simultaneous use by ADG III aircraft. Taxiway Q must remain sterile when aircraft larger than ADG III occupy Taxiway P. A partial parallel taxiway north of Runway 12L-30R will allow unrestricted ADG IV and V aircraft access to or from the Runway 30R approach end with full design conformity to improve airfield efficiency.
- Project 1-5: Ground Runup Enclosure (GRE) Relocation and Remain-Overnight Apron Construction – The south expansion of T2 requires the existing GRE to be relocated while developing additional RON space for aircraft staging. This project is carried forward from the previous LTP efforts and was approved in the 2013 EA.
- Project 1-6: U.S. Postal Service (USPS) Site Redevelopment – This project provides replacement public parking to accommodate parking displaced during Green/Gold Ramp demolition in the mid-term. The USPS site redevelopment project will construct a new rental car QTA facility and public parking structure on the footprint of the existing USPS site.
- Project 1-7: Orange Ramp North Expansion and Outrigger Expansions – A new parking structure will connect directly to the existing Orange Ramp via pedestrian and vehicular bridges on each level. The east and LRT outriggers will be vertically expanded to match the maximum elevation of the existing structure. The parking expansion at T2, in addition to the USPS site redevelopment, will bolster the Airport's parking capacity to enable the demolition of the Green/Gold Ramps.
- Project 1-8: Orange and Purple Ramps Vertical Expansion – The vertical expansion includes two levels of parking structure for the entire Orange Ramp footprint, including the north

expansion, and seven levels of parking structure for the Purple Ramp outrigger expansion. Expansion can occur on the existing ramp footprint.

- Project 1-9: T2 Curb Frontage Improvements – This project includes needed physical improvements to vehicle operations in front of T2, specifically addressing curb front congestion. It will reconfigure the second level of the existing terminal to accommodate a new 2-level roadway along the front of the building. This reconfiguration will allow for optimal use of both the upper and lower curbsides for originating and destination passengers, alleviating the increased traffic on the existing single-level curbside. This project also consists of the construction of the new elevated departures roadway and at-grade arrivals roadway at T2. The new roadways will address curbside deficiencies and will be offset from the terminal building to provide additional security clearances.

P:\Project-Alexandria\MS701_On-Call\2018\2040 LTCP\08-Document\Exhibits\CAD\EX-ES9-ES10-ES11_MSP-Concept_3.1A_Project Phasing.dwg 06/22/23 12:12



- Near-Term Projects:**
- 1-1 T1 Federal Inspection Services Facility Enhancements
 - 1-2 T2 South Terminal Expansion
 - 1-3 Taxiway Edge Geometry
 - 1-4 Runway 12L-30R Partial Parallel Taxiway and Taxiway P3 Reconfiguration
 - 1-5 GRE Relocation and RON Apron Construction
 - 1-6 USPS Site Redevelopment
 - 1-7 Orange Ramp North Expansion and Outrigger Expansions
 - 1-8 Orange and Purple Ramps Vertical Expansion
 - 1-9 T2 Curb Frontage Improvements

PROJECT CATEGORIES

LEGEND

- Near-Term Facility Projects
- Near-Term Airside Projects
- Near-Term Landside Projects
- Mid-Term Facility Projects
- Mid-Term Airside Projects
- Mid-Term Landside Projects
- Long-Term Facility Projects
- Long-Term Airside Projects
- Long-Term Landside Projects
- International Gates
- Existing Facilities
- Light Rail Transit (LRT)
- Federal Inspection Station
- Potential Federal Inspection Station
- Demolition
- Underground Airport People Mover
- Vehicle Service Road Tunnel

SOURCE: Metropolitan Airports Commission, 2022 (Basemap); Ricondo & Associates, Inc., 2022.



MINNEAPOLIS-SAINT PAUL INTERNATIONAL AIRPORT
2040 LONG-TERM PLAN



MARCH 2023

EXHIBIT ES-9

Preferred Development Alternative 3.1A - Near-Term

DRAFT WORKING DOCUMENT | NOT FOR DISSEMINATION

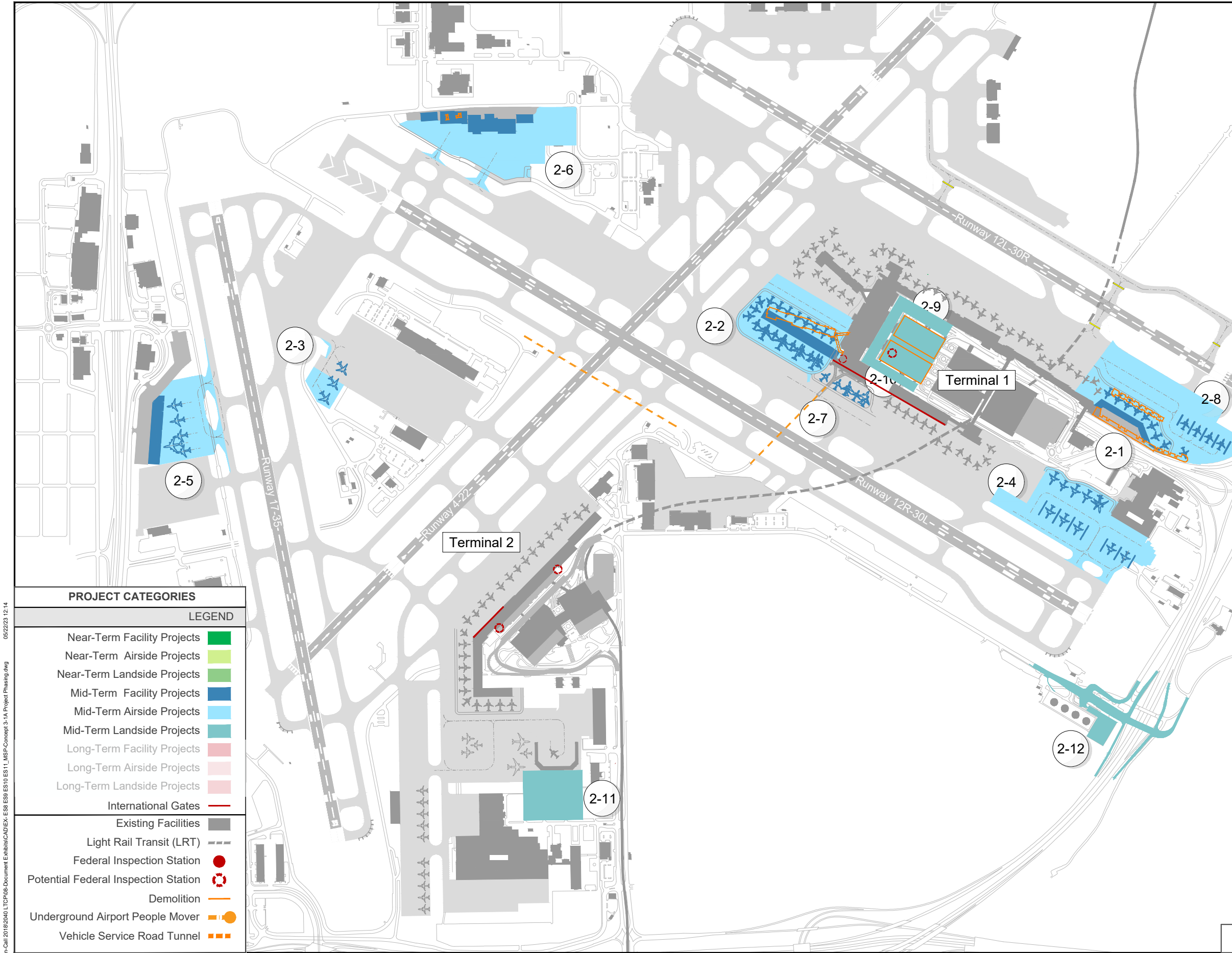
1.1.7 Mid-Term

These projects are intended to meet mid-term demands and prepare for future long-term developments. Demands primarily include an increased need for contact gates for both domestic and international operations with expanded landside capacity to meet the additional demand.

- Project 2-1: Reconstruct Concourse A; Demolish Concourse B – The new Concourse A is a single-loaded concourse consisting of 8 ADG III contact gates. The Concourse will replace the existing Concourse A/B complex, currently serving ADG II aircraft, which are under-sized.
- Project 2-2: Reconstruct Concourse F – The new Concourse F is a double-loaded concourse consisting of 19 ADG III contact gates. The reconstructed Concourse F provides 4 ADG V Multiple Aircraft Ramp System (MARS) gates capable of serving international flights. The redevelopment of Concourse F increases the existing gate count on the concourse by two gates. It also expands the number of gates capable of international arrivals to accommodate increased demand.
- Project 2-3: Central Cargo Apron Expansion – The Central Cargo Apron, specifically UPS apron, will be expanded to add two parking stalls.
- Project 2-4: Runway 30L Remain-Overnight Apron (RON) and Deice Pad Reconfiguration – The Runway 30L deice pad will be reconfigured to accommodate larger aircraft on the deice pad. The reconfiguration will make room for expanding the south end of Concourse G.
- Project 2-5: West Cargo Apron and Facility – This project will construct a new airfield apron, cargo warehouse and sort facility, and landside trailer docking and parking lot on the open lot north of the shared Amazon / DHL apron. The new apron and facilities will meet the anticipated cargo requirements for additional e-commerce cargo facilities.
- Project 2-6: Fixed Base Operator Relocation – To accommodate the north expansion of T2, the existing Fixed Base Operator (FBO) terminal and hangars will be relocated to the north side of the airfield, adjacent to Taxiway B. The new FBO is sized for in-kind replacement of existing facilities and is anticipated to meet long-term needs of the FBO (Signature Flight Support).
- Project 2-7: Runway 12R-30L Tunnel Reconstruction and Taxiway B Realignment – The Runway 12R-30L tunnel reconstruction and Taxiway B realignment project will increase airfield capacity and efficiency by extending the existing Vehicle Service Road (VSR) tunnel. The tunnel extension will allow for the alignment of Taxiway B as it crosses over the tunnel to be parallel to Taxiway A. The realignment of Taxiway B will allow aircraft to simultaneously taxi over the tunnel on Taxiway A and Taxiway B. This project is anticipated to occur concurrently with the reconstruction of Concourse F.
- Project 2-8: Runway 30R Deice Pad Reconfiguration – The Runway 30R deice pad reconfiguration will increase the capacity of the existing 30R deice pad by allowing up to four ADG III aircraft to be deiced at a time.
- Project 2-9: T1 Two-Level Roadway Reconstruction – The existing elevated departures and at-grade arrivals roadways will be reconstructed as the upper-level structure reaches the end

of life. The reconstructed inbound and outbound roadways will be compatible with the proposed Green/Gold Ramp redevelopment.

- Project 2-10: Green/Gold Ramp Redevelopment with New Federal Inspection Service (FIS) Facility – The ramps will be reconstructed as they near their end of useful life. The new structure will consist of a multi-use facility including parking, a centralized FIS facility, and MAC administrative space. The LTP recommends a preliminary design and alternative refinement project ahead of this project to validate a preferred layout as well as goals, objectives, and timeline of the reconstruction.
- Project 2-11: 34th Avenue Parking Development – This proposed concrete parking structure along 34th Avenue will serve as an employee parking facility for Delta employees. It will enable the proposed RON aircraft parking area adjacent to I-494 in the long-term project list.
- Project 2-12: TH 5 Interchange Reconstruction – A proposed new intersection for TH 5 and Post Road will improve capacity and intersection LOS. The geometry of the intersection included in the LTP is based on the work completed as part of the 2020 Improvements Environmental Assessment / Environmental Assessment Worksheet (EA/EAW).



- Mid-Term Projects:**
- 2-1 Reconstruct Concourse A / Demolish Concourse B
 - 2-2 Reconstruct Concourse F
 - 2-3 Central Cargo Apron Expansion
 - 2-4 Runway 30L RON Apron and Deice Pad Reconfiguration
 - 2-5 West Cargo Apron and Facility
 - 2-6 Fixed Base Operator Relocation
 - 2-7 Runway 12R-30L Tunnel Reconstruction & Taxiway B Realignment
 - 2-8 Runway 30R Deice Pad Reconfiguration
 - 2-9 T1 Two-Level Roadway Reconstruction
 - 2-10 Green/Gold Ramp Redevelopment with New Federal Inspection Services Facility
 - 2-11 34th Avenue Parking Development
 - 2-12 TH 5 Interchange Reconstruction

PROJECT CATEGORIES

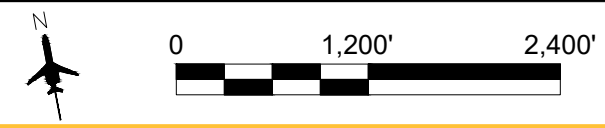
LEGEND

- Near-Term Facility Projects
- Near-Term Airside Projects
- Near-Term Landside Projects
- Mid-Term Facility Projects
- Mid-Term Airside Projects
- Mid-Term Landside Projects
- Long-Term Facility Projects
- Long-Term Airside Projects
- Long-Term Landside Projects
- International Gates
- Existing Facilities
- Light Rail Transit (LRT)
- Federal Inspection Station
- Potential Federal Inspection Station
- Demolition
- Underground Airport People Mover
- Vehicle Service Road Tunnel

SOURCE: Metropolitan Airports Commission, 2022 (Basemap); Ricondo & Associates, Inc., 2022.



MINNEAPOLIS-SAINT PAUL INTERNATIONAL AIRPORT
2040 LONG-TERM PLAN



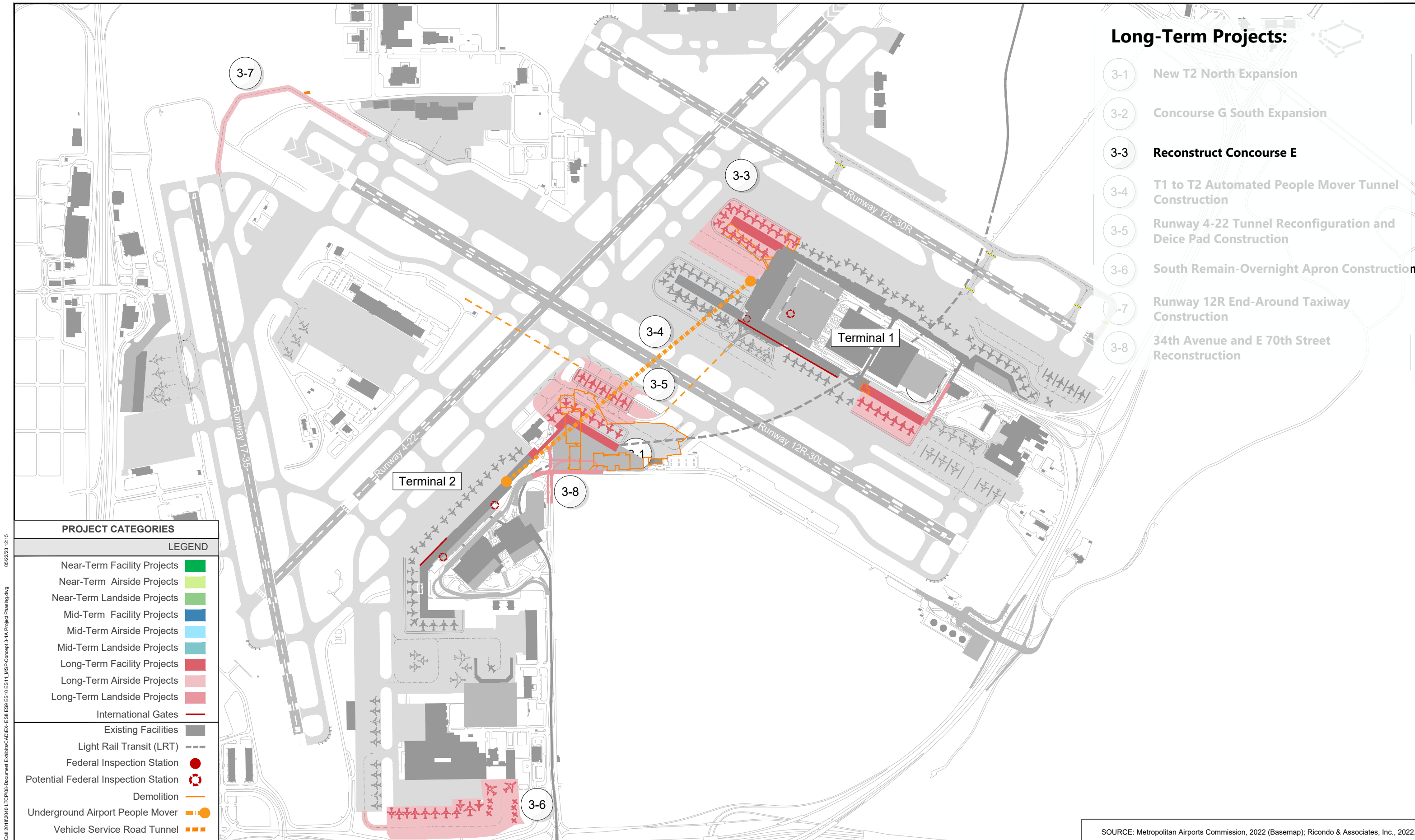
DRAFT WORKING DOCUMENT | NOT FOR DISSEMINATION

P:\Project-Alexandria\MS701_0n-Call\2018\2040 LTCP\08-Document E-Ribbit\CAD\EX-ES9 ES10 ES11 MSP-Concept 3.1A Project Phasing.dwg 06/22/23 12:14

1.1.8 Long-Term

Long-term projects align with forecasted demand and prepare for future development beyond the 2040 LTP timeline. Forecasted demands primarily include an increased need for contact gates for both domestic and international operations, expanded landside capacity to meet additional demand, and increased connections between the two terminals to improve operational flexibility and enhance the passenger experience.

- Project 3-1: New T2 North Expansion – The expansion is a terminal extension consisting of nine ADG III contact gates north of the existing T2 footprint. This project will allow for current T2 carrier expansion and gates to accommodate reconstruction of T1 concourses. It is predicated on the relocation of the Signature FBO facilities to the north side of the MSP campus.
- Project 3-2: Concourse G South Expansion – The expansion includes seven ADG III contact gates. The phasing of the new concourse expansion occurs in the long-term to address the increasing demand of contact gates for aircraft operations.
- Project 3-3: Reconstruct Concourse E – The project includes 15 ADG III contact gates and is likely to result in Concourse E absorbing the existing Concourse D, which would trigger the need to rename the concourses in T1. This new concourse alignment creates additional airfield space between Concourse E and Concourse F, accommodating ADG III independent points of aircraft ingress and egress.
- Project 3-4: T1 to T2 Automated People Mover (APM) Tunnel Construction – A new APM tunnel from the headhouse of T1 will connect to the new north concourse on T2. The tunnel will allow for airside connectivity for passengers between the two terminals and increases the flexibility of the terminal for more efficient and connected operations.
- Project 3-5: Runway 4-22 Tunnel Reconfiguration and Deice Pad Construction – This project will increase deicing capabilities by adding an additional five ADG III deice positions north of the T2 north expansion. The positions may also be utilized as RON parking in non-deicing conditions.
- Project 3-6: South Remain-Overnight (RON) Apron Construction – The project will increase the Airport's available RON parking. The RON apron will expand the apron capacity by approximately 1 million square feet.
- Project 3-7: Runway 12R End-Around Taxiway (EAT) Construction – The project will build a new taxiway around the approach end of Runway 12R, connecting Taxiway B to Taxiway K. The EAT will increase airfield capacity and safety by eliminating the crossing of Runway 12R-30L by aircraft landing or departing on Runway 17-35.
- Project 3-8: 34th Avenue and East 70th Street Reconstruction – This project consists of the reconstruction of the 34th Avenue and East 70th Street intersection to improve capacity. The intersection improvements would promote primary access to T2 facilities via Post Road. An elevated roadway across the intersection is recommended to reduce vehicle conflicts at the intersection.



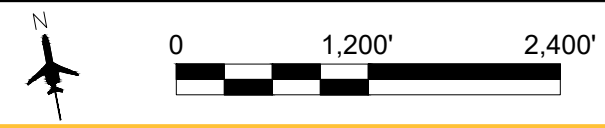
- ### Long-Term Projects:
- 3-1 New T2 North Expansion
 - 3-2 Concourse G South Expansion
 - 3-3 **Reconstruct Concourse E**
 - 3-4 T1 to T2 Automated People Mover Tunnel Construction
 - 3-5 Runway 4-22 Tunnel Reconfiguration and Deice Pad Construction
 - 3-6 South Remain-Overnight Apron Construction
 - 3-7 Runway 12R End-Around Taxiway Construction
 - 3-8 34th Avenue and E 70th Street Reconstruction

PROJECT CATEGORIES	
LEGEND	
Near-Term Facility Projects	■
Near-Term Airside Projects	■
Near-Term Landside Projects	■
Mid-Term Facility Projects	■
Mid-Term Airside Projects	■
Mid-Term Landside Projects	■
Long-Term Facility Projects	■
Long-Term Airside Projects	■
Long-Term Landside Projects	■
International Gates	—
Existing Facilities	■
Light Rail Transit (LRT)	—
Federal Inspection Station	●
Potential Federal Inspection Station	○
Demolition	—
Underground Airport People Mover	●
Vehicle Service Road Tunnel	—

SOURCE: Metropolitan Airports Commission, 2022 (Basemap); Ricondo & Associates, Inc., 2022.



MINNEAPOLIS-SAINT PAUL INTERNATIONAL AIRPORT
2040 LONG-TERM PLAN



DRAFT WORKING DOCUMENT | NOT FOR DISSEMINATION

P:\Project-Alexandria\MS701_On-Call\2018\2040 LTCP\08-Document E-Ribbit\CAD\EX-ES9 ES10 ES11 MSP-Concept 3.1A Project Phasing.dwg 06/22/23 12:15

ES 6. PROJECT COST ESTIMATES

The current work of the 2040 LTP included cost estimation based on the project phasing and priorities discussed in **Section ES 5**. As of Spring 2023, this work is in progress and will be included in the final LTP report as well as the final version of this executive summary.

ES 7. ENVIRONMENTAL OVERVIEW

The MAC has a longstanding commitment to creating a sustainable future. The MAC furthered this commitment in 2020 by setting the following 2030 goals:

- Reduce MSP's greenhouse gas emissions by 80%.
- Reduce MSP's water usage per passenger by 15%.
- Divert 75% of the Airport's waste away from landfills.
- Achieve a MAC employee engagement sustainability score of 85.

The MAC and airport stakeholders are working toward reaching these goals through a variety of means, such as reducing energy and CO2 emissions, achieving Level 2 in the Airport Carbon Accreditation program, diverting airport waste, reducing water consumption and climate resiliency planning.

Prior to any new construction identified in this plan, the MAC will complete an Environmental Assessment (EA) and/or an Environmental Assessment Worksheet (EAW) to meet Met Council guidelines and FAA requirements for utilizing Airport Improvement Program (AIP) grant funds. The environmental categories required for study prior to construction of the preferred development plan include noise, air quality, and water quality within the region surrounding the airport.

1.1.9 Aircraft Noise

The FAA's Aviation Environmental Design Tool (AEDT) was used to develop contours to evaluate potential aircraft noise impacts associated with the preferred development plan. To address the inherent uncertainty of developing a 20-year forecast of air traffic demand, three 2040 forecast scenarios were developed to evaluate the range of potential noise impact levels. These various scenarios create planning efficiencies and flexibility.

The 2040 Baseline Forecast is the expected outcome based on the preferred development plan and is the forecast contour used in the noise impact analysis. Forecast 2040 High and 2040 Low scenarios were also used to display a range of potential noise impact levels 20 years into the future.

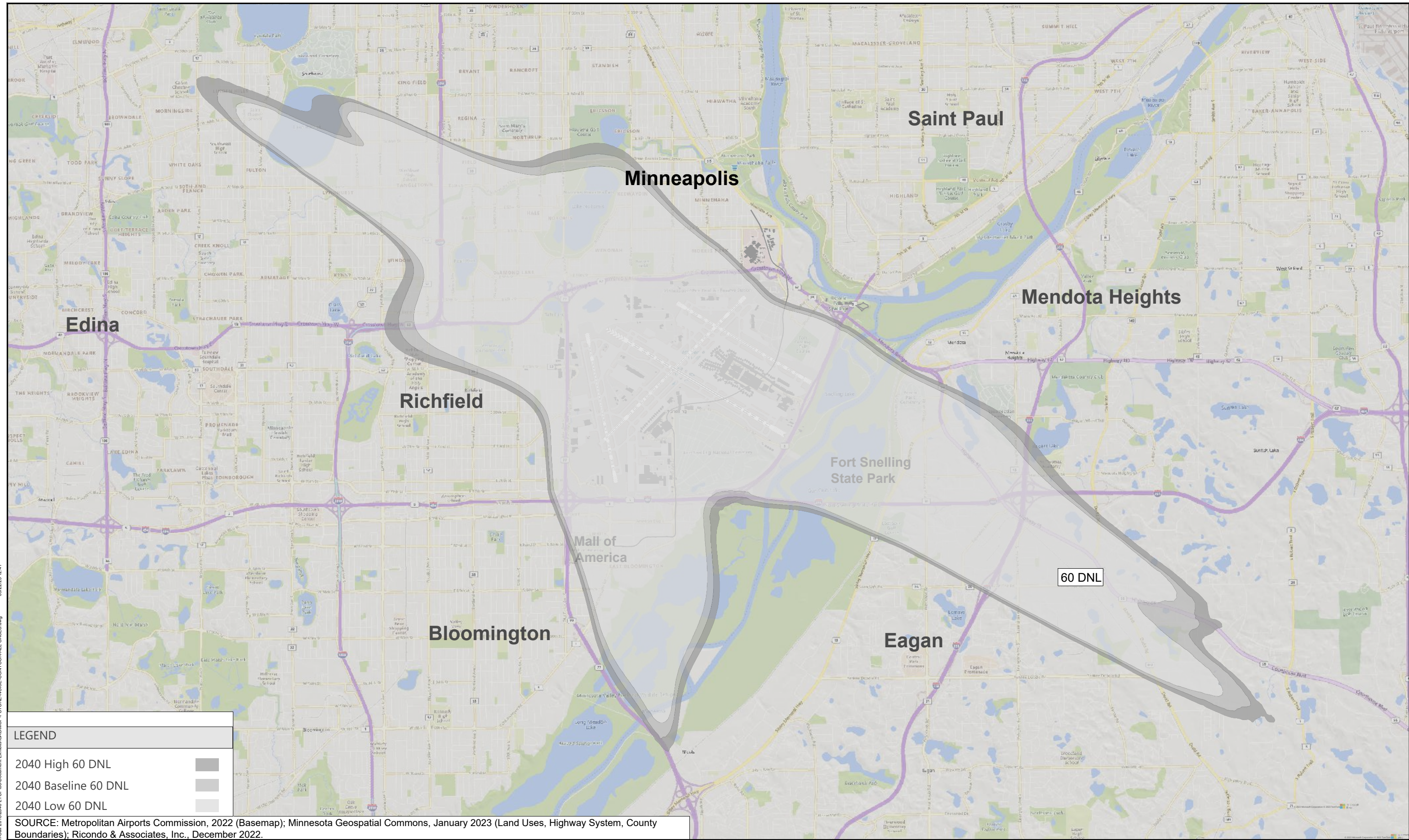
The contours represent noise levels, expressed in the Day-Night Average Sound Level (DNL) metric. The FAA requires the DNL noise metric for determining and analyzing aircraft noise exposure to aid in the determination of aircraft noise and land use compatibility around U. S. airports.

While the FAA considers residential structures incompatible within the 65 DNL noise contour, the MAC's noise mitigation program at MSP offers residential noise mitigation to the 60 DNL level. The 2040 forecast noise contours and analysis contained in this report do not qualify homes for the MAC's noise mitigation program. Eligibility for noise relief provided by the MAC is determined annually, based upon actual MSP noise contours developed for the preceding calendar year.




In summary, when the 2040 Baseline forecast, contours are compared to the 2018 Base Year contours:

- For the 60 DNL contour, the acreage contained within the contour increases by 39.9%. The 2040 Baseline Forecast 60 DNL contour contains 14,470 single-family homes and 4,234 multi-family units. More than 89% of these single-family homes and multi-family units have already been eligible for aircraft noise relief offered by the MAC's noise mitigation programs.
- For the 65 DNL contour, the acreage contained within the contour increases by 33.5%. The 2040 Baseline Forecast 65 DNL contour contains 2,421 single-family homes and 747 multi-family units. All single-family homes within the 65 DNL contour have already been eligible for the MAC's 5 dB noise reduction package. All multi-family units have already been eligible for aircraft noise relief offered by the MAC's noise mitigation programs.

A depiction of the noise contours from the three 2040 forecast scenarios is provided in **Exhibit ES-12**.



P:\Project\Abandon\MSF01_01\Call 2018\2040 LTCP\08-Document\Exhibit\CAD\MSP-FUTURE-NOISE-CONTOUR-ALL CASES.rwg 06/22/23 12:41

LEGEND	
2040 High 60 DNL	
2040 Baseline 60 DNL	
2040 Low 60 DNL	

SOURCE: Metropolitan Airports Commission, 2022 (Basemap); Minnesota Geospatial Commons, January 2023 (Land Uses, Highway System, County Boundaries); Ricondo & Associates, Inc., December 2022.



MINNEAPOLIS-SAINT PAUL
INTERNATIONAL AIRPORT
2040 LONG-TERM PLAN



DRAFT WORKING DOCUMENT | NOT FOR DISSEMINATION

MARCH 2023

EXHIBIT ES-12
2040 Forecast Scenario Contour Range

1.1.10 Air Quality

The current work of the 2040 LTP efforts has included a review of air quality, which is based on the previous 2013 EA efforts and related potential impacts from the 2040 preferred alternative. As of Spring 2023, this work is in progress and will be included in the final report of the LTP as well as the final version of this executive summary.

1.1.11 Sanitary Sewer and Water

The current work of the LTP effort has included a review of sanitary sewer and water, which is based on the previous 2013 EA efforts and related potential impacts from the 2040 preferred alternative impacts. As of Spring 2023, this work is in progress and will be included in the final report of the LTP as well as the final version of this executive summary.

Some of the key goals of the overall MAC sustainability efforts include:

- The goal for reducing the amount of water use on the campus. Upcoming projects to replace high-flow toilets and/or incorporate rainwater reuse for landscaping will help MAC attain its water reduction goal.
- Efforts to reduce the amount of solid waste sent to landfill is a key goal of the program. MAC is already incorporating waste reduction strategies into concession programs, including paper towel compactors in restrooms, compactors in trash cans within terminal spaces, expanding organics and recycling opportunities, and implementing compostable-only employee events.

1.1.12 Other Environmental Considerations

It is anticipated that most of the projects in the preferred development plan will require an environmental review process per federal National Environmental Policy Act (NEPA) and Minnesota Environmental Policy Act (MEPA) requirements to identify the environmental footprint of the improvements more specifically before construction can begin. During that process, alternatives must be reviewed, and any potential impacts must be avoided if possible. If impacts cannot be avoided, they must be minimized to the extent possible and mitigated in full compliance with federal and state requirements.

The environmental review process cannot begin until there is a sufficiently detailed plan available to evaluate. The MAC will initiate the environmental review for the preferred development plan following the review by Metropolitan Council and formal adoption by the MAC Board. A full study of these environmental impact items at this time falls outside the scope of this long-term planning document.

ES 8. STAKEHOLDER AND PUBLIC ENGAGEMENT PROCESS

One of the goals established at the onset of the LTP was to include meaningful stakeholder engagement throughout the planning process. To fulfill this goal, a series of meetings, events and outreach activities have been conducted throughout the LTP development.

Engagement involved meeting with the public and stakeholder groups during the development of the draft LTP in order to present updates about the planning process and to discuss and consider public concerns and aspirations during the development of the LTP.

The meetings and events held during the development of the draft LTP are listed in Table **ES-8**.

Table ES-8: Meetings and Events Conducted During Draft LTP Development (1 of 2)

Audience	Materials Covered	Date	Location
MSP Noise Oversight Committee (NOC)	LTP Introduction, Goals, Process, Engagement Program and Schedule	3/20/2019	MAC
MSP NOC	LTP Engagement and Schedule	5/15/2019	MAC
MAC Planning, Development and Environment (PD&E) Committee	LTP Introduction, Goals, Process, Engagement Program and Schedule	6/3/2019	MSP
MSP Long-Term Plan Stakeholder Advisory Panel	LTP Introduction, Goals, Process, Engagement Program and Schedule	6/10/2019	Crowne Plaza, Bloomington
MSP NOC	LTP Engagement and Schedule	7/17/2019	MAC
MSP Long-Term Plan Stakeholder Advisory Panel	Aviation Activity Forecast Overview, Capacity Study, Review Stakeholder and Public Input	8/27/2019	InterContinental MSP Airport
MAC PD&E Committee	Aviation Activity Forecasts	9/3/2019	MSP
Minneapolis Intergovernmental Relations Committee	LTP Introduction, Goals, Process, Engagement Program, Existing Conditions, Aviation Activity Forecasts and Capacity Study	9/25/2019	Minneapolis City Hall
Public Experience MSP Event #1	LTP Introduction, Goals, Process, Engagement Program, Existing Conditions and Aviation Activity Forecasts	10/2/2019	Mall of America Executive Center
Minneapolis City Council and Staff Meeting	Aviation Activity Forecasts and Capacity Study	10/18/2019	Minneapolis City Hall
MSP Long-Term Plan Stakeholder Advisory Panel	Aviation Activity Forecasts, Capacity Study, Review Stakeholder and Public Input	1/30/2020	Crowne Plaza, Bloomington
Pause in the LTP process due to the COVID-19 pandemic			

Source: Metropolitan Airports Commission (MAC)

Table ES-8: Meetings and Events Conducted During Draft LTP Development (2 of 2)

Audience	Materials Covered	Date	Location
<i>Pause in the LTP process due to the COVID-19 pandemic</i>			
MSP NOC	Aviation Activity Forecast Update and LTP Schedule	11/10/2021	Virtual
MAC PD&E Committee	Aviation Activity Forecast Update and LTP Schedule	12/6/2021	MSP
MSP Long-Term Plan Stakeholder Advisory Panel	COVID-19 Airport Impacts, Aviation Activity Forecast Update and LTP Schedule	12/10/2021	Virtual
MSP NOC	LTP Process, Engagement Program and Schedule	3/16/2022	Virtual
Public Experience MSP Event #2	LTP Goals, Process, Existing Conditions, Aviation Activity Forecast Update and Capacity Study	4/12/2022	Virtual
MSP Long-Term Plan Stakeholder Advisory Panel	LTP Process, Engagement Program, Facility Requirements Overview and Preliminary Alternatives Review	8/4/2022	Bloomington CVB and Virtual
Public Experience MSP Event #3	Facility Requirements and Alternatives Review	8/23/2022	MAC
MAC PD&E Committee	LTP Process, Engagement Program, Facility Requirements, Alternatives Review and Preferred Alternative	2/6/2023	MSP
MSP NOC	LTP Process, Engagement Program, Facility Requirements, Preferred Alternative and Aircraft Noise Analysis	3/15/2023	MAC
City of Minneapolis Airport Working Group	LTP Process, Engagement Program, Facility Requirements, Preferred Alternative and Aircraft Noise Analysis	4/12/2023	Virtual
MSP Long-Term Plan Stakeholder Advisory Panel	LTP Process, Engagement Program, Facility Requirements, Preferred Alternative and Aircraft Noise Analysis	4/13/2023	Crowne Plaza, Bloomington and Virtual
Metropolitan Council Technical Advisory Committee	LTP Process, Engagement Program, Facility Requirements, Preferred Alternative and Preliminary Findings	5/3/2023	Metropolitan Council
Metropolitan Council TAC Planning Sub-Committee	LTP Process, Engagement Program, Facility Requirements, Preferred Alternative and Preliminary Findings	5/11/2023	Virtual
Metropolitan Council Transportation Advisory Board	LTP Process, Engagement Program, Facility Requirements, Preferred Alternative and Preliminary Findings	5/17/2023	Metropolitan Council
MAC PD&E Committee	LTP Process, Engagement Program, Facility Requirements, Preferred Alternative and Preliminary Findings	6/6/2023	MSP
Public Experience MSP Event #4	LTP Process, Engagement Program, Facility Requirements, Preferred Alternative and Preliminary Findings	7/11/23	Sabathani Community Center

Source: Metropolitan Airports Commission (MAC)

A 60-day public comment period began on June 21, 2023 and ended on August 21, 2023. In total, 139 public comments were received and ranged in a variety of topics, of which the pronounced areas of public comments included noise, terminal, landside, and MAC communications.

The noise comments were largely comprised of complaints regarding existing aircraft noise, as well as the concern for aircraft noise for future aircraft operations. As the primary focus of the MSP 2040 LTP remains with terminal function and footprint, the MAC will continue its long history of collaborating with stakeholders, including neighboring communities, to reduce noise. There are existing noise abatement procedures air traffic control will continue to utilize in reducing noise over residential areas when feasible, as well as continue to implement eligible homes with sound insulation mitigation. To-date, the sound insulation program has invested over \$500 million in communities that surround the airport.

The terminal comments focused on passenger connectivity and the promotion of connecting passengers between T1 and T2 from the secure-side of the airport. Other topics included the notion of an undersized Federal Inspection Service (FIS) facility in T1, passenger connection times for connecting passengers in T1, and the request to add moving walkways in the terminals where they do not exist today.

Landside public comments focused on the need for curbside improvements required in front of both T1 and T2 and acknowledged the need to reduce vehicle congestion. There were a couple of comments regarding the existing Metro Transit Light Rail (LRT) connection between both terminals and the need for increased safety, however the MAC has been partnering with LRT police and the City of Bloomington police department in an effort to improve LRT safety concerns. Electrical vehicles (Evs) were commented on, though the LTP acknowledges the emerging nature of this topic and MAC’s desire to continue evolving landside services available. **Table ES-9** summarizes the number of comments by each category.

Table ES-9: Public Comments: Summary of Topics

Comment Category	Number of Comments	Percent of Total
Airline Relations	2	1%
Airside	6	4%
Environmental	9	6%
Indiscernible	6	4%
Landside	15	11%
MAC Communications	11	8%
Noise	69	50%
Terminal	21	15%
TOTAL	139	100%

Source: Metropolitan Airports Commission (MAC)