Airport Certification Manual

Minneapolis-St. Paul International Airport (MSP)

Signed by:
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Revision Control Sheet

Revision Number	Revision Date	Revision Contents and/or Remarks
001	07/01/07	Pages iv - vi, Revision Control Sheet, Distribution List
001	07/01/07	Page 11-2, Declared Distances & Displaced Thresholds
001	07/01/07	Page 11-3, safety areas for Taxiways K & L
001	07/01/07	Page 12-3, 12-4, 12-5, Taxiway reflectors
001	07/01/07	Page 15-1, & 15-2, paragraph a, vehicles 16 & 17
001	07/01/07	Page 16-1, items c & e
001	07/01/07	Page 21-1, 21-2, 21-3, 21-4, 21-5, Pedestrian and Ground Vehicles
001	07/01/07	Page 24-1, item 3.a
001	07/01/07	Exhibit 1, Operations Organization Chart
001	08/15/06	Exhibit 7, Sign Plan
001	07/01/07	Exhibit 9, Snow Plan
001	07/01/07	Exhibit 13, Letters of Agreement
002	01/22/09	Exhibit 7, Updated Sign Plan
003	03/31/09	Exhibit 9, Snow Plan: Added information related to continuous monitoring and crew resource management.
004	10/31/10	Complete update of the entire document.
005	01/01/12	Page 21-1, 21-2, 21-3, 21-4, 21-5, 21-6, Pedestrian and Ground Vehicles
006	03/18/13	Pages i, iv, Table of Contents and Revision Control Sheet. Pages v-vi, Elimination of Document Control Sheet (page renumbering). Page 4-1, Falsification, reproduction, or alteration of applications, certificates, reports, or records. Page 8-1, 8-2 (format), CEO, Personnel. Page 21-2, 21-4, Pedestrians and Ground Vehicles.
007	09/15/13	00 -Table of Contents; Sections 9, 11, 12, 15, 16, 20, 24, 26, 27; Exhibits 1, 2, 4, 5-2, 6, 7, 9-1, 9-2, 10, 11, 13-1, 13-2, 14, 16, 17.
008	07/31/14	00 - Table of Contents, Section 21
009	08/01/14	Table of Contents, Section 13, Exhibit 9
010	03/24/2016	Updates to 00 - Table of Contents and Sections 12, 15, 16, 17, 20, and 26 as well as Exhibits 1, 4, 7, 10, 12, 14, and 15. Addition of Exhibit 18.

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FAA Airports Date: Dec 02 2025

Revision Control Sheet (continued)

Revision Number	Revision Date	Revision Contents and/or Remarks
011	09/01/2016	Changes to Sections 13, 20, 26 and Exhibit 9 to incorporate Runway Condition Codes (RCCs) and other changes to Airport Condition Reporting methods.
012	02/11/2018	Updates to 00 - Table of Contents, Sections 9 and 12 and Revised Movement/Non-Movement Area Letter of Agreement in Exhibit 13.
013	05/11/2018	Updates to 00 - Table of Contents, Distribution List, Section 21, Exhibit 1, Exhibit 5, and Exhibit 9
014	08/31/2018	Updates to Table of Contents, Section 11-Safety Areas, Section 12-Marking, Signs and Lighting, Section 15-ARFF Equipment and Agents, Section 17-Handling and Storing of Hazardous Substances and Materials, Exhibit 10-ARFF Equipment/Personnel, Exhibit 16-Preventive Maintenance Procedures for PAPIs and Generators, Exhibit 17-Engineered Materials Arresting System (EMAS) Maintenance Program, Exhibit 18-Fuel System Inspection Reports and Exhibit 19 - Corrective Action Form
015	11/09/2018	Updates to Section 19- Airport Emergency Plan and Exhibit 11- Airport Emergency Plan
016	06/01/2019	Entire document reformatting, and reorganization. Updates to Section 317- ARFF: Equipment and Agents, Section 321 -Handling and Storing of Hazardous Substances and Materials, Exhibit 303-1-Organization Chart, Exhibit 313-1-Snow Plan, Exhibit 317-1-ARFF Equipment/Personnel, Exhibit 327-1-Daily Self-Inspection Forms, Exhibit 339-1-NOTAM Information
017	09/27/2019	Updates to Distribution List, Section 323-Air Traffic and Wind Direction Indicators, Exhibit 311-2-Preventive Maintenance Inspection Procedures for PAPIs and Generators, Exhibit 313-1-1-Snow Plan, 321-1-Fuel System Inspection Reports, Exhibit 327-1-Self-Inspection Forms
018	10/01/20	Updates to Distribution List, Section C of Section 321 and replacement of pages 4 and 5 of Exhibit 321-1 with new training form.
019	11/20/20	Updates to Distribution List, Section 309, Section 311, Section 321, Section 323, Exhibit 305-2, Exhibit 311-2, and Exhibit 500-1
020	12/23/20	Updates to the Table of Contents and the Sign Plan in Exhibit 311-1.

Revision Control Sheet (continued)

Revision Number	Revision Date	Revision Contents and/or Remarks
020A	06/16/2021	Updates to the Table of Contents, Distribution List, and the Sign Plan in Exhibit 311-1.
021	6/21/2021	Updated Wildlife Hazard Management Plan in Exhibit 337-1.
022	3/25/2022	Updated Table of Contents-Distribution List, Section 303, Section 327, Exhibit 309-1, Exhibit 311-2, and Exhibit 327-1.
023	04/22/2022	Updated Section 311, Section 325, Section 339, Exhibit 325-1 and Exhibit 339-1
024	08/26/2022	Updated Table of Contents, Section 305, Section 311, Exhibit 313-1, Exhibit 321-1, Exhibit 500-1
025	11/18/2022	Updated Table of Contents, Section 301, Section 317, Section 335, Exhibit 101-2, and Exhibit 500-10
026	07/14/2023	Updated Table of Contents, Section 201, Section 311, Section 327, Section 329, and Exhibit 327-1
027	10/06/2023	Updated Table of Contents Distribution List, Section 313 and Exhibit 313-1.
028	10/12/2023	Updated Exhibit 325-1, Airport Emergency Plan - Revision 06
029	12/29/2023	Updated Section 309, Section 317, Section 319, and Exhibit 317-1
030	01/26/2024	Update to the Sign Plan, Exhibit 311-1
031	01/31/2024	Updated Exhibit 325-1, Airport Emergency Plan - Revision 07
032	04/12/2024	Updated Section 337 and Exhibit 337-1, Wildlife Hazard Management Plan
033	05/30/2024	Updated Table of Contents Distribution List, Exhibit 500-6, and added new Exhibit 500-11.
034	07/10/2024	Updated Section 317, Exhibit 317-1, and Exhibit 500-6.
035	09/09/2024	Updated Exhibit 313-1, Snow and Ice Control Plan
036	09/18/2024	Updated Exhibit 325-1, Airport Emergency Plan
037	09/19/2024	Added Sections 401, 403, and Exhibit 500-12
038	11/01/2024	Updated Table of Contents Updated Exhibit 313-1, Snow and Ice Control Plan section 5.7 and Appendices 4, 5, 6, 7, 8, 9, 10, 11 Updated Section 309 page 3 and Exhibit 327-1 page 4
039	11/25/2024	Updated Table of Contents Updated Section 311 Added Exhibit 311-3
040	01/15/2025	Updated Section 317 page 2 and Exhibit 317-1

Revision Control Sheet (continued)

Revision Number	Revision Date	Revision Contents and/or Remarks
041	04/07/2025	Added Exhibit 500-13
042	04/08/2025	Updated Section 317 and Exhibit 317-1
043	04/24/2025	Updated Exhibit 325-1 - Airport Emergency Plan
044	05/01/2025	Updated Section 321 and Exhibit 321-1
045	05/16/2025	Updated Section 301, Section 303, and Section 401, and added Section 402
046	07/08/2025	Updated Section 317, Exhibit 317-1, and Exhibit 500-13
047	09/18/2025	Updated Section 329, Exhibit 305-1, Exhibit 311-1, Exhibit 329-1
048	09/23/2025	Updated Section 309, page 1
049	10/09/2025	Updated Exhibit 313-1, Snow and Ice Control Plan
050	10/23/2025	Updated Exhibit 311-1, Sign Plan Area 5
051	11/12/2025	Updated Exhibit 325-1, Airport Emergency Plan, Section 339, Exhibit 339-1, Section 327, and Exhibit 327-1
052	11/25/2025	Updated Section 317, Exhibit 317-1, and Exhibit 500-3

Distribution List

1. Original ACM
2. FAA Airport Certification Inspector
3. MAC Executive Director/CEO
4. MAC Executive Vice President/COO
5. MAC Vice President Management and Operations
6. MAC Director of Integrated Operations
7. MAC Director of Airport Maintenance and Asset Management
8. MAC Director of Terminal and Landside Operations
9. MAC Assistant Director of Field Maintenance
10. MAC Director of Real Estate and Airline Affairs
11. MAC Emergency Manager
12. MAC Airport Police Department
13. MAC Airport Fire Department
14. MAC SMS Manager
15. MAC Trades Department
16. MAC Field Maintenance Department
17. MAC Electrical Department
18. MAC Paint Department
19. MAC Airport Development Department
20. MAC Airside Operations Department
21. MAC Emergency Communications Department
22. Air Traffic Manager, FAA Air Traffic Control Tower
23. Manager, FAA Airways Facilities
24. Minnesota State Department of Transportation
25. General Manager, Signature Flight Support

Distribution List

26. Station Manager, Air Canada
27. Station Manager, WestJet Airlines
28. Station Manager, American Airlines
29. Station Manager, Southwest Airlines
30. Station Manager, Delta Air Lines
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33. Station Manager, Icelandair
34. Station Manager, UNIFI
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36. Station Manager, Skywest Airlines
37. Station Manager, Endeavor Airlines
38. Station Manager, United Airlines
39. Station Manager, Sun Country Airlines
40. Station Manager, Alaska Airlines
41. Station Manager, DHL
42. Station Manager United Parcel Service
43. 934th Air Force Reserve
44. 133rd Air National Guard
45. Swissport
46. Station Manager, Denver Air Connection
47. Station Manager, Air France/KLM
48. Station Manager, Atlas Air
49. Station Manager, Allegiant Airlines
50. Station Manager, Amazon Air

Distribution List

51. Station Manager, Aer Lingus
52. Station Manager, Discover Airlines

Section 101 - Purpose, Airport Information

Purpose

This manual provides direction and lines of responsibility (Depicted in Exhibit 303-1) in the day-to-day operations of the Minneapolis-Saint Paul International Airport. As well, it details operating procedures to be followed for both routine matters and unusual circumstances or emergencies that may arise. The content of this manual will comply with the Federal Aviation Administration rules and regulations Title 14 CFR Part 139.

Airport Information

Under Title 14 CFR Part 139, The Metropolitan Airports Commission operates the Minneapolis-Saint Paul International Airport, a Class I airport with scheduled large air carrier aircraft with 30+ seats, unscheduled large air carrier aircraft with 30+ seats, and scheduled small air carrier aircraft with 10 to 30 seats.

1. Mailing Address:

Metropolitan Airports Commission
6040 28th Avenue South
Minneapolis, MN 55450

2. Location:

The Minneapolis-Saint Paul International Airport, herein referred to as "Airport" is located approximately 7 miles southeast from Minneapolis MN, and approximately 8 miles west from Saint Paul MN. (Refer to Exhibit 101-2)

Section 105 - Inspection Authority

The airport shall allow the Administrator to make any inspections including unannounced inspections or tests to determine compliance with 14 CFR Part 139.

Section 111 - Exemptions

There are currently no Federal Aviation Administration exemptions or modification from design standards for Minneapolis-Saint Paul International Airport.

Section 113 - Deviations

Deviation

In an emergency condition requiring immediate action for protection of life or property, the Minneapolis-Saint Paul International Airport may deviate from operational requirement of Title 14 CFR Part 139, Subpart D; or the Airport Certification Manual; to the extent required to meet that emergency.

Reporting

In the event of a deviation, the Airport shall notify the FAA Regional Airports Division by phone or email within 14 days of the nature, extent, and duration of the deviation. If requested by the FAA, the Airport shall submit a report in writing to the FAA Regional Airports Division Manager.

Section 115 - Falsification, reproduction, or alteration of applications, certificates, reports, or records

A. No person shall make or cause to be made:

1. Any fraudulent or intentionally false statement on any application for a certificate or approval under this part.
2. Any fraudulent or intentionally false entry in any record or report that is required to be made, kept, or used to show compliance with any requirement under this part.
3. Any reproduction, for a fraudulent purpose, of any certificate or approval issued under this part.
4. Any alteration, for a fraudulent purpose, of any certificate or approval issued under this part.

B. The commission by any owner, operator, or other person acting on behalf of a certificate holder of an act prohibited under paragraph (A.) of this section is a basis for suspending or revoking any certificate or approval issued under this part and held by that certificate holder and any other certificate issued under this title and held by the person committing the act.

Section 201 / 205 - Airport Certification Manual Maintenance/ Revisions

ACM Maintenance

The Airport will:

1. Maintain the ACM current at all times. The Vice President-Management and Operations is responsible for maintaining the ACM current.
2. Maintain at least one complete and current copy of the approved ACM on the airport which will be available for inspection by the FAA. This copy will be maintained in the Airside Operations office.
3. Furnish the applicable portions of the FAA approved ACM to the personnel responsible for its implementation.
4. Ensure that the Regional Airports Division is provided a complete copy of the most current ACM including any amendments approved on 139.205.

ACM Revisions/Amendments

The following procedure is in effect for revisions/amendments to the ACM:

1. Revisions to the ACM will be submitted digitally via FAA approved methods to the following address:

   Federal Aviation Administration
   Airports Division, AGL 620
   2300 E. Devon Avenue
   Des Plaines, Illinois 60018

2. Amendments to the ACM are significant changes to the ACM concerning method of compliance to Part 139 requirements and will be submitted at least 30 days prior to the proposed effective date. Revisions will be submitted as needed to maintain currency.

3. The ACM Page Revision Log will be completed and submitted with the revision.

4. Each page of the revision, including the Page Revision Log, will have the date of the revision, and the original approval date of the ACM.

5. Upon FAA approval, copies of the approved revision will be made and distributed to the holders of the Airport Certification Manual on the Distribution List.

Section 301 - Records

Furnish Records

Upon request of the Administrator, the Airport will furnish records listed under this section.

List of Required Records

The Airport maintains the following records:

1. Personnel Training – 24 consecutive months for personnel training records under Sections 303, 327, and 402(b).

2. Emergency Personnel Training – 24 consecutive months for ARFF and emergency medical service personnel training records under Section 319.

3. Airport Fueling Agent Inspection – 12 consecutive months for records of inspection of fueling agents under Section 321.

4. Fueling Personnel Training – 12 consecutive months for self-inspection records under Section 321.

5. Self-Inspection – 12 consecutive months for self-inspection records under Section 327.

6. Movement areas and safety areas training - 24 consecutive months for records of training given to personnel with access to movement areas and safety areas under Section 329.

7. Accident and Incident - 12 consecutive months for each accident or incident in movement areas and safety areas involving an air carrier and/or ground vehicle under Section 329.

8. Airport Condition – 12 consecutive months for records of airport condition information dissemination under Section 339.

9. Safety Risk Management - the longer of 36 consecutive calendar months after the risk analysis of identified hazards has been completed, or 12 consecutive calendar months after mitigations required have been completed, for Safety Risk Management documentation under Section 402.

10. Safety Communications - 12 consecutive calendar months for records of safety communications under Section 402.

Additional Records

The Airport will make and maintain additional records as may be required by the Administrator.

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Section 303 - Personnel

Lines of Succession of Operational Responsibility

Lines of succession of operational responsibilities are depicted in the organizational chart attached to this manual as Exhibit 303-1.

1. Metropolitan Airports Commission

The Minneapolis-Saint Paul International Airport is governed by the Metropolitan Airports Commission (Commission). The Commission is comprised of a 15 member Board of Commissioners. The mayors from the cities of Minneapolis and Saint Paul have seats on the Board, the remaining 13 seats are appointed by the Governor of the State of Minnesota.

The direct administration, operation, maintenance, and management are the responsibility of the Airport Staff under the direction of the Executive Director/CEO.

Personnel Requirements

The Airport will comply with the following personnel requirements:

1. Maintain sufficient qualified personnel to comply with the requirements of the ACM and the requirements of Title 14 CFR Part 139.

2. Equip personnel with sufficient resources needed to comply with the requirements of Title 14 CFR Part 139.

3. All new persons who access the movement areas and safety areas and perform duties in compliance with the requirements of the ACM and Part 139 will receive training as specified under Part 139. This training shall be completed prior to the initial performance of such duties and at lease once every 12 consecutive calendar months thereafter. New hires are provided with on-the-job training and are required to complete training prior to being permitted to perform duties under the requirements of this ACM and Part 139. This training includes:

    a. Airport familiarization, including airport marking, lighting and signs system, and driver training.

    b. Procedures for access to, and operation in, movement areas, and safety areas under Section 329 Pedestrians and Ground Vehicles.

c. Airport communications, including the use of ATCT, and airport frequencies and procedures for reporting unsafe airport conditions.

d. Duties required under the ACM and the requirements of Part 139 Sections 319, 321, 327, 329, 337, and 339 as appropriate.

4. Make record of all training completed by each individual in compliance with this section that includes, at a minimum, a description and date of training received. Such records shall be maintained for 24 consecutive calendar months after completion of training.

5. As appropriate, comply with the following training requirements of this ACM:

a. Section 319 – Aircraft Rescue and Fire Fighting: Operational Requirements;

b. Section 321 – Handling and Storage of Hazardous Substances and Materials;

c. Section 327 – Self-Inspection Program

d. Section 329 – Pedestrians and Ground Vehicles

e. Section 337 – Wildlife Hazard Management

f. Section 339 – Airport Condition Reporting

g. Section 402 - Airports Safety Management System

Section 305 - Paved Areas

Required Conditions of Paved Areas

Airport pavement areas, including aprons available for air carrier operations, shall be promptly repaired and maintained as follows:

1. Pavement edges shall not exceed 3 inches difference in elevation between abutting pavement sections and between pavement and abutting areas.

2. Pavement shall have no holes exceeding 3 inches in depth nor any hole the slope of which from any point in the hole to the nearest point at the lip of the hole is 45 degrees or greater as measured from the pavement surface plane, unless, in either case, the entire area of the hole can be covered by a 5" diameter circle.

3. The pavement shall be free of cracks and surface variations that could impair directional control of an air carrier aircraft. Any pavement crack or surface deterioration that produces loose aggregate or other contaminants shall be immediately repaired.

4. Mud, dirt, sand, loose aggregate, debris, foreign objects, rubber deposits, and other contaminants shall be removed promptly and as completely as practicable, except the associated use of materials such as sand and deicing solutions for snow and ice control.

5. Any chemical solvent used to clean any pavement area shall be removed as soon as possible, consistent with the instructions of the manufacturer of the solvent, except those for the associated use of deicing solutions for snow and ice control.

6. Pavement shall be sufficiently drained and free of depressions to prevent ponding that obscures markings or impairs safe aircraft operations.

Maintenance of Paved Areas

Corrective action shall be initiated by Airside Operations personnel as soon as practical when any unsatisfactory conditions are found in the paved areas. Field Maintenance personnel are responsible for the correction of any unsatisfactory conditions on paved areas. If Airside Operations determines that an uncorrected condition in a paved area is unsafe for aircraft operations, that portion of the airport shall be closed to air carrier operations until the unsafe condition is corrected.

Paved Areas Not Available to Air Carrier Operations

1. The area north east of Taxiway C at the intersection of Taxiway C10. This area is also known as the Minnesota Air National Guard feeder 3 or MANG3.

2. The area north west of taxiway A at the intersection of Taxiway A10.

Exhibit 305-2 shows paved areas not available to air carrier operations.

Paved Areas Not Available for Taxi or Towing Operations

To reduce hazards associated with aircraft being taxied or towed on Runway 4-22, FAA ATCT (MSP) and the Metropolitan Airports Commission (MAC) have amended a Letter of Agreement for Movement/Non-Movement areas. Abbreviated restrictions for taxi operations on Runway 4/22 are listed below, and further details can be found in the Letter of Agreement located in Exhibit 500-3 of this Manual:

1. Aircraft under tow or taxi by maintenance or repositioning aircraft are prohibited from operating on runways, except for crossing, unless escorted by MAC personnel.
2. MSP must not use Runway 4/22 for taxi operations unless an operational necessity exists.
3. MSP must not permit a taxiing aircraft to cross at the intersection of Runway 12L/30R or Runway 12R/30L on Runway 4/22 unless an operational necessity exists. General Aviation aircraft are restricted from these crossings.

Section 307 - Unpaved Areas

There are no unpaved movement areas that exist at Minneapolis-Saint Paul International Airport.

Section 309 - Safety Areas

Safety Area Dimensions

With the exception of runway 17/35, all runways were constructed prior to February 18, 1970. Runway 17/35 was completed in August of 2005. The safety areas associated with runways and taxiways conform as a minimum to those in existence as of December 31, 1987. Safety areas will be upgraded to current dimensions acceptable to the Administrator when new construction is undertaken.

Current safety areas for surfaces used by air carrier aircraft are listed below:

Runway Safety Areas:

Location	Width	Length at Approach End	Distance to EMAS	Length of EMAS	Width of EMAS
Runway 04	500’	1000’			
Runway 12L	500’	1000’			
Runway 12R	500’	1000’			
Runway 22	500’	1000’			
Runway 30L	500’	785’	545’	247’	227’
Runway 30R	500’	620’			
Runway 17	500’	1000’			
Runway 35	500’	1000’			

Declared Distances / Displaced Thresholds:

Runway 12L declared distance implemented to increase departure end safety area to 1000'

Location	TORA	TODA	ASDA	LDA	Displaced Threshold
Runway 04	11006'	11006'	11006'	9456'	1550'
Runway 12L	8200'	8200'	7620'	7620'	
Runway 12R	10000'	10000'	10000'	10000'	
Runway 22	11006'	11006'	11006'	10006'	1000'
Runway 30L	10000'	10000'	10000'	10000'	
Runway 30R	8200'	8200'	8200'	8000'	200'
Runway 17	8000'	8000'	8000'	8000'	
Runway 35	8000'	8000'	8000'	8000'	

Taxiway Safety Areas:

Taxiway	Location	Width	Design Aircraft
A	Taxiway A1 to Taxiway A10	214 feet	V
B	Taxiway A1 to Taxiway A3	135 feet	B757-2W/3W
B	Taxiway A3 to Taxiway D	171 feet	IV
B	Taxiway D to Taxiway A10	214 feet	V
C	Taxiway S to Taxiway C10	214 feet	V
D	Taxiway K to Taxiway P	214 feet	V
G	Runway 12L/30R to Taxiway C	214 feet	V
H	Taxiway C to Taxiway Q	214 feet	V
K	Taxiway K1 to Taxiway K10	214 feet	V
J	Taxiway M to Taxiway Q	118 feet	III
L	Taxiway L3 to Taxiway L10	214 feet	V
M	Taxiway S to Runway 12L/30R	214 feet	V
N	Taxiway S to Taxiway L	214 feet	V
P	Taxiway P1 to Taxiway P10	214 feet	V
Q	Taxiway P2 to Taxiway P3	118 feet	III
Q	Taxiway P3 to Taxiway D	135 feet	B757-2W/3W
Q	Taxiway D to Taxiway M	214 feet	V
Q	Taxiway M to Taxiway P10	171 feet	IV
R	Taxiway R10 to Runway 4/22	214 feet	V
S	Taxiway D to Taxiway K	214 feet	V
W	Taxiway W1 to Taxiway W10	214 feet	V
Y	Taxiway K to Taxiway W	214 feet	V
Z	Taxiway K to Taxiway W	214 feet	V

Taxilane Safety Areas:

Taxilane	Location	Width	Design Aircraft
S	Taxilane S from Taxiway D to Taxiway S4	214 feet	V
S	Taxilane S south of Taxiway S4	118 feet	III
T	Taxiway M to Taxiway Y	214 feet	V

COMPLIANCE: The runway, taxiway, and taxilane safety areas are inspected in accordance with Section 327-Self Inspection Program of this manual.
NOTAMS, as required, will be issued in accordance with Section 339 Airport Condition Reporting.

Required Conditions of Safety Areas

1. Each safety area shall be cleared and graded, and shall be maintained free to potentially hazardous ruts, humps, depressions, or other surface variations.

2. Each safety area shall be drained by grading and storm sewers to prevent water accumulation.

3. Each safety area shall be capable under dry conditions of supporting aircraft rescue and fire fighting equipment and the occasional passage of aircraft without causing major damage. Manhole or duct access covers are constructed from steel of sufficient thickness and strength to support equipment and aircraft.

4. No object shall be located in any safety area, except for objects that need to be located in the safety area because of their function. These objects shall be constructed; to the extent practical, on frangible mounted structures of the lowest practical height and maintained so the frangible point is no higher than 3 inches above grade.

5. Safety areas shall conform to dimensions acceptable to the FAA if any runways or taxiways are constructed, reconstructed, or extended.

6. Engineered Materials Arresting Systems (EMAS) at Minneapolis-Saint Paul International Airport (MSP) is installed and will be maintained per *FAA Advisory Circular 150/5220-22, current edition, Engineered Materials Arresting System (EMAS) for Aircraft Overruns*, standards. The EMAS is constructed on a surface capable of supporting the passage of critical design aircraft and fully loaded ARFF vehicles. The EMAS is capable of supporting pedestrian traffic for the purpose of maintaining the arresting material or any collocated navigational aid without surface damage.

   Maintenance program of the EMAS system is listed as Exhibit 309-1.

Service Roads

Runway 4/22

1. Runway 4 approach lighting access

Runway 17/35

1. Runway 35 localizer building access
2. Runway 35 localizer access
3. Runway 35 approach lighting access

Runway 12R/30L

1. Runway 12R approach lighting access

Runway 12L/30R

1. Runway 12L approach lighting access

Section 311 - Marking, Signs, and Lighting

Marking

The airport will provide and maintain marking systems for air carrier operations in accordance with Part 139.311(a) and of *AC 150/5340-1, current edition, Standards for Airport Markings*. The following marking and lighting systems are provided and are operable:

1. Runway/Taxiways
   a. Runways 12L, 30R, 12R, 30L, 04, 22 and 35 are marked with precision instrument runway markings. Runway 17 is marked with non precision instrument runway markings.
   b. Runway 04 has displaced threshold markings for 1,550 feet. Runway 22 has displaced threshold markings for 1,000 feet. Runway 30R has displaced threshold markings for 200 feet.
   c. All taxiway markings include the following: taxiway centerlines, leadoff lines on normally used exits, holding markings, continuous taxiway edge markings along paved shoulders and dashed type edge markings where applicable.
   Feeder taxiways to all runways have enhanced taxiway centerline markings, enhanced holding position markings and surface painted holding position signs.
   Instrument Landing System (ILS) critical area markings are located on taxiways "Y", "W" and "R".
   Ground guidance signs identifying taxi routes per Exhibit 311-1 of this manual.

2. Hold Position Markings
   All runway holding position markings are located at a distance of at least 288 feet from runway centerlines per Advisory Circular specifications for the most critical aircraft operating at the Airport.

3. Land and Hold Short Operations
   LAHSO holding positions are identified with a holding position marking and holding position signs on both sides of the runways.

Authorized LAHSO Rwy	Hold Point	Designation
22	TWY K	Air Carrier
30L	TWY A9	Air Carrier

LAHSO lighting systems are installed at the Airport for air carrier LAHSO. Agreement between FAA ATCT and the Airport is listed in Exhibit 500-2.

Signs

The Airport will provide and maintain a sign system for air carrier operations in accordance with 14 CFR Part 139.311(b). The Marking and Sign Plan is included in Exhibit 311-1. The signs will meet standards in *AC150/5340-18, current edition, Standards for Airport Sign Systems*, and sign specifications in *AC 150/5345-44, current edition, Specifications for Taxiway and Runway Signs*. The airport will provide a vehicle service road sign system for vehicles on the AOA to control access to the movement area. The Vehicle Service Road Sign Plan is included in Exhibit 311-3.

Lighting

The Airport will provide and maintain lighting systems for air carrier operations in accordance with Part 139.311(c) and *AC 150/5340-30, current edition, Design and Installation Details for Airport Visual Aids*, to meet the specifications for the lowest instrument approach minimums authorized for each runway.

The following lighting systems are provided:

1. Runways:

RUNWAY 04-22

H.I. RUNWAY EDGE LIGHTING SYSTEM
LIGHTS PER FAA SPEC. L-862

RUNWAY 12L-30R

H.I. RUNWAY EDGE LIGHTING SYSTEM
LIGHTS PER FAA SPEC. L-862

CENTERLINE LIGHTING
LIGHTS PER FAA SPEC. L-850

(RUNWAY 12L ONLY)
TOUCHDOWN ZONE LIGHTING
LIGHTS PER FAA SPEC. L-850

RUNWAY 12R-30L

H.I. RUNWAY EDGE LIGHTING SYSTEM

CENTERLINE LIGHTING
LIGHTS PER FAA SPEC. L-850

TOUCHDOWN ZONE LIGHTING
LIGHTS PER FAA SPEC. L-850

RUNWAY 17-35

H.I. RUNWAY EDGE LIGHTING SYSTEM
LIGHTS PER FAA SPEC. L-862

CENTERLINE LIGHTING
LIGHTS PER FAA SPEC. L-850

(RUNWAY 35 ONLY)
TOUCHDOWN ZONE LIGHTING
LIGHTS PER FAA SPEC. L-850

2. Taxiways:

Taxiway edge lighting for taxiways, which serve runways, are used for night operations by air carrier aircraft. Taxiway centerline lights are located on taxiway B, taxiway Q, and taxilane T.

TAXIWAY EDGE LIGHTING SYSTEM

BLUE MARKER LIGHTS
LIGHTS PER FAA SPEC. L-861

TAXI GUIDANCE LIGHTING SYSTEM
LIGHTED SIGNS PER FAA SPEC. L-858

TAXIWAY CENTERLINE LIGHT SYSTEM

GREEN CENTERLINE LIGHTS
LIGHTS PER FAA SPEC. L-852

3. Lighting Back-up Power Source

Each lighting system installed on the airport that is owned by the airport shall have a proper lighting back-up power source as required by *AC 150/5340-30, current edition, Design and Installation for Airport Visual Aids.* MAC Electric will record all maintenance of generators on their "Preventative Maintenance System". Generator maintenance procedures and inspection procedures are located in Exhibit 311-2.

4. NAVAIDS and Visual Aids

NAVAIDS provided and maintained by the Airport are as follows:

P.A.P.I.: RUNWAY 04*, 22*, 30R*

* A preventive maintenance inspection procedure checklist is listed in Exhibit 311-2.

5. Airport Beacon

The airport is equipped with a rotating beacon with a green and white lens. The beacon is located in the north/west section of the airport.

Lighting Interference

All other lighting on the airport for, aprons, vehicle and aircraft parking areas, roadways, fuel storage areas, buildings, etc., shall be adjusted or shielded to prevent interference with aircraft operations and air traffic control.

Maintenance

Each marking, sign, and lighting system installed on the airport that is owned by the airport shall be properly maintained by cleaning, replacing, or repairing any faded, missing, or nonfunctional item. Each marking, sign, and lighting system will be maintained unobscured, clearly visible and shall provide an accurate reference to the airport users.

Each lighting system will be maintained at least to the minimum operational criteria listed in *AC 150/5340-26, current edition, Maintenance of Airport Visual Aid Facilities*. The operating limits for lighting systems before a system is considered inoperable are as follows:

Precision Approach Path Indicator (PAPI)

Not more than one lamp out per box

Runway Edge Lights
85% Operable for Visual, Nonprecision or CAT I Runways
95% Operable for CAT II & III Runways (if applicable)

Runway Centerline Lights
95% Operable

Runway Touchdown Zone Lights
90% Operable

Runway End/Threshold Lights
75% Operable (No more than two lights inoperable at any runway end)

Runway End Identifier Lights
100% Operable

Taxiway Edge Lights
85% Operable. Taxiway edge lights along a low-visibility (SMGCS) route shall have no two adjacent lights unservicable.

Taxiway Centerline Lights
90% Operable

Elevated Runway Guard Lights
100% Operable

In-Pavement Runway Guard Lights
No more than three lights per location unservicable nor two adjacent lights unservicable

Runway Stop Bar Lights
No more than three lights per location unservicable nor two adjacent lights unservicable

In order to provide continuity of visual guidance, the allowable percentage of inoperable lights shall not be in such a way as to alter the basic pattern of the lighting system. In addition, an unserviceable light shall not be adjacent to another unserviceable light. Lights are considered adjacent if located either laterally or longitudinally in a lighting system.

If the above operating limits cannot be maintained, and airport management determines that the outage may not provide an accurate reference to airport users, information concerning the outage shall be disseminated locally. If an entire lighting system is inoperable or out of service, an airport condition report shall be issued in accordance with Section 339.

Section 313 - Snow and Ice Control

Equipment

Exhibit 313-1 contains Minneapolis-St. Paul International Airport's Snow and Ice Control Plan (SICP), setting forth the procedures and equipment to be used.

Snow Removal

1. Ice, snow, and slush shall be removed as completely as practicable from appropriate air carrier movement areas.

2. Snow and ice control operations will begin when airfield contaminants are reported at the following depths:

Precipitation	Depth in Inches
Slush	1/4"
Wet Snow	1/2"
Dry Snow	1/2"
Ice or Freezing Rain	Any amount

3. Airside Operations and Field Maintenance management have authority to initiate snow removal operations.

4. Snow shall be positioned off movement areas so that all air carrier aircraft propellers, engine pods, rotors, and wings clear each snowbank or drift when the aircraft's landing gear traverses any full-strength pavement of the movement area.

5. Only approved materials shall be selected and used for ice and snow control on movement areas.

6. Prompt notification of airport users shall occur when any portion of the movement area usually available to them is closed. Additionally, all surfaces that remain open will be continuously inspected by Airside Operations, with notification sent to airport users of the condition of these surfaces.

7. When applicable, Runway Condition Codes (RwyCC) will be reported by Airside Operations personnel.

8. Any NOTAMS required will be issued in accordance with Section 339 Airport Condition Reporting of this manual.

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Section 315 - ARFF: Index Determination

The ARFF Index at the Airport is Index E serving an average of 5 or more daily departures of air carrier aircraft at least 200 feet in length.

Section 317 - ARFF: Equipment and Agents

A. ARFF equipment required by the airport index determination is housed between two stations. Fire Station # 1 is located north of Terminal 2 and Fire Station # 2 is located west of the ATC Tower. Both stations provide direct access to taxiways, runways, and ramp areas. The stations and required equipment are staffed 24 hours a day, 7 days a week.

B. ARFF equipment consists of the following vehicles.

Crash 14: **2021 Oshkosh Global Striker 3000 w/HRET**

- 3000 gallons water, 420 gallons F3
- 460 lbs. Halotron I, 500 lbs. Purple K Dry Chemical
- HRET roof turret capable of flowing 500 gpm low rate / 1000 gpm high rate of water or 3% foam mixture and piercing nozzle capable of flowing 250 gpm water or 3% foam mixture.
- Hydro-Chem Bumper Turret capable of flowing 625 gpm low rate/ 1250 gpm high rate of water or 3% foam mixture and approximately 17 lbs. per second of dry chemical.
- Hydro-chem hand line capable of flowing at approximately 60 gpm of water or 3% foam mixture and approximately 7 lbs. per second of dry chemical. Halotron I hand line capable of flowing at approximately 7 lbs. per second.
- Portable extinguishers: One 2.5 gallon water fire extinguisher, one 20 lb. Purple K fire extinguisher, and one 13.25 lb Clean Agent fire extinguisher.

Crash 15 : **Oshkosh Global Striker 4500 w/HRET**

- 4500 gallons water, 630 gallons F3.
- 460 lbs. Halotron I, 500 lbs. Purple K Dry Chemical
- HRET roof turret capable of flowing 500 gpm low rate / 1000 gpm high rate of water or 3% foam mixture and piercing nozzle capable of flowing 250 gpm water or 3% foam mixture.
- Hydro-Chem Bumper Turret capable of flowing 625 gpm low rate/ 1250 gpm high rate of water or 3% foam mixture and approximately 17 lbs. per second of dry chemical.
- Hydro-chem hand line capable of flowing at approximately 60 gpm of water or 3% foam mixture and approximately 7 lbs. per second of dry chemical. Halotron I hand line capable of flowing at approximately 7 lbs. per second.
- Portable extinguishers: One 2.5 gallon water fire extinguisher, one 20 lb. Purple K fire extinguisher, and one 13.25 lb Clean Agent fire extinguisher.

Crash 19: 2014 Oshkosh Global Striker 3000 w/HRET

- 3000 gallons water, 420 gallons F3.
- 460 lbs. Halotron I, 500 lbs. Purple K Dry Chemical
- HRET roof turret capable of flowing 500 gpm low rate / 1000 gpm high rate of water or 3% foam mixture and piercing nozzle capable of flowing 250 gpm water or 3% foam mixture.
- Hydro-Chem Bumper Turret capable of flowing 625 gpm low rate/ 1250 gpm high rate of water or 3% foam mixture and approximately 17 lbs. per second of dry chemical.
- Hydro-chem hand line capable of flowing at approximately 60 gpm of water or 3% foam mixture and approximately 7 lbs. per second of dry chemical. Halotron I hand line capable of flowing at approximately 7 lbs. per second.
- Portable extinguishers: One 2.5 gallon water fire extinguisher, one 20 lb. Purple K fire extinguisher, and one 13.25 lb Clean Agent fire extinguisher.

Crash 18: Oshkosh Global Striker 4500 w/HRET

- 4500 gallons water, 630 gallons F3.
- 460 lbs. Halotron I, 500 lbs. Purple K Dry Chemical
- HRET roof turret capable of flowing 500 gpm low rate / 1000 gpm high rate of water or 3% foam mixture and piercing nozzle capable of flowing 250 gpm water or 3% foam mixture.
- Hydro-Chem Bumper Turret capable of flowing 625 gpm low rate/ 1250 gpm high rate of water or 3% foam mixture and approximately 17 lbs. per second of dry chemical.
- Hydro-chem hand line capable of flowing at approximately 60 gpm of water or 3% foam mixture and approximately 7 lbs. per second of dry chemical. Halotron I hand line capable of flowing at approximately 7 lbs. per second.
- Portable extinguishers: One 2.5 gallon water fire extinguisher, one 20 lb. Purple K fire extinguisher, and one 13.25 lb Clean Agent fire extinguisher.

Crash 16: 2022 Oshkosh Global Striker 3000 w/HRET

- 3000 gallons water, 420 gallons F3.
- 460 lbs. Halotron I, 500 lbs. Purple K Dry Chemical
- HRET roof turret capable of flowing 500 gpm low rate / 1000 gpm high rate of water or 3% foam mixture and piercing nozzle capable of flowing 250 gpm water or 3% foam mixture.
- Hydro-Chem Bumper Turret capable of flowing 625 gpm low rate/ 1250 gpm high rate of water or 3% foam mixture and approximately 17 lbs. per second of dry chemical.
- Hydro-chem hand line capable of flowing at approximately 60 gpm of water or 3% foam mixture and approximately 7 lbs. per second of dry chemical. Halotron I hand line capable of flowing at approximately 7 lbs. per second.
- Portable extinguishers: One 2.5 gallon water fire extinguisher, one 20 lb. Purple K fire extinguisher, and one 13.25 lb Clean Agent fire extinguisher.

Crash 17: Oshkosh Global Striker 4500 w/HRET

- 4500 gallons water, 630 gallons F3.
- 460 lbs. Halotron I, 500 lbs. Purple K Dry Chemical
- HRET roof turret capable of flowing 500 gpm low rate / 1000 gpm high rate of water or 3% foam mixture and piercing nozzle capable of flowing 250 gpm water or 3% foam mixture.
- Hydro-Chem Bumper Turret capable of flowing 625 gpm low rate/ 1250 gpm high rate of water or 3% foam mixture and approximately 17 lbs. per second of dry chemical.
- Hydro-chem hand line capable of flowing at approximately 60 gpm of water or 3% foam mixture and approximately 7 lbs. per second of dry chemical. Halotron I hand line capable of flowing at approximately 7 lbs. per second.
- Portable extinguishers: One 2.5 gallon water fire extinguisher, one 20 lb. Purple K fire extinguisher, and one 13.25 lb Clean Agent fire extinguisher.

C. Vehicle capacity and discharge rates are depicted in a table in Exhibit 317-1.

Section 319 - ARFF: Operational Requirements

ARFF Operations

All ARFF equipment is under the control of the Metropolitan Airports Commission and the Airport Fire Department. Required ARFF equipment is kept on airport property. ARFF equipment may respond to off airport property if requested. However, all efforts will be made to maintain the minimum number of ARFF vehicles required for index. Any reduction of required equipment will result in the notifications to the FAA and each air carrier in accordance to FAR Part 139.339.

Vehicle Communications

Each ARFF vehicle is equipped with an 800-mhz two-way radio capable of communicating to all other ARFF vehicles, Airport 911 Dispatch center, and the Airport Fire Stations. Each vehicle is also equipped with an aircraft band two-way radio capable of communicating with ATC and aircraft if necessary.
A Discrete Emergency Frequency (DEF) has been established at the airport. The preferred DEF will be 123.875 per LOA between the Airport and FAA ATCT located in Exhibit 500-1.

Vehicle Marking and Lighting

All ARFF vehicles are painted lime green to enhance contrast with the background environment and have reflective striping to increase nighttime visibility. Each vehicle is equipped with an amber strobe light that is activated any time the vehicle is operating in the Airport Operations Area. The vehicles also have a variety of red and blue strobes and flashers for use during emergency response.

Vehicle Readiness

a. All required ARFF equipment as specified in Section 317 Aircraft Rescue and Fire Fighting: Equipment and Agents is kept in operable condition and protected against freezing temperatures in a heated fire station (Station 1 or Station 2).
b. Operational checks of ARFF vehicles are conducted on both a daily and weekly basis by Airport Fire personnel.
c. In the event that a required vehicle becomes inoperative and can not be repaired or replaced within 48 hours, and if authorization to operate out of Index is not received from the FAA Administrator, air carrier service will be reduced until the appropriate level of service is restored and a NOTAM is issued in accordance with Section 339 Airport Condition Reporting.

Protective Clothing

ARFF personnel are equipped with protective clothing, equipment, and self-contained breathing apparatus (SCBA).

Response Requirements

The fire stations and required ARFF equipment are staffed 24 hours a day, 7 days a week, ready to respond to emergencies. Upon request of the FAA, at least one required ARFF vehicle is capable of responding to the mid-point of the furthest runway or comparable distance and initiate discharge of extinguishing agent within 3 minutes of notification in order to demonstrate compliance with FAR Part 139.319. All other required ARFF vehicles are capable of responding to the mid-point of the furthest runway or comparable distance and initiate discharge of extinguishing agent within 4 minutes of notification.

ARFF Personnel Training

All ARFF personnel receive initial and recurrent training (minimum every 12 months) in the following areas:

a. Airport familiarization
b. Aircraft familiarization
c. Rescue and fire fighting personnel safety
d. Emergency communication system on the airport, including fire alarms.
e. Use of the fire hoses, nozzles, turrets, and other appliances required.
f. Application of the types of extinguishing agents required for compliance with this part.
g. Emergency aircraft evacuation assistance.
h. Fire fighting operations.
i. Adapting and utilizing structural rescue and fire fighting equipment for aircraft rescue and fire fighting.
j. Aircraft cargo hazards, including hazardous materials/dangerous goods incidents.
k. Familiarization of firefighter's duties under the Airport Emergency Plan

ARFF personnel are trained in the above subject areas following a site specific training curriculum. The Training Officer is responsible for maintaining the ARFF training curriculum and records of all training given to each individual.

Live Fire Training

All ARFF personnel shall participate in a live-fire drill prior to initial performance of ARFF duties and participate in a live-fire training at least once every 12 consecutive calendar months thereafter.

Basic Emergency Medical Training

All ARFF personnel are trained to an Emergency Medical Technician (EMT) level prior to performance of emergency medical care. Initial training consists of completion of an U.S. Department of Transportation approved or equivalent EMT-Basic course that is at least 40 hours in length and includes the following topics:

a. Bleeding
b. Cardiopulmonary resuscitation
c. Shock
d. Primary patient survey
e. Injuries to the skull, spine, chest, and extremities
f. Internal injuries
g. Moving patients
h. Burns
i. Triage

All ARFF personnel are required to maintain their EMT level certification and must complete a refresher course every two years, which covers the topics listed above. The Training Officer is responsible for maintaining records of all training conducted for a period of at least 24 consecutive calendar months. Training records include date, a description of the training, attendance, and length of the training session. The minimum number of ARFF personnel are available during all air carrier operations to operate required ARFF vehicles, meet response times, and meet agent discharge rates as set forth in this section.

Emergency Alerting System

On-duty ARFF personnel are alerted of existing or impending aircraft emergencies by the following alerting systems:

a. The fire department two-way radio.
b. The fire station alarm system which also alerts during the use of a direct line between ATC Tower and Airport 911 Dispatch.

These systems are tested daily by Airport 911 Dispatch. Off-duty ARFF personnel are capable of being notified via a mobile device messaging system for requests to report back to work during larger scale incidents to supplement staffing.

Hazardous Materials Guidance

Each ARFF vehicle is equipped with the "North American Emergency Response Guidebook".

Emergency Access Roads

MAC Field Maintenance Department is responsible for ensuring all emergency access roads are kept in a condition that will support ARFF vehicles during all-weather conditions.

Off Airport or Other Emergency Response of ARFF Equipment

The MAC Fire Department has primary fire protection service responsibility at MAC-owned properties. MAC Fire also provides fire protection services at the United States Air Force Reserve base, the Minnesota Air National Guard base, United States Naval Reserve facility and the Ft. Snelling State Park, properties that are immediately adjacent to MSP. Additionally, MAC Fire handles emergency first-response to incidents on the freeways surrounding the Airport to include State highways 5 and 494. Sending ARFF off airport to assist mutual aid partners is done at the discretion of ARFF Fire Captains or ARFF Chief Officers.

In the event that required vehicles are responding to an off airport emergency response and can not respond to an on airport emergency, and if authorization to operate out of Index is not received from the FAA Administrator, air carrier service will be reduced until the appropriate level of service is restored and a NOTAM is issued in accordance with Section 339 Airport Condition Reporting.

Exemption

The Airport has not been granted any exemptions to ARFF operational requirements by the FAA.

Section 321 - Handling and Storing of Hazardous Substances and Materials

Fueling Agents

The following fueling agents operate at the Airport:

- Swissport
- Signature Aviation

Airport Fire Safety Fuel Handling Standards

The Metropolitan Airports Commission (MAC) enforces the most recent edition of the Minnesota State Fire Code, as per MN State Statute 299F.011. This applies to all properties and occupancies within the jurisdiction of the MAC Airport Fire Department. The MAC enforces the most recent edition of the National Fire Protection Association 407, Standard for Aircraft Fuel Servicing.

Airport employees do not act as handling agents for any material regulated by 49 CFR Parts 171-180. The only substances handled by airport personnel are those substances used in normal daily airport operations and maintenance.

The following procedures have been established and shall be maintained for protecting against fire and explosion in storing, dispensing, and otherwise handling fuel, lubricants and oxygen (other than aircraft cargo) on the airport:

- All fuel storage areas and refueling facilities are fenced with gates to restrict entrance, or are within the perimeter fence of the airport.
- All storage areas are lighted.
- Appropriate fire extinguishers are located at all fuel storage areas and on all mobile fuelers used at the airport.
- Warning signs and fuel identification markings are permanently displayed in fuel storage areas.
- Airport Fire Department personnel periodically inspect fuel storage areas.
- Fuel storage areas are kept clean of flammable material, debris, and vegetation.

Compliance

All fueling agents are required by the Airport to comply with NFPA 407, and the most recent edition of the Minnesota State Fire Code, as per MN State Statute 299F.011. Reasonable surveillance of all fueling activities on the airport is conducted by the Airport Fire Department.

Inspection of Fueling Facilities

Airport Fire Department personnel conduct inspections of fueling agents, fuel facilities, and fuel service vehicles by utilizing standardized checklists specific to the equipment or facility being inspected. Standardized checklists will be maintained and kept current to facilities and equipment found at the airport. Inspections are documented with the fueling inspection form found in Exhibit 321-1. Inspections by the Airport Fire Department are conducted at least once every three consecutive months; and a report of this inspection is retained by the Airport Fire Department for a period of twelve consecutive months. Airport Fire Department personnel additionally conduct regular inspections of fueling facilities, fueling equipment, and fueling operations.

The Airport Fire Department shall be responsible for maintaining comprehensive records of all fuel inspections. These records will be reviewed to identify recurring issues, compliance trends, and areas requiring improvement. The Airport Fire Department will conduct regularly scheduled meetings with fueling agents to discuss the findings of these inspections, address identified concerns and trends, and implement corrective actions as necessary.

All fueling agents engaged in handling and dispensing aviation fuel are required to take immediate corrective action whenever notified of noncompliance with Minnesota State Fire Code, as per MN State Statute 299F.011 or National Fire Protection Association 407, Standard for Aircraft Fuel Servicing. If corrective action of significant deficiencies cannot be accomplished within a reasonable period of time, the Airport will take appropriate action and notification to the FAA shall be made.

Training-Fueling Agents

a. Each fueling agent will have a supervisor complete an aviation fuel-training course in fire safety that is acceptable to the FAA. The supervisor will receive recurrent training at least once every 24 consecutive months. If a new supervisor is hired, they will be enrolled in an authorized aviation-training course that will be completed within 90 calendar days.

b. All other employees at each fueling agent, who fuel aircraft, accept fuel shipments, or handle fuel, receive at least initial on-the-job training in fire safety and recurrent training every 24 consecutive calendar months from the Supervisor who is trained in a fire safety course acceptable to the FAA.

c. All fueling agents engaged in handling and dispensing fuel at the airport, shall submit confirmation to airport management once every three (3) consecutive calendar months, that the above training standards have been accomplished. The sample spreadsheet to be used by the fueling agents for certifying training is shown in Exhibit 321-1. A fuel supervisor must provide signature on the spreadsheet every three 3 consecutive months when submitted to Airport Fire Department personnel as a part of the quarterly inspection process. A valid

fueling supervisor certificate(s) needs to be attached to the spreadsheet to verify the training. Fueling agent employee training certificates from FAA certified training companies shall be kept on-site at the fueling agent and shall be produced upon request by the Airport or FAA. Those records provided to the Airport Fire Department shall be maintained for twelve 12 consecutive months.

Training-Fuel Inspectors

Airport Fire Department airport fuel inspectors will receive initial and recurrent training in the Airport's fuel inspector training curriculum. Fuel inspector training curriculum includes the course material and regulatory documents below:

- Airport Fueling Inspector
- Fuel Safety Supervisor
- Airport Fire Department fueling program documentation and site inspections
- Fueling agent facility, equipment, and operations familiarization
- MSP Airport Certification Manual requirements
- FAA Part 139 requirements
- FAA Advisory Circulars
- Minnesota State Fire Code
- NFPA Standards
- ATA 103

Section 323 - Air Traffic and Wind Direction Indicators

Wind Direction Indicators

MSP has a primary Wind Direction Indicator west-northwest of the intersection of taxiway M and taxiway W. The Primary Indicator is a lighted wind cone which is a Size 2, Type L-807, Style 1-B.

MSP also has eight supplemental Wind Direction Indicators located at the approach end of each runway. The Supplemental Indicators are all Size 1, Type L-806, Style 1-B; and the location descriptions are listed below.

Supplemental Wind Direction Indicators:

- Lighted wind cone right of the approach end of RWY 04 in a grass island between taxiways C2 and S, and RWY 4 and taxiway C.
- Lighted wind cone left of the approach end of RWY 22 in a grass island between taxiway C9 and RWY 12L/30R, and RWY 22 and taxiway C.
- Lighted wind cone left of the approach end of RWY 12L in a grass island between taxiway R9 and RWY 4/22, and taxiway R and RWY 12L.
- Lighted wind cone right of the approach end of RWY 30R in the grass island abeam taxiways P2 and P3, north of 30R.
- Lighted wind cone left of the approach end of RWY 12R in a grass island between taxiways A9 and A8, and taxiway A and RWY 12R.
- Lighted wind cone right of the approach end of RWY 30L in a grass island between taxiways A2 and A3, and taxiway A and RWY 30L.
- Lighted wind cone right of the approach end of RWY 17 in a grass island between taxiways L7 and L9, and taxiway L and RWY 17.
- Lighted wind cone left of the approach end of RWY 35 in a grass island south of taxiway L3, and west of RWY 35.

Segmented Circle

There is a continuously operational air traffic control tower located at this airport, and therefore is not a requirement to have a segmented circle.

Maintenance

The wind direction indicators are inspected each day during the daytime and nighttime safety inspection conducted by designated self-inspection personnel.

The wind direction indicators are maintained clearly visible and functional. Corrective action shall be initiated by Airside Operations personnel as soon as practical when unsatisfactory conditions are found with the wind direction indicators.

Section 325 - Airport Emergency Plan

Airport Emergency Plan (AEP)

An Airport Emergency Plan is included as Exhibit 325-1. The plan was developed and coordinated with law enforcement agencies, rescue and fire fighting agencies, medical personnel and organizations, the principal tenants at the airport, and all other agencies/persons who have responsibilities under this plan.

Training of Airport Personnel

All airport personnel that have duties and responsibilities under the AEP are properly trained and familiar with their assignments.

Annual Review of the AEP

A review of the AEP is conducted at least once every 12 months to ensure the AEP is current and all parties with whom the plan is coordinated are familiar with their responsibilities. All of the agencies involved in the AEP are invited to participate in an annual review meeting.

Triennial Full-Scale Exercise of the AEP

A full-scale exercise of the AEP is conducted at least once every 36 months. The full-scale exercise involves, to the extent practicable, all mutual aid participants and a reasonable amount of emergency equipment. The purpose of this exercise is to test the effectiveness of the AEP through a response of the airport and its mutual aid to an aircraft accident at the airport, and to familiarize emergency personnel with their responsibilities in the plan.

Consistency with Security Regulations

The AEP contains instructions for response to bomb incidents, including designation of parking areas for the aircraft involved; and sabotage, hijack incidents, and other unlawful interference with operations; that are consistent with the approved airport security program.

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Section 327 - Self-Inspection Program

Frequency of Inspection

To ensure the Airport is maintained in accordance with the requirements of FAR 139, MSP has developed an inspection program that utilizes Cityworks software. This process includes computers placed in inspection vehicles which provide a moving map display of all airfield assets. The Airside Operations department is responsible for conducting the Airport's Self-Inspection. Discrepancies are noted in the Cityworks asset management system, and work order searches are generated to track discrepancies and alert the responsible parties in their assigned work orders inboxes. MSP uses a day/night airfield inspection report that is used to satisfy the requirements of MSP's daily self-inspection. A sample of the inspection report is shown in Exhibit 327-1.

Inspections are conducted as follows:

1. An inspection shall occur at least once daily
2. Non-scheduled inspections are conducted when required by unusual conditions and activities affecting or possibly affecting safe aircraft operations. Such conditions and activities may include:
   a. Immediately following aircraft accidents/incidents
   b. Adverse meteorological conditions
   c. Foreign object debris
   d. Wildlife hazards
   e. Construction/maintenance
   f. Any other unusual condition on the airport

To ensure that all inspection requirements have been met, the FAR Part 139 Inspection Compliance form shown in Exhibit 327-1 will be completed for each Part 139 inspection.

The airport shall provide facilities and equipment for use in conducting safety inspections of the Airport, including equipment to measure coefficient of friction readings during winter months.

Reporting System

Any unsafe conditions discovered during an inspection will be reported utilizing the procedures outlined in Section 339 Airport Condition Reporting.

Following field inspections, and at other appropriate times, maintenance work orders are issued by Airside Operations and corrective work is accomplished. If there is any delay in correcting an unsafe condition, an appropriate NOTAM is issued. The following are standard maintenance instructions:

1. Promptly repair each crack, hole, or rough area in a runway pavement that exceeds FAR 139 criteria.
2. Promptly, and as completely as practicable, remove from pavement areas; snow, ice, slush, standing water, mud, loose aggregate, rubber deposits, and other contaminants as required by operational consideration.
3. Clean any chemical solvent used to remove rubber deposits from pavement areas as soon as possible, consistent with manufacturer's instructions.
4. Promptly repaint all markings that have become obscured or obliterated.
5. Promptly prevent ponding on any runway pavement area caused by inadequate drainage.
6. Promptly prevent ponding on paved taxiways and aprons that has a depth or other dimension that obscures markings.

Promptly repair any conditions that drop below the following: If there is any delay in correcting an unsafe condition, an appropriate NOTAM is issued.

1. Touchdown zone lights - 90% on and no more than two adjacent lights in the same bar or longitudinally in the same row unserviceable.
   35 = 162/180 on (or no more than 18 unserviceable).
   12L = 162/180 on (or no more than 18 unserviceable).
   12R/30L = 162/180 on (or no more than 18 unserviceable).

2. Centerline lights - 95% on and no two adjacent lights unserviceable.
   17/35 = 151/158 on (or no more than 7 unserviceable).
   12L/30R = 154/162 on (or no more than 8 unserviceable).
   12R/30L = 189/198 on (or no more than 9 unserviceable).

3. Runway edge lights - 85% on except for CAT II and CAT III runways which require 95% serviceable. No two adjacent lights unserviceable.

   CAT II/III = 95% on:
   35 = 78/82 on (or no more than 4 unserviceable).
   12L = 84/88 on (or no more than 4 unserviceable).
   12R/30L = 103/108 on (or no more than 5 unserviceable).

CAT I = 85% on:
4 = 99/116 on (or no more than 17 unserviceable).
22 = 99/116 on (or no more than 17 unserviceable).
17 = 70/82 on (or no more than 12 unserviceable).
30R = 75/88 on (or no more than 13 unserviceable).

4. Taxiway edge lights - 85% on; along low-visibility (CAT III) taxi routes no two adjacent lights or reflectors unserviceable.

5. Threshold lights - 75% on and no two lights in the same bar unserviceable.

6. Obstruction lights - obstruction must be lighted.

7. Elevated runway guard lights - No more than one light in a fixture unserviceable.

8. In-pavement runway guard lights - No more than three lights per location unserviceable nor two adjacent lights unserviceable.

FAA Advisory Circulars in the 150 series shall be used to establish conditions acceptable to the Administrator.

Training

Airside Operations Managers, Duty Managers and Assistant Managers are responsible for training Airside Operations personnel to ensure that qualified personnel perform the inspections. In addition to on-the-job training, a training program has been established and includes initial and recurrent training every 12 consecutive calendar months in the following areas:

1. Airport Familiarization including markings, signs, lighting, and runway and taxiway designations.
2. Airport Emergency Plan
3. Notice to Air Missions (NOTAM) notification procedures
4. FICON notification procedures
5. Driver training including procedures for pedestrian and ground vehicles in movement areas and safety areas
6. Discrepancy reporting procedures
7. Any other training deemed necessary by the administrator

Records

A copy of the Airport Safety Inspection Checklist used is included as Exhibit 327-1. Inspection records will show the work orders and NOTAMS issued as part of the inspection. Inspection records are kept on file for at least 12 months.

Training

Training records for each individual include a description and date of training received. Training records are kept for at least 24 months.

All safety inspection personnel receive extensive on the job training and are trained and qualified to perform thorough inspections of the airport including identification, assessment, and reporting of hazardous conditions. They have a working knowledge of recommended safety standards concerning paved and safety areas, lighting and marking systems, and protection of NAVAIDS. They are trained to identify, assess, and report hazards that may be associated with: rough or cracking pavement; foreign substances on paved areas such as standing water, sand, snow, slush, ice, gas, oil, or rubber deposits; construction and maintenance work in operating areas; possible obstructions to aircraft and NAVAIDS; and other potentially hazardous conditions.

Section 329 - Pedestrians and Ground Vehicles

Limited Access

1. Personnel and Equipment

Pedestrians and ground vehicles authorized by the Vice President of Management and Operations to operate on the movement and safety areas at the airport are limited to those pedestrians and vehicles necessary for airport operations and include the following type of vehicles:

a. Airport owned vehicles properly equipped with radio and beacon.
b. FAA Airway Facilities vehicles authorized for maintenance of FAA equipment.
c. Authorized construction vehicles.
d. Air carrier vehicles authorized to operate on the remote deice pads for aircraft deicing operations.
e. Air carrier vehicles that are authorized to operate on the movement area to perform aircraft push back and towing operations.
f. Other individuals/vehicles that need access to the movement areas are escorted by qualified Airport personnel.
g. Vehicle and pedestrian access to a runway is limited to only those movements with an operational need.

Private air cargo/courier services, air carriers, fixed based operators, and all other vehicles having authorized access to the airport shall confine their operations to their areas of business as designated by the Vice President of Management and Operations. Under no circumstances shall their ground vehicles be permitted on the runways or taxiways.

2. Controls

Access onto the apron areas is limited to persons who have an operational need. An airport identification system has been established in accordance with the Airport Security Plan for persons authorized on the air operations area or portions of the AOA.

The airport provides fencing, gates, signs, and procedures to safeguard against inadvertent entry onto airport movement areas by persons or vehicles that may endanger aircraft operations.

Procedures for Ground Vehicle Operations

All operators of ground vehicles in the airport operations area are required to comply with the requirements of MAC Ordinance No. 132. This ordinance establishes procedures for the safe and orderly access to, and operation on, the movement area and safety areas, and includes provisions which identify the consequences of non-compliance with the procedures by all persons. Any person driving a vehicle within the AOA shall use perimeter roads as well as designated roadways when available and to the extent possible. Designated roadways are identified by solid parallel white lines, with dashed white lines used as centerline dividers. Where a roadway intersects a taxiway, a solid white stop line is provided across the vehicle lane at a point that assures adequate clearance to taxiing aircraft. Standard stop and yield signs are installed in line with the stop line on the right side of the roadway at each entrance. All tenant organizations and contractors which conduct ground vehicle operations on the movement area or safety areas are provided access to Ordinance No. 132. The non-movement training material includes the restrictions associated with low-visibility operations as defined in the MSP Surface Movement Guidance Control System (SMGCS) Plan.

1. **Communications**

All vehicles authorized to operate on movement areas are equipped with two-way radios capable of communicating with the tower. These are the only vehicles permitted on the aircraft movement areas. If the need arises to have a vehicle enter the aircraft movement area that does not have a radio capable of communicating with the tower, a vehicle with a radio capable of communicating with the tower will act as an escort to the necessary area. In any event, an appropriate radio will be used to contact or monitor appropriate airport radio frequencies. If communications between vehicles and the control tower should happen to fail, drivers are instructed to depart the movement area and call Airside Operations.

2. **Marking and Lighting**
   All airport vehicles are equipped with a yellow rotating beacon or yellow strobe lights. The vehicle operator will energize the rotating beacons or yellow strobe lights prior to entering any aircraft movement area. Emergency vehicles are equipped with red rotating beacons or flashing lights.
   During times when construction-related vehicles are required to enter or work within an active aircraft movement area, they will be marked with an approved orange and white checkered flag, or a yellow rotating beacon or be under the escort of an appropriately marked vehicle.

Training of Employees Authorized to Operate on the Movement and Safety Areas

1. **Non-Movement Area**
   The MAC requires all persons having access to the non-movement area be trained in Ordinance 132 requirements, airport familiarization, and vehicle operations in the non-movement area. Non-movement area drivers are required to take training prior to driving in the non-movement area and take recurrent training every 24 months.

2. **Movement Area**
   The MAC requires all personnel with unescorted access to the movement area to be trained, tested and licensed in the following areas:
   a. Airport familiarization, including airport marking, lighting, and sign systems.
   b. Procedures for access to, and operation in, movement and safety areas.
   c. Airport communications, including the use of ATCT frequencies.
   d. MAC Ordinance No. 132.

   All persons driving on the movement and safety areas are required to be trained in the areas listed above specific to the Minneapolis-Saint Paul International Airport prior to the initial performance of such duties and at least once every twelve (12) consecutive calendar months. MAC requires each driver to pass an initial assessment before their license will be issued and one annually thereafter before their license will be renewed.

Consequences of Non-Compliance

If a report is received of unauthorized vehicles or persons on the airport operations area, an airport police vehicle will be dispatched to intercept and escort the violator from the premises. A report will be prepared and kept on file concerning all incidents. Airport police officers may issue citations under the parameters of MAC Ordinance No. 132. Any person convicted of violating any requirement of MAC Ordinance No. 132 shall be punished by sentence within the

parameters of the maximum penalty for misdemeanors set forth in Minnesota Statute § 609.03, or its amended version. Continuous surveillance shall be maintained to ensure that only authorized vehicles operate on the movement areas, that established rules are complied with, and that appropriate action is taken when violations are observed or reported. A complete schedule of violations and consequences, including runway incursions and movement area violations, can be found in MAC Ordinance 132. MAC Ordinance 132 is included in this manual as Exhibit 329-1.

Records

1. **Training**

   The Airport maintains a description of the date of training completed by each individual operating in the movement areas, safety areas, and non-movement areas. Records are maintained for 24 consecutive calendar months after the termination of an individual's access to the movement areas, safety areas, and non-movement areas.

2. **Accidents/Incidents**

   The Airport maintains records of accidents or incidents in the movement areas and safety areas involving air carrier aircraft and/or ground vehicles. Records of each accident or incident are maintained for 12 consecutive calendar months from the date of accident or incident.

3. **Audits**

   The MAC Airside Operations department personnel will conduct the following audits of movement area and non-movement area drivers:

   a. Regular field audits of drivers operating in the movement area and non-movement area to verify they are authorized to be there.
   b. Monthly audits of all current movement area drivers training records followed by letters/emails to the employers of those drivers whose movement area driving privileges have lapsed, advising them that their drivers are no longer authorized to operate on the movement area until they meet current training requirements.
   c. Monthly correspondence to those employers whose drivers' licenses will expire at the end of the current month.

Section 331 - Obstructions

General

The airport shall ensure that each object within the authority of the airport that has been determined by the FAA to be an obstruction is removed, marked or lighted unless determined to be "no hazard" by an FAA aeronautical study. A drawing depicting obstructions is attached to this manual as Exhibit 331-1.

Obstructions

Each object in any area within the authority of the airport that is identified as an obstruction under FAR Part 77 will either be removed or marked and lighted, if appropriate, unless such removal, marking and lighting is not required as determined by an FAA aeronautical study under the provisions of FAR Part 77. A drawing depicting the obstructions required to be lighted or marked in the airport's area of authority is attached to this manual as Exhibit 331-1.

Section 333 - Protection of NAVAIDS

Construction

No facilities shall be constructed on the airport that have been determined by the FAA to derogate the operation of an electronic or visual NAVAID or air traffic control facilities. All construction projects on the airfield are evaluated by the MAC Airport Development Department to determine any possible interference with NAVAID signals or operation. FAA is contacted for guidance before construction is allowed to start. Individuals planning construction projects on the airport (or in the vicinity of the airport which could cause a hazard to air navigation) must submit FAA Form 7460-1 prior to construction. Pre-construction conferences are held on all projects that impact the air operations area.

"As built" prints are on file in the MAC Airport Development Department showing all underground utility lines that, if interrupted, would cause interference with the facility. Contractors are required to have prints of the underground utility lines in their area of activity. Contractors are also required to contact all utility companies so they can mark their respective lines. If any line is cut, it will be reported to the Airport immediately so that repairs can be arranged. If the break involves the operation of a NAVAID, FSS shall be notified so that a NOTAM can be issued.

Protection Against Vandalism

All NAVAIDS located on the airport will be protected against vandalism and theft by either fencing or closely monitoring those areas not fenced. Access into and within the perimeter of the air operations area is closely monitored and controlled.

Interruption of Visual and Electronic Signals of NAVAIDS

Interruption of visual and electronic signals of NAVAIDS is prevented, when within the Airport's authority. MAC Field Maintenance personnel maintain the grass height and snow in the ILS critical areas below levels that may affect electronic signals of the NAVAIDS.

ILS critical areas have been identified by signs and ground vehicle procedures have been established to prevent inadvertent entry into a critical area by a vehicle. In addition, Field Maintenance personnel maintain the grass height and snow in ILS critical area below levels that may affect electronic signals of NAVAIDS.

Vehicle access and construction activity in ILS Critical Areas will be restricted when meteorological conditions necessitate the use of the ILS.

Section 335 - Public Protection

Fencing

Fencing at the Minneapolis-Saint Paul International Airport meets TSA requirements and shall prevent inadvertent entry on to airport property by persons or vehicles. Signs restricting access are posted on all gates and at regular intervals around the perimeter. The airport has established procedures in the Airport Security Program for controlling access through perimeter gates.

Access Control

1. AOA Access

Access onto the apron areas is limited to persons who have an operational need. An airport identification system has been established in accordance with the Airport Security Plan for persons authorized on the air operations area or portions of the AOA.

The airport provides fencing, gates, signs, and procedures to safeguard against inadvertent entry onto airport movement areas by persons or vehicles that may endanger aircraft operations.

2. Ground Boarding / Deplaning

It is the responsibility of each airline to establish procedures for ground boarding / deplaning of passengers. At a minimum, each airline will provide adequate badged personnel to ensure all provisions of the Airport Security Plan are met during these operations.

Inspection and Maintenance

Perimeter fencing, gates and signs are inspected regularly. Gates shall be closed and locked if found open and reported to the Airport Police Department. The MAC Field Maintenance Department is responsible for maintaining fencing.

Aircraft Blast Protection

a. An aircraft run-up pad with surrounding blast fence located east of taxiway "S" and north of the Delta Air Lines hangar "C" complex.
b. A blast fence on the southwest edge of taxiway "W" between taxiways "W1" and "W3" and an additional section at the intersection of taxiways "W" and "W5.
c. Blast fences on the northwest and southwest sides of the runway 30R deicing pad.

FAA Approval: Kenneth M. Taira
Approval Date: December 02 2022

Section 337 - Wildlife Hazard Management

General

The Airport shall take immediate measures to alleviate wildlife hazards whenever they are detected or reported.

1. As part of the Self-Inspection program Airside Operations personnel shall:
   a. Watch for and report any unusual concentration of wildlife or birds that may be a hazard to aircraft operations, especially when low-flying or in the vicinity of runways, their respective safety areas and immediate approach areas.
   b. In circumstances when such concentration of wildlife are observed, take appropriate measures to disperse the wildlife or birds or otherwise attempt to alleviate any risk of strikes by aircraft, and immediately advise ATCT. Dispersal activities will take into consideration flight operations and will be coordinated with ATCT as appropriate to avoid dispersing wildlife into the path of aircraft.

2. The Airport shall maintain wildlife control permits in conformity with its approved wildlife hazard management plan and the permits will be made available to the FAA upon request.

3. The associated Wildlife Hazard Management Plan for Minneapolis-Saint Paul International Airport is outlined in Exhibit 337-1 of this manual.

Section 339 - Airport Condition Reporting

Airport Conditions Reporting

A copy of the Airport Condition Report form is included in Exhibit 339-1.
The procedures for issuing the Airport Conditions Reports are as follows:

The Airside Operations Department shall provide current and accurate information pertaining to airport conditions. NOTAMs, FICONs and Runway Condition Codes (Rwy CCs) will be disseminated via the Federal Digital NOTAM System. Additionally, the date and time of issuance, and the person's name who issues the FICON or NOTAM shall be included in the NOTAM message format.

Personnel Authorized to Issue Airport Condition Reports

Airport personnel in the following positions are authorized to issue Airport Condition Reports to the AFSS, or disseminate airport conditions locally to the ATCT and airlines:

1. Airside Operations - Managers
2. Airside Operations - Duty Managers
3. Airside Operations - Assistant Managers
4. Airside Operations - Operations Coordinators

Conditions Requiring a Surface Condition Report

The following airport conditions that may affect the safe operation of air carriers shall be disseminated to the AFSS, or disseminated locally to the ATCT and airlines if AFSS shall not accept the condition for NOTAM distribution:

1. Construction or maintenance work within movement areas or safety areas.
2. Surface irregularities on movement areas, safety areas, or loading ramps and parking areas.
3. Snow, ice, slush or water on movement areas or loading ramps and parking areas.
4. Snow piled or drifted on or near movement areas in such a height that all air carrier aircraft propellers, engine pods, rotors, and wing tips may not clear the snowdrift or snowbanks as the aircraft's landing gear traverses any full strength portion of the movement area.
5. Objects on the movement area or safety area contrary to 139.309.
6. Malfunction of any required lighting system, holding position signs, or ILS critical area signs.
7. Unresolved wildlife hazards in accordance with 139.337.
8. Non-availability of any required rescue and fire fighting capability required in 139.317 and 139.319.
9. Any other conditions that may adversely affect the safe operations of air carriers.

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Section 341 - Identifying, Marking, Lighting Construction and Unserviceable Areas

General

Safety plans and construction marking and lighting will be accomplished in accordance with *AC 150/5370-2, current edition, Operational Safety on Airports During Construction*.

Marking and Lighting of Construction Areas

The Airport Operations Department will be responsible for the coordination of construction activities on the airport. Any time construction is being done on or adjacent to any surface areas on which air carrier aircraft may operate, such areas shall be clearly marked and or lighted. Additionally, any unserviceable areas shall be marked and lighted.

Marking/Lighting of Construction Equipment

Each piece of construction equipment operated on the airport shall be equipped with a flashing yellow beacon and/or a checkered flag meeting FAA requirements. All equipment shall, when not in use be parked/placed as directed in the project safety plan. Construction equipment shall not operate or be parked in the proximity of the ILS Localizer, Glide Slope or runway lighting systems unless specifically authorized in the construction safety plan and coordinated with the Airside Operations Department on a daily basis.

Marking/Lighting of Areas Adjacent to NAVAIDS

Any area adjacent to a NAVAID that could cause derogation of the signal or failure of the NAVAID, if traversed, shall be marked and, if appropriate, lighted in a manner acceptable to the Administrator. Marking and lighting, when appropriate, of areas adjacent to NAVAIDS shall be accomplished by the contractor under the Construction Safety and Phasing Plan. The Airside Operations staff is responsible for monitoring construction activity on the airport to prevent construction equipment from traversing any areas adjacent to NAVAIDS that could cause derogation of signals.

Procedures for Avoiding Damage to Utilities

Drawings of existing utility facilities are on file and available so that during construction, procedures can be developed to avoid interfering with existing utilities, cables, wires, conduits, pipelines, or other underground facilities.

Section 343 - Non-Complying Conditions

Unless otherwise authorized by the Administrator, whenever the provisions of this manual and FAR Part 139, Subpart D cannot be met to the extent that uncorrected unsafe conditions exist on the airport, air carrier operations shall be restricted to those portions of the airport not rendered unsafe by those conditions.

Section 401 - Airport Safety Management System: General Requirements

Under Part 139.401(a), Minneapolis-St. Paul International Airport is required to comply with SMS requirements as the FAA has determined it is classified as a large hub based on passenger data extracted from the Air Carrier Activity Information System.

In accordance with Part 139 subpart E, Minneapolis-St. Paul International Airport will develop, implement, maintain, and adhere to the Airport Safety Management System (SMS). The scope of the Airport SMS encompasses aircraft operation in the movement area, aircraft operation in the non-movement area, and other airport operations addressed under Part 139. The Minneapolis-St. Paul International Airport is the responsible party for compliance with the Airport SMS.

Policies and procedures for the development of, implementation of, maintenance of, and adherence to the Airport's SMS, as required under Part 139 subpart E, are contained in a separate Airport SMS Manual, which is maintained in the Metropolitan Airports Commission's General Office by the SMS Accountable Executive and their designated appointee.

On an annual basis, or upon FAA request, the Airport shall provide the FAA copies of any changes to the Airport SMS Manual.

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Section 402 - Components of Airport Safety Management System

(a) SMS Components

In accordance with Part 139.402, the Airport SMS has the following components:

- Safety Policy;
- Safety Risk Management process and procedures for identifying hazards and their associated risks within airport operations and for changes those operations covered by Part 139;
- Safety Assurance processes and procedures to ensure mitigation measures are adequate and the Airport SMS is functioning effectively; and
- Safety Promotion processes and procedures to foster an airport operating environment that encourages safety.

(b) Safety Risk Management Records

The Airport shall establish and maintain records that document the Airport's Safety Risk Management processes. These records shall provide a means for the Airport's acceptance of responsibility for assessed risks and mitigations. These records will be maintained for the longer of –

- 36 consecutive calendar months after the risk analysis of identified hazards under Part 139.402(b)(2) has been completed; or
- 12 consecutive calendar months after mitigations required under Part 139.402 (b)(2)(v) have been completed.

(c) Safety Awareness Orientation

The Airport will provide all persons authorized to access airport areas regulated under Part 139 with a safety awareness orientation, which includes hazard identification and reporting. The safety awareness orientation materials are readily available to such persons and will be reviewed and updated every 24 calendar months or sooner if necessary. The Airport will maintain a record of all safety awareness orientation materials made available in compliance with Part 139.402(d)(1), including any revisions and means of distribution. These records will be retained for 24 consecutive calendar months after the materials are made available.

(d) SMS Training

The Airport will provide safety training on those requirements of SMS and its implementation to each person with responsibilities under the Airport SMS that is appropriate to the individual's role. In accordance with the SMS Manual, this training must be completed prior to initial performance of SMS duties and at least every 24 consecutive calendar months. The Airport will maintain a record of all training for these employees that includes, at a minimum, a description and date of training received. These records will be retained for twenty-four consecutive calendar months after completion of training.

(e) SMS Communications

As specified in the Airport SMS Manual, the Airport will develop and maintain a formal means for communicating important safety information that, at a minimum:

- Ensures all persons authorized to access the airport areas regulated under this part are aware of the SMS and their safety roles and responsibilities;
- Conveys critical safety information;
- Provides feedback to individuals using the airport's safety reporting system required under Part 139 402(c)(2); and
- Disseminates safety lessons learned to relevant airport employees or other stakeholders.

Records of communications of important safety information will be maintained for 12 consecutive calendar months.

Section 403 – Airport Safety Management System: Implementation

In accordance with Part139.403 (a), the Airport has an FAA-approved SMS Implementation Plan. This Implementation Plan provides details on how the Airport will meet Part 139 SMS requirements, including –

- A schedule for implementing SMS components and elements prescribed in Part 139.402; and
- Description of any existing programs, policies, or procedures that the Airport intends to use to meet Part 139 SMS requirements;

The Airport will fully implement its Airport SMS within 36 months after FAA approves its SMS Implementation Plan (see Approval Letter in Exhibit 500-12) and in accordance with the FAA-approved SMS Implementation Plan.

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Exhibit 101-1 - Reference List

Paved Areas - 139.305

150/5320-6 Airport Pavement Design and Evaluation

150/5210-24 Airport Foreign Object Debris (FOD) Management

Safety Areas - 139.309

150/5220-22 Engineered Materials Arresting Systems (EMAS) for Aircraft Overruns

150/5300-13 Airport Design

150/5320-5 Airport Drainage Design

Marking, Signs, and Lighting - 139.311

150/5340-1 Standards for Airport Markings

150/5340-5 Segmented Circle Airport Marker System

150/5340-18 Standards for Airport Sign Systems

150/5340-26 Maintenance of Airport Visual Aid Facilities

150/5340-30 Design and Installation Details for Airport Visual Aids

150/5345-12 Specification for Airport and Heliport Beacon

150/5345-28 Precision Approach Path Indicator (PAPI) Systems

150/5345-43 Specification for Obstruction Lighting Equipment

150/5345-44 Specifications for Runway and Taxiway Signs

Snow and Ice Control - 139.313

150/5200-28 Notice to Air Missions (NOTAMs) for Airport Operators

150/5200-30 Airport Field Condition Assessments and Winter Operations Safety

150/5220-20 Airport Snow and Ice Control Equipment

Aircraft Rescue and Fire Fighting (ARFF) - 139.315 -139.319

150/5200-12 First Responders' Responsibility for Protecting Evidence at the Scene of an Aircraft Accident/Incident

150/5210-6 Aircraft Fire Extinguishing Agents

150/5210-7 Aircraft Rescue and Fire Fighting Communications

150/5210-13 Airport Water Rescue Plans and Equipment

150/5210-14 Aircraft Rescue Fire Fighting Equipment, Tools and Clothing

150/5210-15 Aircraft Rescue and Fire Fighting Station Building Design

150/5210-17 Programs for Training of Aircraft Rescue and Fire Fighting Personnel

150/5220-10 Guide Specification for Aircraft Rescue and Fire Fighting (ARFF) Vehicles

150/5220-17 Aircraft Rescue and Fire Fighting (ARFF) Training Facilities

Hazardous Materials - 139.321

20-43 Aircraft Fuel Control

150/5230-4 Aircraft Fuel Storage, Handling, and Dispensing on Airports

Traffic and Wind Direction Indicators - 139.323

150/5340-5 Segmented Circle Airport Marker System

150/5340-30 Design and Installation Details for Airport Visual Aids

150/5345-27 FAA Specification for Wind Cone Assemblies

Airport Emergencies - 139.325

150/5200-31 Airport Emergency Plan

150/5210-13 Airport Water Rescue Plans and Equipment

150/5340-30 Design and Installation Details for Airport Visual Aids

Self-Inspection Program - 139.327

150/5200-18 Airport Safety Self-Inspection

150/5210-18 Systems for Interactive Training of Airport Personnel

Ground Vehicles - 139.329

90-67 Light Signals from the Control Tower for Ground Vehicles, Equipment and Personnel

150/5210-5 Painting, Marking and Lighting of Vehicles Used on an Airport

150/5210-20 Ground Vehicle Operations to include Taxiing or Towing an Aircraft on Airports

150/5370-2 Operational Safety on Airports During Construction

Obstructions - 139.331

70/7460-1 Obstruction Marking and Lighting

150/5340-30 Design and Installation Details for Airport Visual Aids

150/5345-43 Specification for Obstruction Lighting Equipment

Protection of NAVAIDs - 139.333

150/5300-13 Airport Design

150/5340-1 Standards for Airport Markings

150/5340-18 Standards for Airport Sign Systems

Public Protection - 139.335

150/5300-13 Airport Design

Wildlife Hazard Management - 139.337

150/5200-33 Hazardous Wildlife Attractants On or Near Airports

150/5200-34 Construction or Establishment of Landfills Near Public Airports

Airport Condition Reporting - 139.339

150/5200-28 Notice to Air Missions (NOTAMs) for Airport Operators

Identifying, Marking and Reporting Construction and Unserviceable Areas - 139.341

150/5200-28 Notice to Air Missions (NOTAMs) for Airport Operators

150/5340-1 Standards for Airport Markings

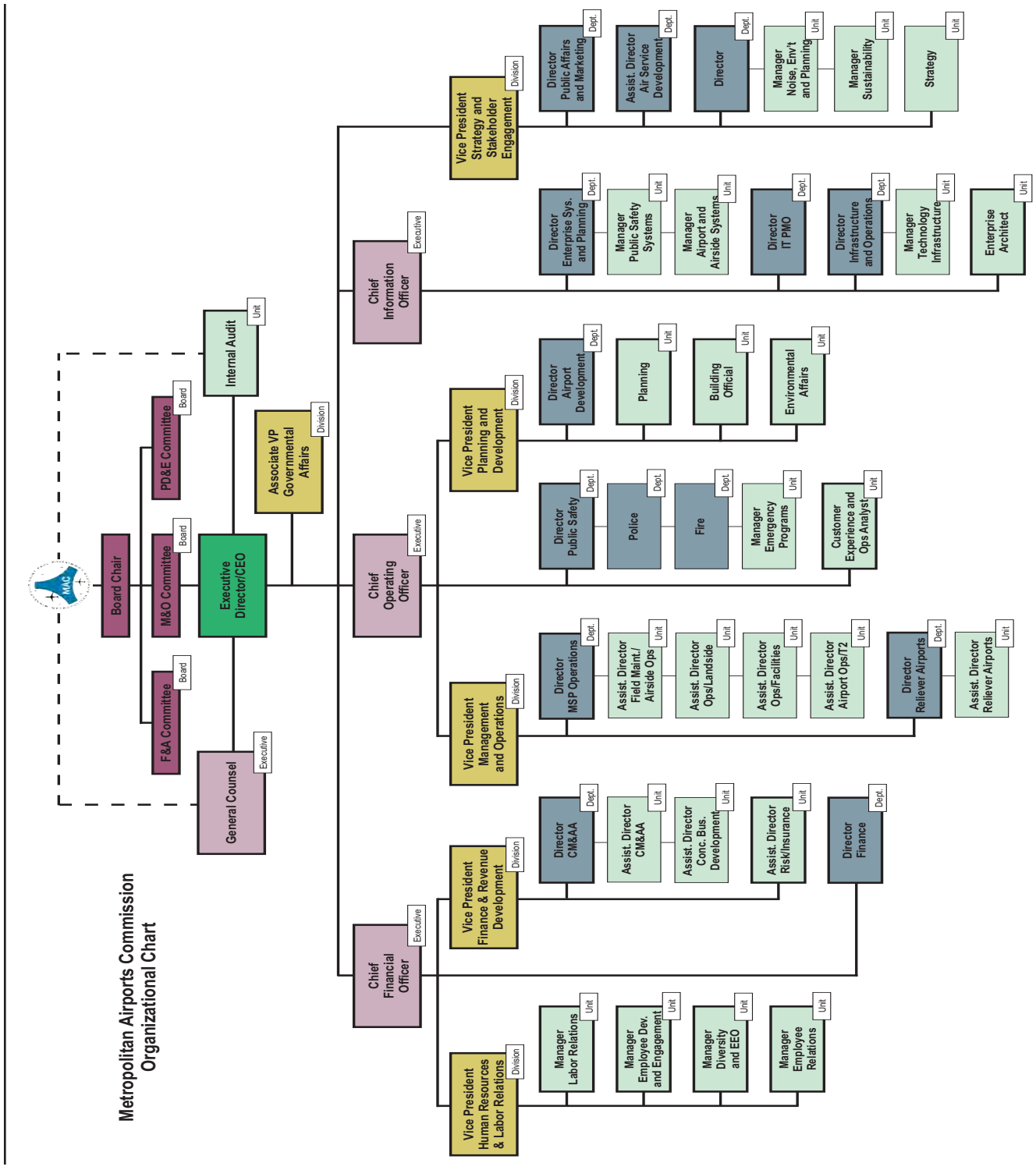
150-5370-2 Operational Safety on Airports During Construction

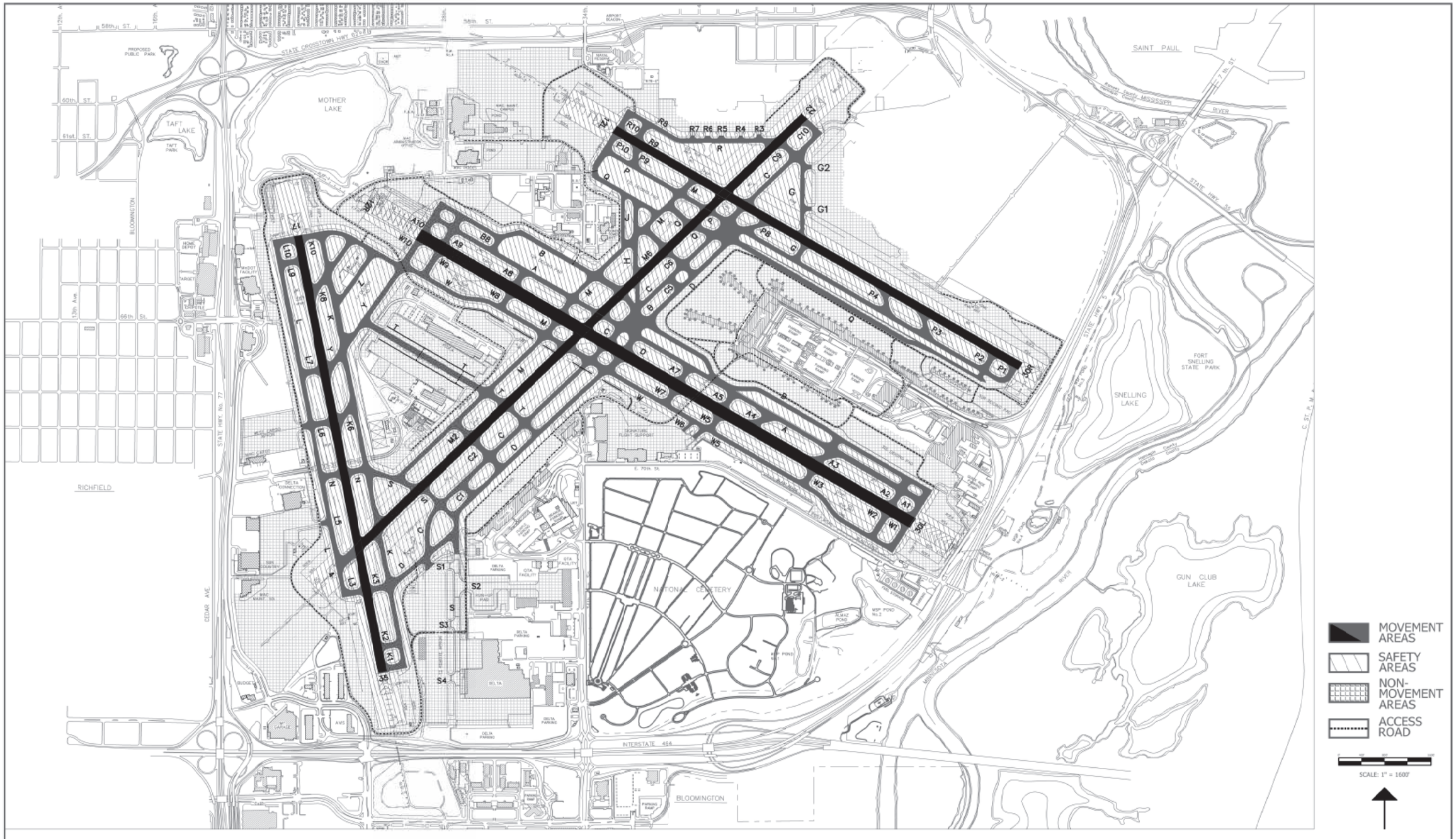
Original Date: 12/09/04

Revision Date: 11/18/22

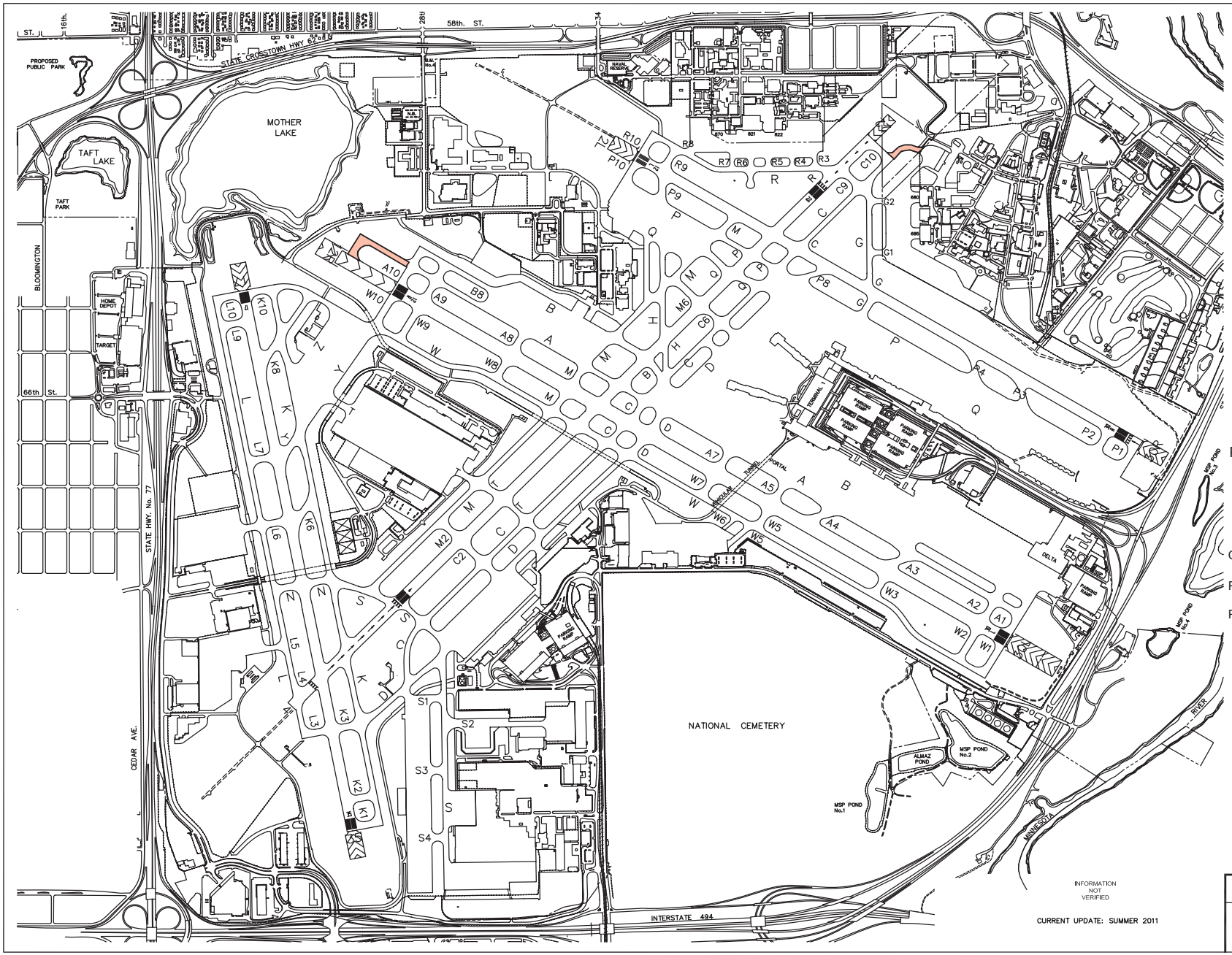
FAA Approval: FAA Approval: Kenneth M. Faire
Approval Date: December 02 2022

Exhibit 303-1 - Organization Chart





Metropolitan Airports Commission GENERAL OFFICES 6040 - 28TH AVENUE SOUTH MINNEAPOLIS, MINNESOTA 55450	MSP MOVEMENT AREA Original Date: 12/09/04 Revision Date: 09/18/25	Original Date: _____ FAA Approval: _____ Revision Date: OCTOBER 2024 FAA Approval: Date: Sep 23 2025
		DRAWING NO. 1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TAFT LAKE
TAFT PARK
BLOOMINGTON
HOME DEPOT
TARGET
66th St.
STATE HWY. No. 77
CEDAR AVE.
NATIONAL CEMETERY
INTERSTATE 494
MINNESOTA RIVER
ALMAZ POND
MSP POND No.1
MSP POND No.2
MSP POND No.3
MSP POND No.4
TERMINAL
PARKING RAMP
DELTA
INFORMATION NOT VERIFIED
CURRENT UPDATE: SUMMER 2011
SCALE IN FEET
Exhibit 305-2
Paved Areas Not Available to Air Carrier Use
Original Date: 12/09/04
Revision Date: 11/20/20
FAA Approval:
12/29/2020
MSP INTERNATIONAL AIRPORT
Metropolitan Airports Commission
GENERAL OFFICES
6040–28TH AVENUE SOUTH
MINNEAPOLIS, MINNESOTA 55450

Exhibit 309-1 - Engineered Materials Arresting Systems (EMAS) Maintenance Program

Engineered Materials Arresting Systems (EMAS) at Minneapolis-Saint Paul International Airport (MSP) will be installed and maintained per *AC 150/5220-22, current edition, Engineered Material Arresting Systems (EMAS) for Aircraft Overruns*. An EMAS will be constructed on a surface capable of supporting the passage of critical design aircraft and fully loaded ARFF vehicles. The EMAS will be capable of supporting pedestrian traffic for the purpose of maintaining the arresting material or any collocated navigational aid without surface damage.

Maintenance of an EMAS system will be according to the following program:

1. Only those trained in inspecting EMAS may complete the monthly EMAS inspections. Training is completed during manufacturer inspections as on-the-job training.
2. Schedule inspection once a month, weather dependent during planned runway closures, ensuring any precipitation (snow, etc) is clear of the EMAS bed.
3. An annual inspection is required once per year.
4. A Corrective Action Repair Inspection is required after any repairs are completed.
5. Ensure PPE is available for inspection.
6. Walk EMAS bed, note deficiencies, and take pictures, as needed.
7. Fill out most current EMAS inspection form approved in MSP ACM.
8. Notify Field Maintenance Manager - Operations of discrepancies.
9. Field Maintenance Manager - Operations to coordinate repairs with Airport Development and Trades - Carpenters.
10. On-site inspection with Airport Development and Trades - Carpenters to document required repair work order within one week of inspection.
11. Order materials, as needed.
12. Repair.
13. All repair, component replacement and/or deficiency corrections will be logged on the corrective action form and will include a description and date of the corrective action taken. Airside Operations will be notified of completed corrective actions.
14. EMAS inspection records will be kept on file in MSP's Part 139 software program Cityworks.

Inspection 60

EMAS PMI - Monthly

Metropolitan Airports Commission

Status: COMPLETED

Location: 12R:30L

Inspected By: Yunker, Luke

Initiated By: Yunker, Luke

Initiated Date: 12/3/2021 10:56:34AM

Projected Start:(Inspection Start) 11/30/2021 12:30:00

Actual Finish:(Inspection End) 11/30/2021 12:45:00PM

Insp. Date:(Issued)

Closed By:

Date Closed:

Work Order Id:

Observation:

Repairs:

Recommendation:

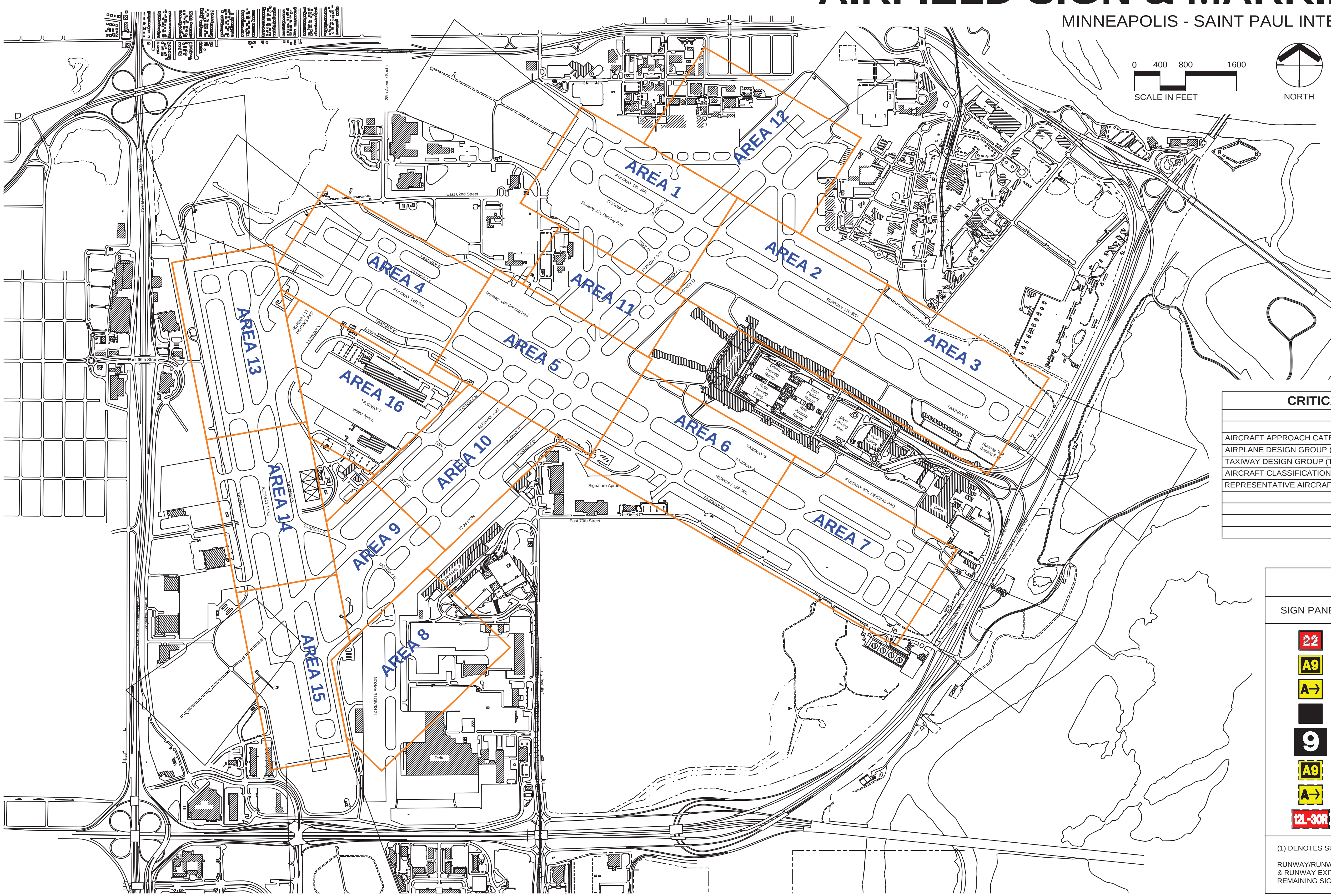
Observations:

Manufacturer Present:	No
Manufacturer(If Present):	
Clean:	Satisfactory
No Foreign Material:	Satisfactory
Free of Abrasions:	Satisfactory
Remarks:	
Lifted Tape:	Satisfactory
Tape Missing:	Satisfactory
Tape Secured:	Satisfactory
Remarks:	Repaired 2 small seams of lifted tape during inspection
Caulk Cracked:	Satisfactory
Caulk Missing:	Satisfactory
Caulk around Lights:	Satisfactory
Remarks:	
Cracks greater than 1/8":	Satisfactory
Cracked Lids/Voids:	Satisfactory
Minor Depression (Top has not been penetrated):	Satisfactory
Major Depression (Top HAS been pentrated):	Satisfactory
Rubber Boots for Lights Anchored:	Satisfactory
Remarks:	
Damage Block:	Satisfactory
Evidence of Vehicle on Blocks:	Satisfactory
Deflection Shields:	Satisfactory
Crushed Block:	Satisfactory
Remarks:	
Cracked Lids/Voids:	Satisfactory
Holes greater than 1/8":	Satisfactory
Remarks:	
Cracked Voids:	Satisfactory
Holes greater than 1/8":	Satisfactory
Remarks:	
Clean:	Satisfactory
Remarks:	

EXHIBIT 311-1 - AIRFIELD SIGN & MARKING PLAN

AIRFIELD SIGN & MARKING PLAN

MINNEAPOLIS - SAINT PAUL INTERNATIONAL AIRPORT



LIST OF DRAWINGS	
No.	TITLE
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1	AREA 1
2	AREA 2
3	AREA 3
4	AREA 4
5	AREA 5
6	AREA 6
7	AREA 7
8	AREA 8
9	AREA 9
10	AREA 10
11	AREA 11
12	AREA 12
13	AREA 13
14	AREA 14
15	AREA 15
16	AREA 16

CRITICAL DESIGN AIRCRAFT

	OVERALL AIRPORT	
	EXISTING	ULTIMATE
AIRCRAFT APPROACH CATEGORY (AAC)	D	SAME
AIRPLANE DESIGN GROUP (ADG)	V	SAME
TAXIWAY DESIGN GROUP (TDG)	5	SAME
AIRCRAFT CLASSIFICATION NUMBER (ACN)	76	SAME
REPRESENTATIVE AIRCRAFT TYPE(S)		
	B738, B739, B753	SAME
	A330, B767, B777	SAME
	A330, B772, B787	SAME
	B789	SAME

SIGN PANEL LEGEND

SIGN PANEL	LEGEND	BACKGROUND
22	WHITE W/ BLACK OUTLINE	RED
A9	YELLOW	BLACK
A→	BLACK	YELLOW
	NONE	BLACK
9	WHITE	BLACK
A9	YELLOW (1)	BLACK (1)
A→	BLACK (1)	YELLOW (1)
12L-30R	WHITE (1)	RED (1)

(1) DENOTES SURFACE PAINTED SIGNS

RUNWAY/RUNWAY INTERSECTION HOLDING POSITION SIGNS & RUNWAY EXIT SIGNS ARE SIZE 2; RUNWAY DISTANCE REMAINING SIGNS ARE SIZE 5; ALL OTHER SIGNS ARE SIZE 1.

Metropolitan Airports Commission	AIRFIELD SIGN & MARKING PLAN — TITLE SHEET	DATE 8/12/2025	DRAWING NO. 0
	MINNEAPOLIS-ST. PAUL INTERNATIONAL AIRPORT Original Date: 12/09/04 Revision Date: 09/18/25 — FAA Approval: [signature] Date: Sep 23 2025		

CURRENT: Aug 12, 2025 - 8:43am
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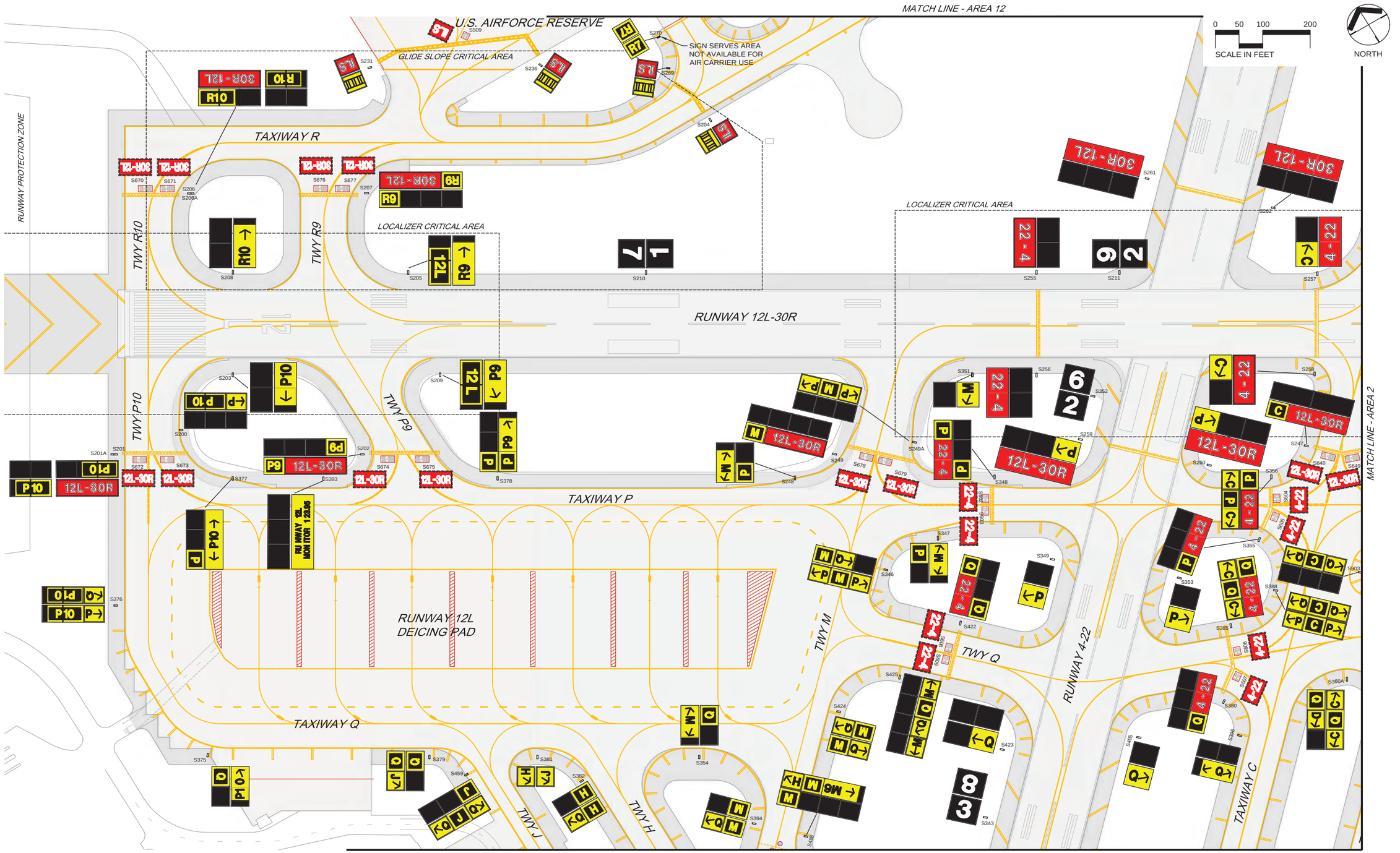
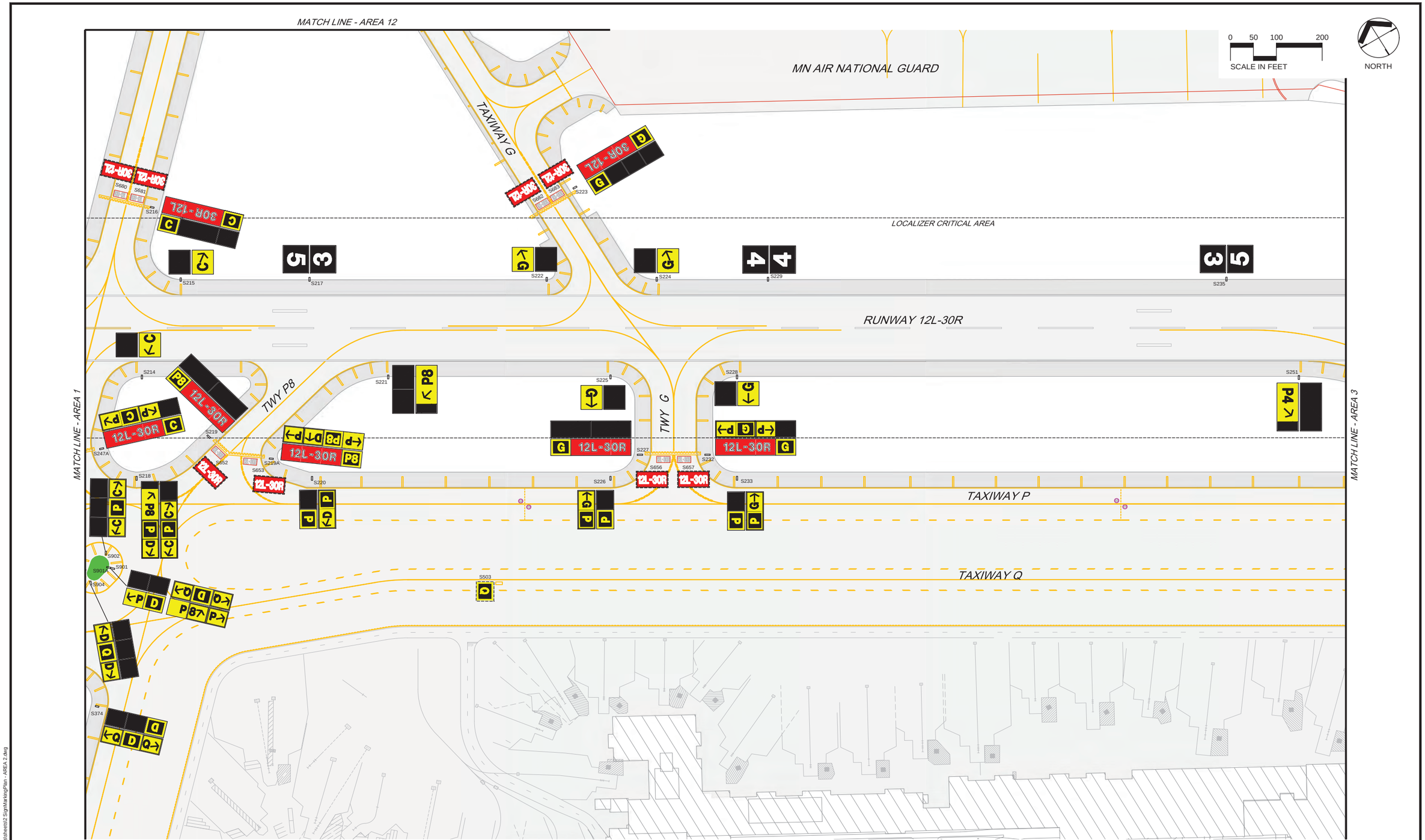


Metropolitan Airports Commission	AIRFIELD SIGN & MARKING PLAN — AREA 1	DATE	DRAWING NO.
	MINNEAPOLIS-ST. PAUL INTERNATIONAL AIRPORT Original Date: 12/09/04 Revision Date: 09/18/25 — FAA Approval: Sep 23 2025	8/12/2025	1



Metropolitan Airports Commission	AIRFIELD SIGN & MARKING PLAN — AREA 2	DATE	DRAWING NO.
	MINNEAPOLIS-ST. PAUL INTERNATIONAL AIRPORT Original Date: 12/09/04 Revision Date: 09/18/25 FAA Approval: Date: Sep 23 2025	8/12/2025	2

CURRENT: Aug 12, 2025 - 8:45am
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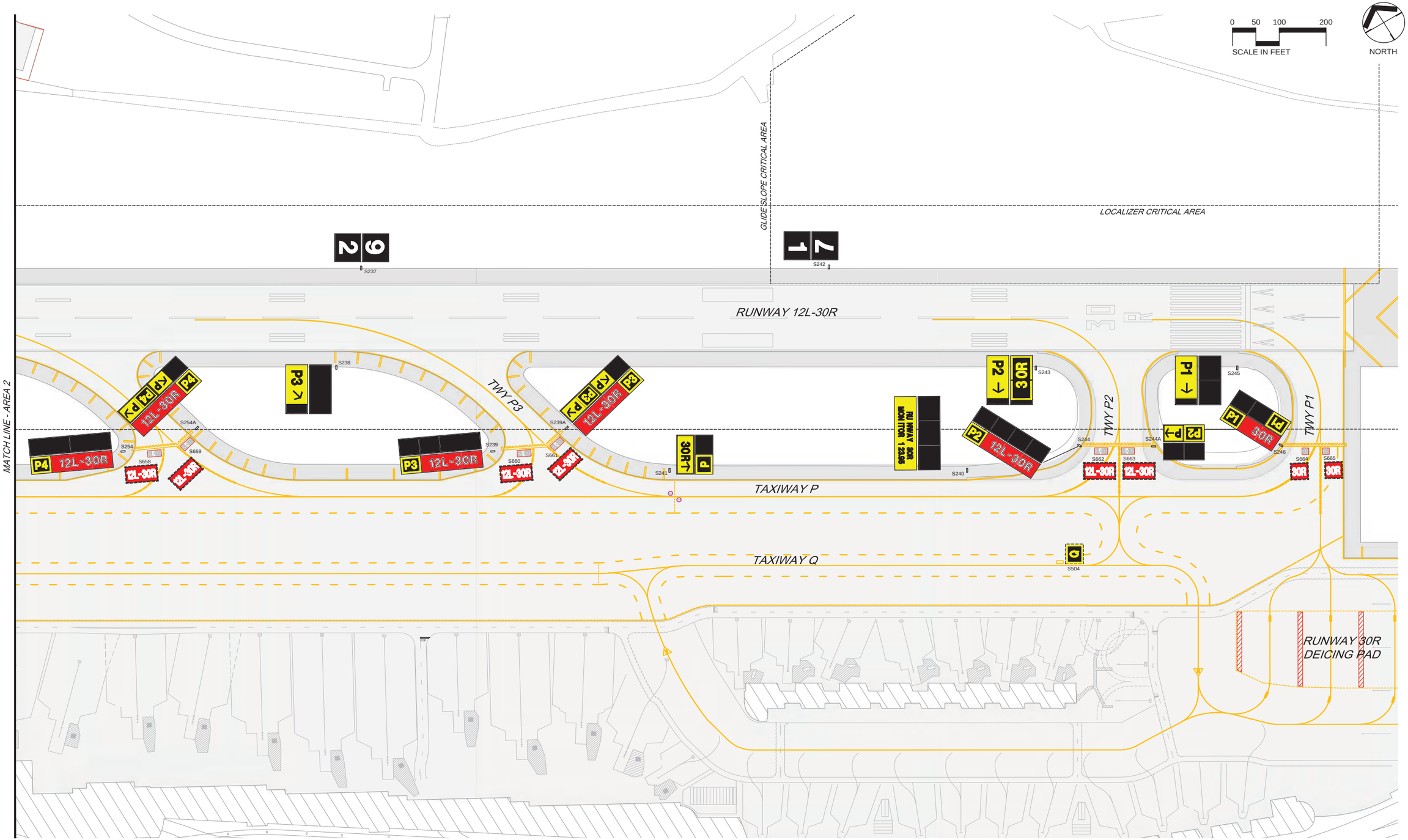

Metropolitan Airports Commission	AIRFIELD SIGN & MARKING PLAN	AREA 3	DATE 8/12/2025
	MINNEAPOLIS-ST. PAUL INTERNATIONAL AIRPORT Original Date: 12/09/04 Revision Date: 09/18/25	FAA Approval: Date: Sep 23 2025	DRAWING NO. 3

CURRENT: Aug 12, 2025 - 8:45am
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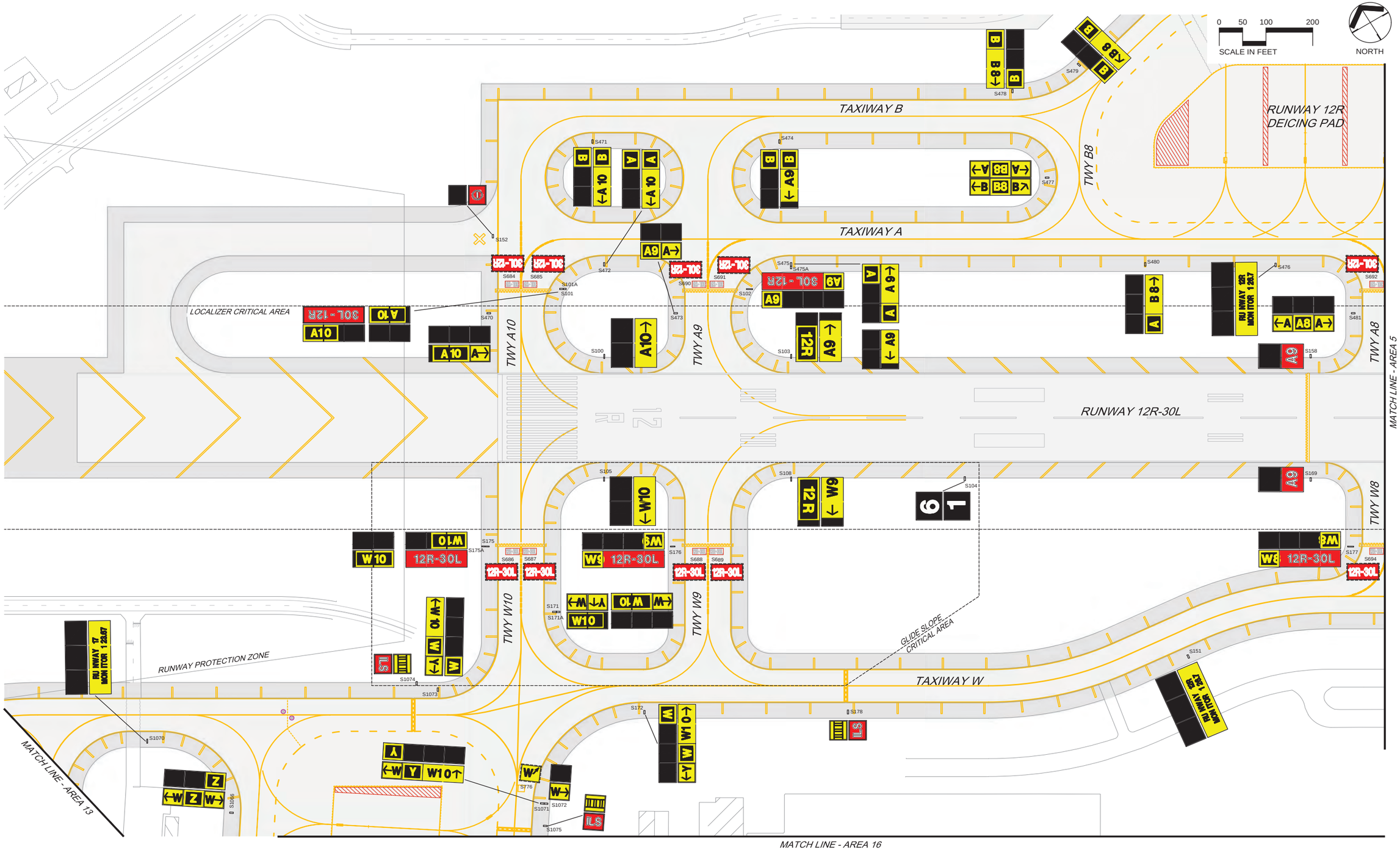
EXHIBIT 311-1 - AIRFIELD SIGN & MARKING PLAN



Metropolitan Airports Commission	AIRFIELD SIGN & MARKING PLAN	AREA 4	DATE	DRAWING NO.
	MINNEAPOLIS-ST. PAUL INTERNATIONAL AIRPORT Original Date: 12/09/04	Revision Date: 09/18/25	8/12/2025	4

FAA Approval: Date: Sep 23 2025

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Metropolitan Airports Commission	AIRFIELD SIGN & MARKING PLAN	AREA 5	DATE	DRAWING NO.
	MINNEAPOLIS-ST. PAUL INTERNATIONAL AIRPORT Original Date: 12/09/04 Revision Date: 10/23/25	FAA Approval: Date: Nov 05 2025	9/30/2025	5

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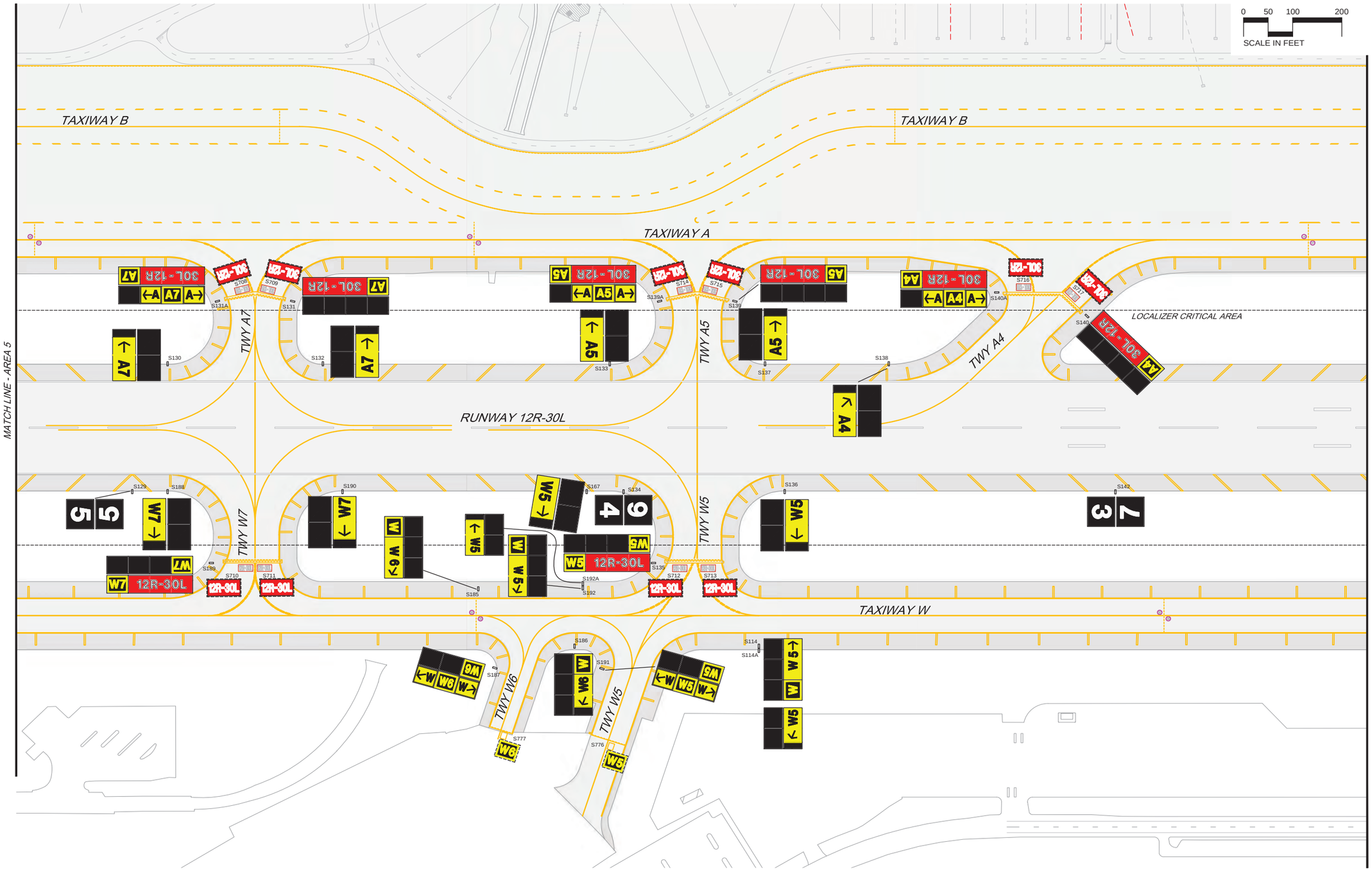
EXHIBIT 311-1 - AIRFIELD SIGN & MARKING PLAN



Metropolitan Airports Commission	AIRFIELD SIGN & MARKING PLAN	AREA 6	DATE 8/12/2025
	MINNEAPOLIS-ST. PAUL INTERNATIONAL AIRPORT Original Date: 12/09/04 Revision Date: 09/18/25	FAA Approval: Date: Sep 23 2025	DRAWING NO. 6

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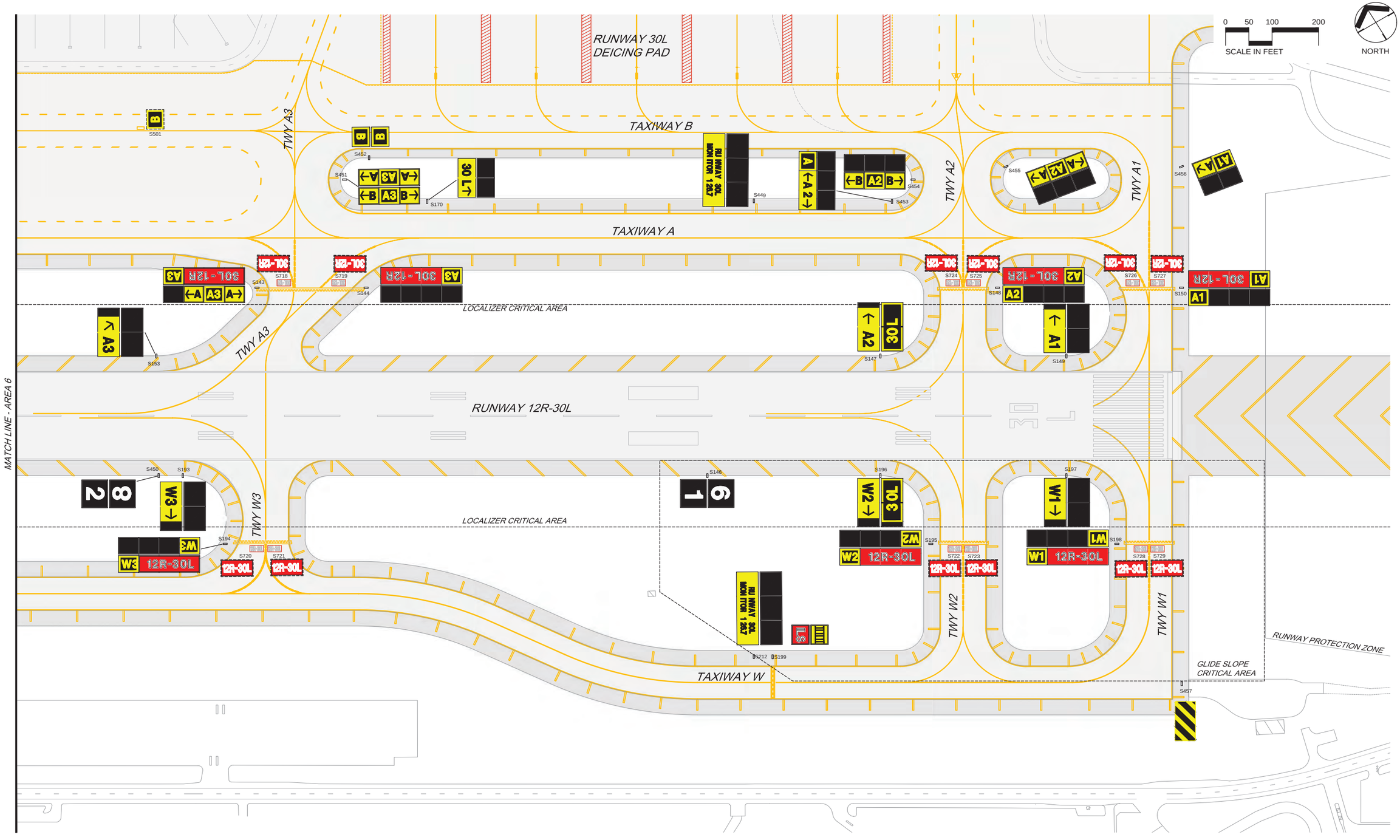

Metropolitan Airports Commission	AIRFIELD SIGN & MARKING PLAN	AREA 7	DATE	DRAWING NO.
	MINNEAPOLIS-ST. PAUL INTERNATIONAL AIRPORT Original Date: 12/09/04 Revision Date: 09/18/25	FAA Approval: FAA Region: Date: Sep 23 2025	8/12/2025	7

CURRENT: Aug 12 2025 - 8:49am
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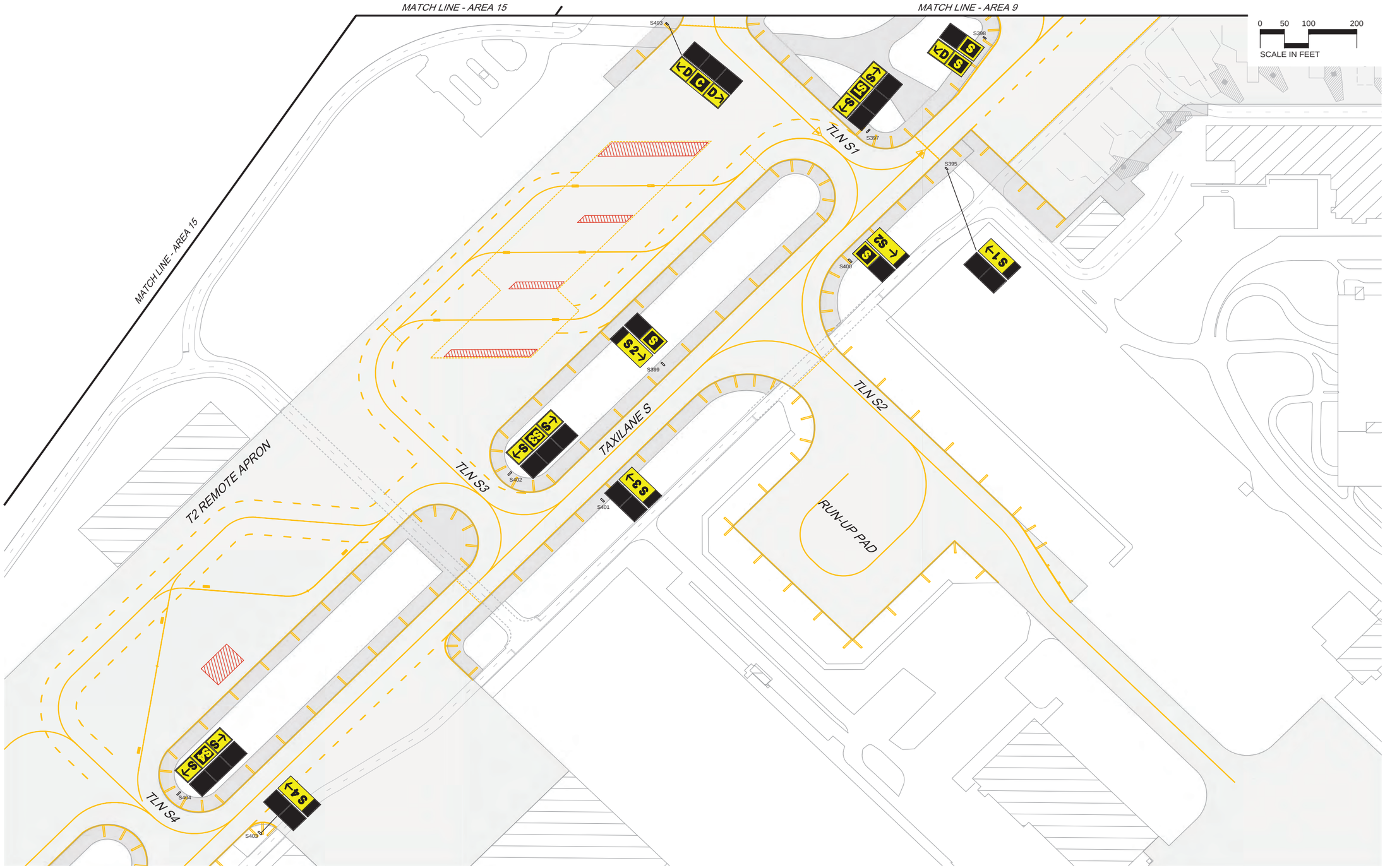
EXHIBIT 311-1 - AIRFIELD SIGN & MARKING PLAN



Metropolitan Airports Commission	AIRFIELD SIGN & MARKING PLAN	AREA 8	DATE	DRAWING NO.
	MINNEAPOLIS-ST. PAUL INTERNATIONAL AIRPORT Original Date: 12/09/04 Revision Date: 09/18/25	FAA Approval: Date: Sep 23 2025	8/12/2025	8

CURRENT: Aug 12, 2025 - 8:49am
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EXHIBIT 311-1 - AIRFIELD SIGN & MARKING PLAN

0 50 100 200
SCALE IN FEET

NORTH

Metropolitan Airports Commission	AIRFIELD SIGN & MARKING PLAN	AREA 9	DATE	DRAWING NO.
	MINNEAPOLIS-ST. PAUL INTERNATIONAL AIRPORT Original Date: 12/09/04 Revision Date: 09/18/25	FAA Approval: Date: Sep 23 2025	8/12/2025	9

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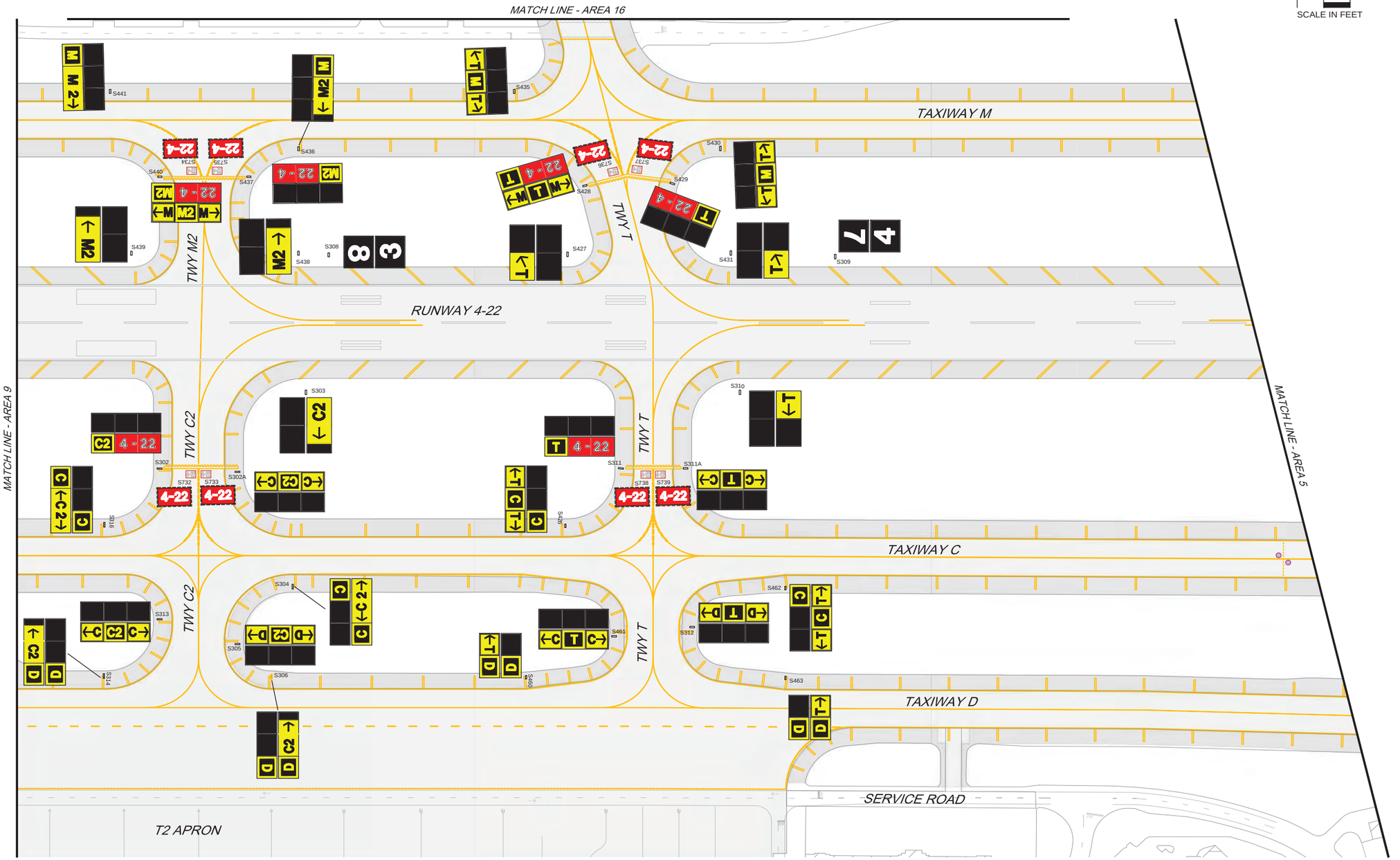
EXHIBIT 311-1 - AIRFIELD SIGN & MARKING PLAN



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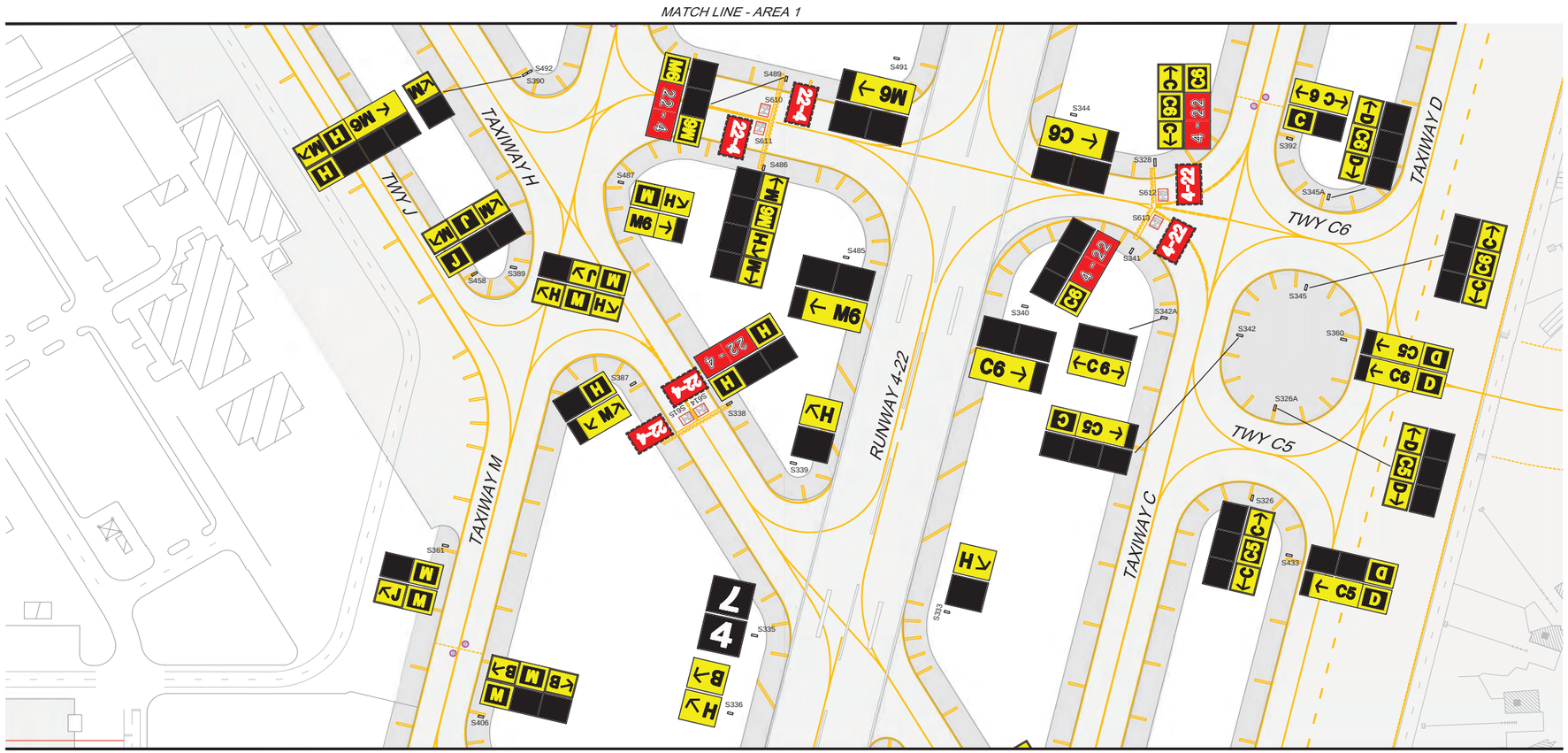
Metropolitan Airports Commission	AIRFIELD SIGN & MARKING PLAN — AREA 10	DATE	DRAWING NO.
	MINNEAPOLIS-ST. PAUL INTERNATIONAL AIRPORT Original Date: 12/09/04 Revision Date: 09/18/25 — FAA Approval: Date: Sep 23 2025	8/12/2025	10

0 50 100 200
SCALE IN FEET

NORTH



Metropolitan Airports Commission	AIRFIELD SIGN & MARKING PLAN	AREA 11	DATE 8/12/2025
	MINNEAPOLIS-ST. PAUL INTERNATIONAL AIRPORT Original Date: 12/09/04 Revision Date: 09/18/25	FAA Approval: Date: Sep 23 2025	DRAWING NO. 11

CURRENT: Aug 12 2025 - 8:52am
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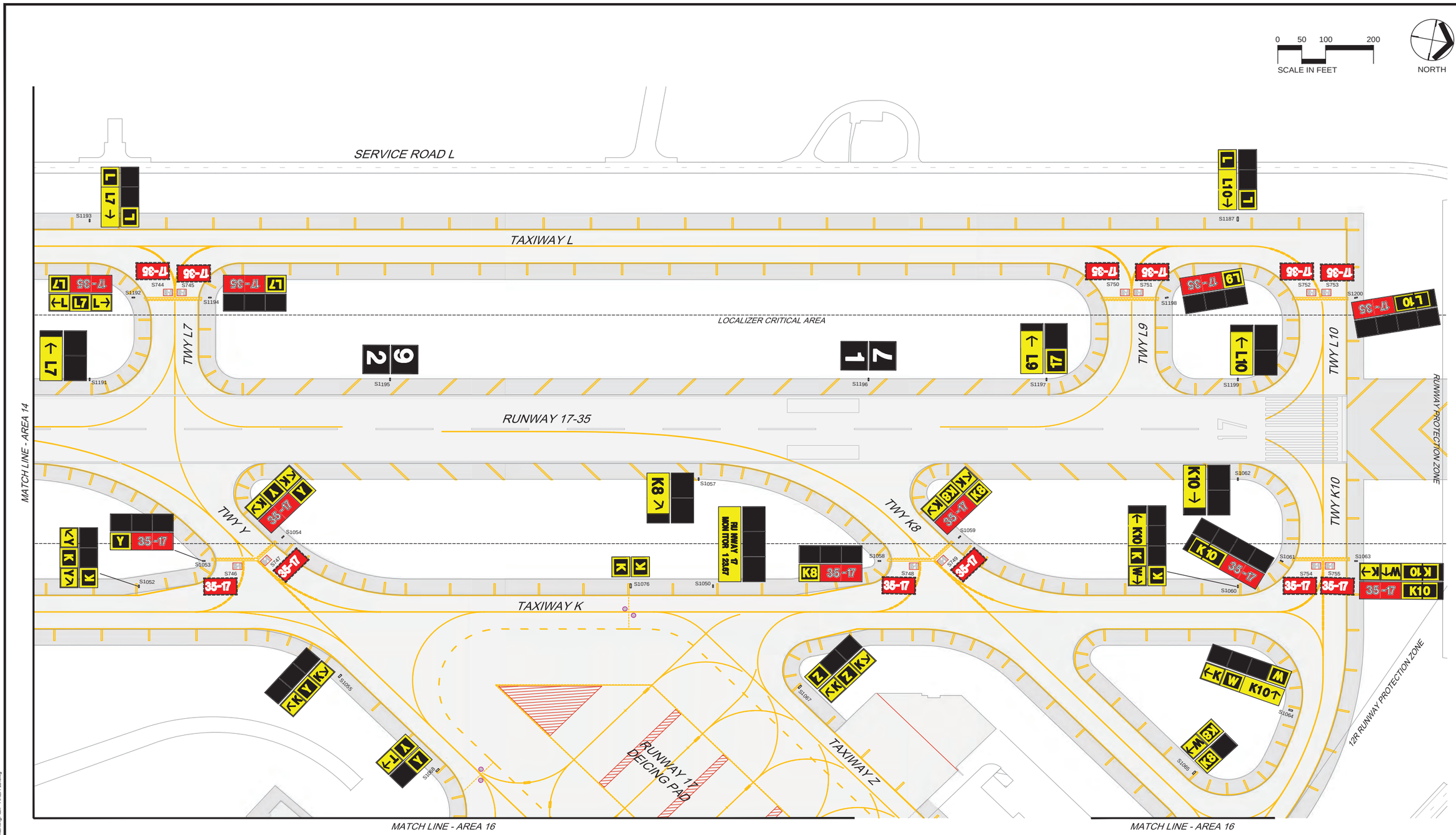
EXHIBIT 311-1 - AIRFIELD SIGN & MARKING PLAN

Metropolitan Airports Commission	AIRFIELD SIGN & MARKING PLAN	AREA 12	DATE 8/12/2025
	MINNEAPOLIS-ST. PAUL INTERNATIONAL AIRPORT Original Date: 12/09/04 Revision Date: 09/18/25	FAA Approval: Sep 23 2025	DRAWING NO. 12



Metropolitan Airports Commission	AIRFIELD SIGN & MARKING PLAN — AREA 13	DATE	DRAWING NO.
	MINNEAPOLIS-ST. PAUL INTERNATIONAL AIRPORT Original Date: 12/09/04 Revision Date: 09/18/25	8/12/2025	13

FAA Approval: Date: Sep 23 2025

CURRENT: Aug 12, 2025 - 8:53am
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EXHIBIT 311-1 - AIRFIELD SIGN & MARKING PLAN

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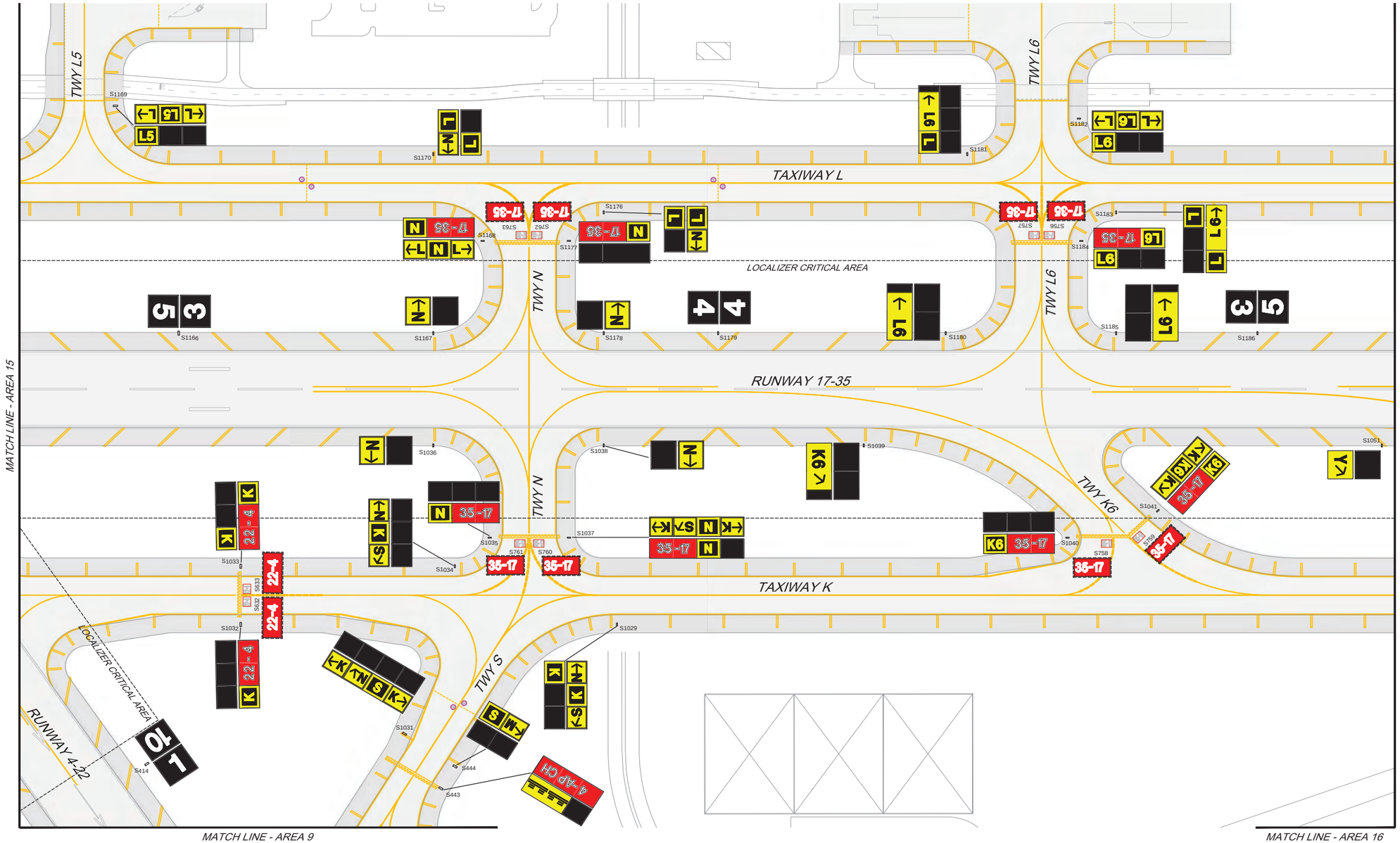
SCALE IN FEET

NORTH



CURRENT: Aug 12, 2025 - 8:54am
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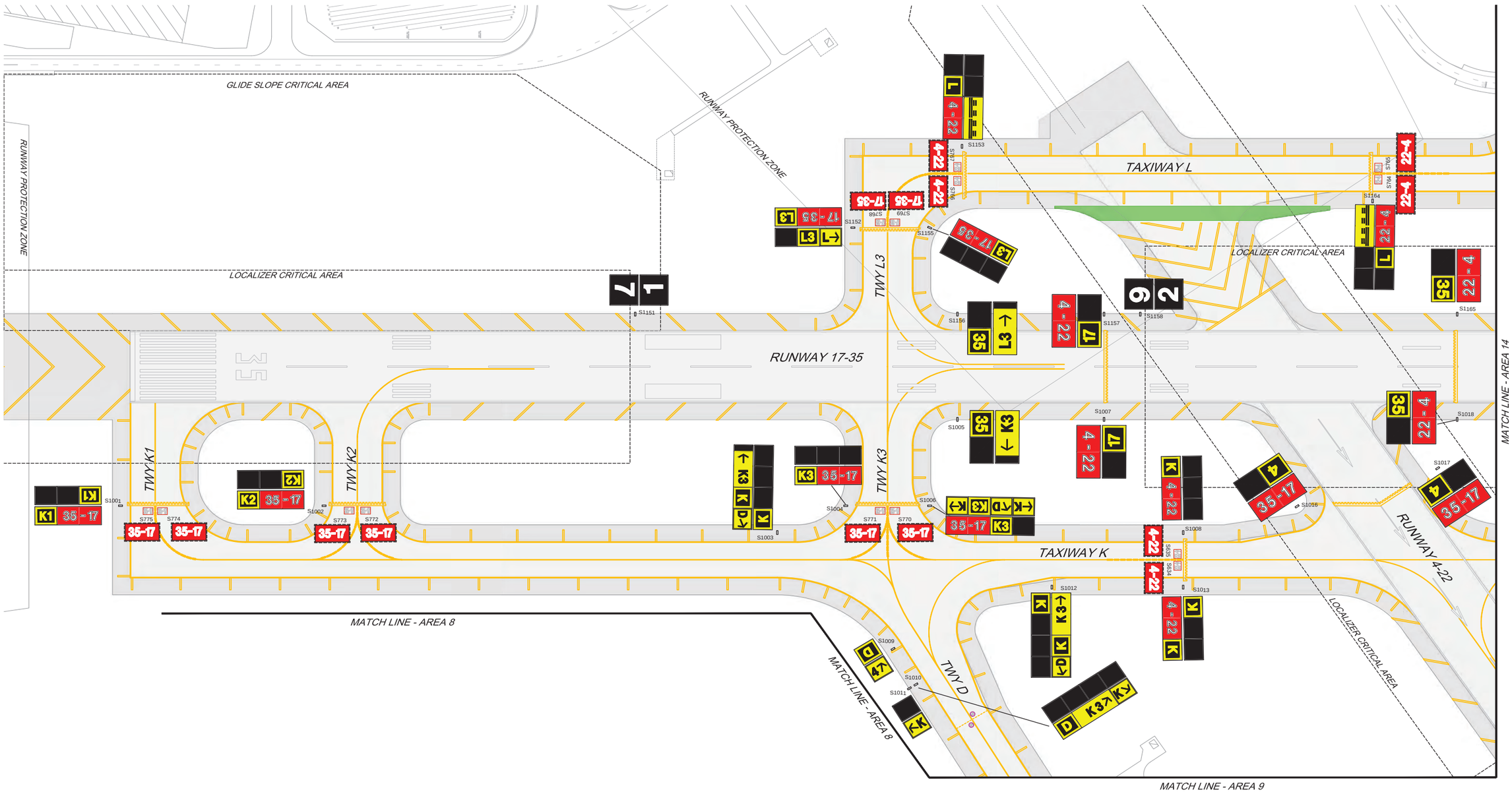
Metropolitan Airports Commission	AIRFIELD SIGN & MARKING PLAN	AREA 14	DATE 8/12/2025
	MINNEAPOLIS-ST. PAUL INTERNATIONAL AIRPORT Original Date: 12/09/04 Revision Date: 09/18/25	FAA Approval: Date: Sep 23 2025	DRAWING NO. 14



Metropolitan Airports Commission	AIRFIELD SIGN & MARKING PLAN	AREA 15	DATE	DRAWING NO.
	MINNEAPOLIS-ST. PAUL INTERNATIONAL AIRPORT Original Date: 12/09/04 Revision Date: 09/18/25	FAA Approval: Date: Sep 23 2025	8/12/2025	15

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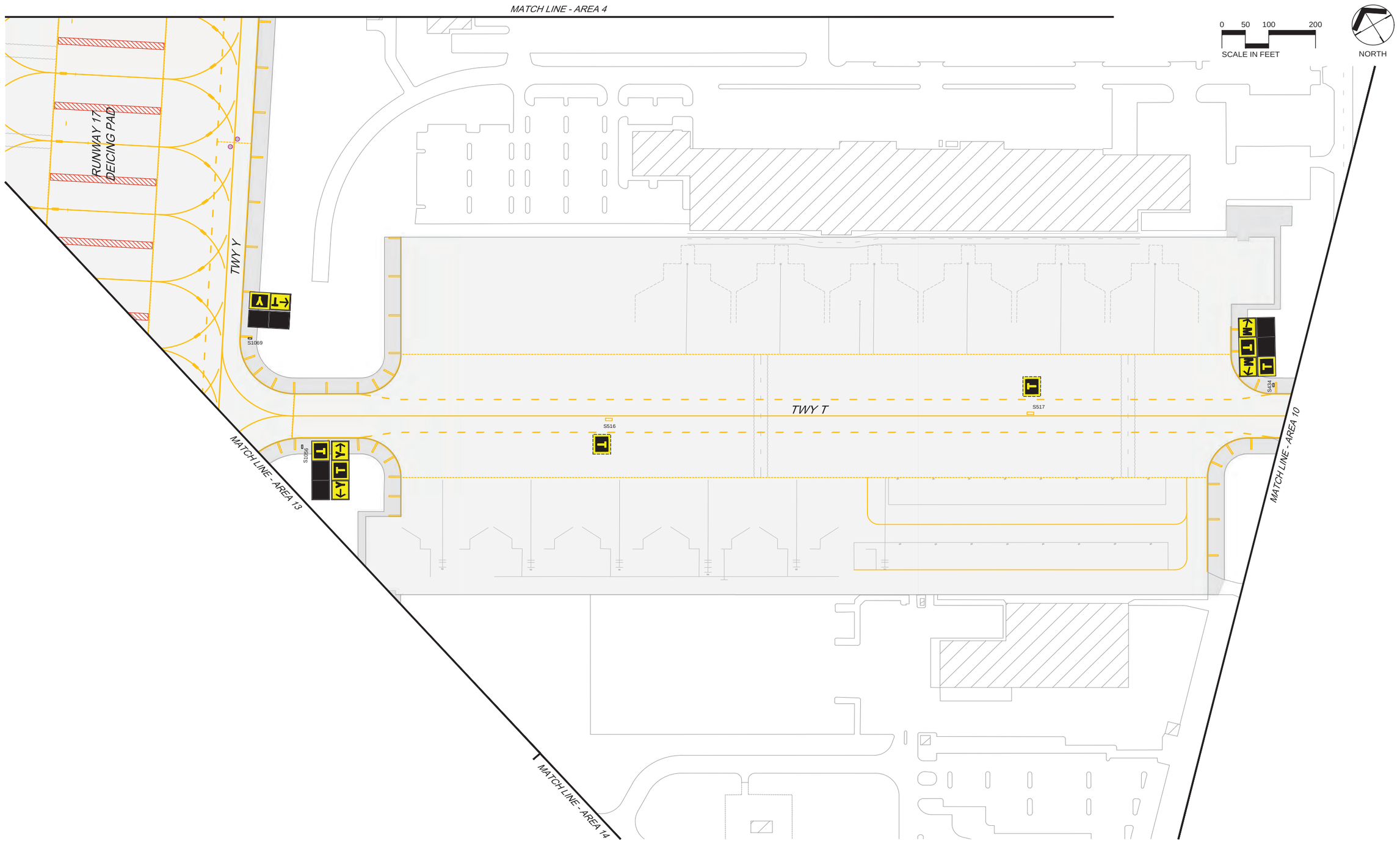


EXHIBIT 311-1 - AIRFIELD SIGN & MARKING PLAN

Metropolitan Airports Commission	AIRFIELD SIGN & MARKING PLAN	AREA 16	DATE 8/12/2025
	MINNEAPOLIS-ST. PAUL INTERNATIONAL AIRPORT Original Date: 12/09/04 Revision Date: 09/18/25	FAA Approval: Date: Sep 23 2025	DRAWING NO. 16

CURRENT: Aug 12, 2025 - 8:55am
DIR: K:\MAC\7298\all\Signs\Drawings\sheets\16 SignMarkingPlan - AREA 16.dwg

Exhibit 311-2 - Preventive Maintenance Inspection Procedures for PAPIs and Generators

Precision Approach Path Indicator (PAPI) at Minneapolis-Saint Paul International Airport (MSP) will be maintained per AC 150/5340-26, current edition, Maintenance of Airport Visual Aid Facilities.

Maintenance of the Runway 04, 22 and 30R PAPI visual aids will be according to the following program:

1. Operation of the lamps will be checked and visually inspected on a daily basis by Airside Operations and will be maintained in accordance with Section 311 of the MSP Airport Certification Manual.
2. A comprehensive inspection of the Runway 04, 22, 30R PAPI visual aids are conducted monthly per the PAPI inspection form included in this exhibit.
3. Personnel will check the integrity of obstacle free approach planes on a quarterly basis.
4. Insulation resistance of underground cables will be checked by airport trades personnel on a semi-annual basis.
5. Resistance of the grounding system will be checked by airport trades personnel on a semi-annual basis.
6. Findings from the monthly, quarterly and semi-annual comprehensive inspections will be noted on the inspection PAPI form included in this exhibit.
7. Repair, component replacement and/or deficiencies will be corrected as soon as practicable considering airport capacity and minimum weather criteria necessary to ensure proper repair. If applicable, appropriate parties will be notified when repairs are made.
8. PAPI inspection records will be kept on file in MSP's Part 139 software program Cityworks.

Inspection 464

PAPI PMI - Monthly

Metropolitan Airports Commission

Status: OPEN

Location:

Inspected By:

Initiated By: Kregness, Adrian

Initiated Date: 3/21/2022 6:59:35AM

Projected Start:(Inspection Start) 3/21/2022 6:59:35AM

Actual Finish:(Inspection End) 3/21/2022 6:59:40AM

Insp. Date:(Issued)

Closed By:

Date Closed:

Work Order Id:

Observation: Cleaned and re-lamped all units

Repairs:

Recommendation:

Observations:

Verify all lamps are operational::	Yes
Verify all lamps are at equal brightness::	Yes
Verify controls are operational::	Yes
Verify if there is any fixture damage::	Yes
Clean all lamps and filters::	Yes
Inspect for damaged mechanical parts::	Yes
Inspect for damaged lightning arrestors::	Yes
Inspect for water damage and insect infestation::	
Inspect for rodent activity around the units::	Yes
Verify horizontal/lateral alignment::	Yes
Verify aiming/vertical angle::	Yes
Unit 1 Vertical Angle Setting: 3.58 deg:	3.58
Unit 2 Vertical Angle Setting: 3.25 deg:	3.25
Unit 3 Vertical Angle Setting: 2.75 deg:	2.75
Unit 4 Vertical Angle Setting: 2.42 deg:	2.42
Verify the leveling and operation of Tilt Switch::	Yes

Each back up power source installed on the airport that is owned by the airport shall be properly maintained as required by AC 150/5340-30, current edition, Design and Installation for Airport Visual Aids.

Maintenance of the North ALEC #1, North ALEC #2, and South ALEC generators will be according to the following program:

1. Weekly, monthly, quarterly, biannual, and annual preventative maintenance inspections will be conducted per the inspection checklist included in this exhibit.
2. Findings from the weekly, monthly, quarterly, biannual, and annual comprehensive inspections will be noted on the inspection checklist included in this exhibit.
3. Repair, component replacement and/or deficiencies will be corrected as soon as practicable considering airport capacity and minimum weather criteria necessary to ensure proper repair.
4. All completed generator inspection and corrective action forms will be reviewed by airport management personnel to ensure documentation includes inspection date, deficiencies found, and if applicable a description and date of the corrective action taken.
5. Generator inspection records will be kept on file in MSP's Part 139 software program Cityworks.

Inspection 194

Generator PMI - Weekly

Metropolitan Airports Commission

Status: OPEN

Location:

Inspected By:

Initiated By: Kregness, Adrian

Initiated Date: 3/21/2022 6:19:36AM

Projected Start:(Inspection Start) 3/21/2022 6:19:36A

Actual Finish:(Inspection End) 3/21/2022 6:40:57AM

Insp. Date:(Issued)

Closed By:

Date Closed:

Work Order Id:

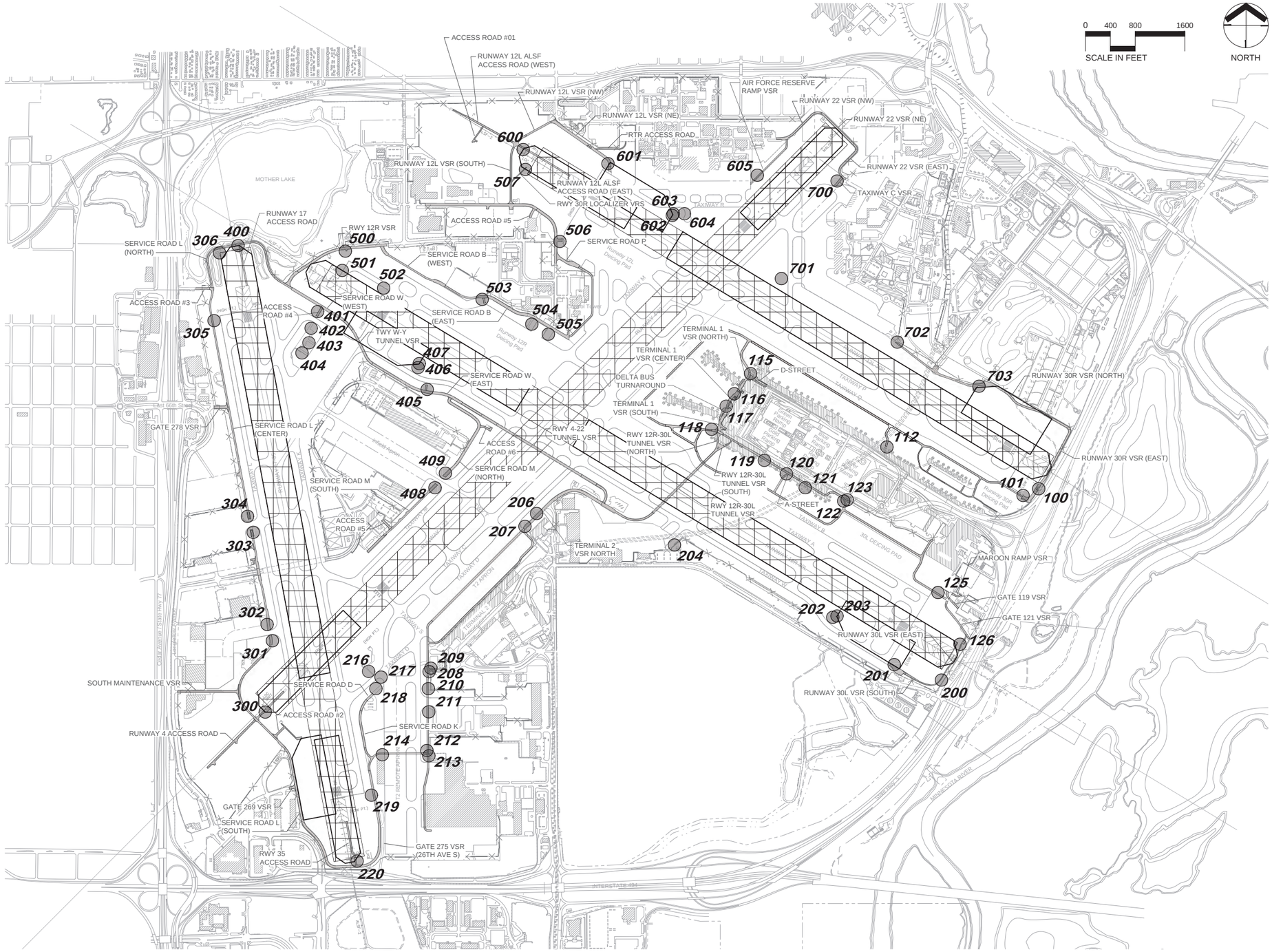
Observation: No issues

Repairs:

Recommendation:

Observations:

Check Engine Oil Level::	Satisfactory
Check Coolant Level::	Satisfactory
Visual Walk-Around Inspection::	Satisfactory
Battery Charger::	Satisfactory
Batteries::	Satisfactory
Oil Level Gauge::	Satisfactory
Output Frequency (Hz)::	60
Oil Pressure (PSI)::	180
Generators Louvers::	Satisfactory
Coolent Temperature (°F)::	180
Visual Walk-Around Inspection::	Satisfactory
Check Engine Oil Level::	Satisfactory
Battery Charger::	Satisfactory
Record Hour Meter::	101
Control Panel::	Satisfactory
Enter Fuel Capacity:	3000
Enter Fuel Level::	2500
Fuel Percentage::	83.33333333333333333333333333
Output Voltage A::	480
Output Voltage B::	480
Output Voltage C::	480
Output Current A::	200
Output Current B::	200
Output Current C::	200
Record Hour Meter::	100



Metropolitan Airports Commission	VEHICLE SERVICE ROAD SIGN PLAN	SIGNS LOCATION PLAN	DATE	DRAWING NO.
	MINNEAPOLIS-ST. PAUL INTERNATIONAL AIRPORT	FAA Approval: Date: Nov 25 2024	11/15/2024	1

CURRENT: Nov 14, 2024 - 9:54am
DIR: K:\MAC\7258\arl\Signs\Vehicle Service Roads\ACM 311-3 Exhibit\ACM 311-3.dwg

EXHIBIT 311-3 - VEHICLE SERVICE ROAD SIGN PLAN

Original Date: 12/09/04 Revision Date: 11/25/24

MINNEAPOLIS-ST. PAUL INTERNATIONAL AIRPORT
AIRSIDE VEHICLE SERVICE ROAD (VSR) SIGNS TABULATION

LOCATION ID	VSR IDENT.	INTERSECTING FACILITY	TRAFFIC DIRECTION BEING CONTROLLED	# OF SIGNS	STOP SIGN	DO NOT PROCEED CONTACT ATC	VEHICLES MUST YIELD TO AIRCRAFT SIGN	EMERGENCY VEHICLES ONLY SIGN	AUTHORIZED VEHICLES ONLY SIGN	RUNWAY IDENTIFICATION SIGN	RUNWAY IDENTIFICATION SIGN MESSAGE	ILS SIGN	TAXIWAY IDENTIFICATION SIGN	TAXIWAY IDENTIFICATION SIGN MESSAGE
100	RWY 30R ACCESS	12L-30R ILS	NORTHBOUND	3	1	1	0	0	0	0		1	0	
101	T1 APRON ROAD	A-B TXL / RWY 30R DEICING PAD	WESTBOUND	2	1	0	1	0	0	0		0	0	
112	CONCOURSE C APRON ROAD	T1 APRON (GATE C22)	NORTHBOUND	1	0	0	1	0	0	0		0	0	
115	T1 SERVICE ROAD	T1 APRON (CONCOURSE D/E)	NORTHBOUND	1	0	0	1	0	0	0		0	0	
116	T1 SERVICE ROAD	T1 APRON (CONCOURSE E/F)	WESTBOUND	1	0	0	1	0	0	0		0	0	
117	T1 SERVICE ROAD	T1 APRON (CONCOURSE E/F)	WESTBOUND	1	0	0	1	0	0	0		0	0	
118	T1 SERVICE ROAD	T1 APRON (CONCOURSE F/G)	WESTBOUND	1	0	0	1	0	0	0		0	0	
119	CONCOURSE G APRON ROAD	T1 APRON (G POD 2/3)	SOUTHBOUND	1	0	0	1	0	0	0		0	0	
120	CONCOURSE G APRON ROAD	T1 APRON (G POD 3/4)	SOUTHBOUND	1	0	0	1	0	0	0		0	0	
121	CONCOURSE G APRON ROAD	T1 APRON (G POD 4/5)	SOUTHBOUND	1	0	0	1	0	0	0		0	0	
122	CONCOURSE G APRON ROAD	T1 APRON (GATE G22)	EASTBOUND	2	1	0	1	0	0	0		0	0	
123	TUNNEL ROADWAY	T1 APRON (GATE G22)	WESTBOUND	2	1	0	1	0	0	0		0	0	
125	30L DEICING PAD VSR	RWY 30L DEICING PAD / TWY A1	WESTBOUND	2	1	0	1	0	0	0		0	0	
126	RWY 30L ACCESS	12R-30L ILS	SOUTHBOUND	3	1	1	0	0	0	0		1	0	
200	RWY 30L ACCESS	12R-30L ILS	NORTHBOUND	3	1	1	0	0	0	0		1	0	
201	TWY W ACCESS	TWY W / W1	WESTBOUND	4	1	1	0	0	0	0		1	1	(W1 >)
202	TWY W MTCE	TWY W	SOUTHBOUND	3	1	1	0	0	0	0		0	1	(< W >)
203	TWY W MTCE	TWY W	EASTBOUND	1	0	0	0	0	0	0		1	0	
204	FBO ACCESS	FBO APRON	WESTBOUND	2	1	0	1	0	0	0		0	0	
206	EMERGENCY RESPONSE ACCESS	TWY D	WESTBOUND	4	1	1	0	1	0	0		0	1	(< D >)
207	T2 APRON ROAD	T2 APRON (Gate H16)	SOUTHBOUND	2	1	0	1	0	0	0		0	0	
208	T2 APRON ROAD	T2 APRON (Gate H1)	NORTHBOUND	2	1	0	1	0	0	0		0	0	
209	T2 LOADING DOCK ROAD	T2 APRON (Gate H1)	WESTBOUND	2	1	0	1	0	0	0		0	0	
210	SERVICE ROAD S	TXL S2	SOUTHBOUND	2	1	0	1	0	0	0		0	0	
211	SERVICE ROAD S	TXL S2	NORTHBOUND	2	1	0	1	0	0	0		0	0	
212	SERVICE ROAD S	T2 REMOTE APRON	SOUTHBOUND	2	1	0	1	0	0	0		0	0	
213	SERVICE ROAD S	T2 REMOTE APRON	NORTHBOUND	2	1	0	1	0	0	0		0	0	
214	SERVICE ROAD K	T2 REMOTE APRON	EASTBOUND	2	1	0	1	0	0	0		0	0	
216	TWY D MTCE	TWY D	SOUTHBOUND	3	1	1	0	0	0	0		0	1	(< D >)
217	TWY D MTCE	TWY D	NORTHBOUND	3	1	1	0	0	0	0		0	1	(< D >)
218	T2 REMOTE APRON DEICING PAD ACCESS	T2 REMOTE APRON	EASTBOUND	1	0	0	0	0	1	0		0		
219	TWY K ACCESS	TWY K / K1	WESTBOUND	3	1	1	0	0	0	0		0	1	(K >)
220	RWY 35 ACCESS	17-35 RSA, ILS	NORTHBOUND	4	1	1	0	0	0	1	(17-35)	1	0	
300	RWY 4 ACCESS	4-22 RSA, ILS	NORTHBOUND	4	1	1	0	0	0	1	(4-22)	1	0	
301	SERVICE ROAD L	TXL L5	NORTHBOUND	2	1	0	1	0	0	0		0	0	
302	SERVICE ROAD L	TXL L5	SOUTHBOUND	2	1	0	1	0	0	0		0	0	
303	SERVICE ROAD L	TXL L6	NORTHBOUND	2	1	0	1	0	0	0		0	0	
304	SERVICE ROAD L	TXL L6	SOUTHBOUND	2	1	0	1	0	0	0		0	0	
305	TWY L ACCESS	TWY L / L10	EASTBOUND	3	1	1	0	0	0	0		0	1	(L >)
306	RWY 17 MTCE	17-35 RSA, ILS	SOUTHBOUND	4	1	1	0	0	0	1	(17-35)	1	0	
400	RWY 17 ACCESS	17-35 RSA, ILS	SOUTHBOUND	4	1	1	0	0	0	1	(17-35)	1	0	
401	17 DEICING PAD VSR	TWY W	SOUTHBOUND	3	1	1	0	0	0	0		0	1	(< W >)
402	17 DEICING PAD VSR	TWY W	NORTHBOUND	3	1	1	0	0	0	0		0	1	(< W >)
403	17 DEICING PAD VSR	TWY Z	EASTBOUND	3	1	1	0	0	0	0		0	1	(< Z >)
404	17 DEICING PAD VSR	TWY Z	EASTBOUND	3	1	1	0	0	0	0		0	1	(< Z >)
405	TWY W MTCE	TWY W	NORTHBOUND	3	1	1	0	0	0	0		0	1	(< W >)
406	TWY W ACCESS	TWY W	SOUTHBOUND	3	1	1	0	0	0	0		0	1	(< W >)
407	TWY W MTCE	TWY W	WESTBOUND	1	0	0	0	0	0	0		1	0	
408	SERVICE ROAD M	TXL T	NORTHBOUND	3	1	0	1	0	0	0		0	1	(< T >)
409	SERVICE ROAD M	TXL T	SOUTHBOUND	3	1	0	1	0	0	0		0	1	(< T >)
500	RWY 12R ACCESS	FORMER TWY A	EASTBOUND	2	1	0	0	0	1	0		0	0	0
501	RWY 12R ACCESS	12R-30L RSA, ILS	SOUTHBOUND	4	1	1	0	0	0	1	(30L-12R)	1	0	0
502	RWY 12R ACCESS	TWY A10	EASTBOUND	3	1	1	0	0	0	0		0	1	(< A10 >)
503	12R DEICING PAD VSR	TWY B	SOUTHBOUND	3	1	1	0	0	0	0		0	1	(< B >)
504	EMERGENCY RESPONSE ACCESS	TWY B	SOUTHBOUND	4	1	1	0	1	0	0		0	1	(< B >)
505	12R DEICING PAD VSR	TWY B	SOUTHBOUND	3	1	1	0	0	0	0		0	1	(< B >)
506	12L DEICING PAD VSR	TWY Q / P10	EASTBOUND	3	1	1	0	0	0	0		0	1	(< Q >)
507	RWY 30R LOCALIZER MTCE	12L-30R RSA, ILS	NORTHBOUND	3	1	1	0	0	0	0		1	0	
600	RWY 12L ACCESS	12L-30R RSA, ILS	EASTBOUND	4	1	1	0	0	0	1	(12L-30R)	1	0	
601	RWY 12L SERVICE ROAD	TWY R / R10	EASTBOUND	4	1	1	0	0	0	0		1	1	(< R >)
602	TWY R INFIELD MTCE	12L-30R ILS	NORTHBOUND	3	1	1	0	0	0	0		0	1	(< R >)
603	TWY R INFIELD MTCE	12L-30R ILS	WESTBOUND	1	0	0	0	0	0	0		1	0	
604	TWY R INFIELD MTCE	TWY R	NORTHBOUND	3	1	1	0	0	0	0		0	1	(< R >)
605	AIRFORCE RESERVE RAMP ACCESS	AIR FORCE RESERVE APRON	WESTBOUND	1	0	0	1	0	0	0		0	0	
700	TWY C ACCESS	APRON	SOUTHBOUND	2	1	0	1	0	0	0		0	0	
701	TWY G MTCE	TWY G	EASTBOUND	3	1	1	0	0	0	0		0	1	(< G >)
702	RWY 30R ACCESS	ANG APRON	WESTBOUND	2	1	0	1	0	0	0		0	0	
703	RWY 30R ACCESS	12L-30R ILS	EASTBOUND	3	1	1	0	0	0	0		1	0	

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Metropolitan Airports Commission

VEHICLE SERVICE ROAD SIGN PLAN — SIGNS TABULATION

MINNEAPOLIS-ST. PAUL INTERNATIONAL AIRPORT

FAA Approval: FAA Airports Date: Nov 25 2024

DATE 11/15/2024

DRAWING NO. 2

Snow and Ice Control Plan
(SICP)

2025-2026

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Table of Contents

SECTION #1

PRE-SEASON AND POST-SEASON WINTER OPERATIONS TOPICS

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Chapter 1. Pre-Season Actions

1.1 Airport Preparation

1.1.1 Airport Management Meetings

As designated by the executive leadership team of the Metropolitan Airports Commission (MAC), which owns and operates Minneapolis – Saint Paul International Airport (MSP), the MAC Airside Operations Department will initiate and lead meetings with the MAC Field Maintenance management team to discuss snow removal equipment, repair needs, material inventory, staffing, budgeting, training, issues identified from the previous snow season, and any other topics related to this Snow and Ice Control Plan (SICP).

1.1.2 Personnel Training

All MAC Airside Operations and Field Maintenance personnel with access to the movement area shall receive initial training prior to performing any duties in compliance with the SICP. Recurrent training must then be completed at least once every 12 consecutive calendar months (CCM) thereafter. This training is conducted by the Airside Operations Winter Operations Program with oversight from MAC's Manager of Technical Training and Administration. Training records are maintained for 24 CCM by the Manager of Technical Training and Administration.

Training content is reviewed and updated each summer based on recommendations from the previous post-season critique and any policy or procedural changes planned for the upcoming snow season. Training is delivered through MAC's electronic Learning Management System (LMS), and includes the following:

1.1.2.1 Airside Operations Personnel

Training topics include:

- Field Maintenance assignments
- Communication protocols
- Snow removal runway inspections/closures
- Runway plowing configurations
- Runway closure and reopening procedures
- NIL braking action reports
- Runway Condition Assessment Matrix (RCAM)
- Snow Control Center (SCC) and airfield positions/responsibilities
- MSP/FAA Letters of Agreement (LOA) relevant to the SICP
- Priority feeders
- Winter CFME procedures
- Aircraft deicing configurations/operations
- Review of MSP SICP, highlighting any changes.

1.1.2.2 Maintenance Personnel

Complete training through the MAC LMS, classroom training, and hands-on equipment training.

Training topics include:

- Runway incursion prevention
- Airfield familiarization
- SMGCS
- Communications
- SICP Updates
- Equipment familiarization and usage
- Airfield assignments
- Scenario-based plowing configuration training
- Airfield access points and routes

1.1.2.3 Contractor Personnel

Complete training through instructor-led classroom training, and hands-on equipment training.

Training topics include:

- Equipment familiarization and usage
- Airfield familiarization
- SICP
- SMGCS
- Runway incursion prevention
- Non-movement area training

1.1.3 Equipment Preparation

The MAC owns and operates multiple Continuous Friction Measuring Equipment (CFME) vehicles. These CFME vehicles are inspected and certified annually by a manufacturer's representative. Additionally, trained Airside Operations personnel calibrate and inspect these CFME vehicles in accordance with the manufacturer's specifications on a regular schedule and prior to operating the vehicle.

Required fluids, replacement parts, and snow removal equipment components will be inventoried and stockpiled accordingly.

1.2 Snow and Ice Control Committee (SICC) Meetings

The MAC has established a Snow and Ice Control Committee (SICC) to provide feedback and recommendations regarding snow and ice removal operations and MSP's SICP. The SICC is chaired by the Assistant Director of Integrated Operations, or their designee, and typically includes representatives from:

1.2.1 MAC

- Airside Operations
- Field Maintenance
- Fleet Services
- Trades
- Safety Management System (SMS)
- Emergency Management
- Terminal Operations/Facilities
- Landside Operations
- Environment
- Risk Management
- Operations Optimization
- Technical Training

1.2.2 Federal Aviation Administration (FAA)

- MSP Air Traffic Control Tower (MSP ATCT)
- MSP Terminal Radar Approach Control Facility (TRACON - M98)
- Minneapolis Air Route Traffic Control Center (ARTCC - ZMP)

1.2.3 Additional SICC Members

- MSP Airlines
- MSP Non-airline Tenants
- Snow Removal Contractor

Prior to the snow season, the SICC Chair, or their designee, will initiate notifications to airport stakeholders to review the SICP in preparation for the preseason kick-off meeting, which is held each fall. Recordings and/or minutes from SICC meetings will be made available upon request through the Airside Operations Department.

The following topics are examples of subject matter for discussion for the preseason kick-off meeting:

- Airport clearing operations discussion topics:
  - Airfield clearing priorities
  - Preplanned closures
  - New airfield infrastructure
  - Snow and ice removal tactics and field condition assessments
  - Irregular Operations (IROPS)
  - Pilot and vehicular runway incursions or incidents, documentation, and reporting
  - Staff requirements and qualifications/training programs
  - Streamline decision making processes
  - Response time to keep runways, taxiways and apron areas operational
  - Communication, terminology, frequencies, and procedures
  - Weather and pavement surface monitoring

- Dissemination of Field Conditions (FICONs) and surface closures
- Equipment inventory
- Status of procurement contracts, including storage of materials
- Validation of deicer certification letters from vendors (if applicable)
- Procedures for storm water runoff mitigation
- New runoff requirements for containment or collection
- Status of snow removal contractor staffing and equipment
- Pilot Reports (PIREPs), snow pile locations, snow melting procedures, wingtip restrictions, snow hauling

- Air Carrier ground deicing programs:
  - Assessing all air carriers deicing programs by reviewing airport surface flow strategies; reviewing ground time and takeoff clearances after deicing; analyzing and adjusting aircraft deicing plans
  - Maximizing efficiency of operations during icing conditions by identifying locations for airplane deicing; planning taxi routes to minimize ground times; developing rates for deiced departures; allocating departure slots; determination of airport deicing crew needs; verifying communications
  - MSP Aircraft Deicing Field Rule
  - MSP Deice Procedures, to include widebody deicing locations/procedures

Chapter 2. Post-Event and Post-Season Actions

2.1 Post-Event

At a minimum, after the first snow event of 1 inch or more, and after any snow event totaling 6 inches or more the SICC will conduct a post event snow critique meeting to discuss any issues from the event. If the timing of storms (e.g., back-to-back events) does not allow for a separate critique meeting, one will be held as soon as possible following the final storm.

A post-event snow critique may also be requested by any member of the SICC following any snow event, regardless of perceived impact. The SICC chair, or their designee, will schedule and host the critiques.

2.2 Post-Season

At the conclusion of each winter season, a formal post season SICC meeting will be initiated and facilitated by the SICC Chair – typically in May – to review the season and recommend any changes. The same topics discussed at the pre-season SICC meeting will be covered at the post-season meeting, along with any new items identified throughout the past snow season.

MAC Airside Operations and Field Maintenance will also carry out ongoing internal post-season tasks that include, but are not limited to, reviewing and updating training, winter procedures, and the SICP. The SICP will be reviewed and updated annually by Airside Operations, with input from other SICC members.

MAC Field Maintenance will also inspect, repair, and prepare equipment for seasonal storage.

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SECTION #2

WINTER STORM ACTIONS AND PROCEDURES

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Chapter 3. Snow Removal Action Criteria

3.1 Activating Snow Removal Personnel

MAC Airside Operations and Field Maintenance will monitor weather forecasts leading up to snow and ice events. The Assistant Director of Field Maintenance, or their designee, is responsible for ensuring an appropriate number of sufficiently trained snow and ice removal personnel are on-site during forecast winter weather events.

Field Maintenance personnel assigned to snow and ice control duties include full-time, seasonal, temporary, and part-time on-demand heavy equipment operators, as well as contracted airside and landside equipment operators. All personnel conducting Aircraft Operations Area (AOA) snow removal operations are employees who have completed applicable training, including AOA driver training, testing, and licensing.

The Manager of Airside Operations, or their designee, will develop a staffing plan for the Airside Operations Department and ensure the following roles are filled, as necessary, throughout the duration of the event:

Snow Control Center (SCC) Positions

- SCC Duty Manager
- SCC Runways*
- SCC Taxiways/Aprons – North*
- SCC Taxiways/Aprons – South*
- SCC Liaison*
- SCC Phones/Support *

Airfield Positions

- CFME Operator
- Runway Inspector*
- Taxiways/Aprons Inspector – North*
- Taxiways/Aprons Inspector – South*

* These roles may be combined for minor events, during overnight hours, or at any time at the discretion of Airside Management. MAC defines a minor winter event as one with a forecast of less than 3 inches of snow and no freezing precipitation over a 12-hour period.

Further discussion of Airside Operations and Field Maintenance staffing and roles is provided in paragraphs 3.2.1 and 3.2.2.

3.1.1 Weather Forecasting

The SCC Duty Manager is ultimately responsible for monitoring current and forecasted weather conditions including, but not always limited to, air and surface temperatures, winds, precipitation type and intensity using the following resources:

The National Weather Service (NWS) Twin Cities is the MAC's primary resource and partner for monitoring current and forecasted weather conditions and supporting winter weather decision-making at MSP. NWS Twin Cities works closely with MAC Airside Operations, providing 24/7 access to NWS forecasters, a custom MSP forecast webpage, and participation in SICC meetings. NWS also provides long-range forecasts during the preseason SICC meeting and a post snow season recap at the postseason SICC meeting. MAC Airside Operations and Field Maintenance personnel will participate in conference calls with NWS Twin Cities to receive updates as needed.

Vaisala Wx Horizon is a digital platform that integrates real-time data from MSP's in-pavement runway sensors with advanced weather forecasting to help improve winter operations situational awareness and decision making. MSP has in-pavement sensors installed on all four runways that detect air/surface temp, ice, chemical, and precipitation on the pavement. This tool also helps make informed decisions on when to chemically treat airfield surfaces and when and what type of snow removal techniques may be best. This tool is available 24/7.

Weather Sentry–Airport Operations Edition (DTN) provides a custom forecast for MSP four times daily, which includes hourly type of precipitation, winds, surface temps, dew point, amount, and probability of precipitation. Also included is a forecast outlook and synopsis. Airside Operations and Field Maintenance management have the option to contact DTN to get details on changes or forecasts. DTN also provides radar services and automated email/text notifications for lightning in the vicinity of MSP. This weather resource is available 24/7.

Praedictix is a weather service the MAC contracts with to provide on-site meteorologists in the SCC to help monitor, inform, and assist in making real-time weather decisions in active winter weather events.

Weather Watch provides three daily forecasts as well as daily and monthly climatological reports.

3.1.2 Chain of Command

The Assistant Director of Integrated Operations has overall responsibility for MSP's snow and ice removal operation. The Manager of Airside Operations, or their designee, is responsible for creating the staffing plan for the Airside Operations Department, which staffs the SCC and airfield condition monitoring positions during winter events.

Airside Duty Managers oversee SCC and airfield personnel, ensuring assignments and adherence to the SICP are met. Airside Assistant Managers (AMs) physically inspect and monitor the airfield in accordance with procedures outlined in this SICP. AMs continuously monitor airfield conditions whenever winter precipitation is active and field conditions (FICONs) are worse than wet. AMs report FICONs to the SCC, which issues timely FICON NOTAMs.

Leading up to winter events, the Manager of Airside Operations, or their designee, advises Field Maintenance management of impending weather events that may result in snow or freezing precipitation accumulating on airport surfaces. Field Maintenance management is then responsible for ensuring adequate snow and ice removal staffing is on site to meet the requirements of this SICP. When additional personnel are needed, Field Maintenance uses an automated notification system to call staff in. The automated alert will be initiated prior to the commencement of the winter event. A full crew call – 100% of maintenance personnel – will be initiated for any forecasts of snow over one inch or any forecast accumulation of ice. For forecasts of less than one inch, a partial crew (less than full crew) may be called in. If pre-treating or sanding is required after a freeze/thaw cycle, the appropriate number of employees will be held over or called in. MAC Field Maintenance also typically calls in contract snow removal for both airside and landside areas when forecasts exceed one inch of snow.

3.1.3 Triggers for Initiating Snow Removal Operations

Snow:

Snow and ice removal operations will begin when contaminant on the airfield is reported at the following depths:

Precipitation Type	Depth in Inches
Slush	1/4”
Wet Snow	1/2”
Dry Snow	1/2”
Freezing Rain/Ice	Any amount

Freezing Rain or Ice:

Prior to freezing precipitation impacting MSP, Airside Operations and Field Maintenance will determine which airfield surfaces will be pre-treated, with which type of chemical and/or sand, and when. Decisions will consider the following factors:

- Forecast precipitation type
- Forecast precipitation amount/rate
- Forecasted runway configuration(s)
- Current and forecast air and surface temperatures
- Anticipated duration of event
- Anticipated airport arrival and departure rates

3.1.4 Surface Closure Criteria

During active winter precipitation, movement area surfaces must be closed once the following thresholds are met:

Surface	Precipitation Type	Depth in Inches
Taxiway	Slush	Greater than 1”
Taxiway	Wet Snow	3”
Taxiway	Dry Snow	6”
Runway	Slush	Greater than 0.5”
Runway	Wet Snow	1.5”
Runway	Dry Snow	2”

In addition to the accumulation thresholds noted above, surfaces will be closed when any of the following criteria are met:

- **Active Snowfall:** If open surfaces have not been inspected within the preceding three hours
- **Active Freezing Precipitation:** If open surfaces have not been inspected within the preceding two hours
- **NIL Braking Action**: When a NIL braking action report is received on any open surface

3.2 Personnel Responsible

3.2.1 Airside Operations Department

Manager, Airside Operations

- Responsible for high-level strategic and procedural planning and execution for MSP winter operations and this SICP
- Plans and coordinates with multiple external agencies
- Delegates SICP duties within the Airside Operations Department
- Provides, as needed, general oversight to ensure compliance with this SICP and Part 139 requirements during winter events

SCC Duty Manager

- Ensures safe, compliant, and effective execution of the SICP during their shift
- Creates and executes staffing plans for SCC and airfield positions
- Coordinates all runway closures in active winter events
- Determines whether runway condition codes are downgraded or upgraded
- Leads pre-event and post-event SICC meetings

SCC Runway Position

- Communicates runway closure times and adjustments coordinated by SCC DM to MAC airfield staff
- Ensures all runway-related documentation is completed
- Works directly with Airfield CFME operator and Runway Inspector to ensure inspection requirements are met and documented

SCC Taxiway/Apron – North Position

Referred to as SCC Taxiway/Apron – East Position when the airport is in a straight 4-22 or 17-35/4-22 configuration

- Coordinates with the Airfield Taxiway/Aprons – North (or *East*) Inspector
- Maintains documentation required for all taxiways, aprons, and deice pads north of Runway 12R-30L, or east of Runway 4-22 in a straight 4-22 or 17-35/4-22 configuration

SCC Taxiways/Aprons – South Position

Referred to as SCC Taxiway/Apron – West Position when the airport is in a straight 4-22 or 17-35/4-22 configuration

- Coordinates with the Airfield Taxiway/Aprons – South (or *West*) Inspector
- Maintains documentation required for all taxiways, aprons, and deice pads south of Runway 12R-30L, or west of Runway 4-22 in a straight 4-22 or 17-35/4-22 configuration

SCC Phones/Support Position

- Primarily responsible for the SCC main phone line (-5111) and communicates pertinent information to other SCC staff
- Supports other SCC positions as able

SCC Liaison Position

- Supports SCC Duty Manager
- Coordinates with external departments and agencies as required
- Staffed by Airside Duty Manager or higher

Airfield CFME Operator

- Conducts friction evaluations when winter contaminants are present on the airfield, and relays results electronically and via radio to the SCC
- Typically, responsible for closing and opening runways with ATC in winter operations
- Provides ATC with runway condition codes when opening a runway

Airfield Runway Inspector

- Inspects runways and open runway feeder taxiways
- Reports runway contaminant type, depth, and coverage percentage to the SCC Runway position for documentation
- Monitors ATC Local Control frequency for pilot reported braking action reports, and passes them along to the SCC

Airfield Taxiways/Aprons – North Inspector

Referred to as the Airfield Taxiway/Apron – East Inspector when the airport is in a straight 4-22 or 17-35/4-22 configuration

- Inspects taxiways, aprons, and deice pads north of Runway 12R-30L, or east of Runway 4-22 in a straight 4-22 or 17-35 configuration.
- Provides contaminant type, depth, and coverage for their surfaces to the SCC Taxiways/Apron – North (or *East)* Position

- Monitors Ground Control Frequency associated with their surfaces for pilot reported braking action reports, and passes them along to the SCC

Airfield Taxiways/Aprons – South Inspector

Referred to as the Airfield Taxiway/Apron – West Inspector when the airport is in a straight 4-22 or 17-35/4-22 configuration

- Inspects taxiways, aprons, and deice pads south of Runway 12R-30L, or west of Runway 4-22 in a straight 4-22 or 17-35 configuration
- Provides contaminant type, depth, and coverage for their surfaces to the SCC Taxiways/Apron – South (or *West*) Position
- Monitors Ground Control Frequency associated with their surfaces for pilot reported braking action reports, and passes them along to the SCC

3.2.2 Field Maintenance Department

Assistant Director, Field Maintenance

- Responsible for mechanical and chemical removal of contaminants on runways, taxiways, and ramp areas
- Plans, coordinates, and directs maintenance staff through the SCC throughout the duration of the event
- May serve as maintenance liaison in SCC

Field Maintenance Manager, Operations

- Monitors and supervises the overall activities of the Field Maintenance department
- Provides staffing to meet the needs of snow removal
- May serve as maintenance liaison in SCC
- Plans, coordinates, and directs fleet staff for normal and emergency repairs on snow removal fleet

Field Maintenance Duty Manager

- Responsible for the control and direction of runway and taxiway teams (up to three teams possible)
- Reports to the Field Maintenance Manager, Operations and/or Planning

Assistant Manager of Fleet Services

- There may be up to 2 shifts in the equipment shop. Each shift will be under the control of an Assistant Manager of Fleet Services

Working Foreperson

- Working Foreperson will be assigned the responsibility for directing the ramp clearing at Terminal 1 & Terminal 2
- Works directly with contractor, airline representatives and the SCC for timely contaminant removal at aircraft gates

3.2.3 Contractor

When activated, the Contractor is responsible for snow removal and snow melting on the Terminal 1 and Terminal 2 Aprons, as well as the 30R, 30L and Terminal 2 Remote Deice Pads, and any other non-movement area aprons. The contractor will coordinate snow removal activities with the Field Maintenance Duty Manager and/or Working Foreperson, airline representatives and/or the SCC. If the Contractor is not used, MAC Field Maintenance personnel will perform these functions (generally, if forecasted snow is less than 1 inch).

3.3 Snow Control Center (SCC)

During snow and ice control events, the MAC Airside Operations department acts as the MSP Snow Control Center (SCC) with this function taking place in the Airside Operations Center (AOC). The SCC is responsible for coordinating airport snow removal activities, surface closures and openings, and issuing NOTAMs and FICONs. It also coordinates communication and information sharing with ATCT, air carriers, and other airport users.

The SCC Duty Manager has authority to implement Incident Command procedures during snow and ice control emergencies and may delegate tactical decision making to the Incident Commander.

3.4 Airfield Clearing Priorities

MSP's airfield clearing priorities are established to maximize operational safety and efficiency, taking into account runway usage and flows, personnel, fleet mix, MSP ATC needs, and air carrier needs.

These priorities are organized into a Priority 1, 2, and 3 classification system, as defined in sections 3.4.1–3.4.3 below. MSP further adjusts these priorities based on the active runway configuration, which are visually represented in Appendices 1, 2, and 3.

3.4.1 Priority 1

Priority 1 surfaces are MSP's most critical surfaces, essential to maintaining a minimum level of safe and acceptable service during even the most severe winter events. Priority 1 surfaces include one primary runway and a minimum acceptable number of taxiways that allow commercial aircraft to transition between their terminal gate and the runway. These taxiways also provide access to deicing pads if necessary. Additionally, Priority 1 surfaces include mutual aid access gates 439 and 222, as well as access routes between ARFF Station 1 and 2 and the airfield.

If Priority 1 surfaces cannot be maintained safely, and must be temporarily closed, they are also the first surfaces cleared and returned to service in order to re-establish aircraft operations after severe winter event.

3.4.2 Priority 2

Priority 2 surfaces at MSP are typically kept open in winter events and maintained simultaneously with Priority 1 surfaces but are not as critical to maintaining a minimum level of service during severe winter events. In that case, Priority 2 surfaces can be temporarily closed to focus efforts and resources on Priority 1 surfaces.

In cleanup efforts or re-establishment of operations, Priority 2 surfaces are cleared and re-opened after Priority 1 surfaces, but before Priority 3 surfaces.

3.4.3 Priority 3

Priority 3 surfaces are the least critical surfaces at MSP and are not typically maintained in an active event. These surfaces can be closed at the onset of winter precipitation or when snow accumulations are observed at 1 inch or any amount of ice. Most Priority 3 surfaces align with the preplanned closures described in section 5.7.

Priority 3 surfaces are cleaned and reopened during post-event cleanup efforts, after Priority 1 and 2 surfaces have been addressed.

3.5 Airfield Target Clearance Times

As a commercial service airport with more than 40,000 annual operations, MSP has personnel, equipment, and procedures in place to clear 1 inch of snow from all Priority 1 surfaces within 30 minutes, in accordance with Table 1-1 from Advisory Circular (AC) 150/5200-30D, Airport Field Condition Assessments and Winter Operations Safety, and reprinted below.

Table 1-1. Clearance Times for Commercial Service Airports

Annual Airplane Operations (includes cargo operations)	Clearance Time[1] (hour)
40,000 or more	1/2
10,000 – but less than 40,000	1
6,000 – but less than 10,000	1 1/2
Less than 6,000	2

General: Commercial Service Airport means a public-use airport that the U.S. Secretary of Transportation determines has at least 2,500 passenger boardings each year and that receives scheduled passenger airplane service [see 49 U.S.C. 47102(7)].

Footnote 1: These airports should have sufficient equipment to clear 1 inch (2.54 cm) of falling snow weighing up to 25 lb/ft^3 (400 kg/m^3) from Priority 1 areas within the targeted clearance times.

3.6 Snow Equipment List

A complete list of winter equipment deployed at Minneapolis-St. Paul International Airport is shown in Appendix 18.

3.7 Storage of Snow and Ice Control Equipment

All snow and ice removal equipment are stored at the heated airport maintenance facilities, located at either the north side or the west side of the airfield.

3.8 Definitions

Ash
Ash is a grayish white to black solid residue of combustion normally originating from pulverized particulate matter ejected by volcanic eruption.

Compacted Snow
Compacted snow is snow that has been compressed and consolidated into a solid form that resists further compression such that an airplane will remain on its surface without displacing any of it. If a chunk of compressed snow can be picked up by hand, it will hold together or can be broken into smaller chunks rather that falling away as individual snow particles.
Note: A layer of compacted snow over ice must be reported as compacted snow only.

Example: When operating on the surface, significant rutting or compaction will not occur. Compacted snow may include a mixture of snow and embedded ice; if it is more ice than compacted snow, then it should be reported as either ice or wet ice, as applicable.

Contaminant
A contaminant is a deposit such as frost, any snow, slush, ice, or water on an airport pavement where the effects could be detrimental to the friction characteristics of the pavement surface.

Contaminated Runway
For purposes of generating a runway condition code and airplane performance, a runway is considered contaminated when *more than 25 percent* of the overall runway length and width coverage or cleared width is covered by frost, ice, or any depth of snow, slush, or water.

When runway contaminants exist, but overall coverage within the area of the runway that is being maintained is *25 percent or less*, the contaminants will still be reported. However, a runway condition code will not be generated.

Note: While mud, ash, sand, and oil are reportable contaminants, there is no associated airplane performance data available for these contaminants and no Runway Condition Code (RwyCC) will be reported. Mud is the only contaminant in this reference where a measured depth is reportable.

Exception: Rubber is not subject to the 25 percent rule, and will be reported as *Slippery When Wet* when the pavement evaluation/friction deterioration indicates the averaged Mu value on the wet pavement surface is below the Minimum Friction Level classification specified in Table 3-2, Friction Level Classification for Runway Pavement Surfaces, of AC 150/5320-12, *Measurement, Construction, and Maintenance of Skid-Resistant Airport Pavement Surfaces*.

Dry Runway/Pavement
Use the term "DRY" to describe runway/pavement surfaces that are neither wet nor contaminated. A FICON NOTAM must not be originated for the sole purpose of reporting a dry runway. A dry runway surface should be reported only when there is need to report conditions on the remainder of the surface.

Dry Snow
Dry snow is snow that has insufficient free water to cause it to stick together. This generally occurs at temperatures below 32° F (0° C). If when making a snowball, it falls apart, the snow is considered dry.

Eutectic Temperature/Composition
A deicing chemical melts ice by lowering the freezing point. The extent of this freezing point depression depends on the chemical and water in the system. The limit of freezing point depression, equivalent to the lowest temperature that the chemical will melt ice, occurs with a specific amount of chemical. This temperature is called *eutectic temperature*, and the amount of chemical is the eutectic composition. Collectively, they are referred to as the eutectic point.

Field Condition Report (FICON)
A FICON is a Notice to Airmen (NOTAM) generated to reflect pavement surface conditions on runways, taxiways, and aprons and Runway Condition Codes (RwyCCs) if greater than 25 percent of the overall runway length and width coverage or cleared width of the runway is contaminated.

Frost
Frost consists of ice crystals formed from airborne moisture that condenses on a surface whose temperature is below freezing. Frost differs from ice in that the frost crystals grow independently and therefore have a more granular texture.

Note: Heavy frost that has noticeable depth may have friction qualities similar to ice and downgrading the runway condition code accordingly should be considered. If driving a vehicle over the frost does not result in tire tracks down to bare pavement, the frost should be considered to have sufficient depth to consider a downgrade of the runway condition code.

Ice
Ice is the solid form of frozen water including ice that is textured (i.e., rough or scarified ice). *Note:* A layer of ice over compacted snow must be reported as ice only.

Layered Contaminant
A layered contaminant is a contaminant consisting of two overlapping contaminants. The RCAM identifies the approved list of layered contaminants, including:

- Dry Snow over Compacted Snow
- Wet Snow over Compacted Snow
- Slush over Ice
- Water over Compacted Snow
- Dry Snow over Ice
- Wet Snow over Ice

Mud
Mud is wet, sticky, soft earth material.

Multiple Contaminants
Multiple contaminants are a combination of contaminants (as identified in the RCAM) observed on paved surfaces. When reporting multiple contaminants, only the two most prevalent contaminants are reported. When reporting on runways, up to two contaminant types may be reported for each runway third. The Runway Condition Code (when applicable) will be based on the most hazardous contaminant, when both contaminants are not from the same category in the RCAM. The reported contaminants may consist of a single layered contaminant, two single contaminants, or two layered contaminants. The reporting of "multiple contaminants" represent contaminants which are located adjacent to each other, not to be confused with a "layered contaminant" which is overlapping. For example:

- Single contaminant and Layered contaminant.
  'Wet' ***and*** 'Wet Snow over Compacted Snow'
- Single contaminant and Single contaminant.
  'Wet Snow' ***and*** 'Slush'
- Layered contaminant and Layered contaminant.
  'Dry Snow over Compacted Snow' ***and*** 'Dry Snow over Ice'

Oil
Oil is a viscous liquid, derived from petroleum or synthetic material, especially for use as a fuel or lubricant.

Patchy
A description that can be associated with a contaminant covering 25 percent or less of the reported portions of a taxiway, apron, or heliport. Patchy cannot be used to describe contaminants on any runway.

Runways (Primary and Secondary)

Primary

Primary Runways are runways being actively used or expected to be used during existing or anticipated adverse meteorological conditions, where the majority of the takeoff and landing operations take place.

Secondary

Secondary runways are runways that support a primary runway and is less operationally critical. Takeoff and landing operations on such a runway are generally less frequent than on a primary runway. Snow removal operations on these secondary runways should not occur until Priority 1 surfaces are satisfactorily cleared and serviceable.

Runway Condition Assessment Matrix (RCAM)

RCAM is the tool by which an airport operator will assess a runway surface when contaminants are present.

Runway Condition Code (RwyCC)

Runway Condition Codes describe runway conditions based on defined contaminants for each runway third. Use of RwyCCs harmonizes with ICAO Annex 14, providing a standardized “shorthand” format (e.g., 4/3/2) for reporting. Pilots use RwyCCs to conduct takeoff and landing performance assessments. Airports report RwyCCs based on the direction of the assessment which can apply in reverse for aircraft operating from the opposite direction.

Note: Report only one set of RwyCCs per runway. For example, do not report two runway condition reports (one from each end) for a runway as this may cause confusion for pilots and unnecessarily saturates the NOTAM system.

Sand

Sand is a sedimentary material, finer than a granule and coarser than silt.

Slippery When Wet Runway

For runways where a friction survey (conducted for pavement maintenance) indicates the averaged Mu value at 40 mph on the wet pavement surface failed to meet the minimum friction level classification specified in AC 150/5320-12, *Measurement, Construction, and Maintenance of Skid Resistant Airport Pavement Surfaces*, the airport operator must reports via the NOTAM system a RwyCC of ‘3’ for the entire runway (by thirds: 3/3/3) when the runway is wet. The runway condition description “Slippery When Wet” is used for this condition. *Do not report a “Wet” runway when a “SLIPPERY WHEN WET” NOTAM is in effect.* When a “SLIPPERY WHEN WET" NOTAM is in effect, report the runway condition “Slippery When Wet” instead of “Wet” for the relevant thirds. If airport operator judgment deems a downgrade is necessary, the downgrade must be made such that all three runway thirds match (i.e. 3/3/3, 2/2/2, 1/1/1). An airport may discontinue the use of this NOTAM when the runway minimum friction level classification has been met or exceeded.

Slippery When Wet is only reported when a pavement maintenance evaluation indicates the averaged Mu value on the wet pavement surface is below the Minimum Friction Level classification specified in Table 3-2 of AC 150/5320-12. Some contributing factors that can create this condition include rubber buildup, groove failures/wear, and pavement macro/micro textures.

Slush
Slush is snow that has water content exceeding a freely drained condition such that it takes on fluid properties (e.g., flowing and splashing). Water will drain from slush when a handful is picked up. This type of water-saturated snow will be displaced with a splatter by a heel and toe slap-down motion against the ground.

Water
Water is the liquid state of water. For purposes of condition reporting and airplane performance, water is greater than 1/8-inch (3mm) in depth.

Wet Ice
Wet ice is ice that is melting, or ice with a layer of water (any depth) on top.

Wet Runway
A runway is wet when it is neither dry nor contaminated. For purposes of condition reporting and airplane performance, a runway can be considered wet when more than 25 percent of the overall runway length and width coverage or cleared width being used is covered by any visible dampness or water that is 1/8-inch (3 mm) or less in depth.

Wet Snow
Wet snow is snow that has grains coated with liquid water, which bonds the mass together, but that has no excess water in the pore spaces. A well-compacted, solid snowball can be made, but water will not squeeze out.

3.9 Snow and Ice Control Recordkeeping

MAC Airside Operations will document the following snow and ice control management activities:

- Begin and end times of continuous monitoring
- Surface assessments results and times
- Runway treatment type and times
- Runway and taxiway closure and opening times
- Dissemination of airport condition information to ATC and other stakeholders
- Pilot braking action reports received from ATC as they deteriorate or improve

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Chapter 4. Snow Clearing Operations and Ice Prevention

4.1 Snow Clearing Principals

4.1.1 Aprons and Terminal

At MSP, Terminal 1 and Terminal 2 Aprons are categorized as Priority 1 surfaces. As such, Field Maintenance Management will ensure adequate personnel and equipment are available to maintain these aprons. A working foreperson will supervise snow and ice removal on both Terminal 1 and Terminal 2 Aprons.

MAC Electric personnel will ensure that all airport signage is visible to the maximum extent possible.

If less than 1 inch of forecasted snow, Field Maintenance teams will remove snow and contaminants by pushing out from the terminals to the grass islands. Any large snow piles will be communicated to the SCC. Snow removal crews will load and haul excess accumulation of snow. Any contaminated snow will be deposited at pre-approved snow storage locations as designated by the MAC Environment Affairs Department. The tenant airline will be responsible for moving equipment and cleaning terminal door entries and/or hand shoveling.

Airside Operations will monitor wingtip clearance issues as snow is pushed away from gates out towards taxiway islands along Taxiways A, D, and P. Taxiway restrictions and closures will be implemented if snow piles exceed height profiles established in AC150/5200-30, current edition.

A snow removal contractor will generally be activated whenever 1 inch or more of snow is forecasted. The contractor will be responsible for snow removal on the non-movement area only. Their standard procedure will be to move snow within the non-movement area to open gates, where a snow-melter is pre-positioned. Placement of the snow-melter will be coordinated with tenant airlines on an event-by-event basis. Snow will be loaded into the melter, with the water going directly into designated storm sewers.

All other parking aprons at MSP are classified as Priority 3 surfaces. These aprons will be maintained by a combination of contractors and MAC Field Maintenance on an as needed basis. The SCC will continually monitor these surfaces during an active winter event and Field Maintenance will have a working foreperson assigned to these aprons.

4.1.2 Runways

Effective runway snow and ice control operations at MSP rely on two critical elements:

- Rapid and effective deployment of personnel and equipment

- Continuous monitoring of changing airfield conditions and timely dissemination of information to airport users

Many factors are considered prior to the commencement of snow and ice control such as precipitation type, rate, wind, air temperature and pavement temperature.

MAC Field Maintenance Duty Managers will oversee the deployment of runway and taxiway teams. The runway teams will be responsible for clearing runways, runway feeder taxiways, and designated taxiways. The teams can break off into subgroups to maximize clearing efforts on taxiways.

For runway and taxiway snow removal operations, Field Maintenance will primarily utilize multifunction equipment (MFE) to remove snow according to pre-determined factors. A combination of brooms, plows and blowers will also assist in the removal of the contaminant. Deicer trucks may be utilized to apply liquid deicer as well as solid chemical/sand trucks where needed.

Types of equipment and uses:

- MFEs, combining brooms, air blowers, and plows, serve as the primary airfield snow removal equipment at MSP
- Dedicated airfield plows and front mounted brooms will be used as secondary equipment to the MFEs
- High speed airfield blowers will be used to remove windrows
- Airfield deicer trucks will apply liquid deicer determined by weather and pavement conditions
- Airfield solid chemical/sand trucks will apply sand and/or solid chemical to the surface of the runway determined by weather and pavement conditions
- All equipment utilized for snow and ice removal at MSP is listed in Appendix 18

Snow and ice control operations commence when dry or wet snow reaches a depth of 1/2”, when slush reaches a depth of 1/4”, or immediately upon the onset of freezing rain or freezing drizzle. In addition, snow and ice control operations will take place when surface inspections and/or friction tests indicate corrective action is necessary to provide safe aircraft operational services.

All open runways will be inspected at least once every three hours during active snowfall and at least once every two hours during active freezing precipitation.

At MSP, it is standard practice to plow and sweep a runway full-length and full width in two passes. MFEs are primarily used to displace and sweep the snow from runway centerline to runway edge in an echelon, or “conga-line,” formation. Rubber-bladed plows and brooms operate on runways equipped with in-pavement lighting. High speed airfield snow blowers throw the snow from the runway edge over edge lights and into islands between runways and taxiways.

Airside Operations inspects runway and taxiway safety areas to ensure aircraft propeller, engine, and wingtip clearance. If snowbank heights do not meet

requirements under Figure 4-1 for Advisory Circular 150/5200-30, current edition, a NOTAM will be issued, and MSP ATCT will be notified of appropriate clearance restrictions. Snow stored in safety areas not meeting AC criteria will be hauled away as soon as practicable.

One down and back runway plowing operation with assigned equipment is typically sufficient to clear the runway edge-to-edge. Under strong wind conditions, it may be necessary to move the snow from one runway edge to the other edge. Sanding and liquid/solid chemical applications follow immediately behind the snow and ice removal equipment as conditions warrant.

Standard practice for treating icy surfaces is to spread a combination of sand and liquid and/or solid chemicals. Use of these products may be suspended due to low temperatures and/or high wind when the application of these products is ineffective.

Priority runway feeder taxiways connecting the runway with the parallel taxiways are then cleared by working snow back from the radius and then plowing in a diagonal manner from one corner to the opposite corner. This method leaves snow uniformly distributed at the taxiway edges with no heavy deposits at the radius. Field Maintenance management is responsible for reporting to the CFME operator when all snow removal equipment is clear of the runway. Radio communications and required visual inspections help ensure that all vehicles are clear of the runway.

After snow and/or ice removal on a runway it is standard practice to update FICONs and conduct a runway friction survey to determine the effectiveness of treatment and to determine whether that runway can safely reopen. Airside Operations will have a CFME operator and FICON inspection vehicle perform these tasks. T he FICON inspection vehicle will communicate updated surface conditions to the SCC, while the CFME operator will provide friction survey data. The SCC will then update the FICON NOTAM and determine the new RwyCC. The CFME operator will open the runway on the appropriate ATC frequency and provide ATC with the updated Runway Condition Codes.

4.1.3 Taxiways

If less than one inch of snow is forecasted, snow removal from Terminal 1 and Terminal 2 aircraft parking positions is accomplished simultaneously with adjacent taxiway snow removal. Equipment pushes snow from aircraft parking positions to a point where snow piles can be collected by larger snow removal equipment. Standard procedure is to move the snow to a taxiway edge, to the side of an apron or to a designated snow storage area. Airfield snow blowers throw the snow into islands between taxiways or runways, or to an area clear of aircraft parking aprons.

MAC Electric personnel will ensure that all airport signage is visible to the maximum extent possible, as detailed in section 4.1.4.

Airside Operations inspects taxiway safety areas to ensure aircraft propeller, engine pod and wingtip clearance. If snowbank heights do not meet requirements under figure 4-1 for Advisory Circular 150/5200-30, a NOTAM will be issued, and MSP ATCT will be notified of appropriate clearance restrictions. The NOTAM will remain in effect until snowbank heights meet AC criteria. Snow stored in safety areas not meeting AC criteria will be hauled away as soon as practicable. Snow pile heights will be monitored, and snow hauling will be scheduled as soon as practicable to preclude runway to taxiway visibility obstructions. Snow is relocated to designated snow storage locations or is hauled to AOA snow melting facilities.

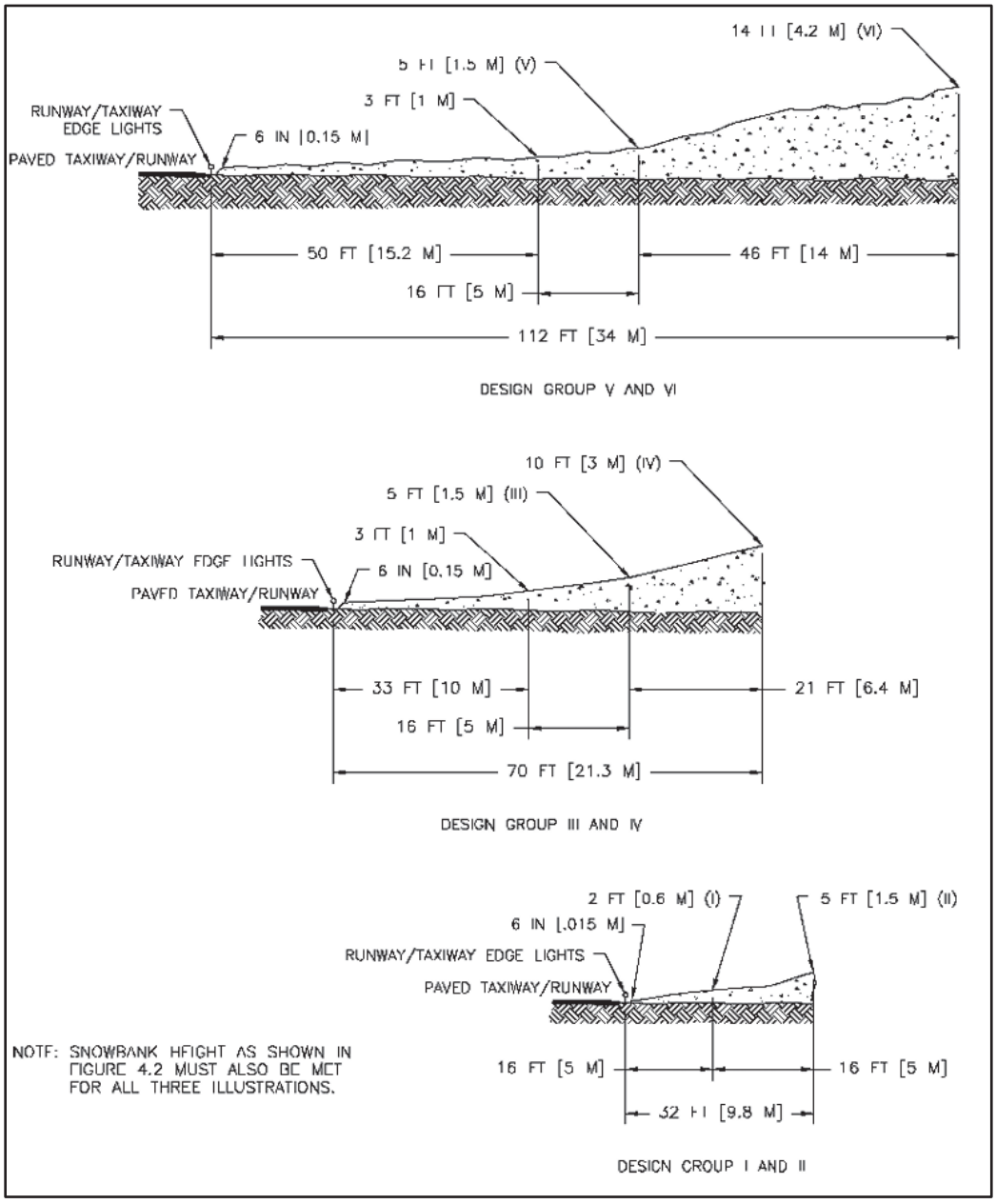


Figure 4-1 AC 150/5200-30 1

When a NIL braking action report is received or any other perceived unsafe hazard or condition exists, the surface will be immediately closed until the hazard or condition no longer exists, as detailed in Section 5.7.

4.1.4 Airfield Signage

Airfield Signage is regularly obscured by snow and ice buildup during active snowfall events. MAC Airside Operations will be responsible for continuously inspecting the legibility of all airfield signage on open surfaces during active events. If signage is determined to be obscured, Airside Operations will immediately issue a Lighted Sign Status – Obscured NOTAM for all affected surfaces/signs and advise ATC via phone or radio. MAC Electricians will be the primary agency responsible for clearing obscured signage in active events and subsequent cleanup efforts. MAC Field Maintenance will assist with sign cleanup when significant snow accumulations are present around or near the sign bases.

This SICP identifies airfield sign clearing priorities based on active runway configuration/flow, preplanned closures, and with a focus on mitigating runway incursions. In active snow and ice events, there will be a focus on mandatory instruction signs using the following priorities:

Priority 1 Signs

Mandatory runway, ILS holding, and approach holding position signs associated with open and active runways where aircraft can be expected to cross or proceed onto these runways or critical areas.

Priority 2 Signs

Mandatory runway, ILS holding, and approach holding position signs associated with open and active runways where feeder taxiway/crossing is closed and not used, or where aircraft are expected to exit the runway only.

Priority 3 Signs

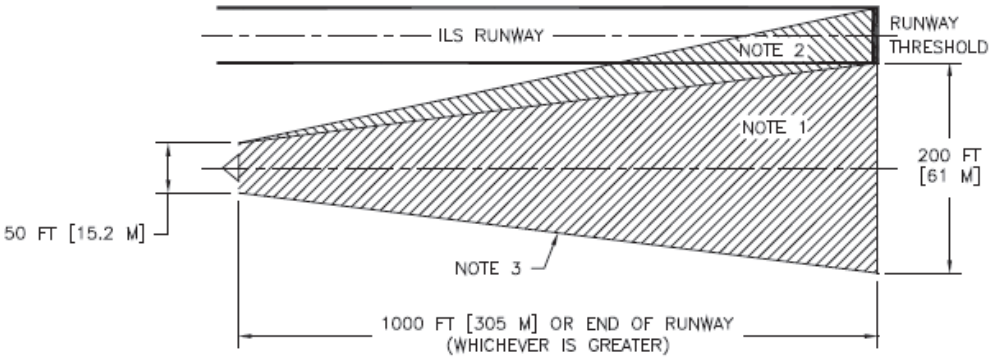
Mandatory runway, ILS holding, and approach holding position signs that are associated with closed runways.

All other signage on the airfield (i.e., non-mandatory instruction signage) will be addressed during cleanup operations and therefore not labeled or listed in this paragraph or associated diagrams.

Appendices 13-17 provide a visual diagram of these airfield sign clearing priorities.

4.1.5 NAVAIDs

FAA Technical Operations and the SCC work together, with the help of MAC Field Maintenance, to ensure operation of equipment critical to the National Airspace System. If snow levels exceed depth limitations as listed in figure 4-2 of *AC 150/5200-30, current edition,* a request from FAA Technical Operations for snow removal from around NAVAIDs and from ILS critical areas will be routed through the SCC to Field Maintenance management.



NOTES:

1. CATEGORY I GLIDE SLOPE SNOW CLEARANCE AREA.
2. CATEGORY II AND III GLIDE SLOPE SNOW CLEARANCE AREA. THE AREA DEPICTED UNDER NOTE 1 SHALL ALSO BE CLEARED.
3. THE DEPTH OF SNOWBANKS ALONG THE EDGES OF THE CLEARED AREA SHALL BE LESS THEN 2 FEET.

ACTION TAKEN	SNOW DEPTH		
	SBR <6 IN [15 cm] NR. CEGS <18 IN [45 cm]	SBR 6 TO 8 IN [15 TO 20 cm] NR. CEGS 18 TO 24 IN [45 TO 60 cm]	SBR >8 IN [20 cm] NR. CEGS <24 IN [60 cm]
SNOW REMOVAL (SEE ABOVE FIGURE)	REMOVAL NOT REQUIRED RESTORE FULL SERVICE AND CATEGORY.	ILS CATEGORY I REMOVE SNOW 50 FT [15M] WIDE AT MAST WIDENING TO 200 FT [60M] WIDE AT 1000 FT [300M] OR END OF RUNWAY TOWARD MIDDLE AMRKER. ILS CATEGORIES II AND III AS ABOVE PLUS WIDEN THE AREA TO INCLUDE A LINE FROM THE MAST TO THE FAR EDGE OF RUNWAY THRESHOLD.	
NO SNOW REMOVAL	RESTORE FULL SERVICE AND CATEGORY.	ALL CATEGORIES RESTORE TO CATEGORY I SERVICE. CATEGORY D AIRCRAFT MINIMA RAISED TO LOCALIZER ONLY. TYPICAL NOTAM TEXT: "DUE TO SNOW ON THE IXXX (APPROPRIATE IDENTIFER) GLIDE SLOPE, MINIMA TEMPORARILRY RAISED TO LOCALIZER ONLY FOR CATEGORY D AIRCRAFT" IF APPLICABLE, "CATEGORY II NA"* OR "CATEGORY II/III NA".	ALL CATEGORIES APPROACH RESTRICTED TO LOCALIZER ONLY MINIMA. TYPICAL NOTAM TEXT: "DUE TO SNOW ON THE IXXX (APPROPRIATE IDENTIFER) GLIDE SLOPE, MINIMA TEMPORARILRY RAISED TO LOCALIZER ONLY.

* NA (NOT AUTHORIZED)

Figure 4-2. ILS CAT I and CAT II/III Snow Clearance Area Depth Limitations

4.2 Controlling Snow Drifts

During and after snow events the potential for snow drifts is high. Airside Operations will be responsible for the continuous monitoring of snow drifts. The SCC will advise airport users of drifts via NOTAMs until Field Maintenance can remove the drifts.

4.3 Snow Disposal

The SCC Duty Manager will coordinate with Field Maintenance Duty Managers to determine the most effective strategy to remove excess snow on the airfield. If snowbanks or piles that require runway, taxiway, or apron restrictions or closures the SCC will create a priority list so that the snowbanks causing the most impact are removed first.

Snow will be disposed of by either hauling it to one of the airfield snowmelters or to a designated snow storage area on the airport campus. These snow storage areas have identified height limits to prevent snow from infringing on any Part 77 surfaces.

4.4 Methods for Ice Control and Removal–Chemicals

Liquid De-icer.

On average, Field Maintenance utilizes approximately 500,000 gallons of runway deicer on the airfield annually. The current specifications call for potassium acetate-based fluid, specially formulated with inhibitors, to anti-ice and de-ice airport runways and taxiways.

Solid De-icer.

A pelletized solid airfield deicer is available for use on compacted snow and ice areas of the airfield. Sodium formate, sodium acetate, and a sodium formate/acetate blend are the three (3) solid deicers available. These products meet FAA specifications. Approximately 100 metric tons are kept on hand for use during ice storms or compacted snow and ice problem areas.

In the event there are potential or anticipated shortages of deicing products (liquid or solid) available from the manufacturers who are supplying the airport industry, the MAC will seek to procure alternative de-icing products that meet FAA specifications for effective treatment of the airfield runways and taxiways.

The deicer fluid is applied to runways, taxiways, deice pads and occasionally ramps to prevent the formation of ice and snow bonding to the pavement and to facilitate melting. The efficacy of the deicer is determined by ambient temperature, solar action, and aircraft movement.

Consequently, deicer is not as effective in well below freezing temperatures. However, deicer fluid's snow melting abilities below freezing temperatures during the day are enhanced by the solar energy. Certain liquid deicer products can remain on the pavement surfaces longer than others due to their chemical composition; this can result in the SCC

issuing wet FICONs on runways and taxiways even when temperatures are below freezing and well after winter precipitation has ended.

4.5 Sand (for the purposes of treating a winter surface)

Sand is applied on the airfield surfaces on an as-needed basis. Field Maintenance will ensure the sand used meets FAA gradient standards Sand used on AOA surfaces meets criteria as established in tables 4-2 of *AC 150/5200-30, current edition.* Sand spreading equipment provides the option of "pre-wetting" the sand with liquid chemical if conditions warrant that type of application. At MSP, sand used on the airfield is stored in an indoor, heated facility.

Table 4-2. Standard Gradation for Sand

Sieve Designation	Percent by Weight Passing
8	100
80	0-2

4.6 Surface Incident/Runway Incursion Mitigation Procedures

As a function of the SICC, any issues, incidents, and concerns from MSP's stakeholders are communicated and reviewed. A plan of action will then be discussed and implemented to prevent future occurrences. All vehicle operators conducting snow removal operations on the movement area must possess a valid, movement area driver license. Personnel are trained, tested and licensed annually. Movement area driver training curriculum includes driver and vehicle requirements, airport layout, non-movement area operating requirements, movement area operating requirements, runway incursion prevention including a review of previous incidents, special driving conditions, signs and markings, lighting and navigational aids, communications, aircraft identification and AOA Operating Ordinance requirements.

Vehicles will be marked and lighted in accordance with *AC 150/2510-5, Painting, Marking and Lighting of Vehicles Used on an Airport*.

4.6.1 Radio Communication

All MAC and contractor snow removal vehicles operating on the movement area are equipped with radios capable of direct communication with the MSP ATCT. All MAC snow removal vehicles operating in the movement area have call signs that are numbered in a manner identifying the type of equipment to MSP ATCT personnel. All MAC and contractor snow removal vehicles are also equipped with two-way radios to provide vehicle-to-vehicle and vehicle-to-base communications. Personnel are trained to operate radio equipment with proficiency.

All vehicles operating on the movement area will monitor the appropriate ATC frequency or will be under escort from a lead vehicle that is monitoring the appropriate frequency.

4.6.2 Failed Radio Communication

Personnel operating on the movement area are trained to clear the movement areas immediately if they lose the ability to monitor the MSP ATCT radio in their vehicle. Personnel are further trained to use the MAC 800 MHz radio system to communicate to their supervisor and/or the SCC if they experience any radio issues. If both the MSP ATCT and 800 MHz radios fail, personnel will utilize cell phones to contact their supervisor and/or the SCC.

4.6.3 Low Visibility and Whiteout Conditions

Conditions and restrictions as listed in the MSP Surface Movement Guidance Control System (SMGCS) Plan apply during snow/ice control operations. Vehicle movements on the movement area, with the exception for the purpose of emergency response, are prohibited when runway visual range (RVR) is below 300 feet.

All personnel that operate on the movement area have been trained to stop and immediately contact MSP ATCT if they lose situational awareness on the airfield due to whiteout conditions, or other conditions that cause visibility to suddenly decrease.

4.6.4 Driver Fatigue

During all but minor snow and ice events, the full complement of Field Maintenance personnel will normally be on duty conducting snow and ice control operations. Field Maintenance management will schedule routine breaks, meal breaks and rest periods. During extended snow and ice control events, crews will rotate in and out of rest and/or sleep periods. The MAC provides food, drink, rest facilities and sleeping quarters to Field Maintenance personnel to mitigate fatigue and to address other human performance factors.

Airside Operations shifts are normally 10 to 12 hours, ensuring a minimum of 8 hours between shifts. Any shift of 8 hours or more is guaranteed one 30-minute unpaid lunch and two 15-minute paid breaks. Airside staff can be rotated between positions in the SCC and the airfield.

Field Maintenance has established limits that personnel can work to prevent driver fatigue based on work schedule and circadian rhythm. Field Maintenance staff, and contracted staff, generally work sixteen (16) hour shifts during snow and ice control operations. There may be times when airfield conditions require employees to work longer shifts.

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Chapter 5. Surface Assessment and Reporting

MAC SCC and airfield inspectors will monitor all open paved surface conditions to plan and carry out appropriate maintenance actions in accordance with the SICP. MSP strives to maintain a 'no worse than wet' surface condition, with the understanding that is not always possible.

In complying with Part 139.339, MSP will utilize NOTAM Manager for the collection and dissemination of NOTAM information to air carriers, and other airport users.

The SCC issues FICONs through the FAA's Digital NOTAM Manager System and will utilize the Runway Condition Assessment Matrix (RCAM) as appropriate. Air carriers and other airport tenants may also obtain current FICONs by referencing MSP's Aerobahn Airport Status Dashboard or by contacting the SCC. FICONs are issued as soon as practicable after each open runway, taxiway, or apron surface inspection/assessment is completed.

5.1 Conducting Surface Assessments (Runways, Taxiways, and Aprons)

During an active winter weather event, Airside Operations will continuously inspect all open movement and non-movement area surfaces and update their FICONs– except for exclusive leasehold areas.

While continuous monitoring is in effect, the goal will be that each individual open surface will be inspected at least every two hours during active snow events and every one hour during active freezing precipitation events. These inspection intervals will never exceed three hours for active snow events or two hours for freezing precipitation events.

If a surface cannot be inspected within these inspection intervals the surface must be closed until it is treated and/or inspected. Closed surfaces must be inspected with a new FICON issued when opened.

The continuous inspection of open movement and non-movement areas will be documented through MAC's Part 139 inspection software. Every FICON NOTAM issued during continuous inspections will be attached to the continuous monitoring inspection form.

5.2 Applying the Runway Condition Assessment Matrix (RCAM)

5.2.1 Determining Runway Conditions

Airside Operations personnel will determine contaminant type, depth and percentage of coverage present on runway surfaces during runway closures, or during continuous monitoring physical inspections. This contaminant information will be input into the NOTAM Manager to determine Runway Condition Codes (RwyCCs) as stated in the following steps. The Runway Condition Assessment Matrix (RCAM) is included as Appendix 12 to this document.

Step 1: Runway Condition Code (RwyCC) Applicability:

If 25 percent or less of the overall runway length and width or cleared width is covered with contaminants, RwyCCs must not be applied, or reported. The SCC

will report the contaminant percentage, type and depth for each third of the runway, to include any associated treatments or improvements.

Or

If the overall runway length and width coverage or cleared width is greater than 25 percent, RwyCCs must be assigned, and reported, informing airplane operators of the contaminant present, and associated codes for each third of the runway. (The reported codes will serve as a trigger for all airplane operators to conduct a takeoff and/or landing performance assessment).

Step 2: Apply Assessment Criteria

Based on the contaminants observed, the associated RwyCC for each third of the runway will be assigned.

Step 3: Validating Runway Condition Codes

If the observations and runway friction data obtained by MSP determine that RwyCCs assigned accurately reflect the runway conditions and performance, no further action is necessary, and the RwyCCs generated may be disseminated.

5.2.2 Downgrade Assessment Criteria

When observations and runway friction data indicate a more slippery condition than generated by the RCAM, the SCC Duty Manager may choose to downgrade the RwyCC(s). When applicable, the downgrade of RwyCCs may be based on friction (μ) readings, vehicle control, pilot reported braking action, temperature or rate of precipitation.

NOTE: Temperatures near and above freezing (e.g., at negative 26.6° F (-3° C) and warmer) may cause contaminants to behave more slippery than indicated by the runway condition code given in the RCAM. At these temperatures, MSP will exercise a heightened awareness of airfield conditions and should downgrade the RwyCC if appropriate.

5.2.3 Upgrade Assessment Criteria Based on Friction Assessments

RwyCCs of 0 or 1 may only be upgraded when the following requirements are met:

1. All observations, judgment, and vehicle braking action support the higher RwyCC, and
2. Mu values of 40 or greater are obtained for the affected third(s) of the runway by a CFME that is operated within allowable parameters.
3. This ability to raise the reported RwyCC to no higher than a code 3 can only be applied to those runway conditions listed under code 0 and 1 in the RCAM. (See footnote 2 on the RCAM.)
4. Airside Operations will continually monitor the runway surface as long as the higher code is in effect to ensure that the runway surface condition does not deteriorate below the assigned code.

a. The extent of monitoring must consider all variables that may affect the runway surface condition, including any precipitation conditions, changing temperatures, effects of wind, frequency of runway use, and type of aircraft using the runway.
b. If sand or other approved runway treatments are used to satisfy the requirements for issuing the higher runway condition code, the monitoring program must confirm continued effectiveness of the treatment.

5.3 Runway Friction Surveys, Equipment, and Procedures

MAC Airside Operations utilizes CFME vehicles to conduct runway friction testing. The current CFME fleet includes:

- OPS51 – Halliday RT3
- OPS53 – SARSYS SFT
- OPS55 – Halliday RT3

The Halliday RT3 vehicles serve as the primary CFME at MSP, while the SARSYS SFT functions as a backup vehicle.

5.3.1 Conditions Acceptable to Use CFME to Conduct Runway Friction Surveys

The data obtained from such runway friction surveys are only considered to be reliable when the surface is contaminated under any of the following conditions:

- Ice or wet ice.
- Compacted snow at any depth.
- Dry snow 1 inch or less.
- Wet snow or slush 1/8 inch or less.

5.3.2 When to Conduct

Runway friction tests will be performed when the following conditions occur:

1. After anti-icing, deicing, sanding or snow/ice removal operations.
2. When pilot braking reports, surface sensor data and field observations indicate that runway surface friction levels are approaching minimum operating values
3. After an aircraft accident/incident occurs on a runway when surface friction could be a contributing factor.
4. Prior to opening a runway on which an aircraft accident/incident occurred.
5. At any time, the SCC Duty Manager determines that runway surface friction information will be useful for the safe operation at the airport.

5.3.3 How to Conduct

Standard practice is to conduct a one-way friction run on a closed runway, 10 feet on the right side of the runway centerline at 40 mph. Safety considerations might require friction runs be done at less than 40 mph.

The runway will be closed, or remain closed, for additional treatment when a friction run identifies an area of less than:

- 20μ for any continuous 500-foot section of a runway, or
- 10μ at any point on a runway

In either case, the runway will remain closed until a friction test indicates no 500-foot sections of runway with continuous readings less than 20μ and no point on the runway below 10μ.

5.3.4 Calibration

CFME vehicles are inspected and certified annually by a manufacturer's representative. Additionally, trained Airside Operations personnel calibrate and inspect these CFME vehicles in accordance with the manufacturer's specifications on a regular schedule and prior to operating the vehicle.

5.4 Surface Condition Reporting

Airside Operations field inspectors will monitor and report changing airfield conditions to the SCC, who will issue FICONs via NOTAM Manager. FICONs are issued as soon as practicable upon completion of a surface inspection when reportable contaminants are observed.

5.4.1 Runways

Runway FICONs and their associated RwyCCs will be updated as soon as practicable after every physical inspection of a runway, if reportable contaminants are observed. In active snowfall, FICONs must be updated at least every three hours. In active freezing precipitation FICONs must be updated at least every two hours. If a reportable contaminant is still present on a runway when it is no longer precipitating, the FICON must be updated at least every 12-hours.

The term 'DRY' is used to describe a surface that is neither wet nor contaminated. While a FICON NOTAM is not generated for the sole purpose of reporting a dry runway, a dry surface will be reported when there is need to report conditions on the remainder of the surface. (For example: snow is present on the first two thirds of the runway.)

5.4.2 Taxiway and Aprons

Taxiway, apron, and deice pad FICONs will be updated as soon as practicable after every physical inspection of the surface(s), if reportable contaminants are observed. In active snowfall, FICONs must be updated at least every three hours. In active freezing precipitation FICONs must be updated at least every two hours.

If a reportable contaminant is still present on a taxiway, apron, or deice pad when it is no longer precipitating, the FICONs must be updated at least every 24 hours or as conditions change.

5.5 Reportable Contaminants without Performance Data.

If present, unable to be removed, and posing no hazard, mud will be reported with a measured depth. Ash, oil, sand, and rubber contaminants will be reported without a measured depth. These contaminants will not generate a RwyCC.

5.6 Slippery When Wet Runway.

For runways where a friction survey (for the purposes of pavement maintenance) indicates the averaged Mu value at 40 mph on the wet pavement surface failed to meet the minimum friction level classification specified in AC 150/5320-12, MSP will report via NOTAM Manager a RwyCC of '3' for the entire runway (by thirds: 3/3/3) when the runway is wet.

A runway condition description of 'Slippery When Wet' will be used for this condition.

If it is determined by MSP that a downgrade is necessary, the downgrade will be made to all three runway thirds match (i.e., 3/3/3, 2/2/2, 1/1/1).

The NOTAM will be cancelled when the minimum runway friction level classification has been met or exceeded.

5.7 Preplanned Closures

The SICC has developed preplanned airfield closures, dependent on runway flow, to be activated in larger storms when snow accumulations reach one inch and forecast/radar suggest snow accumulations to continue. The goal of these closures is to help snow removal crews and airfield inspectors focus their efforts on higher priority airfield surfaces that allow MSP to continue to operate safely even during winter's most severe storms.

Appendices 4, 5, 6, 7, 8, 9, 10, and 11 provide a visual depiction of these preplanned closures.

5.8 Continuous Monitoring and Deteriorating Conditions.

Continuous monitoring procedures will be implemented at the discretion of the SCC Duty Manager, for all open airfield surfaces, when active precipitation is reported *and* any airfield surface FICON is reported as worse than wet. All open runways, taxiways, aprons, and deice pads will be inspected at least every three hours in active snowfall and at least every two hours in active freezing precipitation. These inspection timers will be monitored by the SCC referencing the last FICON observation time for each surface and

keeping the airfield inspectors aware of any surfaces approaching these timer thresholds. If an open surface is not inspected within these times, the SCC must immediately inform the airfield inspector to close the surface(s) over appropriate ATC frequency until it can be inspected.

If any airfield surface receives back-to-back BA poor PIREPs, MAC airfield inspectors must inspect that surface as soon as possible and advise the SCC and ATC if the surface needs a closure and/or treatment. For back-to-back runway BA poor PIREPs, the SCC must coordinate with ATC to form a Build-a-Gap (BAG) runway inspection as soon as possible to determine if the runway needs to be closed and treated.

If BA NIL PIREPs are reported by ATC to the SCC or overheard on frequency, the airfield inspector responsible for that surface must immediately close the affected surface over the appropriate frequency and not allow any more aircraft operations on that surface until treated, inspected, and re-opened.

Under deteriorating conditions, the SCC and airfield inspectors will take all reasonable steps using available equipment and materials that are appropriate for the condition to improve the braking action.

Deteriorating conditions include, but are not limited to:

- Frozen or freezing precipitation.
- Falling air or pavement temperatures may cause a wet runway to freeze.
- Rising air or pavement temperatures that may cause frozen contaminants to melt.
- Removal of abrasives previously applied to the runway due to wind or airplane effects.
- Frozen contaminants blown onto the runway by wind

SECTION #3

APPENDICES

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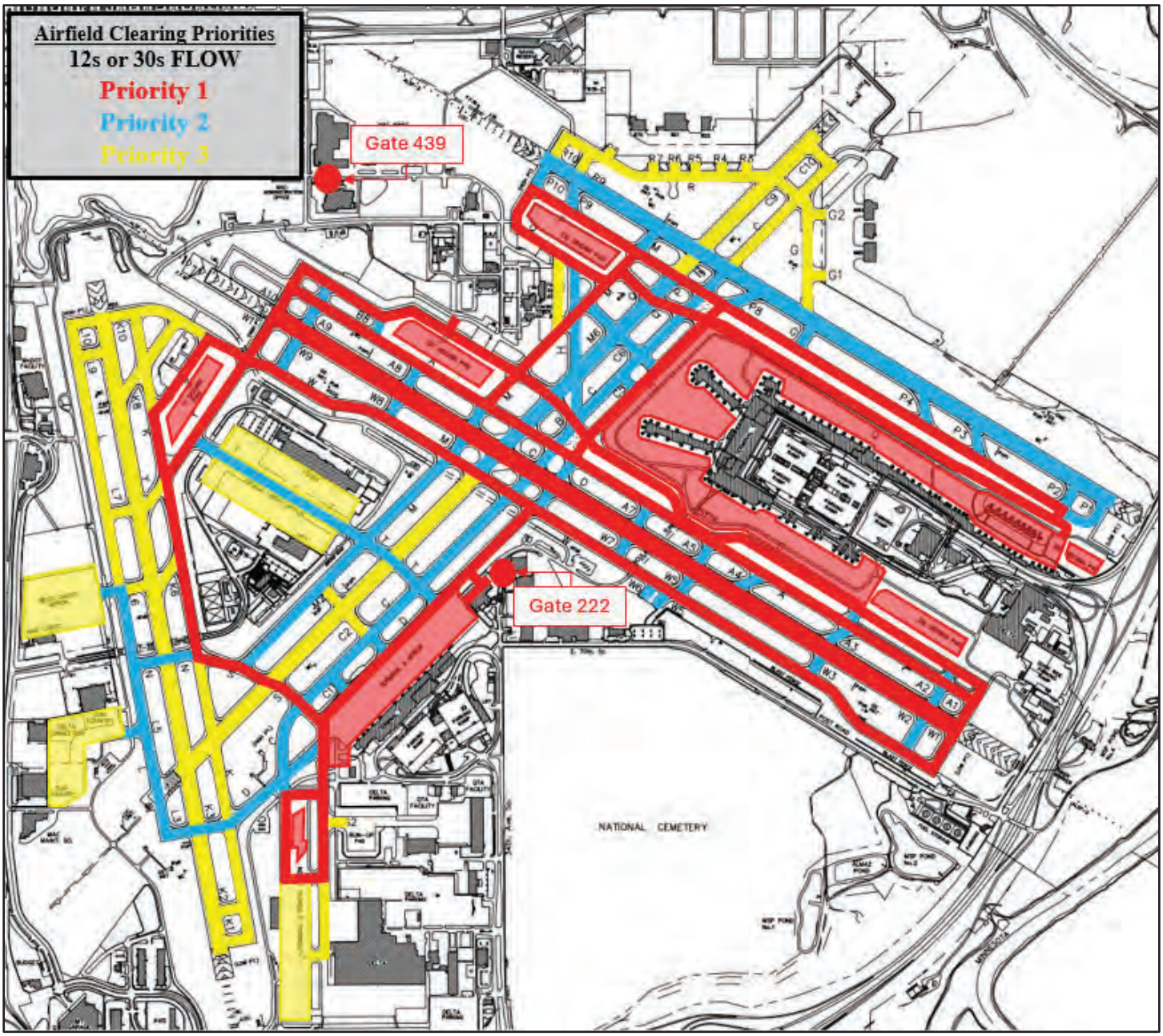
Appendix 1: Airfield Clearing Priorities – 12s or 30s Flow



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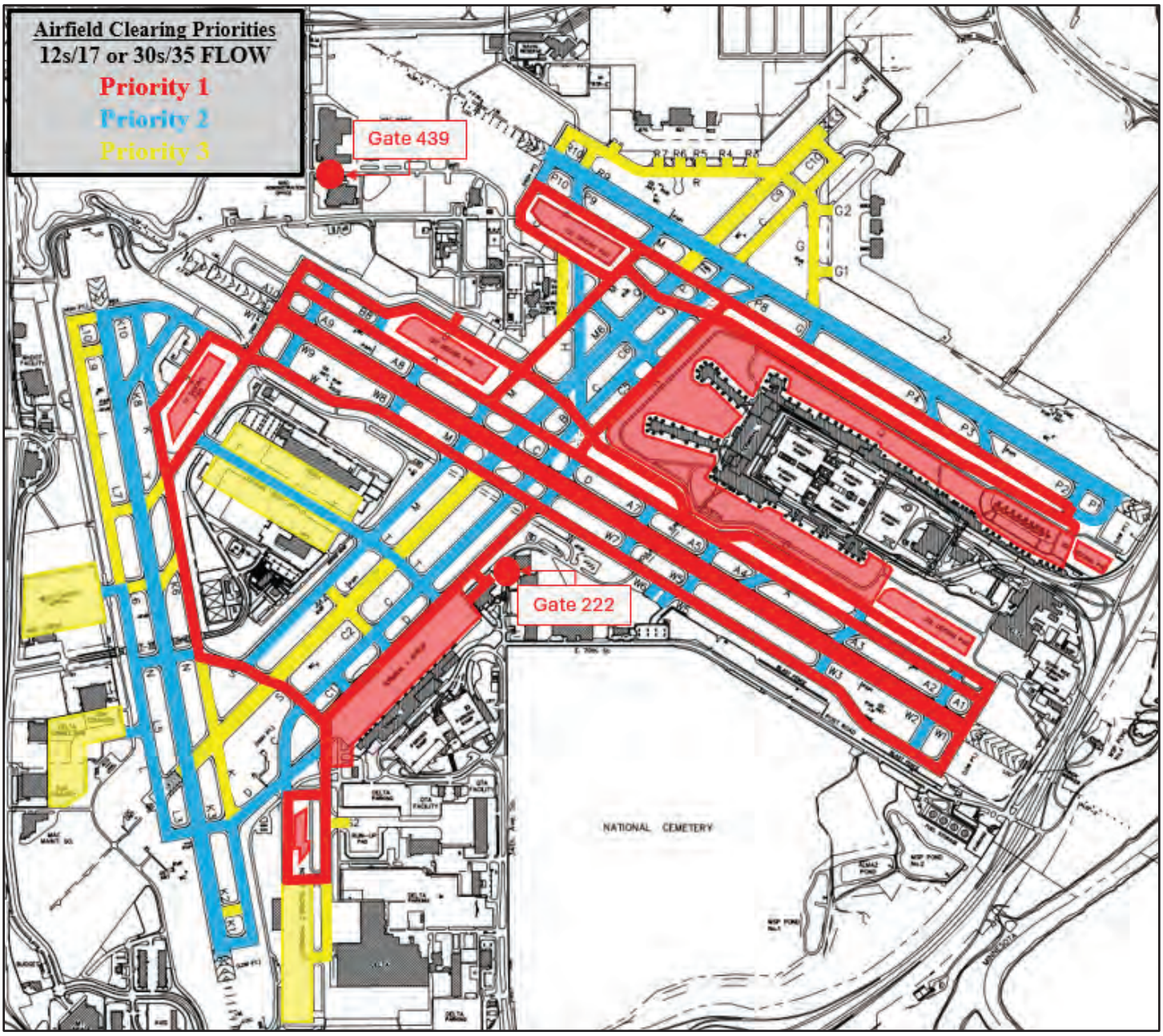
Appendix 2: Airfield Clearing Priorities – 12s/17 or 30s/35 Flow



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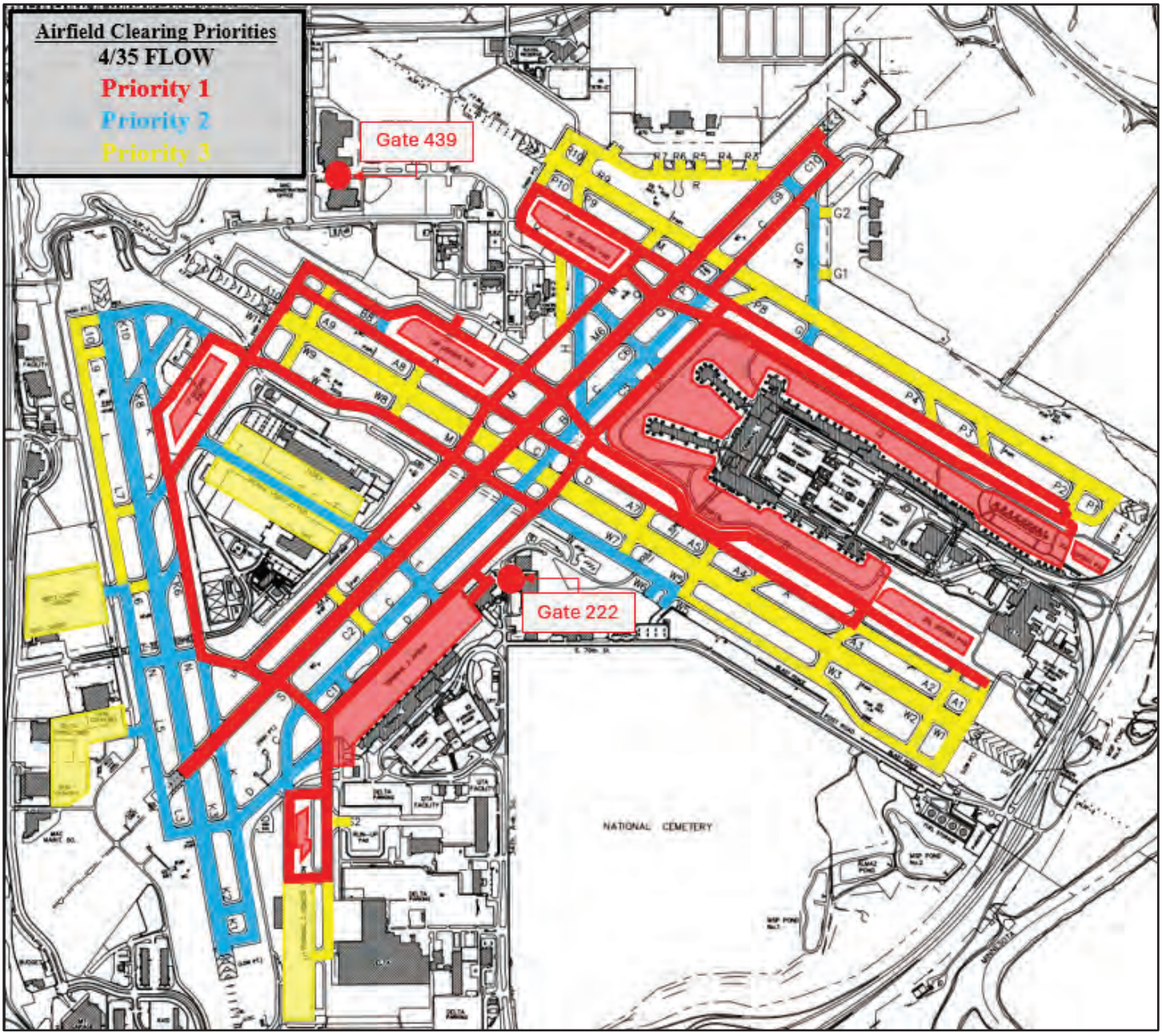
Appendix 3: Airfield Clearing Priorities – 4/35 Flow



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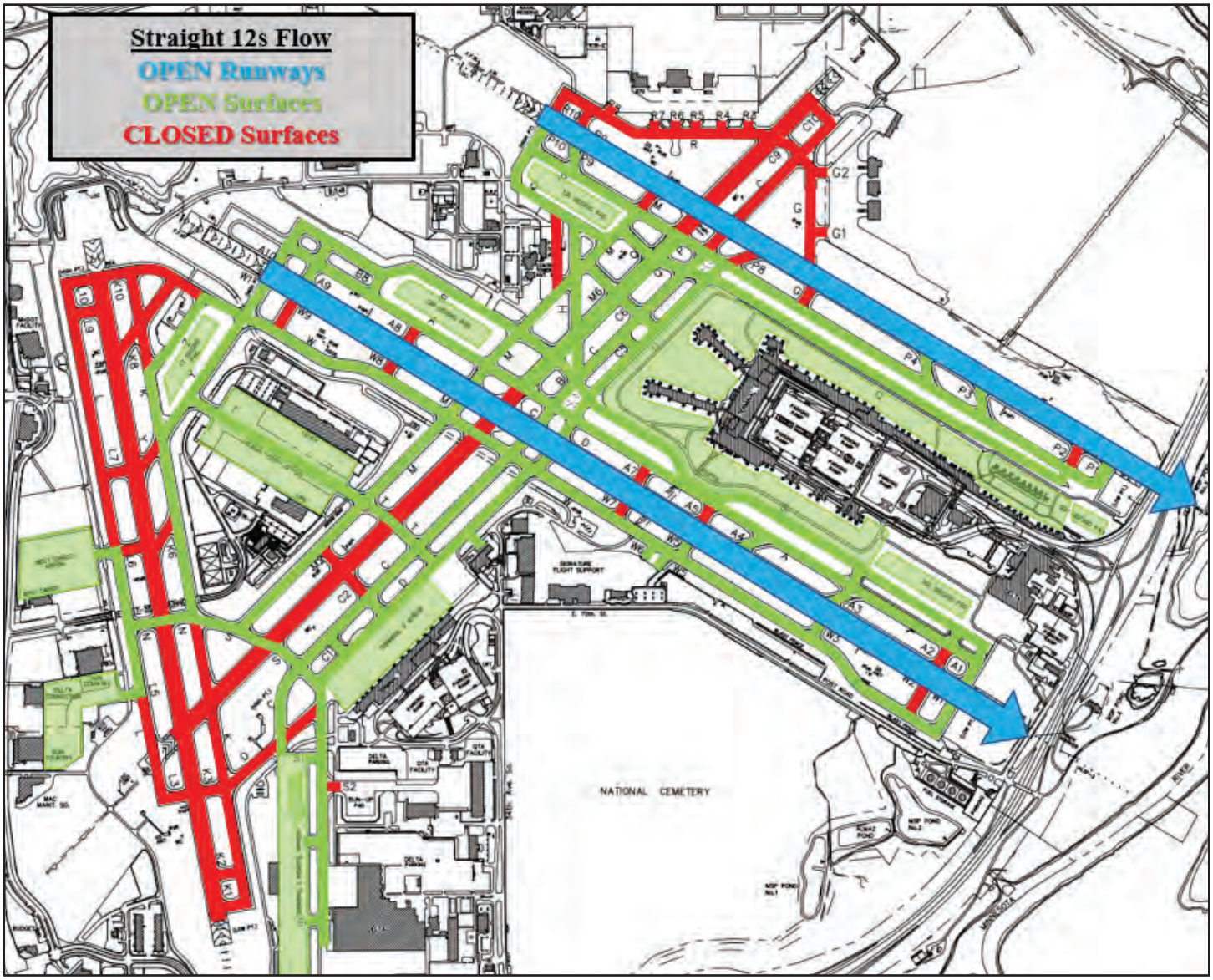
Appendix 4: Preplanned Closures – Straight 12s Flow



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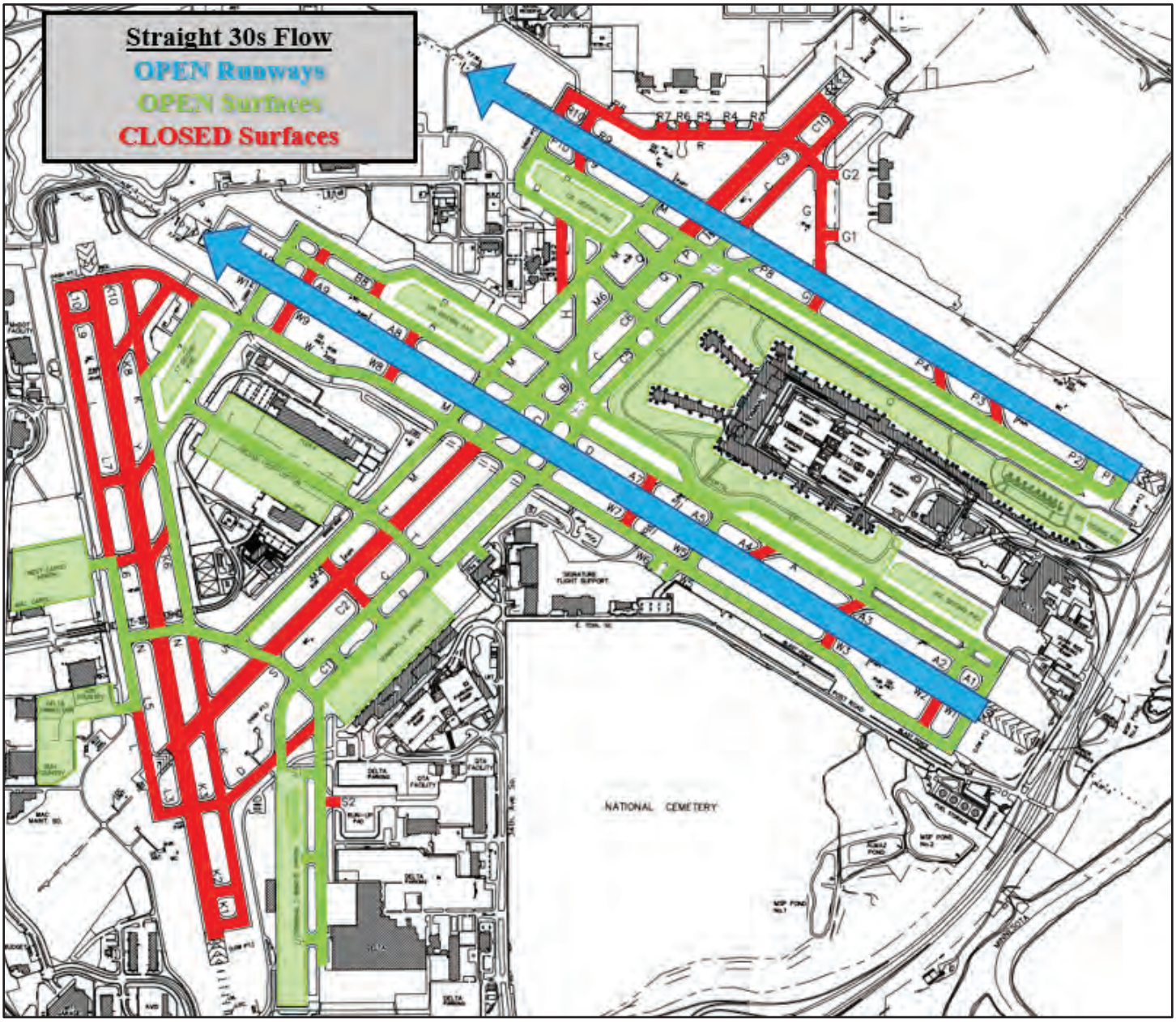
Appendix 5: Preplanned Closures – Straight 30s Flow



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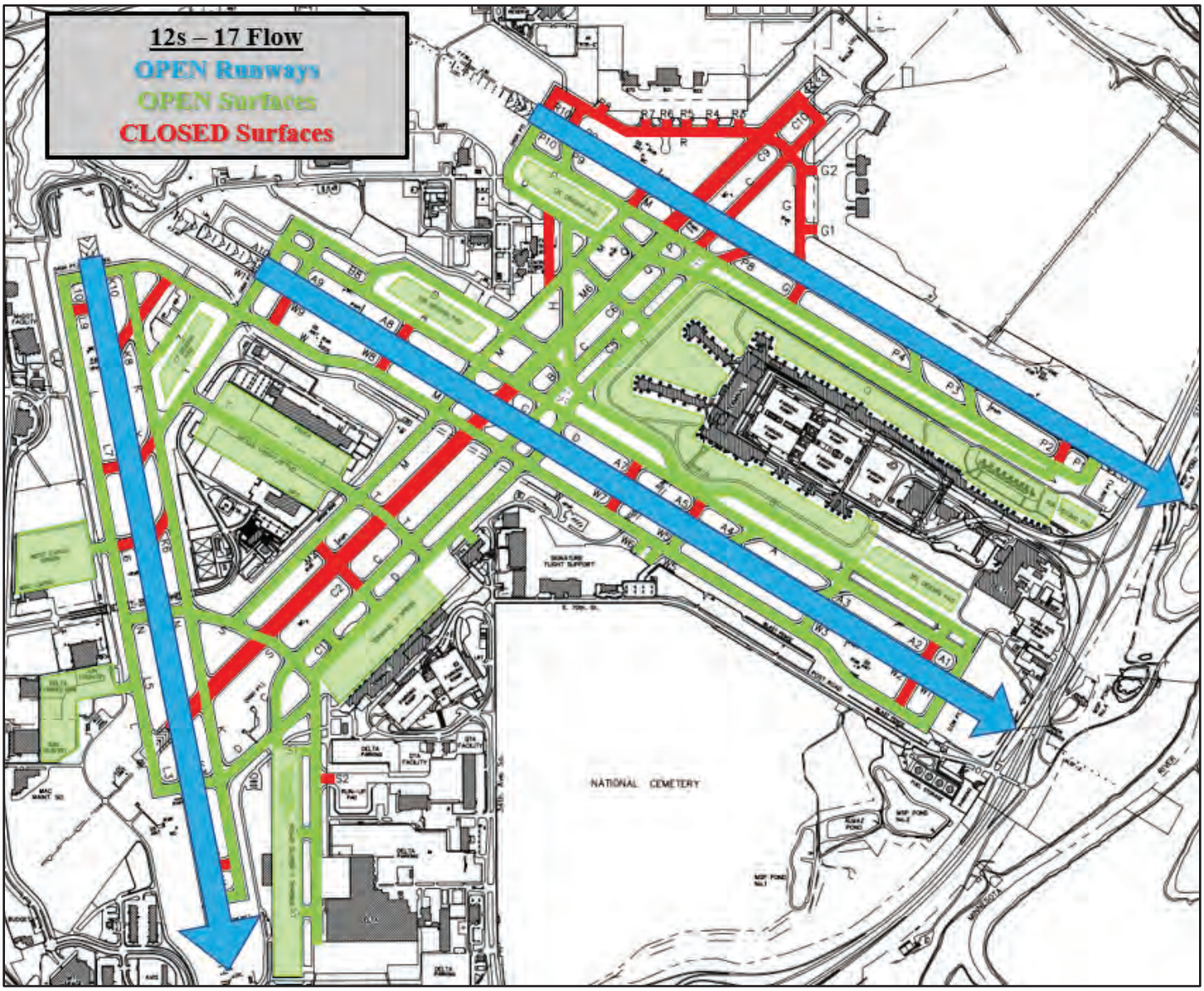
Appendix 6: Preplanned Closures – 12s/17 Flow



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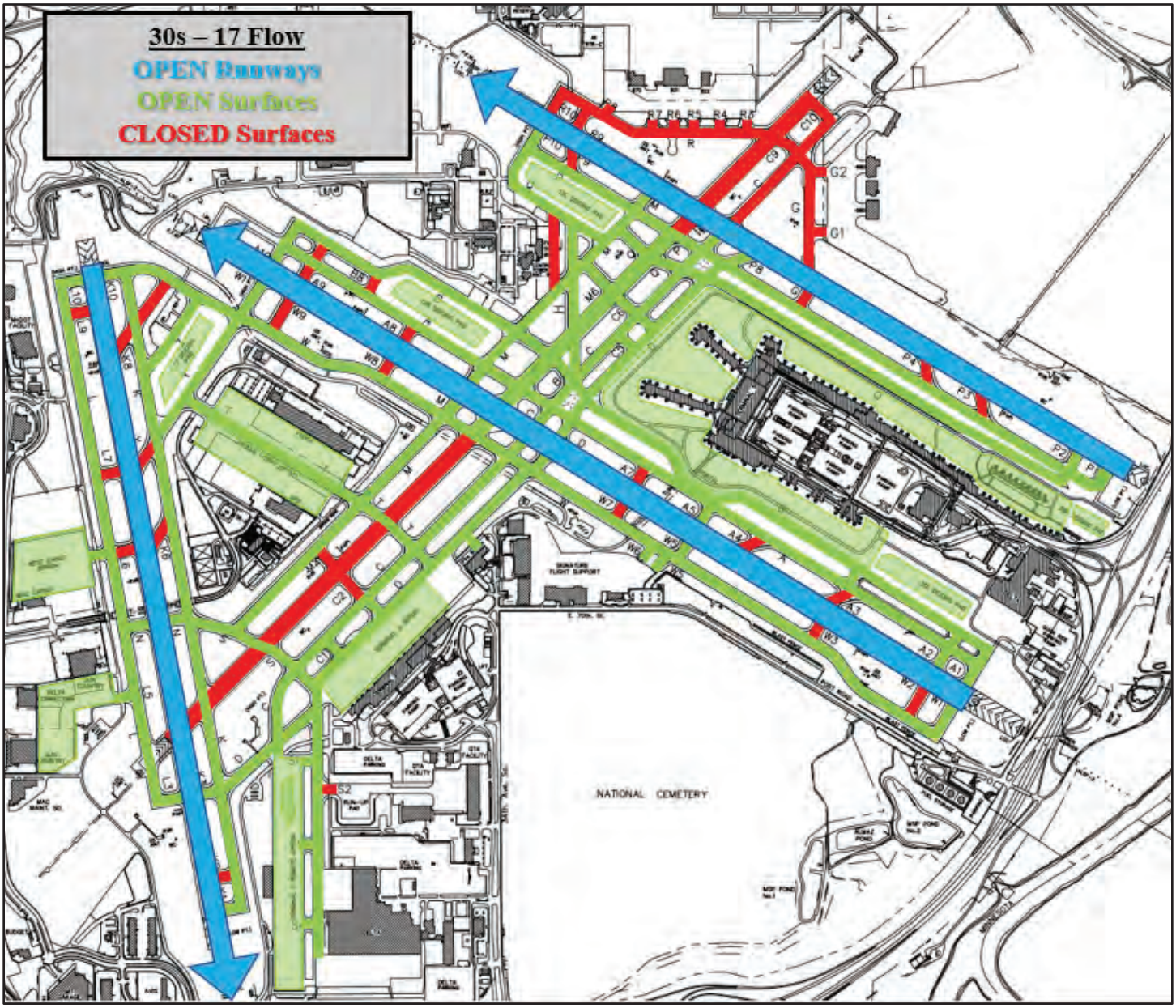
Appendix 7: Preplanned Closures – 30s/17 Flow



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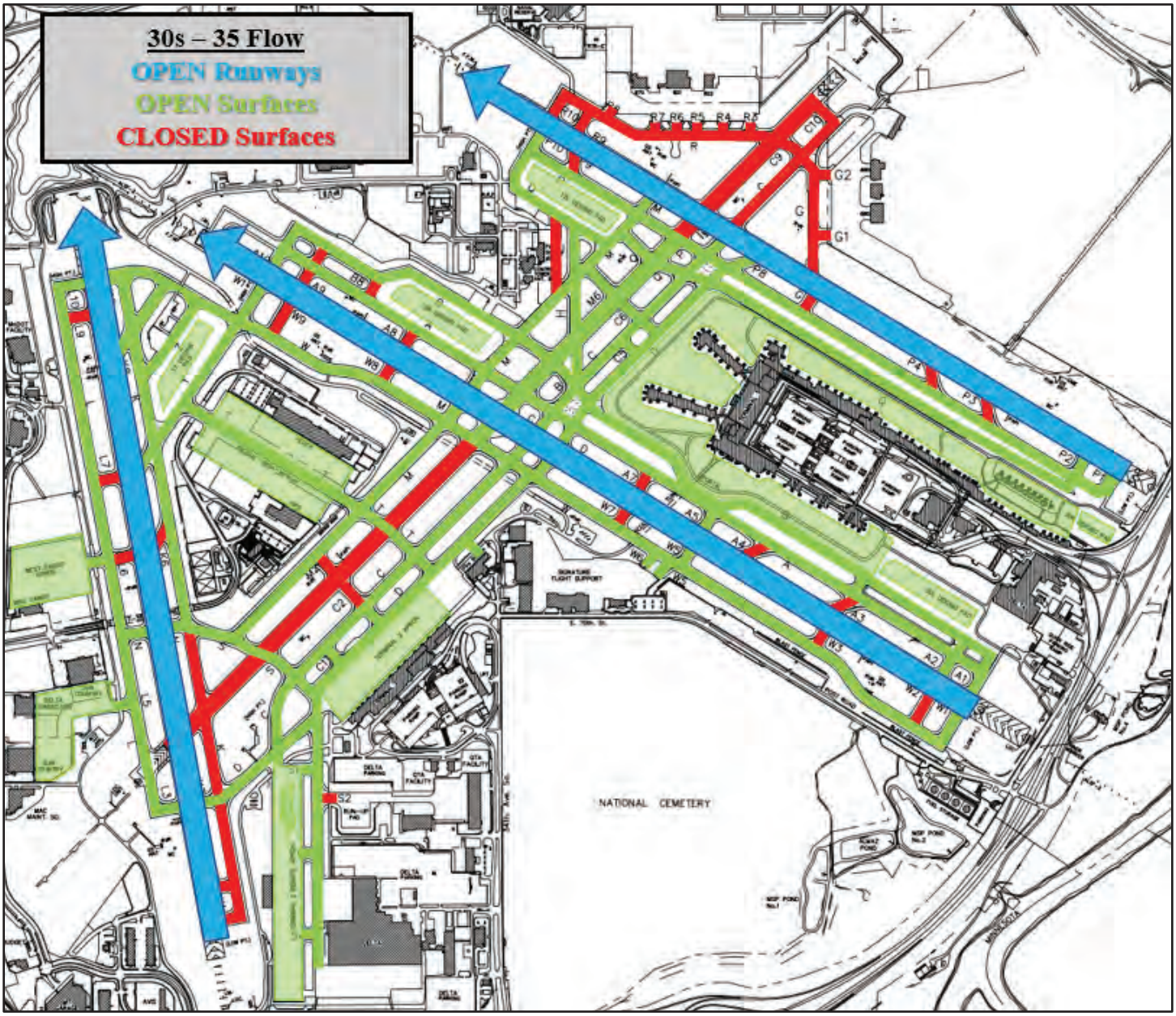
Appendix 8: Preplanned Closures – 30s/35 Flow



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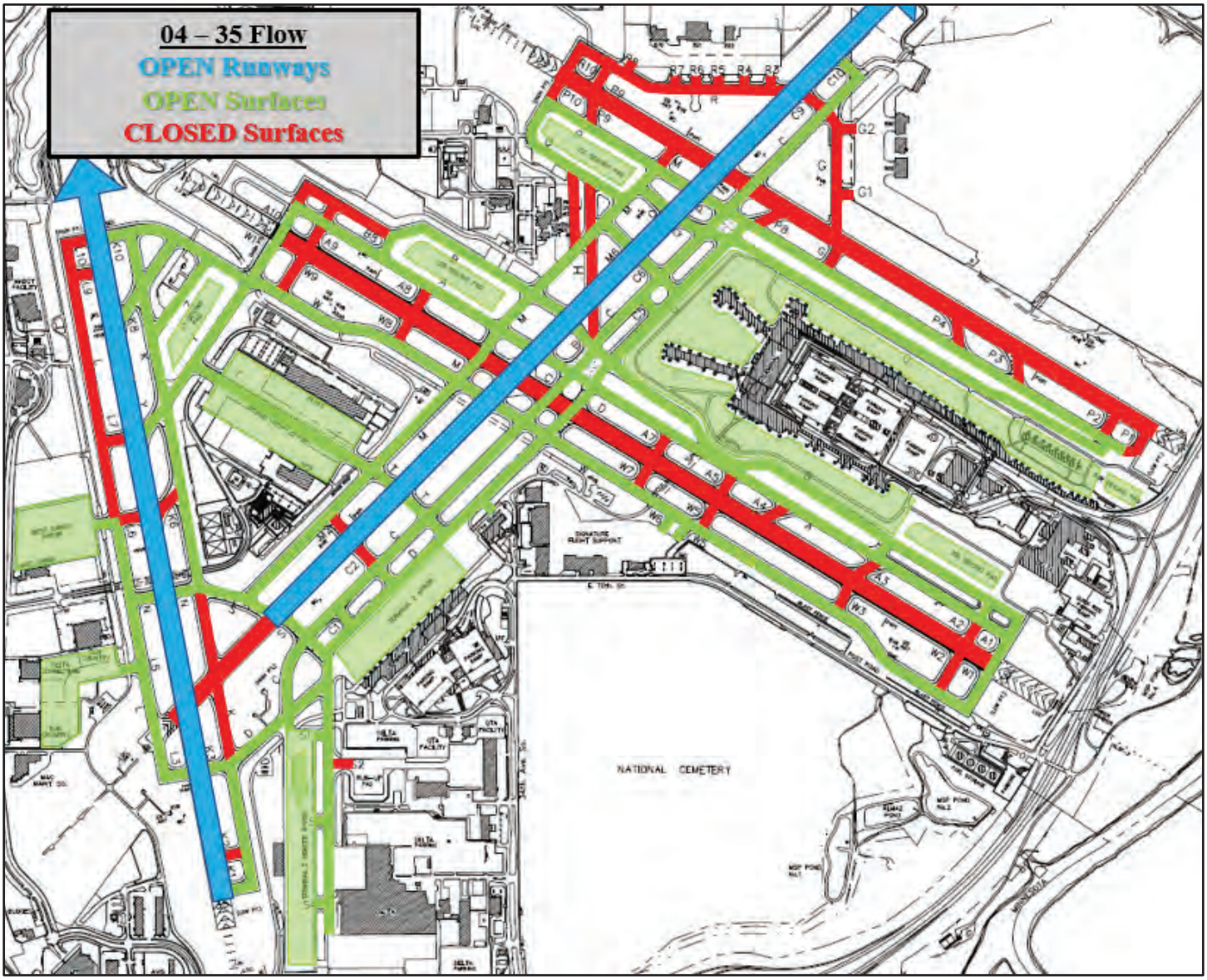
Appendix 9: Preplanned Closures – 4/35 Flow



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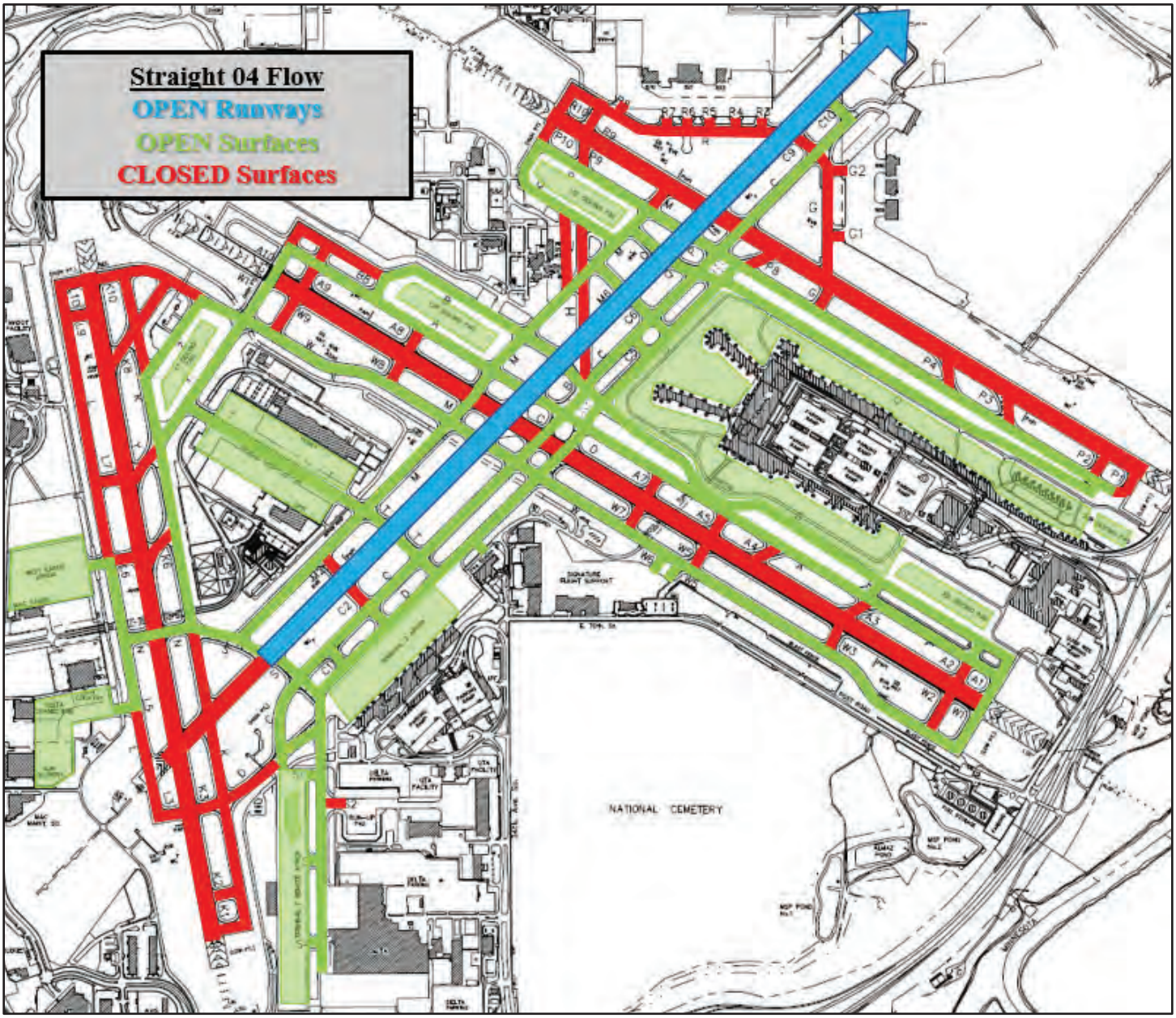
Appendix 10: Preplanned Closures – Straight 4 Flow



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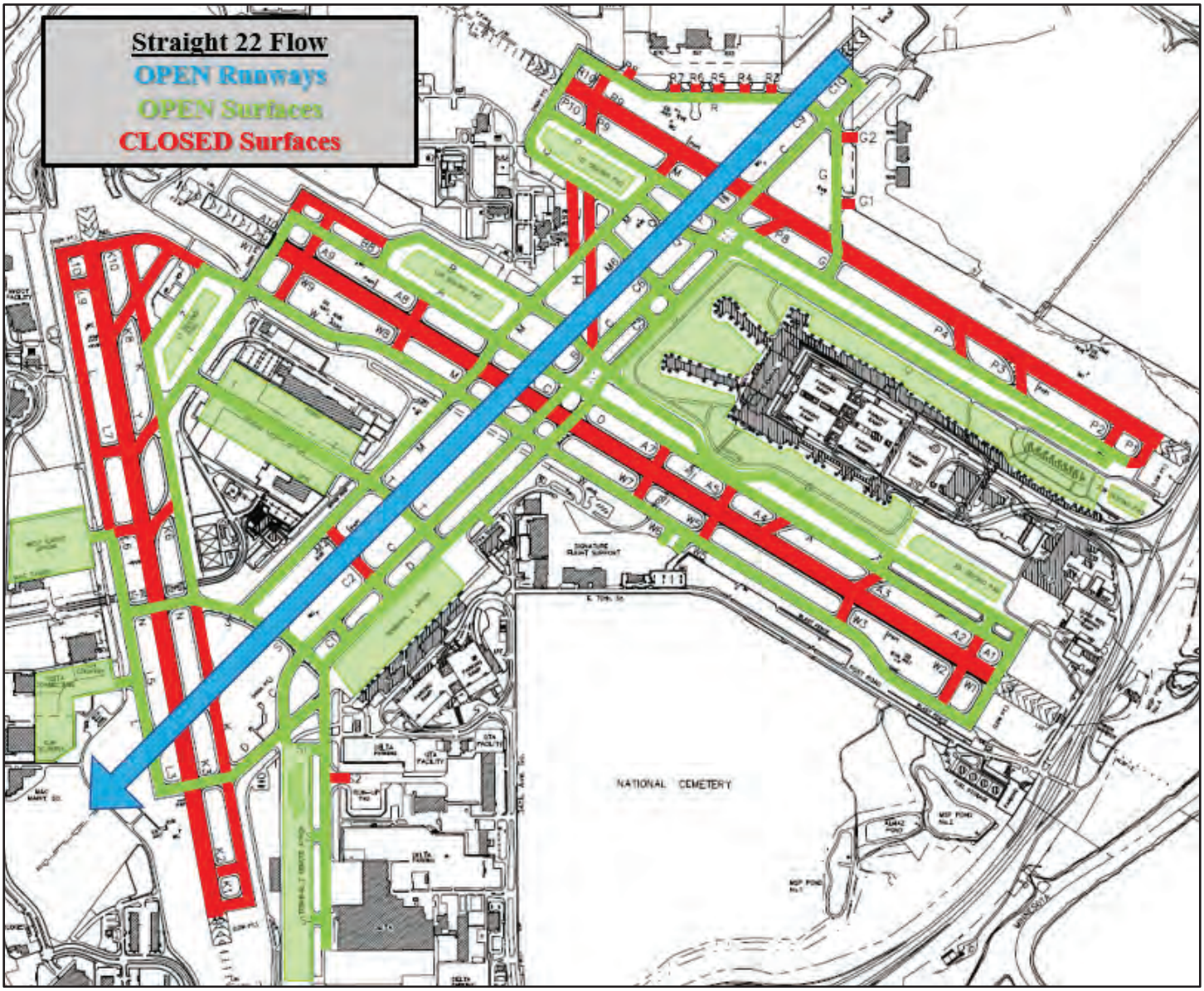
Appendix 11: Preplanned Closures – Straight 22 Flow



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Appendix 12: Runway Condition Assessment Matrix (RCAM)

Assessment Criteria		Downgrade Assessment Criteria		
Runway Condition Description	**Code**	**Mu (μ) [1]**	**Vehicle Deceleration or Directional Control Observation**	**Pilot Reported Braking Action**
• Dry	6	40 or Higher	---	---
• Frost • Wet (Includes Damp and 1/8 inch depth or less of water) ***1/8 inch (3mm) depth or less of:*** • Slush • Dry Snow • Wet Snow	5		Braking deceleration is normal for the wheel braking effort applied AND directional control is normal.	Good
5° F (-15°C) and Colder outside air temperature: • Compacted Snow	4	39 to 30	Braking deceleration OR directional control is between Good and Medium.	Good to Medium
• Slippery When Wet (wet runway) • Dry Snow or Wet Snow (Any depth) over Compacted Snow ***Greater than 1/8 inch (3mm) depth of:*** • Dry Snow • Wet Snow ***Warmer than 5° F (-15°C) outside air temperature:*** • Compacted Snow	3		Braking deceleration is noticeably reduced for the wheel braking effort applied OR directional control is noticeably reduced.	Medium
Greater than 1/8 (3mm) inch depth of: • Water • Slush	2	29 to 21	Braking deceleration OR directional control is between Medium and Poor.	Medium to Poor
• Ice [2]	1		Braking deceleration is significantly reduced for the wheel braking effort applied OR directional control is significantly reduced.	Poor
• Wet Ice [2] • Slush over Ice [2] • Water over Compacted Snow [2] • Dry Snow or Wet Snow over Ice [2]	0	20 or Lower	Braking deceleration is minimal to non-existent for the wheel braking effort applied OR directional control is uncertain.	Nil

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FAA Airports Date: Oct 15 2025

[1] The correlation of the Mu (μ) values with runway conditions and condition codes in the Matrix are only approximate ranges for a generic friction measuring device **and are intended to be used only to downgrade a runway condition code; with the exception of circumstances identified in Note 2.** Airport operators should use their best judgment when using friction measuring devices for downgrade assessments, including their experience with the specific measuring devices used.

[2] In some circumstances, these runway surface conditions may not be as slippery as the runway condition code assigned by the Matrix. The airport operator may issue a higher runway condition code (but no higher than code 3) for each third of the runway if the Mu value for that third of the runway is 40 or greater obtained by a properly operated and calibrated friction measuring device, **and all other observations, judgment, and vehicle braking action support the higher runway condition code. The decision to issue a higher runway condition code than would be called for by the Matrix cannot be based on Mu values alone; all available means of assessing runway slipperiness must be used and must support the higher runway condition code.** This ability to raise the reported runway condition code to a code 1, 2, or 3 can only be applied to those runway conditions listed under codes 0 and 1 in the Matrix.
The airport operator must also continually monitor the runway surface as long as the higher code is in effect to ensure that the runway surface condition does not deteriorate below the assigned code. The extent of monitoring must consider all variables that may affect the runway surface condition, including any precipitation conditions, changing temperatures, effects of wind, frequency of runway use, and type of aircraft using the runway. If sand or other approved runway treatments are used to satisfy the requirements for issuing this higher runway condition code, the continued monitoring program must confirm continued effectiveness of the treatment.

Caution: Temperatures near and above freezing (e.g., at 26.6° F (-3°C) and warmer) may cause contaminants to behave more slippery than indicated by the runway condition code given in the Matrix. At these temperatures, airport operators should exercise a heightened level of runway assessment, and should downgrade the runway condition code if appropriate.

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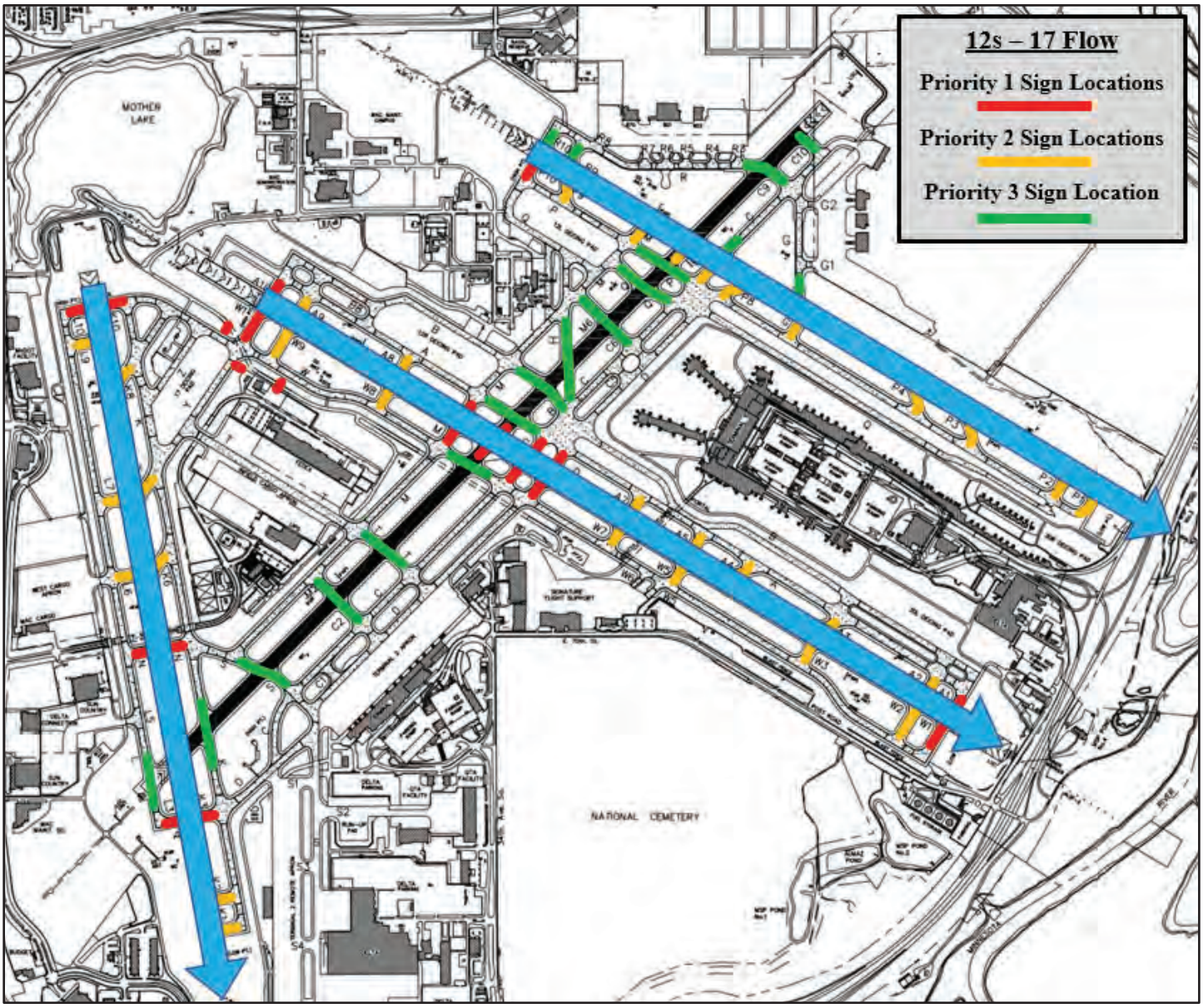
FAA Airports Date: Oct 15 2025

Appendix 13: Runway Holding Position Sign Cleaning Priority Map – 12s/17 Flow



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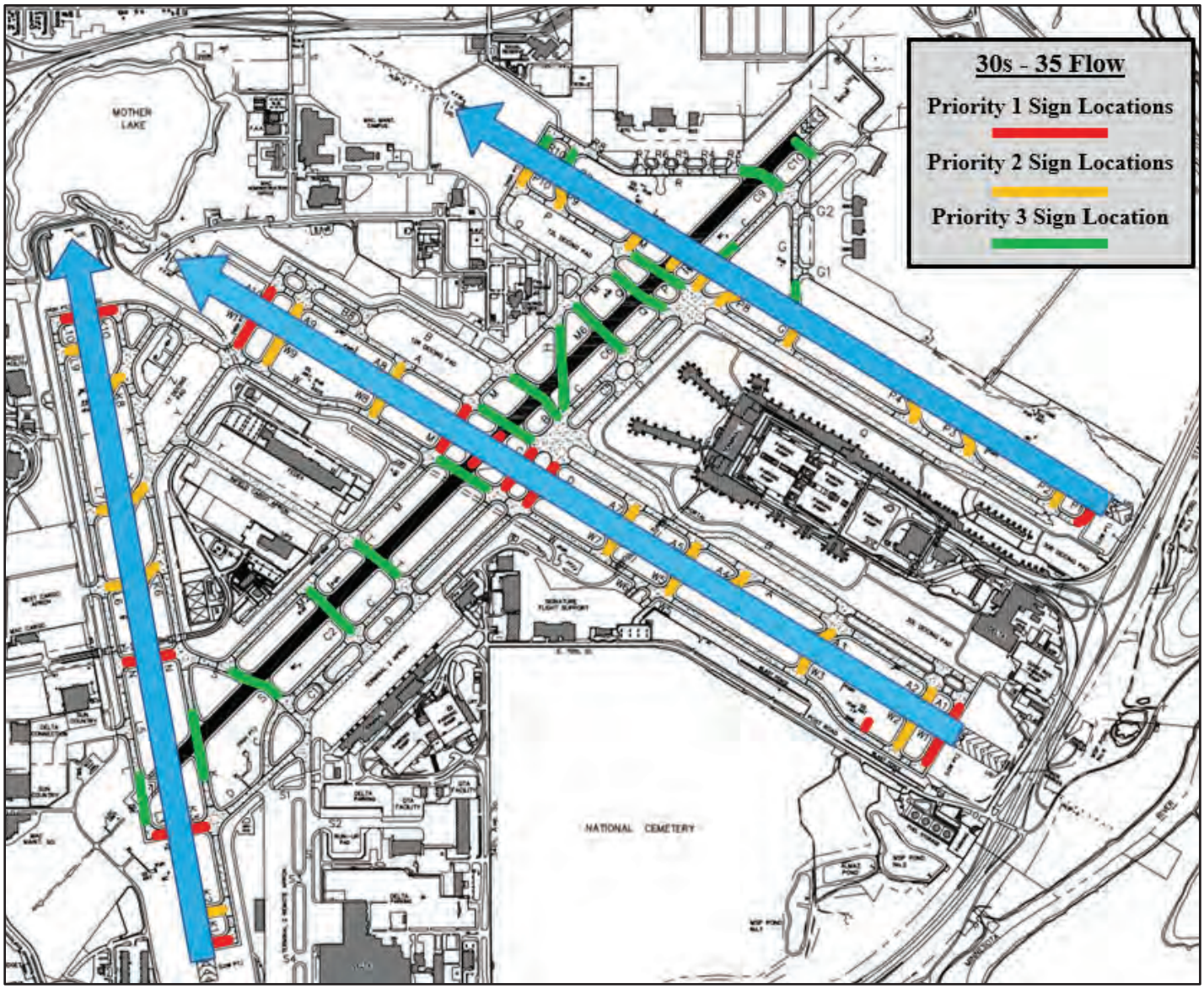
Appendix 14: Runway Holding Position Sign Cleaning Priority Map – 30s/35 Flow



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FAA Airports Date: Oct 15 2025

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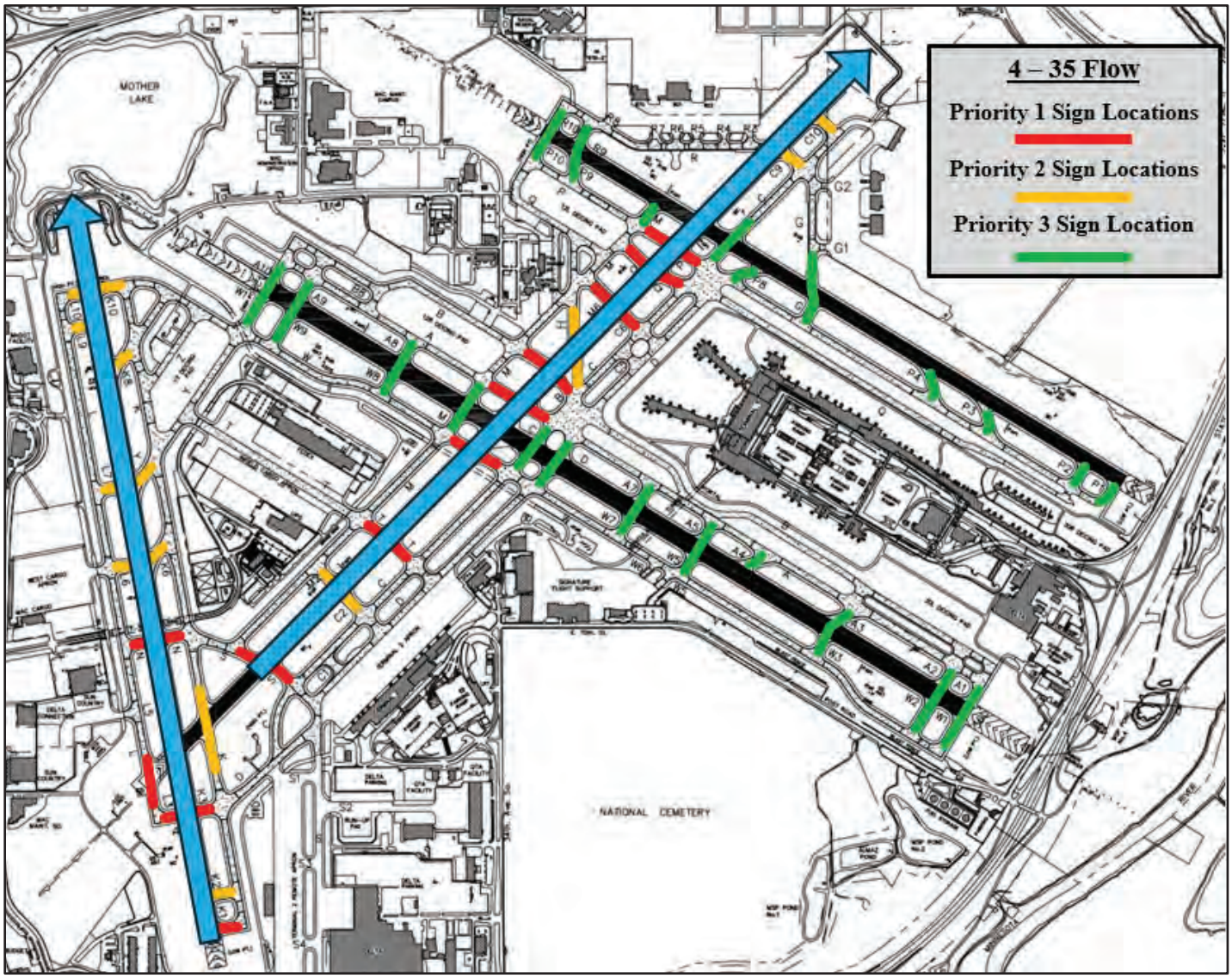
Appendix 15: Runway Holding Position Sign Cleaning Priority Map – 4/35 Flow



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FAA Airports Date: Oct 15 2025

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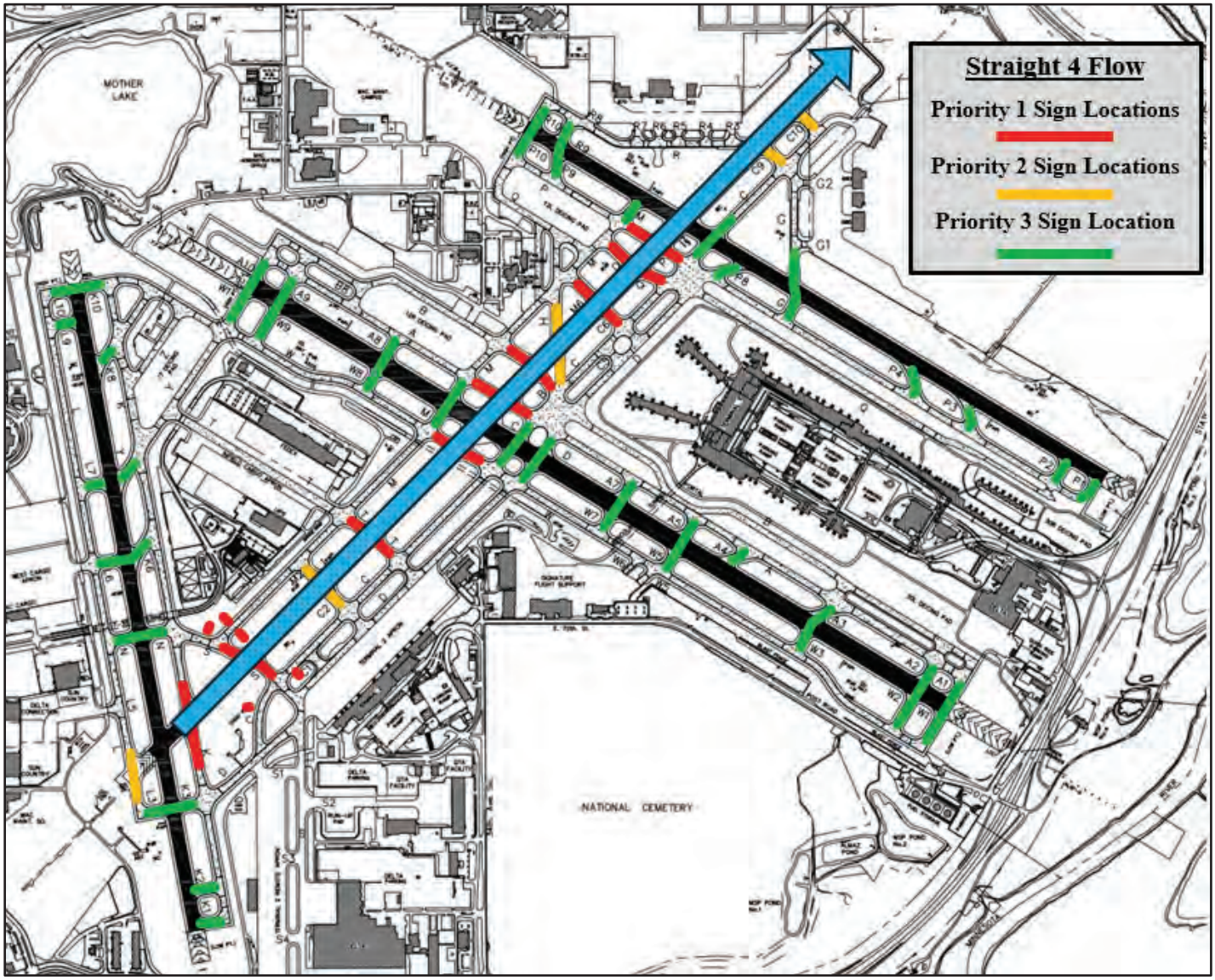
Appendix 16: Runway Holding Position Sign Cleaning Priority Map – Straight 4 Flow



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FAA Airports Date: Oct 15 2025

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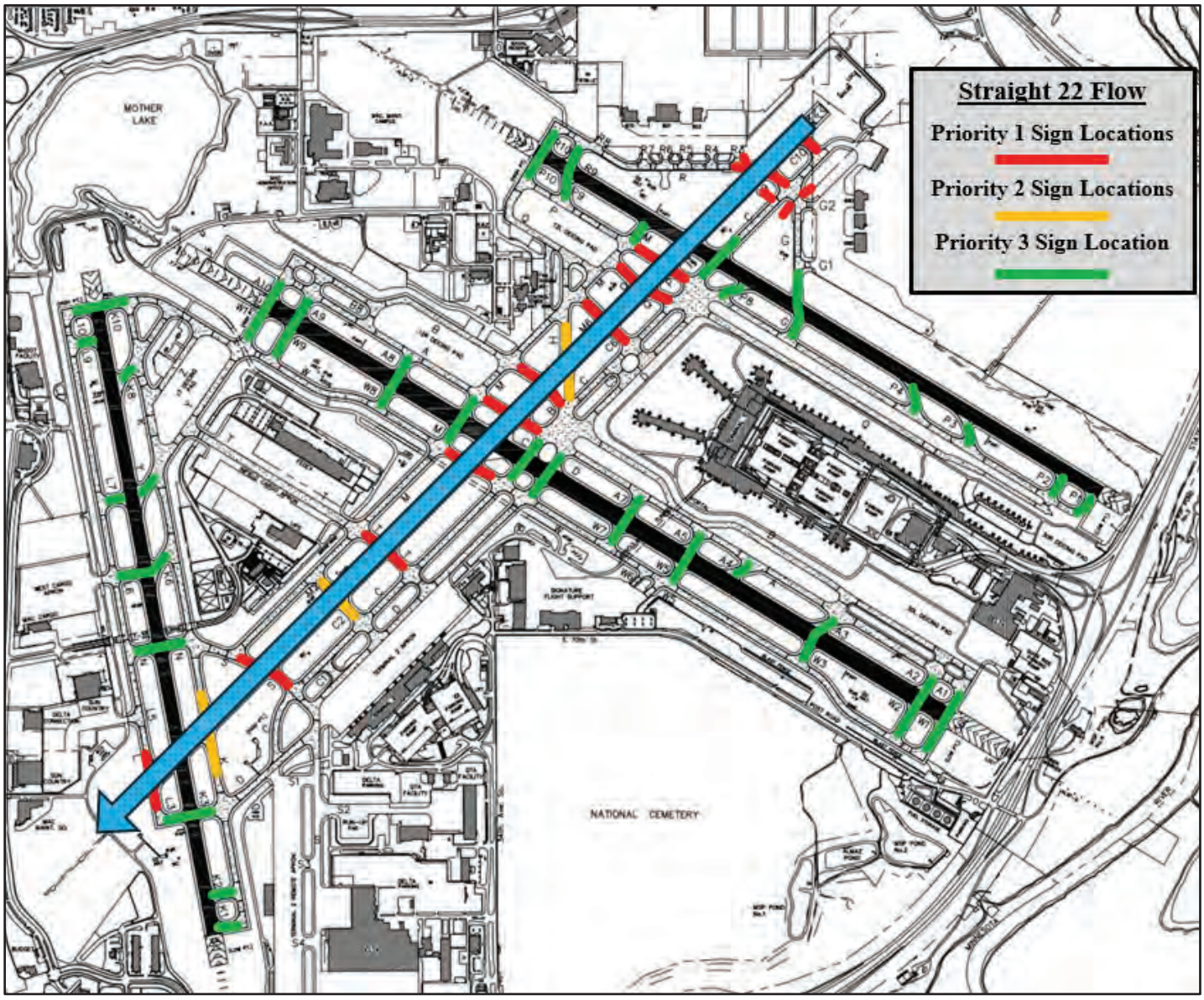
Appendix 17: Runway Holding Position Sign Cleaning Priority Map – Straight 22 Flow



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Appendix 18: MAC Snow Removal Equipment List

MULTI-FUNCTION EQUIPMENT (MFEs)

•	2008	OSHKOSH	616-1038	•	2008	OSHKOSH	616-1595
•	2010	OSHKOSH	616-1098	•	2008	OSHKOSH	616-1597
•	2012	OSHKOSH	616-1153	•	2008	OSHKOSH	616-1599
•	2014	OSHKOSH	616-1213	•	2008	OSHKOSH	616-1601
•	2015	OSHKOSH	616-1271	•	2008	OSHKOSH	616-1603
•	2015	OSHKOSH	616-1273	•	2008	OSHKOSH	616-1605
•	2015	OSHKOSH	616-1306	•	2008	OSHKOSH	616-1607
•	2015	OSHKOSH	616-1308	•	2008	OSHKOSH	616-1609
•	2017	OSHKOSH	616-1373	•	2008	OSHKOSH	616-1611
•	2017	OSHKOSH	616-1375	•	2024	MB	616-1746
•	2018	OSHKOSH	616-1441	•	2024	MB	616-1747
•	2018	OSHKOSH	616-1457	•	2024	MB	616-1748
•	2020	OSHKOSH	616-1506	•	2024	MB	616-1749
•	2008	OSHKOSH	616-1593	•	2024	MB	616-1750

SNOWPLOWS

•							
•	2008	OSHKOSH	616-1039				
•	2015	OSHKOSH	616-1312				
•	2015	OSHKOSH	616-1313				

SNOW BLOWERS - up to 5,000 Tons per Hour
(4-wheel drive rotary snow blower, with approximately 200' cast)

•	1998	OSHKOSH	616-683	•	2018	OSHKOSH	616-1439
•	1998	OSHKOSH	616-684	•	2018	OSHKOSH	616-1440
•	1999	OSHKOSH	616-736	•	2018	OSHKOSH	616-1465
•	2006	OSHKOSH	616-937	•	2024	MB	616-1751
•	2006	OSHKOSH	616-938	•	2024	MB	616-1752
•	2009	OSHKOSH	616-1046	•	2024	MB	616-1753
•	2010	OSHKOSH	616-1097	•	2024	MB	616-1754
•	2014	OSHKOSH	616-1221	•	2024	MB	616-1755

SAND/SOLID DEICER SPREADERS
(12-yard capacity)

•	2017	FREIGHTLINER	616-1335	•	2019	FREIGHTLINER	616-1454
•	2017	FREIGHTLINER	616-1336	•	2021	FREIGHTLINER	616-1543
•	2017	FREIGHTLINER	616-1344				

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SAND/SOLID/LIQUID DEICER/SPREADER
(10-yard capacity, 2,000-gallon capacity)

- 2006 FREIGHTLINER 616-939
- 2006 FREIGHTLINER 616-941
- 2014 FREIGHTLINER 616-1183
- 2015 FREIGHTLINER 616-1217

LIQUID CHEMICAL SPREADER
(4,000-gallon capacity)

- 2000 STERLING 616-779
- 2016 FREIGHTLINER 616-1281
- 2016 FREIGHTLINER 616-1327
- 2019 FREIGHTLINER 616-1461
- 2019 FREIGHTLINER 616-1462
- 2021 FREIGHTLINER 616-1545

LIGHT & SIGN PLOW

- 2016 HAGIE 616-1276
- 2020 HAGIE 616-1548

LOADERS

- 2024 CATERPILLAR 620-100
- 2024 CATERPILLAR 620-101
- 2024 CATERPILLAR 620-102
- 2024 CATERPILLAR 602-103
- 2024 CATERPILLAR 620-104
- 2024 CATERPILLAR 620-105
- 2024 CATERPILLAR 620-106
- 2024 CATERPILLAR 620-107
- 2024 CATERPILLAR 620-108
- 2024 CATERPILLAR 620-109
- 2024 CATERPILLAR 620-110
- 2024 CATERPILLAR 620-111
- 2024 CATERPILLAR 620-112
- 2024 CATERPILLAR 620-113
- 2024 CATERPILLAR 620-114
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- 2024 CATERPILLAR 620-122
- 2024 CATERPILLAR 620-123
- 2024 CATERPILLAR 620-124
- 2024 CATERPILLAR 620-125
- 2024 CATERPILLAR 620-126
- 2024 CATERPILLAR 620-127
- 2024 CATERPILLAR 620-128

RUNWAY BROOMS

- 1999 OSHKOSH/MB 616-744
- 2001 OSHKOSH/MB 616-812
- 2014 OSHKOSH 616-1194
- 2017 OSHKOSH 616-1334
- 2018 OSHKOSH 616-1446
- 2018 OSHKOSH 616-1466
- 2018 OSHKOSH 616-1467
- 2020 OSHKOSH 616-1508

GRADER

- 2020 CATERPILLAR 620-129

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TRACTORS WITH SNOWBLOWERS

• 2012	JOHN DEERE	616-1151	• 2014	JOHN DEERE	616-1188

TRACTORS WITH BROOMS

• 2009	JOHN DEERE	616-1080	• 2009	JOHN DEERE	616-1082
• 2009	JOHN DEERE	616-1081	• 2009	JOHN DEERE	616-1083

TRACTORS WITH PUSHERS

• 2009	JOHN DEERE	616-1084	• 2017	JOHN DEERE	616-1339
• 2009	JOHN DEERE	616-1085	• 2018	JOHN DEERE	616-1377
• 2010	JOHN DEERE	616-1103	• 2019	JOHN DEERE	616-1447
• 2010	JOHN DEERE	616-1104	• 2019	JOHN DEERE	616-1448
• 2017	JOHN DEERE	616-1337	• 2019	JOHN DEERE	616-1449
• 2017	JOHN DEERE	616-1338			

TRIAXLE DUMP TRUCK

• 2002	FREIGHTLINER	616-825	• 2002	FREIGHTLINER	616-829
• 2002	FREIGHTLINER	616-826	• 2016	FREIGHTLINER	616-1277
• 2002	FREIGHTLINER	616-827	• 2016	FREIGHTLINER	616-1278
• 2002	FREIGHTLINER	616-828	• 2016	FREIGHTLINER	616-1279

SKIDSTEERS

• 2006	BOBCAT	616-946	• 2010	BOBCAT	616-1095
• 2007	BOBCAT	616-972	• 2014	BOBCAT	616-1218

TOOLCATS
(UTV with front bucket/broom and dump bed)

• 2018	BOBCAT	616-1469	• 2018	BOBCAT	616-1471
• 2018	BOBCAT	616-1470	• 2018	BOBCAT	616-1472

ROAD PLOWS

• 2014	FREIGHTLINER	616-1184	• 2019	FREIGHTLINER	616-1445
• 2014	FREIGHTLINER	616-1185	• 2019	FREIGHTLINER	616-1463
• 2015	FREIGHTLINER	616-1219	• 2019	FREIGHTLINER	616-1464

Exhibit 317-1 - ARFF Equipment/Personnel

Vehicle Call Sign	Crash 14	Crash 15	Crash 19	Crash 16	Crash 18	Crash 17
Year	2021	2024	2014	2022	2024	2024
Manufacturer	Oshkosh	Oshkosh	Oshkosh	Oshkosh	Oshkosh	Oshkosh
Model	Global Striker	Global Striker	Global Striker	Global Striker	Global Striker	Global Striker
Condition of Vehicle	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Number of Personnel Assigned to Vehicle	1	1	1	1	1	1
Water capacity (gallons)	3000	4500	3000	3000	4500	4500
Main Turret Discharge rate (gal/min)	1250	1250	1250	1250	1250	1250
F3 capacity (gallons)	420	630	420	420	630	630
Halotron capacity (pounds)	460	460	460	460	460	460
Dry Chemical capacity (pounds)	500	500	500	500	500	500
Water Fire Extinguisher	1 - 2.5 gal	1 - 2.5 gal	1 - 2.5 gal	1 - 2.5 gal	1 - 2.5 gal	1 - 2.5 gal
Purple K Fire Extinguisher	1 - 20 lb	1 - 20 lb	1 - 20 lb	1 - 20 lb	1 - 20 lb	1 - 20 lb
Clean Agent Fire Extinguisher	1 - 13.25 lb	1 - 13.25 lb	1 - 13.25 lb	1 - 13.25 lb	1 - 13.25 lb	1 - 13.25 lb
Additional Info	w/HRET (Snozzle)	w/HRET (Snozzle)	w/HRET (Snozzle)	w/HRET (Snozzle)	w/HRET (Snozzle)	w/HRET (Snozzle)

FAA Approval: Pete Williams

FAA Airports Date: Dec 02 2025

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Exhibit 321-1 - Fuel System Inspection Report

METROPOLITAN AIRPORTS COMMISSION FIRE DEPARTMENT
FUELING INSPECTION REPORT

Date of Inspection:	Inspection Conducted By:
Type of Inspection: Quarterly ☐ Spot ☐ Equipment Entering Service ☐	
Equipment / Facility Operator: Swissport ☐ Signature ☐ Other	
Inspection Type: Hydrant Cart ☐ Hydrant Truck ☐ Tanker Truck ☐ Fuel Ladder ☐ Facility ☐	
Equipment Number / Facility _____ Pass ☐ Fail ☐ O/S ☐	

Violation Number	Code Selection	Days to Correct	Corrective Action	Date Corrected	Inspector Initials

Additional notes:

Send Correspondence to:
METROPOLITAN AIRPORTS COMMISSION
FIRE DEPARTMENT
6920 34th Avenue South
Minneapolis, MN. 55450
Phone: 612-726-5005

Fueling Inspection Form 2025

Exhibit 325-1 - Airport Emergency Plan

Exhibit maintained as a separate document.

Exhibit 327-1 - Daily Self-Inspection Forms

Minneapolis/St. Paul International Airport

Master Self-Inspection # 573007

11/6/2025 7:55:19 AM

Inspection Type: Daily - Day	**Status: CLOSED**	**Inspector: Handeland, Zeb**
Inspection Desc:	**Start: 11/6/2025 7:55:19 AM**	**End: 11/6/2025 1:35:11 PM**

Zone(s) Inspected

04-22

12L Deice Pad

12L-30R

12R Deice Pad

12R-30L

17 Deice Pad

17-35

30L Deice Pad

30R Deice Pad

A-B Alley

Aerodrome

E-F Alley

EMAS

Infield Cargo Apron

Jet Blast Barriers

L5 Apron

Minneapolis/St. Paul International Airport

Master Self-Inspection # 573007

11/6/2025 7:55:19 AM

Zone(s) Inspected

Runup Pad

Terminal 1 Apron

Terminal 2 Apron

Terminal 2 Remote Apron

TWY A

TWY A1

TWY A10

TWY A2

TWY A3

TWY A4

TWY A5

TWY A7

TWY A8

TWY A9

TWY B

TWY B8

TWY C

TWY C1

Minneapolis/St. Paul International Airport

Master Self-Inspection # 573007

11/6/2025 7:55:19 AM

Zone(s) Inspected

TWY C10

TWY C2

TWY C5

TWY C6

TWY C9

TWY D

TWY G

TWY G1

TWY G2

TWY H

TWY J

TWY K

TWY K1

TWY K10

TWY K2

TWY K3

TWY K6

TWY K8

Minneapolis/St. Paul International Airport

Master Self-Inspection # 573007

11/6/2025 7:55:19 AM

Zone(s) Inspected

TWY L

TWY L10

TWY L3

TWY L5

TWY L6

TWY L7

TWY L9

TWY M

TWY M2

TWY M6

TWY N

TWY P

TWY P1

TWY P10

TWY P2

TWY P3

TWY P4

TWY P8

Minneapolis/St. Paul International Airport

Master Self-Inspection # 573007

11/6/2025 7:55:19 AM

Zone(s) Inspected

TWY P9

TWY Q

TWY R

TWY R10

TWY R3

TWY R4

TWY R5

TWY R6

TWY R7

TWY R8

TWY R9

TWY S

TWY S1

TWY S2

TWY S3

TWY S4

TWY T

TWY W

Minneapolis/St. Paul International Airport

Master Self-Inspection # 573007

11/6/2025 7:55:19 AM

Zone(s) Inspected

TWY W1

TWY W10

TWY W2

TWY W3

TWY W5

TWY W6

TWY W7

TWY W8

TWY W9

TWY Y

TWY Z

West Cargo Apron

Minneapolis/St. Paul International Airport

Master Self-Inspection # 573007

11/6/2025 7:55:19 AM

Attached Images

Linked Service Requests and NOTAMS with No Assigned Zones:

Service Request #	Template Description
120199	Wildlife Control/Harassment/Observation
120200	Foreign Object Debris
120203	Foreign Object Debris
120210	Wildlife Control/Harassment/Observation

Linked Inspections with SRs:

InspectionId	Template Inspection	LinkType

Linked Inspections with WOs:

InspectionId	Template Description	LinkType

MAC Airside Operations Protocol

FAR Part 139 Inspection Compliance

Daily Checklist (to be completed after day and night inspections). Signed form should be scanned into Cityworks "Shift" entry for the Duty Manager that signs the form.

Night Inspection ☐ **Day Inspection** ☐

Complete	N/A	
☐		Appropriate time between inspection start and end times
☐		All zones inspected during inspection noted as 'inspected'
☐		Field conditions issued for every applicable surface inspected during inspection
☐	☐	All appropriate Work Orders and Service Requests linked to inspection (N/A checked if no Work Orders or Service Requests during inspection period were created or modified)
☐		FICON process complete (FICON collection app, Cityworks reporting, D-NOTAM, and Aerobahn).
☐	☐	Technical problems documented in Cityworks and IT ticket submitted (Cc: Airside, Scapple, Nobbs)

Notes: _____

_____

_____

_____

Assistant Manager		Duty Manager	
Date:	***Time:***	***Date:***	***Time:***
_____ (_____)		_____ (_____)	
Signature	***Ops#***	***Signature***	***Ops#***

Document #: 188-09 Revised: 03/21/23 Reviewed: 03/21/23

METROPOLITAN AIRPORTS COMMISSION

ORDINANCE No. 132

AIR OPERATIONS AREA OPERATING ORDINANCE

Adopted by Commission: December 16, 2024
Effective Date: September 1, 2025

METROPOLITAN AIRPORTS COMMISSION

ORDINANCE 132

AIR OPERATIONS AREA OPERATING ORDINANCE

An Ordinance to promote and conserve public safety, health, peace, convenience and welfare, by regulating operations on the Air Operations Area at the Minneapolis-St. Paul International Airport, which is owned by or under the supervision and control of the Metropolitan Airports Commission; prescribing the penalties for Violation thereof and repealing Ordinance 127.

The Metropolitan Airports Commission does ordain:

SECTION 1. DEFINITIONS

The following words and phrases when used in this Ordinance shall have the meanings respectively ascribed to them in this section:

1.1 12 Consecutive Calendar Months. Twelve months that are uninterrupted and ends on the last day of the twelfth month. For example, if a Driver completes required training on January 1, 2025, 12 Consecutive Calendar Months will end on January 31, 2026.

1.2 24 Consecutive Calendar Months. Twenty-four months that are uninterrupted and ends on the last day of the twenty-fourth month. For example, if a Driver completes required training on January 1, 2025, 24 Consecutive Calendar Months will end on January 31, 2027.

1.3 Accident. An event which involves at least one or more Vehicles, which results in injury or property damage.

1.4 Aircraft. A device that is used or intended to be used for flight in the air.

1.5 Aircraft Taxi Operator. Any non-Flight Crew Person in physical control of a taxiing Aircraft for the purpose of maintenance or re-positioning.

1.6 Air Operations Area (AOA). Any area of the Airport owned by or under the supervision and control of the Commission that is used or intended to be used for landing, taking off or surface maneuvering of Aircraft. This area also includes all Aprons, roadways, the Tug Drive and all other areas shown on Exhibit III or as amended by the Airport Director, within the Airport Security Perimeter. It is intended for use by Persons for the operation of Aircraft, ground support Vehicles, and other authorized Vehicles related to Airport operations, and includes all exclusive leasehold areas.

1.7 Airport. Minneapolis-St. Paul International Airport, Wold-Chamberlain Field, a public Airport under the supervision and control of the Metropolitan Airports Commission in Hennepin County, Minnesota.

1.8 Airport Certification Manual. The Airport Certification Manual, required by 14 C.F.R. Part 139.201, which includes operating procedures, facilities and equipment descriptions, and other information needed by personnel in order to comply with Subpart D of 14 C.F.R. Part 139, or as amended.

1.9 Airport Director. The administrative officer of the Metropolitan Airports Commission in charge of Airport Operations, or their designee. This role is currently served by the Vice President, Management and Operations.

1.10 Airport Traffic Control Tower (ATCT). A central operations facility in the terminal air Traffic control system, consisting of a tower cab, including an associated room using air/ground communications and/or radar, visual signaling and other devices, to provide safe and expeditious movement of terminal air Traffic. This facility is operated by the Federal Aviation Administration (FAA) and is commonly referred to as the Tower.

1.11 Apron. Portions of the Airport designated and made available, temporarily or permanently, by the Airport Director for the loading and unloading of passengers or cargo on and off Aircraft.

1.12 Authorized Emergency Vehicle. Any of the following Vehicles when equipped and identified according to law: (1) a Vehicle of a fire department; (2) a publicly-owned police Vehicle or a privately-owned Vehicle used by a police officer for police work under agreement, express or implied, with the local authority to which the officer is responsible; (3) a Vehicle of a licensed land emergency ambulance service, whether publicly or privately owned; (4) an emergency Vehicle of a municipal department or a public service corporation, approved by the Commissioner of Public Safety of the State of Minnesota or the chief of police of a municipality; (5) any volunteer rescue squad operating pursuant to Chapter 53, Laws 1959; (6) a Vehicle designated as an Authorized Emergency Vehicle upon a finding by the Commissioner of Public Safety of the State of Minnesota that the designation of that Vehicle is necessary to the preservation of life or property or to the execution of emergency governmental functions.

1.13 Baggage Cart. Every non-motorized device, which is pulled by a Vehicle and designed to transport luggage or mail and includes dollies used for transporting cargo, mail or luggage.

1.14 Beacon. A yellow flashing light, which could include one or a combination of the following: LED light bars, rotating lights or strobe lights. Other than Authorized Emergency Vehicles, only yellow, or yellow and white alternating, lights are authorized for all Vehicles.

1.15 Bicycle. Every non-motorized device propelled solely by human power upon which any Person may ride. This includes motorized Vehicles with three or fewer wheels.

1.16 Brake Rider. A Person with an MSP Driver's License and appropriate Endorsement in the Flight Deck to operate an Aircraft's brakes, if needed, while the Aircraft is being towed or moved for maintenance or relocation purposes. The Brake Rider may serve as the primary Person communicating with the ATCT. This definition does not pertain to Flight Crew Persons during live flight operations.

1.17 Commission. The Metropolitan Airports Commission, a public corporation organized and operating under Minnesota Law.

1.18 Company. An entity that employs Drivers.

1.19 Conditional Movement Area Permit (CMAP). A temporary authorization issued by the Airport Director which allows a Person to operate on the Movement Area under the guidelines identified on the permit.

1.20 Critical Area. A designated area of defined dimensions around the localizer and glideslope antennas intended to prevent interference to the Instrument Landing System (ILS) signal. A Critical Area is considered "Protected" when the Instrument Landing System (ILS) antenna associated with that Critical Area is in use and the ceiling is below 800 feet OR the visibility is below two miles.

1.21 Designated Roadway. Any portion of the AOA marked by two parallel lines designed primarily for the safe and orderly movement of Vehicles.

1.22 Driver. The Person in operating control of a Vehicle.

1.23 Drivers' Training Center (DTC). The office responsible for coordination, implementation and tracking of Driver training, testing, licensing and/or administration of this Ordinance.

1.24 Endorsement. The level of driving privilege(s) granted by an MSP Driver's License under this Ordinance.

1.25 Escort. Authorized Person(s) in possession of a valid MSP Driver's License with the appropriate Endorsement responsible for accompanying, monitoring, directing and controlling the actions of another Person on the Movement Area who is not in possession of a valid MSP Driver's License with the appropriate Endorsement. The Authorized Person(s) must be accompanying the other Person in the performance of direct job duties.

1.26 Executive Director/CEO. The Commission's chief executive officer, Executive Director or a designated representative.

1.27 Field Rules. Commission rules for operating on the AOA.

1.28 Flight Crew. Pilot, flight engineer, or flight navigator assigned to duty during Aircraft flight arrival or departure time.

1.29 Flight Deck. The area on an Aircraft from which a pilot controls the Aircraft. Also referred to as the cockpit.

1.30 Foreign Object Debris (FOD). Any object that can cause damage by entering the engine or flight control mechanisms or striking any of its components.

1.31 Gate. An area of the AOA specifically designated and made available for the sole use of Parking by an Aircraft.

1.32 Hearing Officer. The Person who shall conduct hearings pursuant to the provisions to this Ordinance.

1.33 Limited State Driver's License. A state Driver's license which limits a Person's ability to drive or operate a Vehicle. Examples of limitations are time of day, day of week or type of Vehicle. In Minnesota, this type of license is issued under Minn. Stat. section 171.30.

1.34 Low Visibility Operations Plan. The control of movement of Aircraft or Vehicles within the AOA when visibility is below 1,200 feet as determined by Runway Visual Range (RVR) equipment, as required by the Federal Aviation Administration (FAA). This is also referred to as the Surface Movement Guidance Control System (SMGCS) Plan.

1.35 MAC Representative. Any Person(s) authorized by the Airport Director to direct or coordinate Driver safety at the Airport, including but not limited to the Airport Police Department.

1.36 Marshaller. A Person who directs an Aircraft as it moves to or from a Gate.

1.37 Movement Area. All Runways, Taxiways and Safety Areas as shown on attached Exhibit III.

1.38 Movement Area Endorsement (MA Endorsement). A certification issued by the Commission permitting a Person to operate a Vehicle or be a Pedestrian in the Movement Area. This Endorsement has various subcategories as detailed in Section 2.3(d)(2).

1.39 Movement Area Violation. The crossing or entering of any Movement Area by a Person or Vehicle without the appropriate MSP Driver's License Endorsement, CMAP or Escort; or, the crossing or entering of a closed Runway without approval of the Commission's Airside Operations Department (or its successor).

1.40 MSP Driver's License (License). A certification issued by the Commission granting the privilege to operate a Vehicle on the Air Operations Area.

1.41 Non-Movement Area. All Parking areas, cargo areas, service roads, Tug Drives, Aprons, and all those areas within the AOA that are not specifically designated as Movement, Safety or Critical Areas.

1.42 Non-Movement Area Endorsement (NMA Endorsement). A certification issued by the Commission permitting a Person to operate a Vehicle in the Non-Movement Area.

1.43 Off-Gate Deicing. The deicing of Aircraft abeam a Gate while on a Taxiway or Taxiway Safety Area.

1.44 Owner. A Person having current right of possession and/or control of a Vehicle.

1.45 Owner Approved Contact. Those Person(s) responsible for the authorization of a Driver's driving privileges on the Airport relating to the performance of direct job duties.

1.46 Parking. The standing of a Vehicle on the AOA whether accompanied or unaccompanied by the Driver thereof.

1.47 Passenger Loading Bridge. A device used to enplane and deplane passengers from the Aircraft door to the connector terminal lounge or pier.

1.48 Pedestrian. Any Person afoot or in wheelchair.

1.49 Person. Every natural Person, firm, co-partnership, association, corporation, or body politic; this includes any trustee, receiver, assignee, or other similar representative thereof.

1.50 Pushback. A procedure where Aircraft back up under the power of another Vehicle.

1.51 Revocation. The discontinuance of a Person's ability to operate a Vehicle on the AOA. This includes, but is not limited to, revoking or restricting the Person's MAC issued MSP Driver's License and any/all Endorsements.

1.52 Right-of-Way. The privilege of the immediate use of a street, road, Gate, Apron, Taxiway or Runway.

1.53 Runway. A defined rectangular area used for landing and takeoff of Aircraft along its length. This surface includes the associated Safety Area(s).

1.54 Runway Incursion. The entering of any open Runway, including the associated Safety Area, or Protected Critical Area, without positive clearance from the Airport Traffic Control Tower.

1.55 Safety Areas. A designated area abutting the edges of a Runway or Taxiway intended to reduce the risk of damage to an Aircraft inadvertently leaving the Runway or Taxiway.

1.56 Security Perimeter. That portion of the Airport which is enclosed by fencing, walls, or other barriers and to which access is controlled through designated entry points.

1.57 Stopping. Any halting, even momentarily, of a Vehicle, whether occupied or not, except when necessary to avoid conflict with other Traffic or when in compliance with the directions of a MAC Representative or a Traffic control sign or signal.

1.58 Suspension. Temporary discontinuance of a Person's ability to operate a Vehicle on the AOA. This includes, but is not limited to, suspending or restricting the Person's MAC issued MSP Driver's License and any/all Endorsements.

1.59 Taxi. A procedure where Aircraft are moving under their own power for the purpose of maintenance or re-positioning.

1.60 Taxiway. A surface primarily designed to provide access for Aircraft to and from the Runways to other areas of the Airport, including the terminal areas, in an expeditious manner. This surface includes the associated Safety Area(s).

1.61 Taxiway Restrictions. Any limitation on the use of a Taxiway for safety reasons.

1.62 Traffic. Pedestrians, Vehicles and other conveyances, either singly or together, while using any street, road, Parking area, Tug Drive, Movement or Non-Movement Areas for purposes of travel.

1.63 Trailer. Every non-motorized device that is pulled by a Vehicle and designed to transport equipment, materials and/or tools.

1.64 Tow. A procedure where Aircraft are moving under the power of another Vehicle. This does not include Pushback.

1.65 Tow Vehicle Operator. The Person responsible for operating the Vehicle towing, moving or relocating the Aircraft in a safe manner.

1.66 Tug. A Vehicle designed to push or pull Baggage Carts or Aircraft.

1.67 Tug Drive. Any roadway within the T1-Lindbergh and T2-Humphrey Terminal Buildings designed for use primarily by Tugs and Baggage Carts.

1.68 Vehicle. Every device in, upon, or by which any Person or property is or may be transported or drawn upon land. This includes Baggage Carts, Trailers and any other device designed to be towed by another Vehicle. Vehicle excludes Aircraft except any Aircraft that is being towed or operated by non-Flight Crew Person(s). Aircraft taxiing operations for maintenance and/or repositioning are covered under this definition.

1.69 Wing Walker. A Person situated at or near an Aircraft's wingtip and is responsible for properly signaling the Pilot, Marshaller and/or Tow Vehicle Operator of potential dangers.

SECTION 2. DRIVER REQUIREMENTS

2.1 All Drivers.

a. Valid State Driver's License. Each Driver must have a valid state Driver's license, a valid Driver's license issued by a U.S. Territory, or a Limited State Driver's License that allows the Person to operate a Vehicle on public roadways during the time that they are operating a Vehicle. Prior to application for a MSP Driver's License, a Company shall confirm that its Driver has one of the aforementioned Licenses.

b. Produce Upon Request. Each Driver shall carry his or her state Driver's License at all times while operating a Vehicle on the AOA and produce the state Driver's License upon demand to a MAC Representative. No Person will be charged with violating this provision if the Person produces their Driver's License for inspection by a MAC Representative within 24 hours.

c. Security Badge. Each Driver must meet the Personnel Identification Badge requirements in Ordinance 117, or as amended.

d. Harm to MAC Representatives. No Driver shall take any actions that threaten the safety of MAC Representatives, cause harm to a MAC Representative, or interfere with the safety and efficiency of Airport operations.

e. Requirement to Report.

1. Drivers must report all Vehicle Accidents to the Airport Police Department.

2. All Persons possessing an MSP Driver's License must immediately notify the Drivers' Training Center of any Suspension, Revocation or restriction of their state Driver's license.

3. A Company must immediately notify the Drivers' Training Center if it becomes aware that a Driver's state driver's license has been suspended, revoked or restricted.

2.2 Air Operations Area.

a. Necessary To Operate. No Driver shall operate, and no Person shall allow a Driver to operate, a Vehicle on the AOA without: (1) a current, valid MSP Driver's License and the appropriate Non-Movement Area Endorsement or Movement Area Endorsement (2) an Escort by a Person with a valid MSP Driver's License and the appropriate Non-Movement Area Endorsement or Movement Area Endorsement; or, (3) an exception provided by this Ordinance. No Driver shall operate, and no Person shall allow a Driver to operate, a Vehicle on the AOA with suspended or revoked driving privileges.

b. AOA Credentials. A Driver shall not operate a Vehicle on the AOA unless they have met all training and testing requirements prescribed by this Ordinance. A Driver shall not operate a Vehicle on the AOA unless they are in possession of any documentation that the Airport Director requires to be on their Person during operation. Any required documentation shall be produced upon demand of a MAC Representative.

c. English Language Proficiency. Drivers with a Movement Area Endorsement must have a demonstrated ability to proficiently read, speak and understand the English language such that the Driver can communicate and be communicated with on the Movement Area. Drivers with a Non-Movement Area Endorsement must have a basic proficiency of the English language such that the Driver can read and understand signage used on the AOA.

d. Conditional Movement Area Permits.

1. A Driver who does not have a Movement Area Endorsement may drive on the Movement Area if he or she has a Conditional Movement Area Permit (CMAP) issued by the Airport Director and an MSP Driver's License. To qualify for a CMAP, Drivers shall meet the requirements of Sections 2.1 and 2.2.

2. The Driver must follow any conditions as set forth on the CMAP.

3. The CMAP expires at 11:59 p.m. on the date stated in the permit.

e. Audit. Upon request of the Drivers' Training Center, a MAC Representative shall be allowed to accompany and observe any Vehicle or Aircraft Tow or Taxi operation.

2.3 Requirement(s) to Obtaining an MSP Driver's License. Upon application, the Airport Director may issue a nontransferable MSP Driver's License to a Person who meets the following requirements. Driver(s) shall abide by these training and testing qualifications throughout the term of their MSP Driver's License.

a. Non-Movement Area.

1. Training. Prior to obtaining a Non-Movement Area Endorsement, a Driver must complete Driver's training provided by the Commission to learn the rules for driving on the AOA in Non-Movement Areas. Each Driver must complete Commission-approved Driver's training at least once every 24 Consecutive Calendar Months.

b. Movement Area.

1. Training. Prior to obtaining a Movement Area Endorsement, a Driver:

(a) must complete the Driver's training identified in Section 2.3(a)(1).

(b) should complete Movement Area Driver's training to learn the rules for driving on the Movement Area. Drivers may receive the training directly from the Commission or through other means using Commission-approved training materials. Each Driver should attend Commission-approved Driver's training at least once every 12 Consecutive Calendar Months.

2. Testing. Prior to receiving a Movement Area Endorsement, a Driver must complete Drivers' testing.

(a). Each Driver must successfully pass a test developed by the Commission to demonstrate the Driver's knowledge of the Airport, Traffic and safety rules for the Movement Area, and the requirements of this Ordinance. Each Driver must successfully complete the testing at least once every 12 Consecutive Calendar Months.

(b). Drivers pursuing a Runway or Taxiway Endorsement must successfully pass a practical driving test developed by the Commission at least once, or more as required by the Airport Director. To help prepare for this practical driving test, a Driver may operate a Vehicle on the Movement Area with a Runway or Taxiway Endorsed Driver in the Vehicle with them after they pass the test identified in Section 2.3(b)(2)(a).

This practical driving test must be taken within 75 days of passing the test identified in Section 2.3(b)(2)(a).

c. Remedial Training and Testing. The Airport Director may require a Driver to attend remedial training and testing after an Accident, incident, incursion or other similar situations if the Airport Director determines that the Driver's performance may be improved.

d. Endorsement. The Airport Director must approve the appropriate Endorsement(s) for each Driver. The MSP Driver's License Endorsements are defined as follows:

1. Non-Movement Area.

(a) Ramp/Road Endorsement. This Endorsement authorizes Drivers to operate a Vehicle on the Non-Movement Area on the AOA while in the direct performance of their job duties.

2. Movement Area.

(a) Taxiway Endorsement. This Endorsement authorizes Drivers to operate a Vehicle on all Taxiways and Taxiway Safety Areas at the Airport while in the direct performance of their job duties.

(b) Runway Endorsement. This Endorsement authorizes Drivers to operate a Vehicle on all Runways, Taxiways and associated Safety Areas at the Airport while in the direct performance of their job duties.

(c) Aircraft Pushback Endorsement. This Endorsement authorizes Drivers to operate a Vehicle while in direct performance of their job duties to move an Aircraft from the Gate onto a Taxiway or Taxiway Safety Area, bringing the Vehicle directly back to the Gate, and to conduct Off-Gate Deicing.

(d) Aircraft Tow Endorsement. This Endorsement authorizes Drivers to operate a Vehicle when moving Aircraft on all Runways and Taxiways at the Airport while in direct performance of their job duties. The Vehicle must be attached to the Aircraft at all times when operating in the Movement Area. This Endorsement also allows non-Flight Crew Persons to serve as an Aircraft Taxi Operator or Brake Rider. This does not apply to Aircraft being operated by a Flight Crew for the sole purpose of flight. This Endorsement also authorizes Drivers to conduct Aircraft Pushback operations.

e. Limited Class. This may be applied to any of the Endorsements above and restricts the Driver to operating a Vehicle to specific restrictions or location(s) on the AOA within that Endorsement.

f. Safe and Efficient Operation. The Airport Director may deny a Driver's request for an MSP Driver's License where the interests of the traveling public and the safe and efficient operation of the Airport are best served by such denial.

g. Expiration. MSP Driver's Licenses expire at 11:59 p.m. on the date specified on the MSP Driver's License, or when a Driver's employment ends with their Company. Movement Area Endorsements shall be effective from the date of issuance until the end of 12 Consecutive Calendar Months. Non-Movement Area Endorsements shall be effective from the date of issuance until the end of 24 Consecutive Calendar Months. An expired MSP Driver's License is immediately no longer valid.

h. Current Information.

1. Each Driver must keep the Commission informed of their current address and telephone number. Drivers have 10 calendar days to report a change in address or telephone number.

2. Each Driver and/or Driver's Owner Approved Contact must inform the Commission of any changes in employment, which includes when a Driver no longer needs access to the AOA. This notification must take place prior to the expiration of the Driver's MSP Driver's License.

SECTION 3. VEHICLE REQUIREMENTS

3.1 Placement of Reflectorized Tape and Vehicle Identification.

a. Reflectorized Material. All Vehicles normally assigned to operate within the AOA shall display reflectorized material on the sides of each Vehicle, except as set forth below. The reflectorized material shall be in the form of striping and/or a Company logo or identification of a minimum of one hundred (100) square inches on each side.

b. Lack of Headlights and Taillights. Any Vehicle not manufactured with taillights or headlights must have a minimum of one hundred (100) square inches of reflectorized material on each side and the front and rear of such Vehicle.

c. Baggage Carts/Trailers. Baggage Carts and Trailers shall have a minimum of one hundred (100) square inches of reflectorized material affixed to each side and the front and rear of each cart, to the extent possible, and at least two red reflectors or lights affixed to the rear of each Baggage Cart/Trailer.

d. Logos. Motorized Vehicles, except Authorized Emergency Vehicles, operating within the AOA shall display a logo, Company identification, or other means of identification acceptable to the Airport Director. The logo, Company identification, or other means of identification must be a minimum size of one hundred (100) square inches and be displayed on the Driver and passenger side of each Vehicle. The logos must be of reflectorized material if Section 3.1(a) is not met by other reflectorized material. Logos

must not be displayed inside a Vehicle window but may be displayed on the exterior side of a Vehicle window as long as they do not obstruct the Driver's vision. Handwritten logos are not acceptable.

3.2 Vehicle Lights and Beacons.

a. Beacons. All motorized Vehicles, except Aircraft Tugs, baggage Tugs, belt loaders, or other equipment or Vehicles exempted by the Airport Director shall be equipped with a Beacon. The Beacon shall be located on the highest point of the Vehicle in a location visible from 360 degrees around the Vehicle, unless exempted by the Airport Director. The Beacon must be on at all times when operating in the AOA.

b. Emergency Vehicles. Section 3.2(a) is not applicable to Authorized Emergency Vehicles when they are responding to an emergency call.

c. Headlights and Taillights. All motorized Vehicles manufactured with headlights and taillights must operate with working headlights and red taillights.

d. Brilliance. All motorized Vehicles shall have lights of sufficient brilliance to assure safety in driving.

3.3 Vehicle Safety. Every motorized Vehicle shall have a steering mechanism, tires, and brakes in good working condition.

3.4 Vehicle Windows and Mirrors.

a. Mirrors. Every motorized Vehicle shall be equipped with at least one mirror, so adjusted that the operator of such Vehicle has a clear view of the area behind for a distance of at least two hundred (200) feet. This section does not apply to specialized Airport and Aircraft servicing equipment not licensed for general highway use and/or having an open cab which provides the Driver with unobstructed three hundred sixty (360) degree visibility.

b. Windshield. No motorized Vehicle windshield shall be cracked or discolored to an extent to limit or obstruct proper vision.

c. Posters, Stickers, and Signs. No Vehicle shall have posters, stickers, signs or other objects on the windows of such Vehicle to an extent to limit or obstruct proper vision.

3.5 Vehicle Operation. In the event that a Vehicle has a deficiency for one of the items listed in this section, the Vehicle shall not be operated on the AOA until the deficiency for which the Notice of Violation is issued has been corrected. The Person may be required to present the Vehicle for inspection to a MAC Representative prior to resuming operations.

a. Nonfunctioning headlight(s).

b. Nonfunctioning taillight(s).

c. Nonfunctioning Beacon.

d. Unsafe tire(s), brake(s) or steering mechanism.

e. Any other unsafe or dangerous condition, as determined by a MAC Representative.

3.6 Aircraft Exception. Section 3 and the terms Vehicle or Driver as used in Section 3 do not apply to Aircraft.

3.7 Vehicle Insurance. Company is required to maintain a minimum of $5,000,000 commercial automobile liability insurance for any Vehicle operated on the AOA, or a greater amount if required by a contract with the Commission. The Metropolitan Airports Commission must be included as an additional insured on the policy.

SECTION 4. VEHICLE OPERATING REQUIREMENTS

4.1 Speed Limits.

a. Designated Roadways and Aprons. No Person shall drive a Vehicle in excess of 15 miles per hour (mph) on Designated Roadways or on any Apron within the AOA, unless otherwise posted, and except as set forth below.

b. Taxiways. No Person shall drive a Vehicle in excess of 30 miles per hour (mph) on Taxiways.

c. Runways. No Person shall drive a Vehicle in excess of 40 miles per hour (mph) on Runways.

d. Gate Areas. No Person shall operate a Vehicle in excess of 5 miles per hour (mph) in Gate areas or within the immediate vicinity of parked Aircraft.

e. Posted Speed Limits. No Person shall drive a Vehicle in excess of a posted speed limit.

f. Exceptions. Section 4.1 shall have no application to Authorized Emergency Vehicles responding to emergency calls, Aircraft operated by Flight Crews, Vehicles conducting snow and ice removal operations or situations where the requirements of Section 4.1 are waived by the Airport Director under Section 7.2.

4.2 Reckless or Careless Driving.

a. Reckless Driving. No Person shall drive any Vehicle in such a manner as to indicate either a willful or a wanton disregard for the safety of Persons or property.

b. Careless Driving. No Person shall operate or halt any Vehicle carelessly or heedlessly in disregard of the rights of others, or in a manner that endangers or is likely to endanger any Person or any property including the Driver or passengers of the Vehicle.

4.3 Alcohol or Controlled Substance Use. No Driver shall consume or be under the influence of alcohol or a controlled substance while operating a Vehicle on the AOA. Regarding alcohol, "under the influence" means the Person's alcohol concentration at the time, or as measured within two hours, of driving or being in physical control of a Vehicle is .04 or more. "Controlled substance" has the meaning given in Minnesota Statutes Section 152.01, subd. 4 or as amended.

4.4 Open Bottle. No Driver shall violate the Minnesota Open Bottle Law or Open Package Law as found in Minnesota Statutes Sections 169A.35 and 169A.36 or as amended.

4.5 Driving Areas.

a. Designated Roadways.

1. Any Person driving a Vehicle within the AOA shall use Designated Roadways when available and to the extent possible.

2. If a Vehicle's destination is located off the Designated Roadway, the Driver of the Vehicle shall use the Designated Roadway as long as reasonable.

3. All Drivers shall operate Vehicles on the right-hand side of the Designated Roadway as defined by the direction of travel.

4. Drivers shall not unload, park on, or block the Designated Roadway.

b. Aircraft Exception. Section 4.5(a) does not apply to Vehicles pushing back or towing Aircraft.

c. Movement Area. Except as provided in Section 4.5(c)(2), no Driver may operate Vehicles on the Movement Area, unless the following requirements are met:

1. Driver Requirements.

(a) The Driver has a valid MSP Driver's License with the appropriate Endorsement and a demonstrated need to enter the Movement Area; and,

(b) The Driver must follow the instructions of the Air Traffic Control Tower; and,

(i) The Driver is taxiing an Aircraft or is operating a Vehicle pushing back or towing an Aircraft, receives permission from the ATCT prior to entering the Movement Area, and operates under positive control while on the Movement Area; or,

(ii) The Driver is operating a Vehicle that is equipped with an operable two-way radio capable of communication with the ATCT and is monitoring the appropriate air traffic control frequency while in the Movement Area and receives permission via two-way radio

prior to crossing or penetrating the Runway environment as required by ATCT radio communications procedures and/or the Airport Certification Manual and/or Field Rules.

2. The Driver is Escorted by a Vehicle operated by another Driver that meets the requirements of Section 4.5(c) (1) or has been issued a Conditional Movement Area Permit by the Airport Director.

d. Taxiways. When used as part of the Designated Roadway system for normal travel, a Person may operate a Vehicle on or across the Movement Areas, as shown in Exhibit III, without prior approval. The Taxiways as shown in Exhibit III are:

"D" Taxiway
"T" Taxiway
"W" Taxiway

e. Gates. No Person shall drive a Vehicle beyond two (2) Gates from the current Gate without using the Designated Roadways unless such Vehicle is towing an Aircraft. This does not apply to Persons conducting operations in adjacent Gates.

f. Tug Drive. No Person shall leave a Vehicle idling inside a Tug Drive.

g. Runway Incursions and Movement Area Violations.

1. No Person may commit a Runway Incursion.

2. No Person may commit a Movement Area Violation.

h. Unauthorized Areas. No Driver may drive through a closed or unauthorized area without a MAC Representative's approval.

4.6 Driving Rules.

a. Right-of-Way.

1. Each Driver shall give Right-of-Way to Aircraft at all times, without exception.

2. Each Driver shall give the Right-of-Way to all Vehicles pushing back or towing Aircraft, unless directed by the Marshaller or Wing Walker to proceed.

b. Designated Roadways.

1. All Drivers of Vehicles shall enter the Designated Roadway at a 90-degree angle, at the closest point that it can be done safely. This does not apply to Vehicles Pushing Back or towing Aircraft.

c. Following Distance. When following other Vehicles, all Drivers shall follow at a safe distance in order to insure against Accidents should the leading Vehicle have to make a sudden stop.

d. Passing. Passing of other Vehicles is only allowed when it can be done safely and is authorized.

e. Baggage Carts. No Person shall drive a Vehicle towing more than five Baggage Carts within the AOA.

f. Marshaller. No Person shall drive between an Aircraft and a Marshaller unless approved by the Marshaller or Aircraft.

g. Accidents. No Person shall leave the scene of an Accident until authorized by an Airport police officer.

h. Escorts. If a Driver requires an Escort while on the Movement Area, a proper Escort must be maintained at all times. If a proper Escort is not maintained, the Person Escorting and the Person being Escorted can be assessed a Violation. Vehicles Pushing Back or towing Aircraft, and Aircraft are prohibited from Escorting other Vehicles.

i. Fleeing or Eluding a MAC Representative. No Person shall flee or attempt to elude a MAC Representative.

j. Electronic Devices.

1. While operating on the AOA, Drivers must comply with the provisions of Minnesota Statutes Section 169.475, commonly referred to as the Minnesota Hands Free Law.

2. While operating in the Movement Area, Drivers may not use a cellular phone, radio, laptop, tablet, or a similar electronic device for personal use (i.e., a use that is not in the direct performance of their job duties).

4.7 Traffic Control. Drivers shall obey all posted regulatory markings, Traffic signals, and all instructions of a MAC Representative, the Airport Traffic Control Tower, or an officer charged with Traffic control and enforcement.

4.8 Safety.

a. Headlights and Taillights. No Person shall drive a Vehicle unless the Vehicle's taillights and low headlights are illuminated during the following periods: at any time from sunset to sunrise; at any time when it is raining, snowing, sleeting, or hailing; and at any other time when visibility is impaired by weather, smoke, fog, or other conditions; or, when there is not sufficient light to render Persons and Vehicles clearly discernible on the AOA at a distance of 600 feet.

b. Vehicle Lighting. No Person shall drive a Vehicle with the high beam headlights or only the

Parking lights on unless authorized by the Airport Director.

c. Seat Belts. All Persons shall wear seat belts, if available.

d. Transporting Passengers. No Person may transport Passengers in any Vehicle unless that Vehicle is equipped with a seat intended for use by a Person other than the Driver. A minimum of one seat per passenger shall be provided.

e. Extended Superstructure or Unsecured Load. No Person shall operate a Vehicle if his or her direction of movement is obstructed by an extended superstructure or unsecured load.

f. Low Visibility Operations Plan. Per the conditions of the MSP Low Visibility Operations Plan, no Person shall operate a Vehicle on the AOA when visibility is less than 300 feet or otherwise as determined by the Low Visibility Operations Plan.

g. Unsafe Conditions. No Person shall drive in a manner unsafe for the conditions.

h. Litter. No Person shall litter on the AOA or cause Foreign Object Debris (FOD).

4.9 Parking.

a. Prohibited Parking Areas. No Vehicle shall be Stopped, permitted to stand, or parked except in laid out Parking areas, other areas designated by the Airport Director, or when in compliance with the direction of a MAC Representative or Traffic control device. Without limiting the foregoing, no Vehicle shall be parked or permitted to stand, whether attended or unattended, within the AOA in any of the following areas:

1. On a sidewalk;

2. In front of a public or private driveway;

3. Within an intersection;

4. Within 10 feet of a fire hydrant;

5. On a crosswalk;

6. Within 30 feet of any flashing Beacon, stop sign or Traffic control signal located at the side of a roadway;

7. Alongside or opposite any street excavation or obstruction when such Stopping, standing or Parking would obstruct Traffic;

8. On the roadway side of any Vehicle stopped or parked at the edge or curb of a roadway; or,

9. At any place where Traffic control devices prohibit Stopping or Parking, or where

the curb or edge of the roadway is painted yellow.

10. In any areas within six feet of the Security Perimeter on both sides, the area also known as “Clear Zones”.

b. Passenger Loading Bridge or Aircraft. No Person shall park a Vehicle within an area so as to restrict the movement of a Passenger Loading Bridge or Aircraft.

c. Limited Time Areas. No Person shall park any Vehicle for a longer period than is designated on Traffic control devices marking such area.

d. Stalled Vehicle. No Driver shall allow a stalled Vehicle to remain on or near the Movement Area. As soon as the Vehicle becomes stalled, the Parking lights or warning lights of such Vehicle shall be activated, the Driver shall immediately notify the Commission's Airside Operations Department (or its successor) of the status of such Vehicle, and the Driver shall take immediate action to remove such Vehicle.

4.10 Removal of Vehicles. MAC Representatives may order any Vehicle left on the AOA in violation of this Ordinance removed and towed to some other location on or near the Airport at the Owner's expense. Such Vehicle will not be returned to the Owner except upon satisfactory proof of ownership and payment of the reasonable cost of towing and storage for such Vehicle.

4.11 Pedestrians. No Person shall use the Aprons, Taxiways, Runways or Designated Roadways as a Pedestrian walkway except in exclusive leasehold premises or as authorized by the Airport Director.

4.12 Bicycles, Tricycles and Two/Three-wheeled Motorized Devices. No Person, except police personnel, shall use a Bicycle or any motorized device with three or fewer wheels on the AOA except in exclusive leasehold premises or as authorized by the Airport Director. Some examples of three or fewer wheeled motorized devices are motorcycles, mopeds and scooters.

4.13 Emergency Vehicles. All Persons operating Vehicles within the AOA shall immediately yield the Right-of-Way to an Authorized Emergency Vehicle giving an audible or visual signal or as otherwise directed by a MAC Representative.

4.14 Snow and Ice Removal. All Persons operating Vehicles within the AOA, except as provided in Section 4.1(f) and Vehicles pushing back or towing Aircraft, shall yield the Right-of-Way to Vehicles conducting snow and ice removal operations.

4.15 Aircraft Rules - Taxiway Restrictions. No Person shall deviate from Taxiway Restrictions unless authorized by the Airport Director. Deviations from Taxiway Restrictions may be evaluated and approved on an individual basis with prior coordination between the Airport Traffic Control Tower and the Commission.

4.16 Idling of Vehicles. No Vehicle shall be left unattended with the engine running within ten (10) feet of a building.

4.17 Aircraft Towing Operations.

1. Any Company conducting Aircraft Towing Operations on the AOA must have established Driver-to-Flight Deck communications procedures.

2. If a Brake Rider is used to assist in moving, towing or relocating an Aircraft, the Brake Rider must be in direct communication with the Tow Vehicle Operator at all times.

3. The Aircraft's transponder must be on at all times while the Aircraft is being towed or taxied in the Movement Area.

4. The Aircraft's position and navigation lights must be on at all times while the Aircraft is being towed, or taxied by an Aircraft Taxi Operator, in the Movement Area.

SECTION 5. ENFORCEMENT

5.1 Compliance Checks. The Commission may, from time to time, conduct spot checks of Vehicles and Drivers using the AOA for compliance with the requirements of this Ordinance.

5.2 Notice of Violation. MAC Representatives may issue a Notice of Violation(s) for any Violation(s) of this Ordinance.

5.3 Violations Data. Violation data may be provided to a Driver's Owner Approved Contact.

5.4 Scope.

a. Violations. The sanctions set forth in this section shall apply to Persons committing any of the following:

1. Violations of this Ordinance or any laws or regulations expressly incorporated by this Ordinance;

2. Violations of any Ordinance of the Commission for which a criminal penalty may be imposed;

3. Violations while on Airport property of any law of the State of Minnesota or the United States for which a criminal penalty may be imposed;

4. Violations of AOA Field Rules; or,

5. Any other action that compromises safety on the AOA as determined by the Airport Director.

5.5 Points.

a. Points and Penalties. Drivers will be assessed the following penalties for Violations when they accumulate the point level(s) during any 24 Consecutive Calendar Month period:

0-3 Points	No Penalties.
4 Points	Letter. Driver and Driver's Owner Approved Contact will receive a letter from the DTC warning that the Driver will receive a 7-calendar day suspension if he or she is assessed 3 more points to equal 7 or more points in a 24 Consecutive Calendar month period.
7 Points	7 calendar day Suspension. Driver cannot drive anywhere on the AOA during this Suspension. Driver and Driver's Owner Approved Contact will receive a letter from the DTC advising of the Suspension.
11 Points	30 calendar day Suspension. Driver cannot drive anywhere on the AOA during this Suspension. Driver and Driver's Owner Approved Contact will receive a letter from the DTC advising of the Suspension. Driver must complete Commission approved training and/or testing before the driving privileges will be reinstated.
15 Points	Revocation. Driver cannot drive anywhere on the AOA during the Revocation period. Driver and Driver's Owner Approved Contact will receive a letter from the DTC advising of the Revocation. Driver will be unable to apply for another License or driving permission for a 24 consecutive calendar month period according to Section 5.9(c).

b. Review of Violation and Accumulating Points.

1. If a Person receives a notice of violation for accumulation of points and the violation will not result in a Suspension or Revocation, the notice shall state the grounds for the violation. A Person may appeal the issuance of a notice of violation for accumulation of points in writing to the Airport Director within 21 calendar days from the issuance date of such notice. Within 14 calendar days of the appeal, the Airport Director shall review the written appeal and shall notify the Person of the decision to affirm or vacate the appeal. The determination of the Airport Director shall be the final action of the Commission on the violation.

2. If a Person receives a notice of Suspension or Revocation or an accumulation of points that will result in an assessment, Suspension, or Revocation, the Person may request a hearing as specified in Section 5.11(b) to review the violation cited in the Notice.

5.6 Warning Tickets. MAC Representatives may issue warning tickets. If a Person is issued 3 warning tickets for the exact same violation during a 24 consecutive calendar month period, the warnings will be treated as a violation. The Person will be assessed points for the 24 consecutive calendar month period beginning on the date of the third violation.

5.7 Immediate Suspensions.

a. Conduct. Notwithstanding Section 5.8(b), MAC Representatives may immediately suspend a Driver's driving privileges for the following reasons.

1. Operating a Vehicle while having a suspended or revoked state of MSP driving privileges; or,

2. Operating a Vehicle while under the influence as defined in Section 4.3; or,

3. Operating a Vehicle as defined in a reckless manner as described in Section 4.2(a); or,

4. The Driver commits a Runway Incursion as described in Section 4.5(g)(1); or,

5. Violations where the failure to immediately suspend would jeopardize the health, safety or welfare of the traveling public.

b. Immediate Suspension Order. Upon finding cause for such immediate Suspension, a MAC Representative shall immediately issue a written order of immediate Suspension to the Person depending on the nature of the violation. The immediate Suspension order shall state the grounds for the immediate Suspension and inform the Person that he or she may present additional information to the Airport Director, if he or she chooses to request that the Airport Director vacate that order. If such additional information is presented to the Airport Director, the Airport Director shall consider such information and shall promptly affirm or vacate the order of immediate Suspension.

c. Immediate Suspension Duration. Where the immediate Suspension is for the reasons stated in Section 5.7(a)(1), the immediate Suspension shall end and the Driver's MSP driving privileges shall be reinstated when the Driver has a valid state Driver's License or valid MSP driving privileges. Where the immediate Suspension is for the reasons stated in Section 5.7(a)(2-5), the immediate Suspension shall be for such time as a MAC Representative determines that there continues to be a threat to the health, safety and welfare of the public and shall not exceed 7 calendar days. The Airport Director may initiate proceedings for Suspension or Revocation through issuance of an appropriate notice if an immediate Suspension under Section 5.7(a)(2-5) is deemed appropriate to exceed 7 calendar days.

5.8 Suspensions.

a. Conduct. MSP driving privileges may be suspended for any one of the following reasons:

1. Repeated violations for which points have been assessed, as set forth in Exhibit II.

2. Violations which are aggravated in nature by their adverse impact on the health and safety of the public or the efficient operation of the Airport.

b. Notice of Suspension. The Airport Director shall have the authority to issue a notice of Suspension. The notice of Suspension shall set forth:

1. The nature of the violation(s) which is the reason for the Suspension;

2. The date of the violation(s);

3. The length of the Suspension;

4. The date on which the Suspension shall commence;

5. The date of the notice of Suspension; and

6. The right to a hearing to review the violation cited in the notice.

The Airport Director shall review any report brought to his or her attention and may conduct additional investigation into such facts as deemed necessary in order to determine whether there are grounds for issuance of a notice of Suspension. Unless agreed to by the Driver, a Suspension shall commence not earlier than 7 calendar days from the issuance of a notice of Suspension or, where a hearing is requested, the final action of the Commission sustaining the Suspension under Section 5.11.

5.9 Revocations.

a. Conduct. MSP driving privileges may be revoked where any one of the following exist:

1. Violations that accumulate 15 points against an MSP Driver's record in a 24 consecutive calendar month period based on the points specified in Exhibit II.

2. Intentional Runway Incursion.

3. Runway Incursion with loss of life.

4. Runway Incursion with property damage.

5. Violations that indicate a willful and reckless disregard for, and which has an immediate impact on, the health, safety or welfare of the public.

b. Notice of Revocation. The Airport Director shall have the authority to issue a notice of Revocation. The notice of Revocation shall set forth:

1. The nature of the violation(s) which is the reason for the Revocation;

2. The date of the violation(s);

3. The length of the Revocation;

4. The date on which the Revocation shall commence;

5. The date of the notice of Revocation; and

6. The right to a hearing to review the violation cited in the notice.

The Airport Director shall review any report brought to his or her attention and may conduct additional investigation into such facts as deemed necessary in order to determine whether there are grounds for issuance of a notice of Revocation. Unless agreed to by the Driver, a Revocation shall commence not earlier than 7 calendar days from the issuance of the notice of Revocation or, where a hearing is requested, the final action of the Commission sustaining the Revocation under Section 5.11.

c. Duration. After a Driver's driving privileges have been revoked, the Driver shall not be eligible to drive for a period of 24 Consecutive Calendar Months from the date the Revocation commences. If a Driver has revoked MSP driving privileges, the Driver cannot operate a Vehicle in any manner on the AOA, including operating a Vehicle under Escort.

5.10 Administrative Fines. Fines will only be imposed if a Driver cannot be identified.

a. Amount. Administrative Fines shall be imposed for violations of this Ordinance as set forth in Exhibit I.

b. Notice of Assessment. MAC Representatives shall have the authority to issue a notice of assessment of fines to the Company who is the violator(s). The notice of assessment shall state:

1. The nature of the violation;

2. The date on which the violation occurred;

3. The amount of the fine; and,

4. The date of the notice of assessment.

c. Payment. Payment of fines must be received within 30 calendar days of the date on which the notice of assessment is dated or, where a hearing is requested, within 14 calendar days of the date of the Commission's final action affirming the notice of assessment under Section 5.11.

5.11 Appeal Procedure.

a. Applicability. The procedures in this section shall apply to Persons receiving a notice of assessment, Suspension, Revocation, or loss of driving privileges, but not an accumulation of points under Section 5.5(b)(1).

b. Request for Hearing. Any Person receiving a notice of assessment, Suspension or Revocation may request a hearing before a Hearing Officer. Such request must be made in writing and received by the Airport Director within 21 calendar days after the notice of assessment, Suspension or Revocation has been issued.

c. Scheduling Hearing. If the Person requests a hearing, the Hearing Officer shall set a time for such hearing to be held as soon as practical. The Airport Director shall notify the Person of the time and place of the hearing not less than 7 calendar days before the time set for the hearing.

d. Hearing. The hearing shall be conducted by the Hearing Officer, shall be recorded by electrical or mechanical recorder or by a qualified reporter, and shall proceed as follows:

1. The Airport Director shall present evidence which supports the facts constituting grounds for the notice.

2. The Person requesting the hearing may appear in person, may be represented by counsel, may cross-examine Airport Director's witnesses who are present, and may present any relevant evidence which the Person has relating to the facts constituting grounds for the notice. The evidence at the hearing shall be limited to that which is relevant to the facts constituting grounds for the notice. Any witnesses providing testimony may be cross-examined by the other party.

3. All testimony shall be taken under oath, but both the Airport Director and the Person requesting the hearing may introduce testimony under oath in the form of sworn statements if witnesses are unavailable or refuse to appear in person.

4. The Hearing Officer shall hear the evidence and shall make recommended findings and conclusions concerning the facts relevant to the violation(s) set forth in the notice. The Hearing Officer shall make no determination concerning the penalty set forth in the notice, nor shall the Hearing Officer make recommended findings and conclusions concerning any substantive issue other than the facts underlying the notice.

5. The Hearing Officer shall issue a report in writing stating his or her recommended findings and conclusions as soon as practical following the hearing.

6. Either the Airport Director or the Person requesting the hearing may request review of the Hearing Officer's report by the Executive Director. The review must be requested by filing with the Executive Director a written request for review within 10 calendar days of the date of the Hearing Officer's report. The request for review must state reasons for reversing or vacating the report. The party not requesting review may submit a written response to the request for review within 10 calendar days of the date of the request for review. Based on the record of the hearing, the request for review and the response, the Executive Director shall issue a written ruling that affirms, reverses or vacates

the Hearing Officer's report. The Executive Director may order remand to a Hearing Officer for a new hearing, a supplemental hearing and/or for additional findings and conclusions.

7. Where review is requested, the Executive Director's ruling shall be the final action of the Commission. Where review is not requested within 10 calendar days as set forth in Section 5.11(d) (6), the Hearing Officer's report shall be the final action of the Commission.

SECTION 6. NOTICE

6.1 Notice of Violations. Notice as required by Section 5, or any other notice required by this Ordinance to be given to an individual, is sufficient if delivered in person or sent by U.S. mail to the last address on file with the Commission. “Time of issuance” means when the notice is hand delivered or placed in the mail.

6.2 Notice of Exhibit Changes. Notice of Commission meetings to review Exhibits I or II, notice of changes to Exhibit III by the Airport Director, notice of meetings, and notice of issues that affect numerous people with an MSP Driver’s License shall be sufficient if notice is sent to Owner Approved Contacts. Changes to Exhibits I or II shall be provided in such manner 30 calendar days prior to implementation.

SECTION 7. GENERAL PROVISIONS

7.1 Applicability. This Ordinance applies to all Persons within the AOA of Minneapolis-St. Paul International Airport. Vehicles operated pursuant to and in compliance with a Commission approved construction safety plan are required to abide by these rules, unless exempted by the Airport Director as a requirement of a construction contract. This Ordinance is in addition to applicable laws of the State of Minnesota and the United States, which remain in full force and effect. In case two or more rules, Ordinances or laws cover the same subject, all shall be given effect, except in case of irreconcilable conflict, in which case the rules, Ordinance or law having the most stringent requirements shall govern.

7.2 Waiver. The Airport Director may alter or waive these rules if he or she determines that an emergency exists at the Airport, as he or she deems necessary and appropriate to protect the health, welfare, and safety of Persons and property and/or to facilitate the operation of the Airport.

7.3 Penalty. Any Person violating any of the provisions of this Ordinance shall upon conviction be punished by sentence within the parameters of the maximum penalty for misdemeanors set forth in Minn. Stat. § 609.03, or as amended.

7.4 Provisions Severable. If any part of this Ordinance shall be held unconstitutional or invalid, this does not affect the validity of the remaining parts of this Ordinance. The Commission declares it would have passed the remaining parts of this Ordinance without the unenforceable provisions.

7.5 Time Periods. The time periods set forth in this Ordinance shall be based on calendar days unless otherwise specified.

7.6 Repealer. As of the effective date of this Ordinance, Ordinance 127 is revoked.

7.7 Effective Date. This Ordinance shall be in full force and effect beginning September 1, 2025.

EXHIBIT I

***FINES**

Minor Infraction	$250.00
Major Infraction	$500.00
Gross Infraction	$750.00
Severe Infraction	$1,000.00

Late Fee $25.00
or 5% per month
on past due balance,
whichever is greater

* Fines can only be imposed if there was no Driver assessed with a violation of this Ordinance. This could occur if a Company is assessed with an Ordinance violation.

This Exhibit is subject to review by the Commission according to Section 6.2.

EXHIBIT II

Violations are cumulative by category and all categories are tracked for a 24 consecutive calendar month period. Points will be assessed against each Person involved in the Violation. In addition to the penalties established in this Exhibit, the Airport Director may require a Driver to attend remedial training in appropriate situations at the Driver's expense if the Airport Director determines the Driver's performance may be improved.

Minor Infraction. One (1) point assessed against MSP Driver's record.

Major Infraction. Three (3) points assessed against MSP Driver's record.

Gross Infraction. Seven (7) points assessed against MSP Driver's record.

Severe Infraction. Eleven (11) points assessed against MSP Driver's record.

Minor Infraction – (1) point		Applicable Section
A10	Failure to carry State Driver's License	2.1.b
A20	Failure to carry AOA Credentials	2.2.b
A25	Failure to notify the Drivers' Training Center of a change in address or telephone number	2.3.h.1
A30	Operating a Vehicle without the appropriate amount of reflectorized material	3.1.a, b & c
A40	Operating a Vehicle without a Logo, Company Identification, or other means of identification of the appropriate size and approved by the Airport Director on the Driver and Passenger's side of the Vehicle	3.1.d
A55	Operating Vehicle without an approved Beacon	3.2.a
A60	Failure to have Beacon turned on while operating a Vehicle	3.2.a
A80	Improper location of Beacon	3.2.a
A90	Operating a Vehicle with nonfunctioning headlights	3.2.c
A100	Operating a Vehicle with nonfunctioning taillights	3.2.c
A115	Failure to have lights of sufficient brilliance to assure safety in driving	3.2.d
A120	Operating a Vehicle with unsafe tire(s), brake(s) or steering mechanism	3.3
A130	Operating a Vehicle without the proper mirrors	3.4.a

A135	Operating a Vehicle with a cracked or discolored windshield which limits or obstructs proper vision	3.4.b
A150	Operating a Vehicle with unapproved poster, stickers, signs or other objects on the windows	3.4.c
A160	Operating a Vehicle 1-5 miles per hour over the speed limit	4.1
A180	Driving a Vehicle beyond two Gates from the current Gate without using the Designated Roadway	4.5.e
A200	Failure to enter the Designated Roadway at a 90-degree angle	4.6.b.1
A210	Failure to maintain safe following distance from other Vehicles	4.6.c
A230	Towing more than 5 Baggage Carts	4.6.e
A240	Failure to obey posted regulatory and/or Traffic signs	4.7
A245	Operating a Vehicle without illuminated taillights and low headlights	4.8.a
A250	Operating a Vehicle with Parking lights or high beam headlights on	4.8.b
A300	Parking in an unapproved location	4.9.a
A310	Parking in an area so as to restrict the movement of a Passenger Loading Bridge or Aircraft	4.9.b
A320	Parking longer than is designated on Traffic Control devices marking such area	4.9.c
A330	Using the Aprons, Taxiways, Runways, or Designated Roadways as a Pedestrian or Bicycle Route	4.11 & 4.12

	Major Infraction – (3) points	Applicable Section
B10	Failure to report a Vehicle Accident	2.1.e.1
B12	Failure to notify the Drivers' Training Center of any Suspension, Revocation, or restriction of their State Driver's License	2.1.e.2
B19	Failure to notify the Drivers' Training Center when a Driver no longer needs access to the AOA	2.4.h.2
B25	Operating a Vehicle after a Notice of Violation has been issued for deficiencies to that Vehicle and before they have been corrected	3.5
B30	Operating a Vehicle 6-15 miles per hour over the speed limit	4.1
B35	Failure to use the Designated Roadway	4.5.a.1
B40	Operating a Vehicle in the Movement Area without the appropriate radio equipment	4.5.c.1.b
B50	Operating a Vehicle in the Movement Area without monitoring the appropriate Air Traffic Control Frequency	4.5.c.1.b
B60	Vehicle left idling inside Tug Drive	4.5.f
B65	Driving through a closed or unauthorized area without MAC Representative approval	4.5.h
B80	Parking, blocking, or unloading on the Designated Roadway	4.5.a.4
B85	Unsafe passing	4.6.d
B90	Driving between an Aircraft and Marshaller	4.6.f
B100	Failure to remain at the scene of an Accident until authorized by an Airport Police Officer	4.6.g
B110	Failure to maintain a proper Escort	4.6.h
B120	Fleeing or attempting to elude a MAC Representative	4.6.i
B122	Failure to comply with Minnesota Statutes Section 169.475, commonly referred to as the Minnesota Hands Free Law	4.6.j.1
B123	Operating a Vehicle or as a Pedestrian on the Movement Area while using a cellular phone, radio, laptop, tablet, or other similar electronic device for personal use	4.6.j.2
B124	Operating or riding in a Vehicle without wearing a seat belt	4.8.c
B126	Transporting Persons in a Vehicle that is not equipped with a seat intended for use by a Person other than the Driver	4.8.d
B128	Driving while direction of movement is obstructed by an extended superstructure or load	4.8.e
B130	Operating a Vehicle when visibility is less than 300 feet or as otherwise determined by the Low Visibility Operations Plan	4.8.f

B135	Operating a Vehicle in a manner that is unsafe for the conditions	4.8.g
B140	Littering (FOD) or causing Foreign Object Debris (FOD) on the AOA	4.8.h
B150	Leaving stalled Vehicle in the Movement Area	4.9.d
B155	Operating a Bicycle on the AOA outside of exclusive leasehold areas	4.12
B160	Failure to yield right of way to Vehicles and equipment engaged in snow and ice removal	4.14
B165	Leaving an unattended Vehicle with the engine running within 10 feet of a building	4.16

	Gross Infraction – (7) points	Applicable Section
C10	Operating without a valid state Driver's License or limited state license	2.1.a
C20	Threatening the safety of or harming a MAC Representative or interfering with the safety and efficiency of Airport operations	2.1.d
C25	Operating without valid MSP driving privileges	2.2a
C28	Failure to allow a MAC Representative to accompany and observe any Vehicle or Aircraft Taxi or Tow operation	2.2.e
C40	Using someone else's MSP Driver's License	2.2.b
C45	Failure to notify MSP Drivers' Training Center prior to expiration of MSP Driver's License	2.3.h.2
C50	Operating a Vehicle 16+ miles per hour over the speed limit	4.1
C60	Careless driving	4.2.b
C63	Violation of MN Open Bottle Law or Open Package Law	4.4
C66	Failure to follow directions of the Air Traffic Control Tower	4.5.c.1.b
C70	Movement Area Violation	4.5.g.2
C80	Failure to give Right-of-Way to an Aircraft	4.6.a.1
C85	Failure to give Right-of-Way to a Vehicle pushing back or towing an Aircraft	4.6.a.2
C90	Failure to give right of way to an Authorized Emergency Vehicle	4.13
C100	Violation of Taxiway Restrictions	4.15
C102	Failure to establish Driver-to-flight deck communications procedures	4.17.1
C104	Failure to maintain communications between the Tow Vehicle Operator and Brake Rider.	4.17.2
C106	Failure to have the Aircraft's transponder on while the Aircraft is being towed or taxied in the Movement Area.	4.17.3
C108	Failure to have the Aircraft's position and navigation lights on while the Aircraft is being towed or taxied by an Aircraft Taxi Operator	4.17.4
C110	Violation of Field Rules	5.4.a.4
C120	Other Driver or Vehicle violation that poses a safety threat to Persons	5.4.a.5

	Severe Infraction – (11) points	Applicable Section
D10	Reckless driving	4.2.a
D20	Driving while under the influence	4.3
D30	Runway Incursion	4.5.g.1
D40	Operating with Suspended or Revoked MSP driving privileges	2.2.a
D50	Failure to maintain a minimum of $5,000,000 commercial automobile liability insurance for any Vehicle operated on the AOA, or a greater amount if required by a contract with the Commission	3.7

Exhibit II is subject to change by Commission action according to Section 6.2

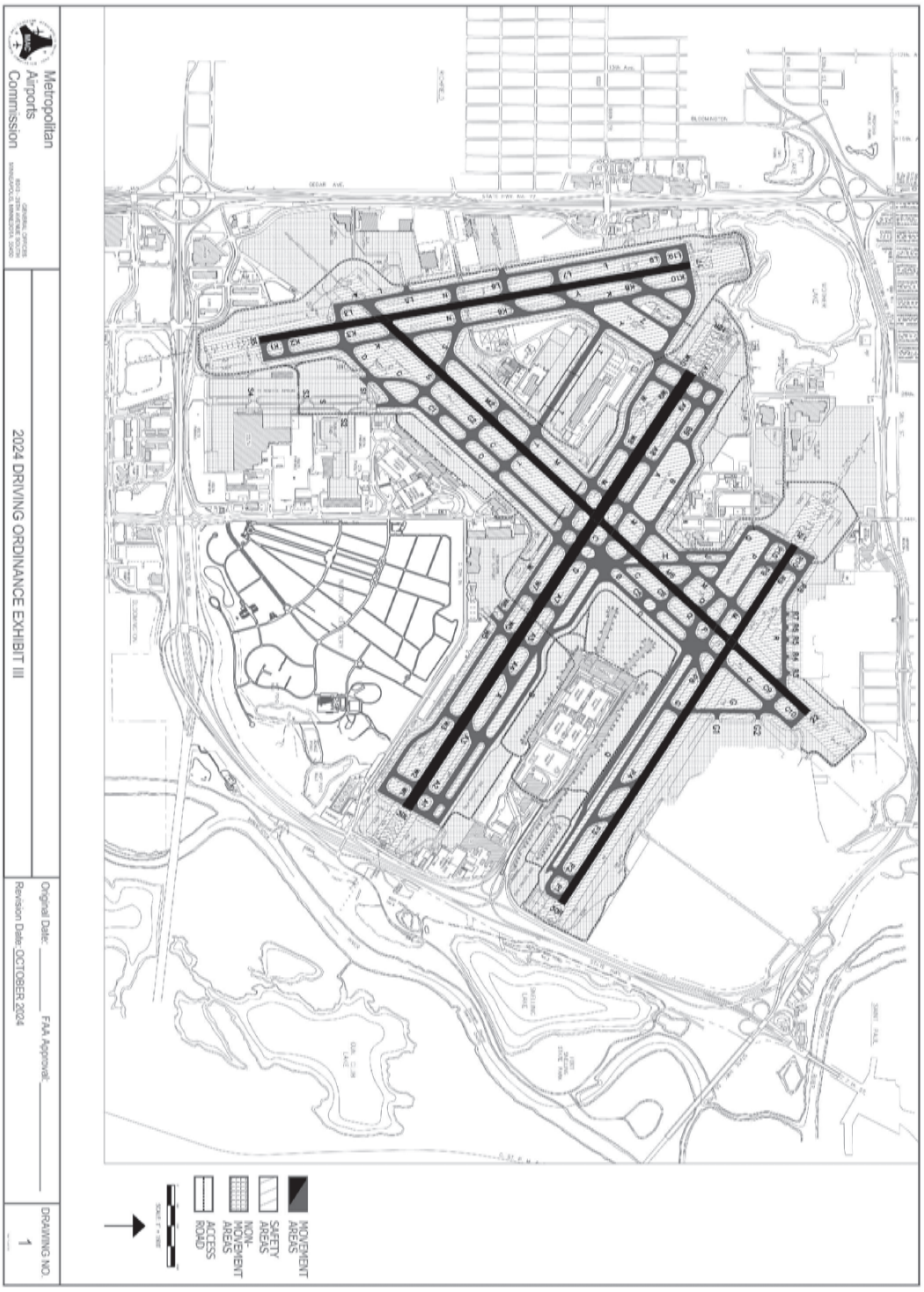


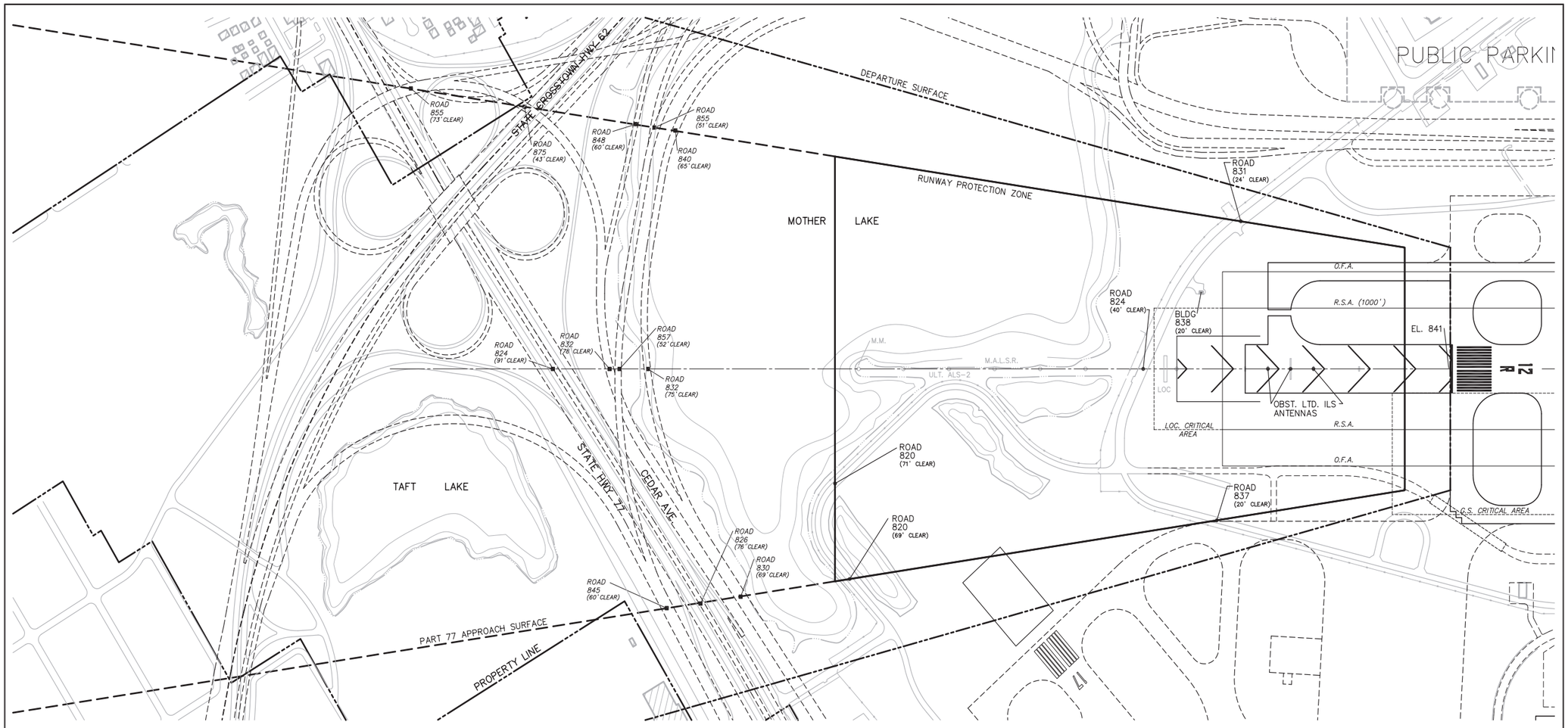
EXHIBIT III

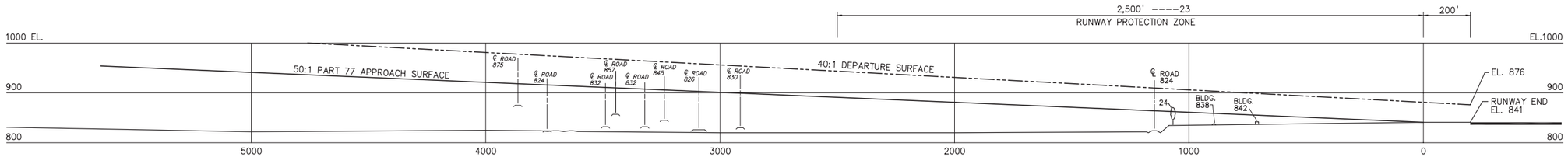
Original Date: 12/09/04

Revision Date: 09/18/25

FAA Approval: Pete Wilkin

FAA Airports Date: Sep 23 2025





LEGEND

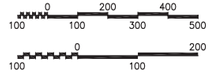
▲ OBJECTS PENETRATING DEPARTURE OR FAR PART 77 SURFACES

● OBJECTS BELOW DEPARTURE & FAR PART 77 SURFACES

■ *FUTURE OBJECTS BELOW DEPARTURE & FAR PART 77 SURFACES*

"CLEAR" – INDICATES DISTANCE FROM OBJECT TO PART 77 SURFACES

REFER TO DRAWING NO. 21 FOR OBSTRUCTION TABULATION



GRAPHIC SCALES IN FEET

NORTH

A.L.P. Drawing No. 11
Current Update: DECEMBER 29, 2000

CURRENT PLOT: DECEMBER 29, 2000

MINNEAPOLIS–ST. PAUL INTERNATIONAL AIRPORT
WOLD–CHAMBERLAIN FIELD

RUNWAY 12R APPROACH PLAN – PROFILE

Metropolitan Airports Commission

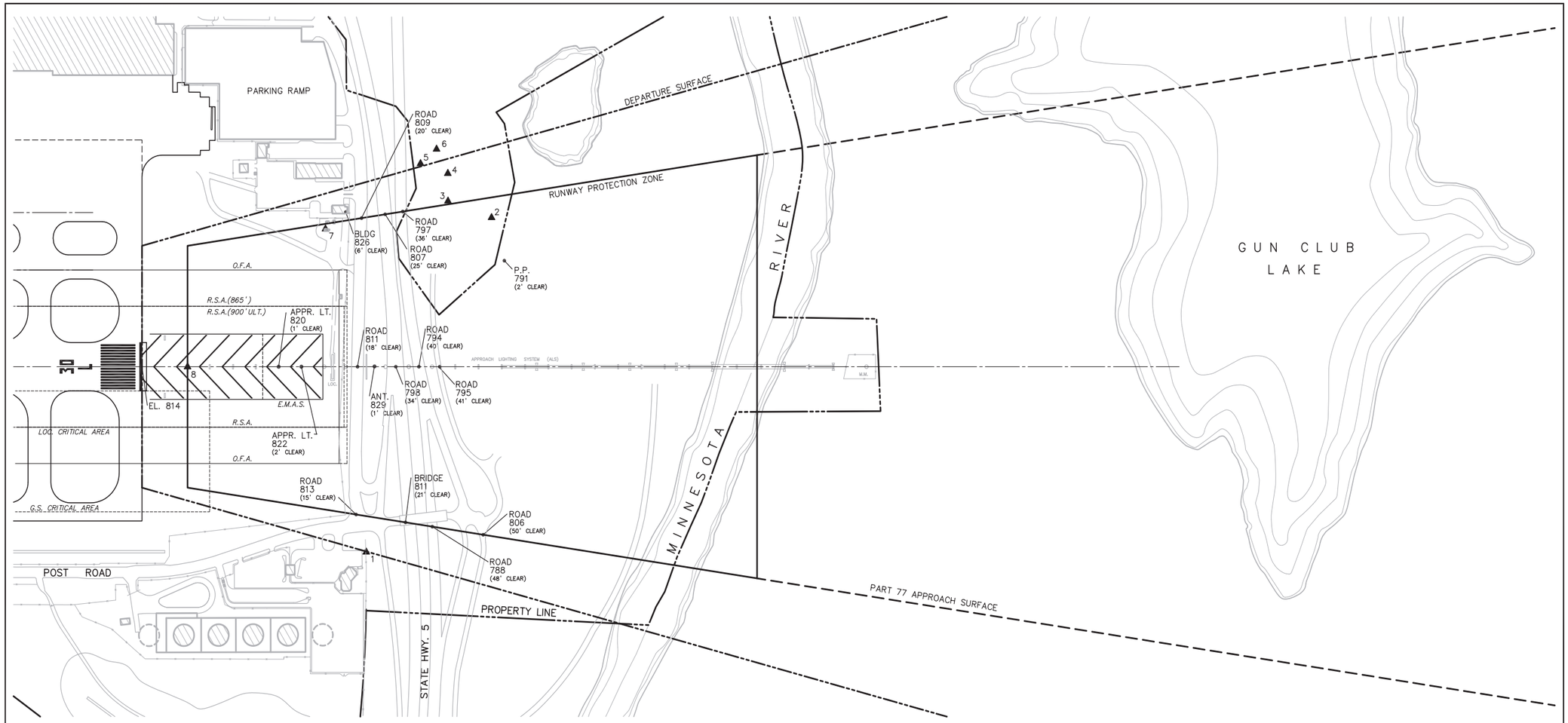
TKDA
ENGINEERS · ARCHITECTS · PLANNERS
St. Paul, Minnesota

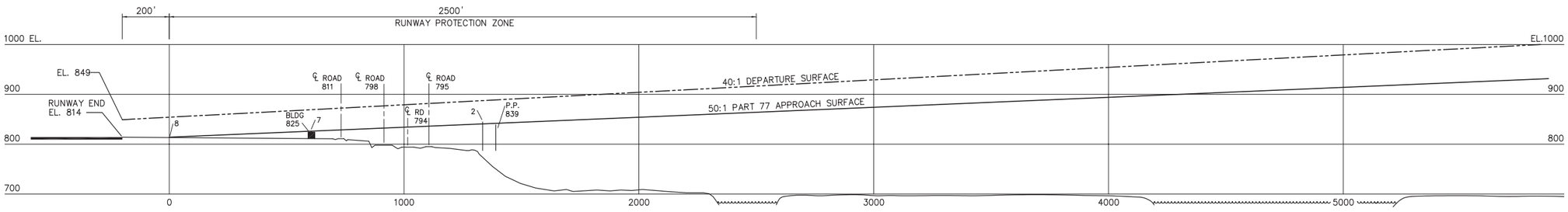
Sheet 11 Of 28

Original Date: 12/09/04

Revision Date: 06/01/19

FAA Approval: Kenneth M. Taire 6/1/2019





LEGEND

- ▲ OBJECTS PENETRATING DEPARTURE OR FAR PART 77 SURFACES
- ● OBJECTS BELOW DEPARTURE & FAR PART 77 SURFACES
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"CLEAR" – INDICATES DISTANCE FROM OBJECT TO PART 77 SURFACES

REFER TO DRAWING NO. 21 FOR OBSTRUCTION TABULATION

GRAPHIC SCALES IN FEET

HORIZ. 100 0 100 200 300 400 500

VERT. 100 0 100 200

NORTH

A.L.P. Drawing No. 12
Current Update: DECEMBER 29, 2000

CURRENT PLOT: DECEMBER 29, 2000

MINNEAPOLIS–ST. PAUL INTERNATIONAL AIRPORT
WOLD–CHAMBERLAIN FIELD

RUNWAY 30L APPROACH PLAN – PROFILE

Metropolitan Airports Commission

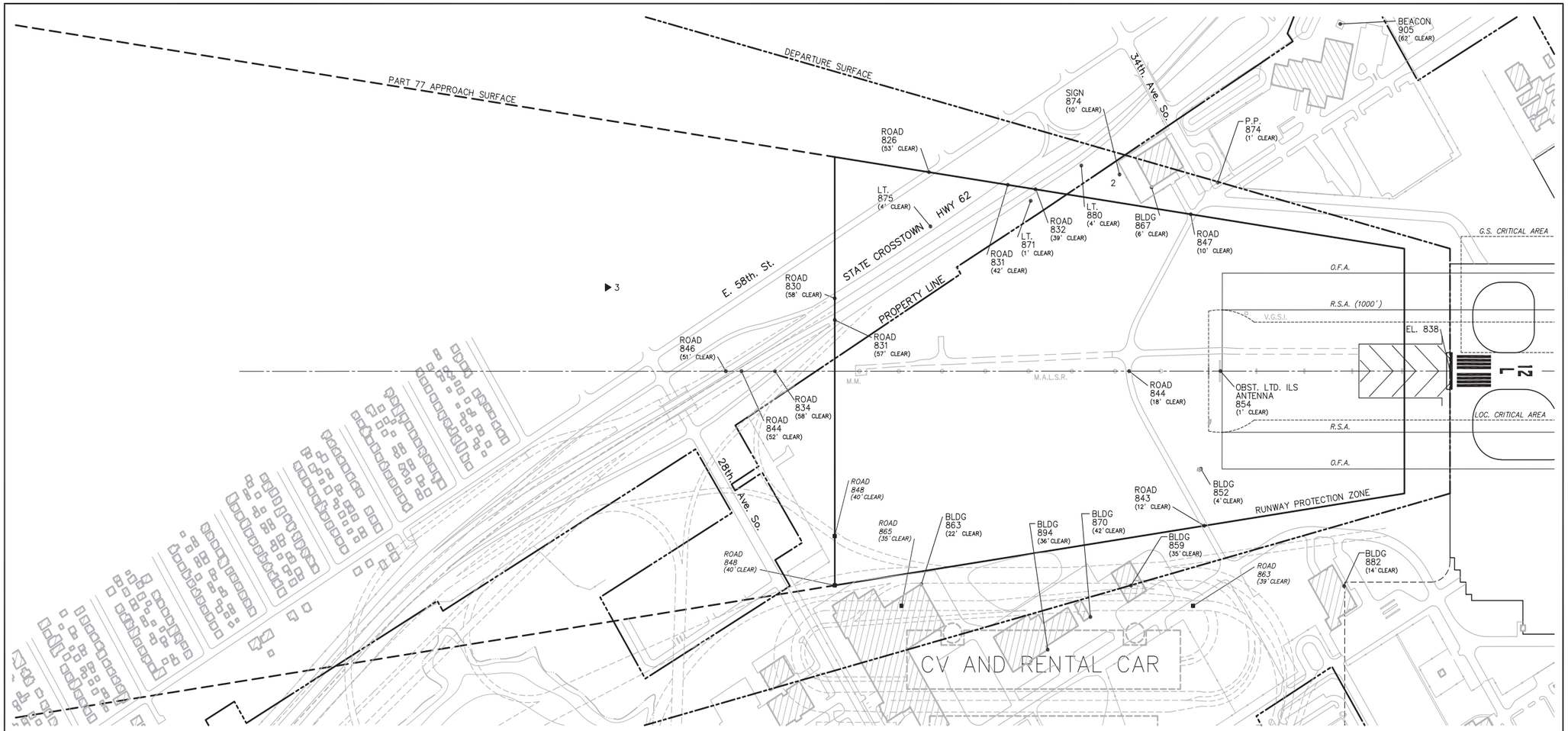
TKDA
ENGINEERS · ARCHITECTS · PLANNERS
St. Paul, Minnesota

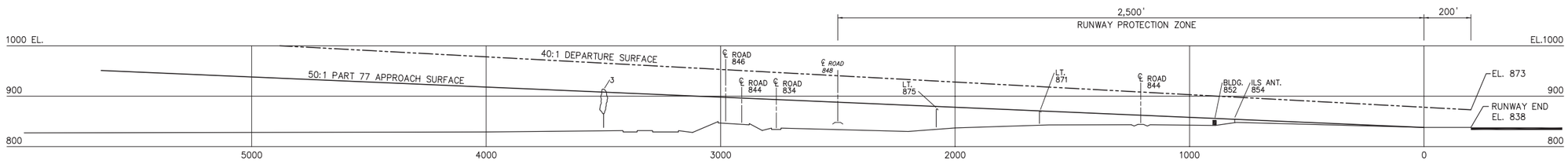
Sheet 12 of 28

Original Date: 12/09/04

Revision Date: 06/01/19

FAA Approval: Kenneth M. Taire 6/1/2019





LEGEND

- ▲ OBJECTS PENETRATING DEPARTURE OR FAR PART 77 SURFACES
- ● OBJECTS BELOW DEPARTURE & FAR PART 77 SURFACES
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"CLEAR" – INDICATES DISTANCE FROM OBJECT TO PART 77 SURFACES

REFER TO DRAWING NO. 21 FOR OBSTRUCTION TABULATION

HORIZ. 0 200 400 / 100 100 300 500

VERT. 0 200 / 100 100

GRAPHIC SCALES IN FEET

NORTH

MINNEAPOLIS–ST. PAUL INTERNATIONAL AIRPORT
WOLD–CHAMBERLAIN FIELD

RUNWAY 12L APPROACH PLAN – PROFILE

Metropolitan Airports Commission

TKDA ENGINEERS · ARCHITECTS · PLANNERS St. Paul, Minnesota

Sheet 13 of 28

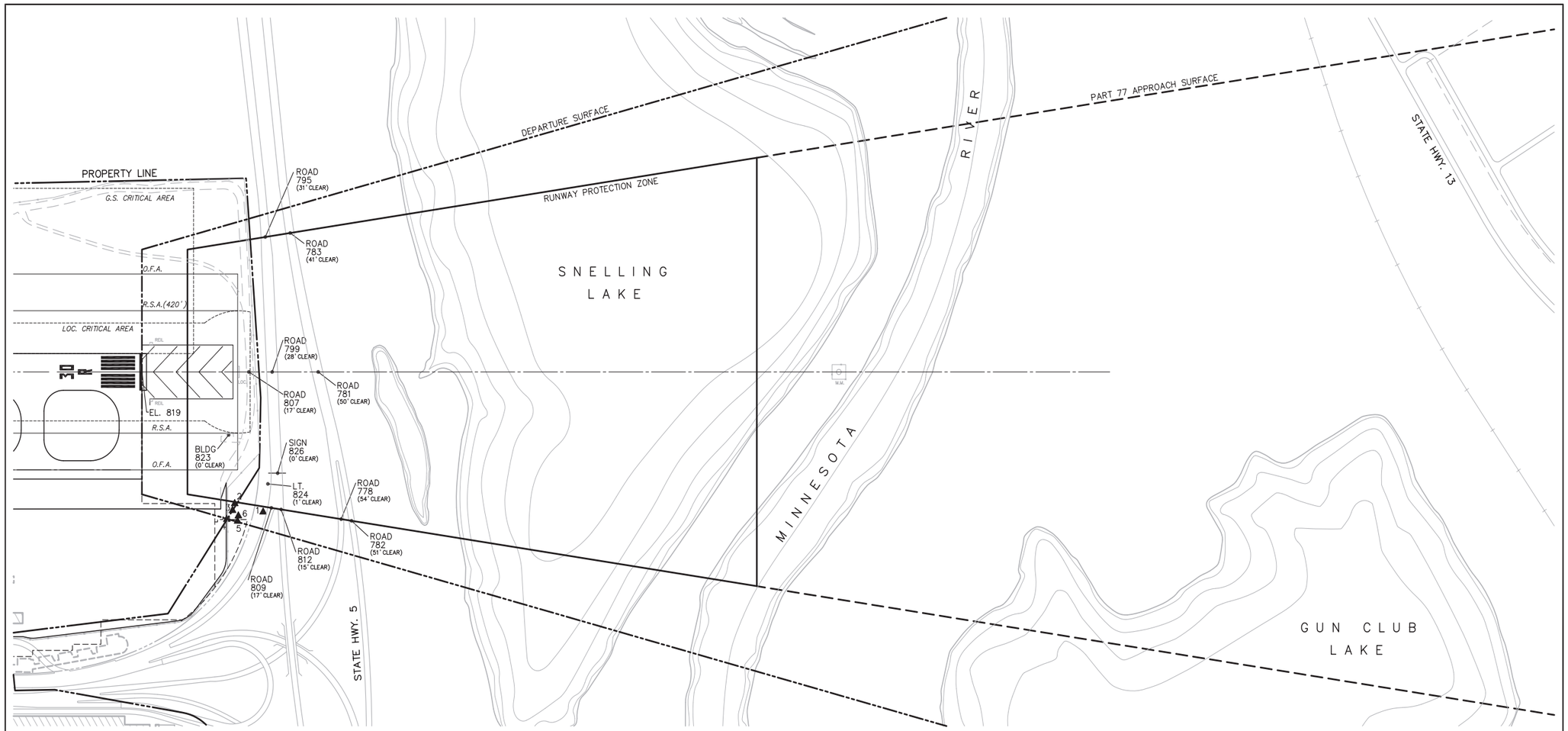
Original Date: 12/09/04

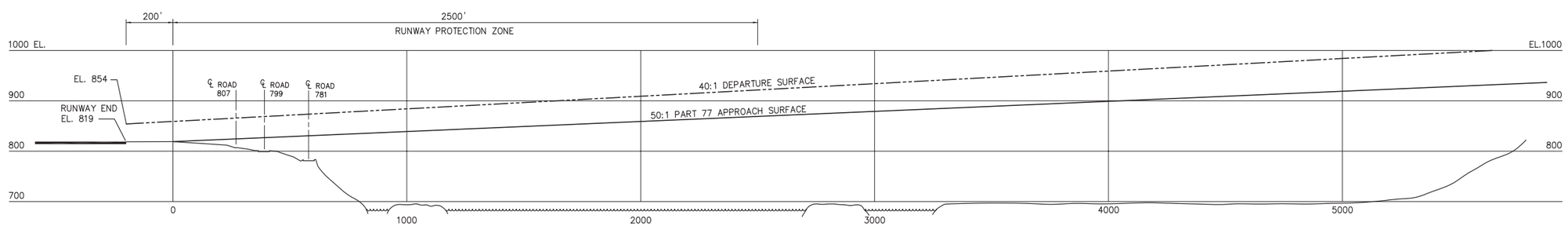
Revision Date: 06/01/19

FAA Approval: Kenneth M. Taire 6/1/2019

CURRENT PLOT: DECEMBER 29, 2000

A.L.P. Drawing No. 13
Current Update: DECEMBER 29, 2000





LEGEND

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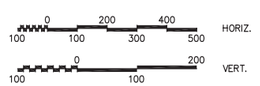

GRAPHIC SCALES IN FEET

NORTH

MINNEAPOLIS–ST. PAUL INTERNATIONAL AIRPORT
WOLD–CHAMBERLAIN FIELD

RUNWAY 30R APPROACH PLAN – PROFILE

Metropolitan Airports Commission

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St. Paul, Minnesota

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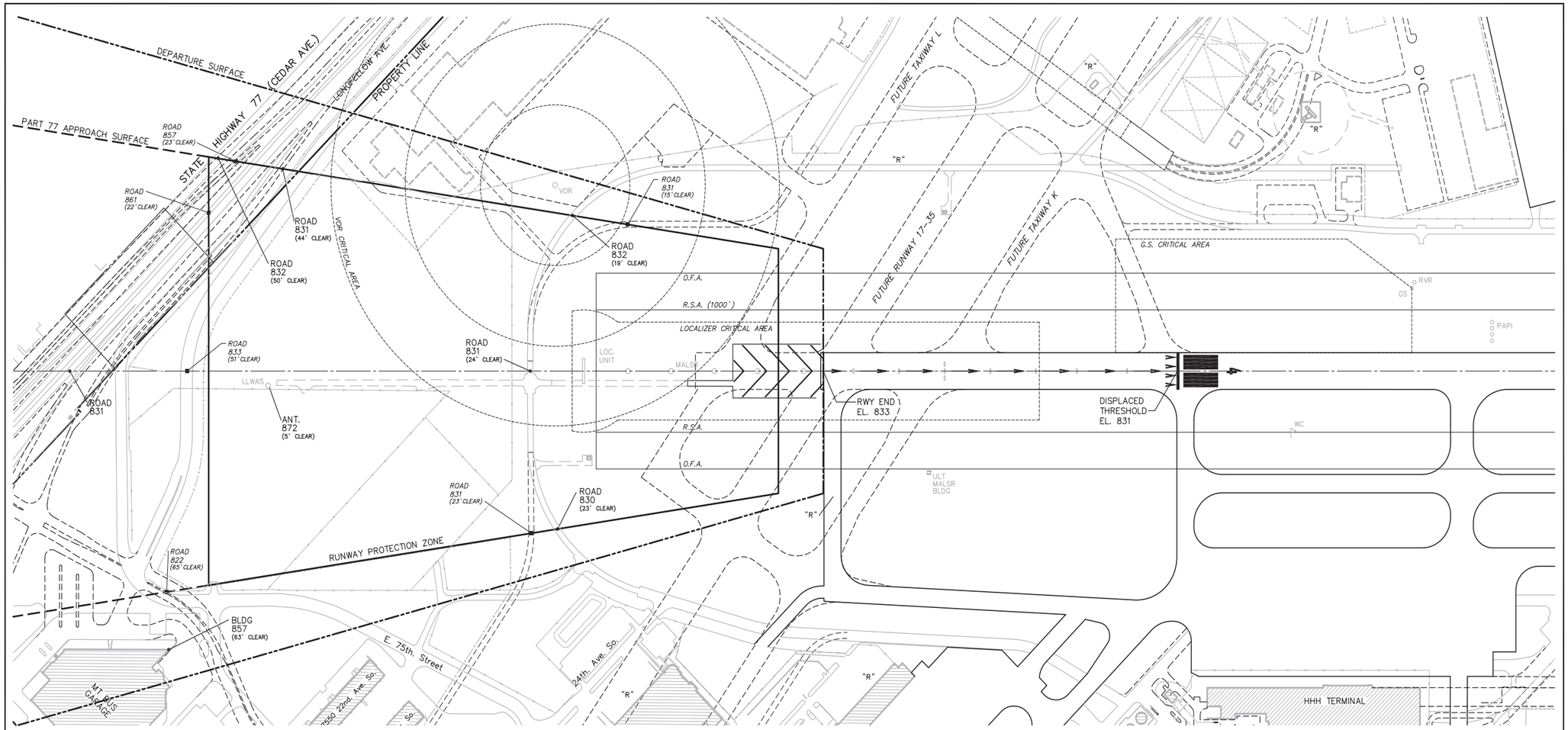
Original Date: 12/09/04

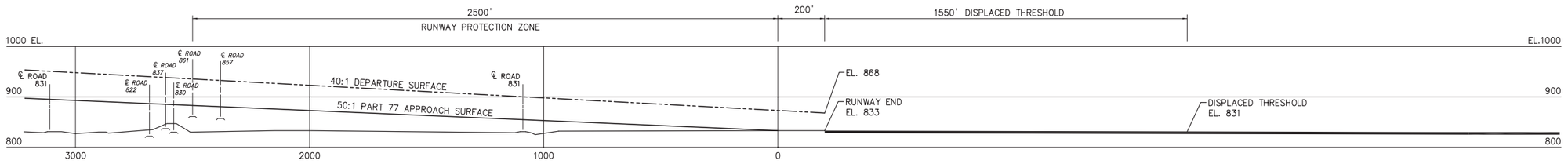
Revision Date: 06/01/19

FAA Approval: Kenneth M. Taire 6/1/2019

A.L.P. Drawing No. 14
Current Update: OCTOBER 23, 2003

CURRENT PLOT: OCTOBER 23, 2003





LEGEND

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REFER TO DRAWING NO. 21 FOR OBSTRUCTION TABULATION

GRAPHIC SCALES IN FEET

HORIZ. 100 0 100 200 300 400 500

VERT. 100 0 100 200

NORTH

A.L.P. Drawing No. 15
Current Update: DECEMBER 29, 2000

CURRENT PLOT: DECEMBER 29, 2000

MINNEAPOLIS–ST. PAUL INTERNATIONAL AIRPORT
WOLD–CHAMBERLAIN FIELD

RUNWAY 4 APPROACH PLAN – PROFILE

Metropolitan Airports Commission

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ENGINEERS · ARCHITECTS · PLANNERS
St. Paul, Minnesota

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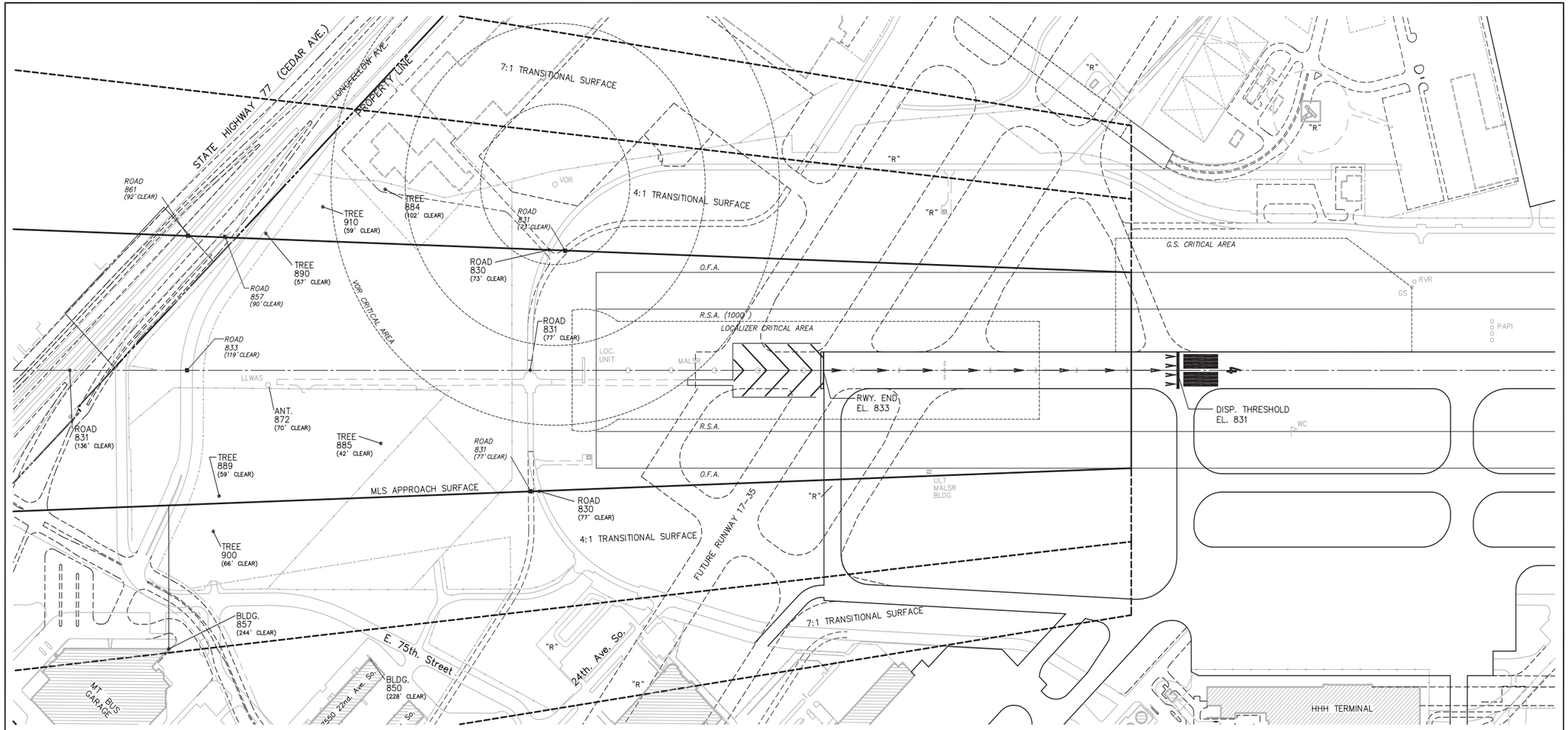
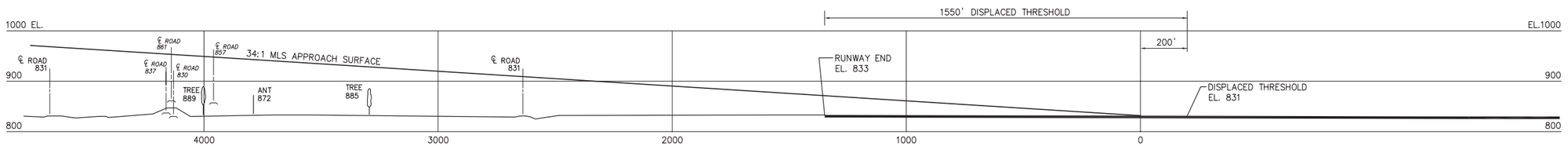
Original Date: 12/09/04

Revision Date: 06/01/19

FAA Approval: Kenneth M. Taire 6/1/2019





LEGEND

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REFER TO DRAWING NO. 21 & 23 FOR OBSTRUCTION TABULATION

HORIZ. 100 0 100 200 300 400 500

VERT. 100 0 100 200

GRAPHIC SCALES IN FEET

NORTH

A.L.P. Drawing No. 16
Current Update: DECEMBER 29, 2000

CURRENT PLOT: DECEMBER 29, 2000

MINNEAPOLIS–ST. PAUL INTERNATIONAL AIRPORT
WOLD–CHAMBERLAIN FIELD

DISPLACED RUNWAY 4 MLS SURFACE PLAN – PROFILE

Metropolitan Airports Commission

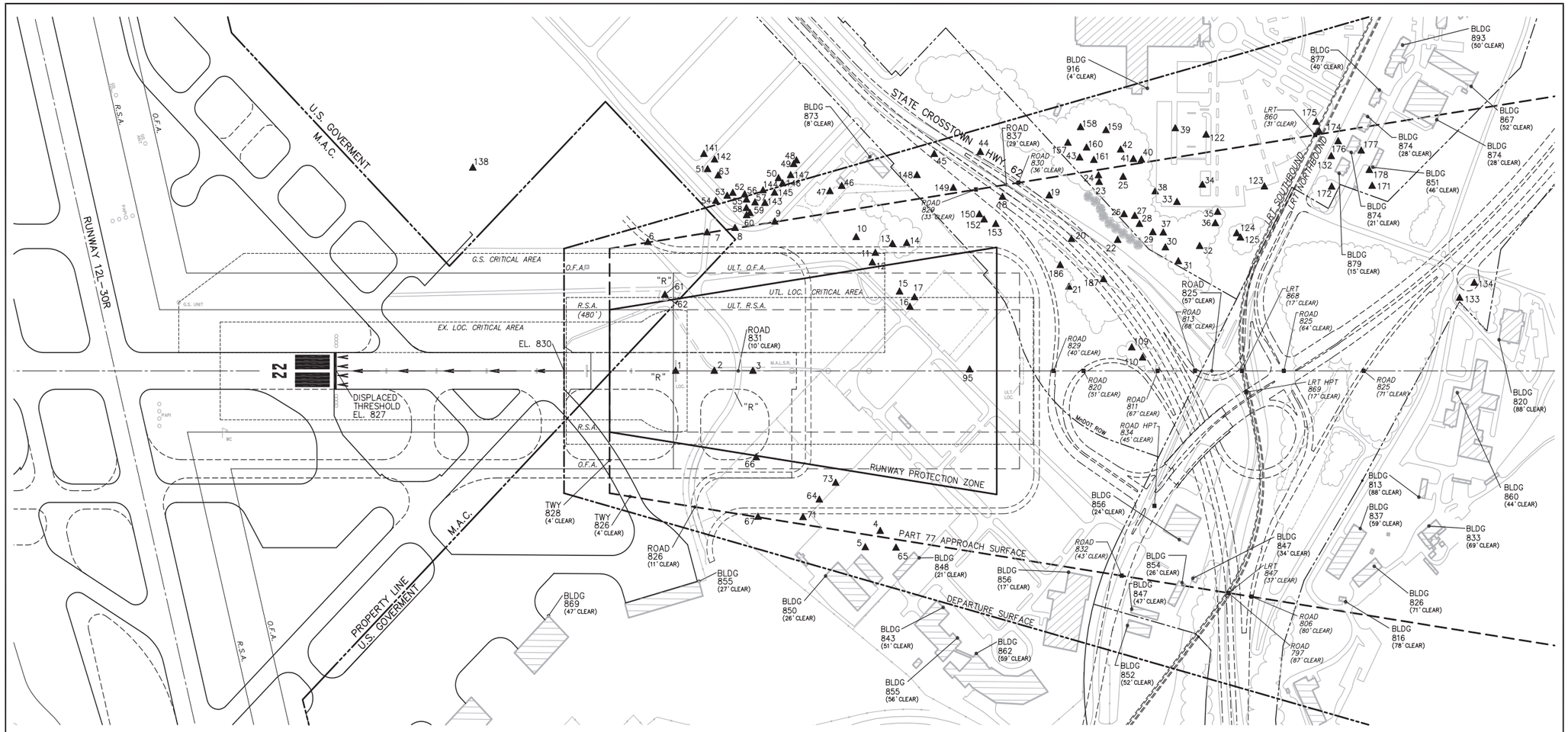
TKDA ENGINEERS · ARCHITECTS · PLANNERS St. Paul, Minnesota

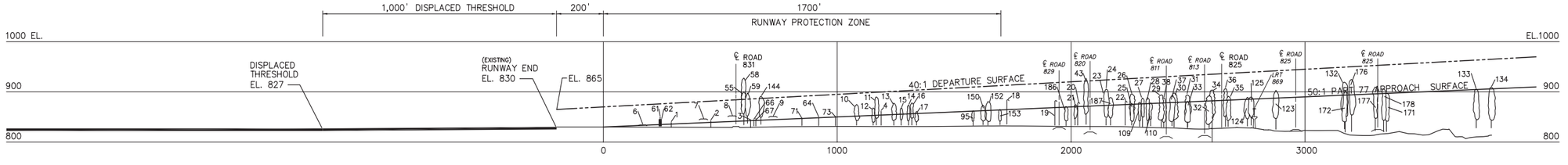
Sheet 16 of 28

Original Date: 12/09/04

Revision Date: 06/01/19

FAA Approval: Kenneth M. Taire 6/1/2019





LEGEND

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REFER TO DRAWING NO. 21 & 22 FOR OBSTRUCTION TABULATION

GRAPHIC SCALES IN FEET

HORIZ. 0 200 400 / 100 100 300 500

VERT. 0 200 / 100 100

NORTH

A.L.P. Drawing No. 17
Current Update: DECEMBER 29, 2000

CURRENT PLOT: DECEMBER 29, 2000

MINNEAPOLIS-ST. PAUL INTERNATIONAL AIRPORT
WOLD-CHAMBERLAIN FIELD

RUNWAY 22 APPROACH PLAN – PROFILE

Metropolitan Airports Commission

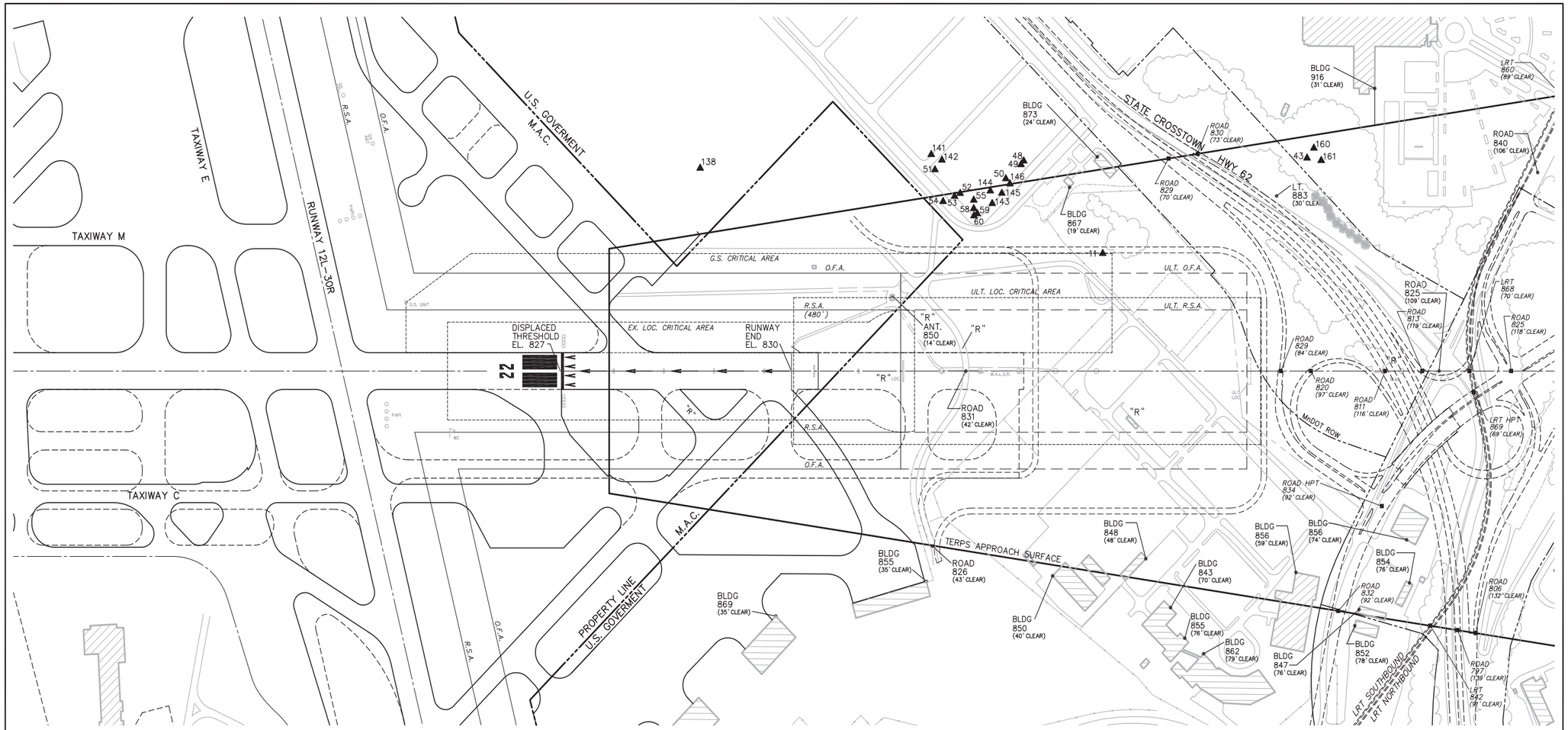
TKDA
ENGINEERS · ARCHITECTS · PLANNERS
St. Paul, Minnesota

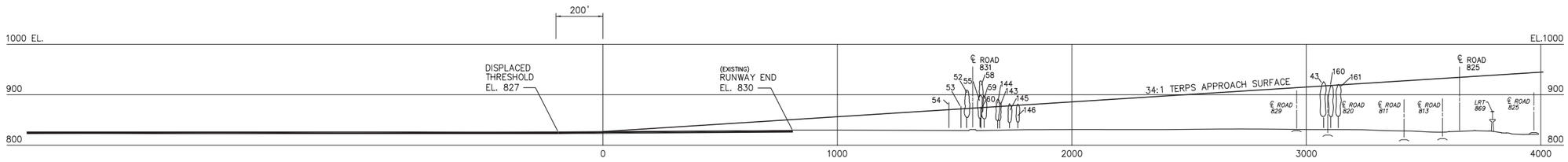
Sheet 17 Of 28

Original Date: 12/09/04

Revision Date: 06/01/19

FAA Approval: Kenneth M. Taire 6/1/2019





LEGEND

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REFER TO DRAWING NO. 21 & 22 FOR OBSTRUCTION TABULATION

0 200 400 HORIZ.
100 100 300 500

0 200 VERT.
100 100

GRAPHIC SCALES IN FEET

NORTH

MINNEAPOLIS–ST. PAUL INTERNATIONAL AIRPORT
WOLD–CHAMBERLAIN FIELD

DISPLACED RUNWAY 22 TERPS SURFACE PLAN – PROFILE

Metropolitan Airports Commission

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St. Paul, Minnesota

Sheet 18 of 28

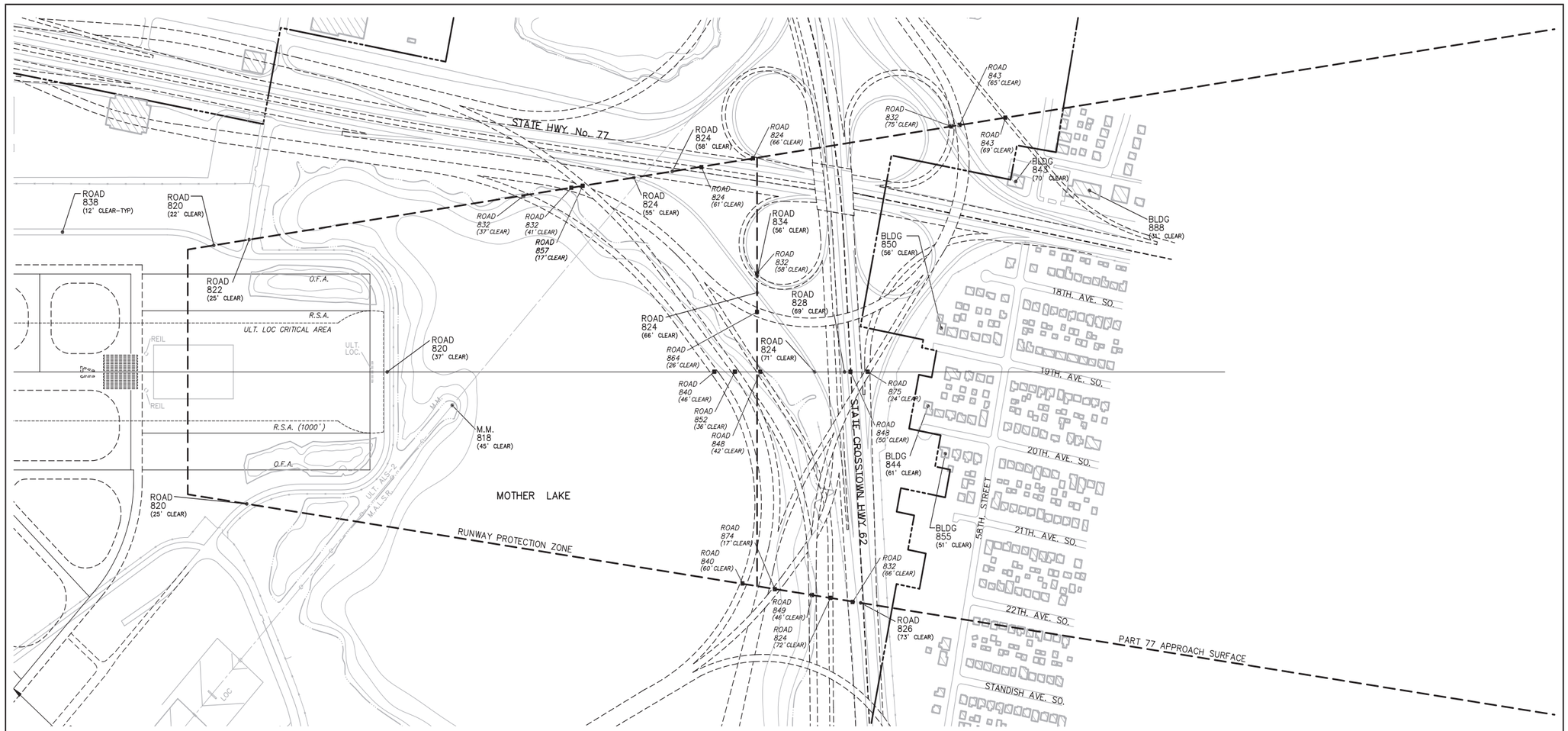
Original Date: 12/09/04

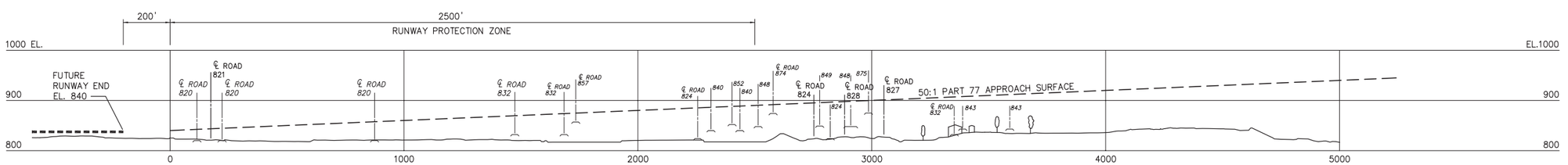
Revision Date: 06/01/19

FAA Approval: Kenneth M. Taire 6/1/2019

A.L.P. Drawing No. 18
Current Update: DECEMBER 29, 2000

CURRENT PLOT: DECEMBER 29, 2000





LEGEND

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"CLEAR" – INDICATES DISTANCE FROM OBJECT TO PART 77 SURFACES

REFER TO DRAWING NO. 23 FOR OBSTRUCTION TABULATION

GRAPHIC SCALES IN FEET

HORIZ. 0 100 200 300 400 500

VERT. 0 100 200

NORTH

A.L.P. Drawing No. 19
Current Update: DECEMBER 29, 2000

CURRENT PLOT: DECEMBER 29, 2000

MINNEAPOLIS–ST. PAUL INTERNATIONAL AIRPORT
WOLD–CHAMBERLAIN FIELD

ULTIMATE RUNWAY 17 APPROACH PLAN – PROFILE

Metropolitan Airports Commission

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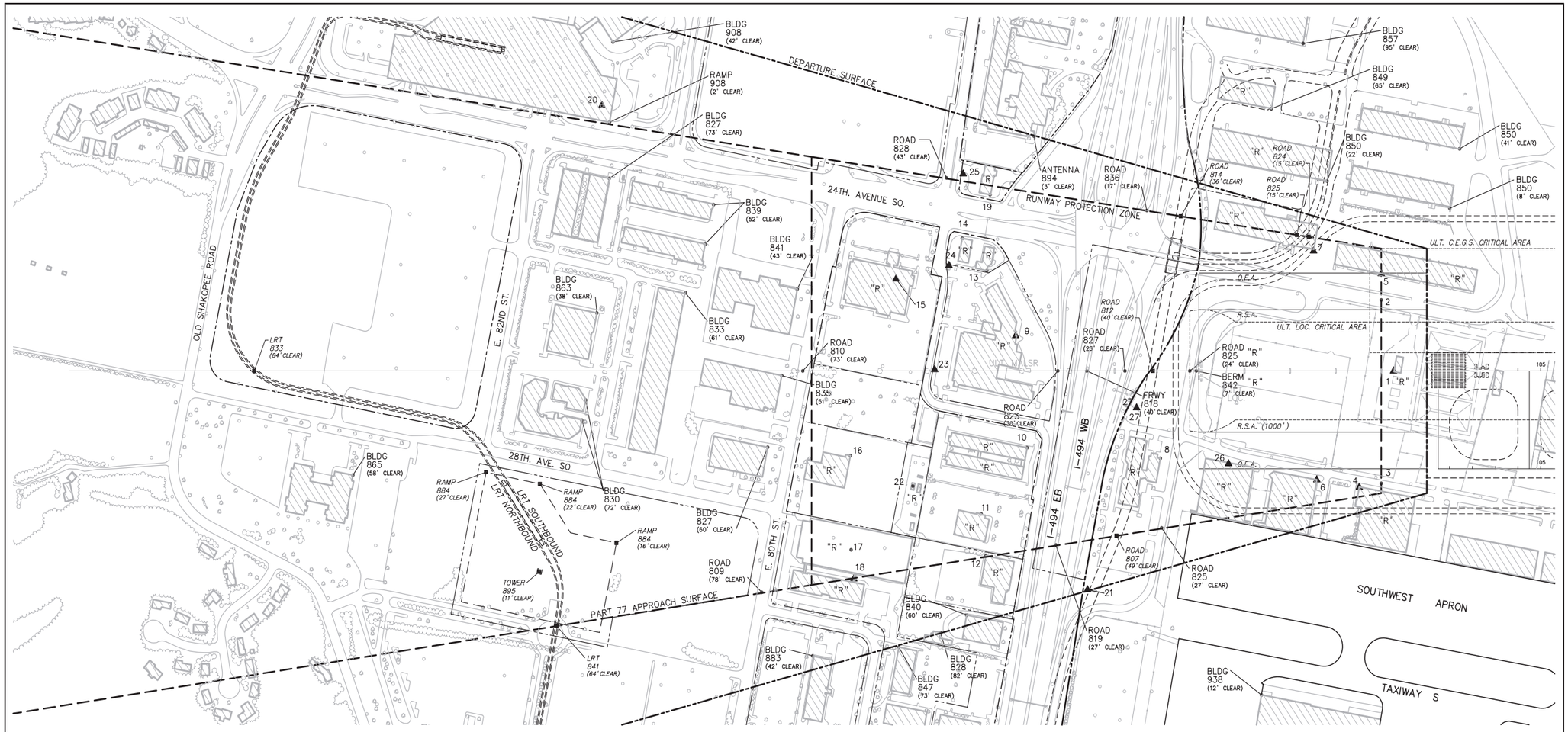
St. Paul, Minnesota

Sheet 19 of 28

Original Date: 12/09/04

Revision Date: 06/01/19

FAA Approval: Kenneth M. Taire 6/1/2019



LEGEND

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REFER TO DRAWING NO. 22 & 23 FOR OBSTRUCTION TABULATION

HORIZ. 100 0 100 200 300 400 500

VERT. 100 0 100 200

GRAPHIC SCALES IN FEET

NORTH

A.L.P. Drawing No. 20
Current Update: MAY 1, 2003 (LRT ALIGNMENT)

CURRENT PLOT: MAY 1, 2003

MINNEAPOLIS–ST. PAUL INTERNATIONAL AIRPORT
WOLD–CHAMBERLAIN FIELD

ULTIMATE RUNWAY 35 APPROACH PLAN – PROFILE

Metropolitan Airports Commission

TKDA
ENGINEERS · ARCHITECTS · PLANNERS
St. Paul, Minnesota

Sheet 20 Of 28

Original Date: 12/09/04

Revision Date: 06/01/19

FAA Approval: Kenneth M. Taire 6/1/2019

RUNWAY 12L APPROACH

POINT NO.	DESCRIPTION	ELEV.	SURFACE PENETRATION(FT) 50:1 APPROACH	SURFACE PENETRATION(FT) 7:1 TRANSITIONAL	LOCATION STATION	LOCATION OFFSET	GEODETIC POSITION LATITUDE DEG MIN SEC	GEODETIC POSITION LONGITUDE DEG MIN SEC	REMARKS	DISPOSITION
	RUNWAY THRESHOLD	838			40+30.00	0.00	44 53 34.624	93 13 15.568		
1	TOP ANT AT BLDG									REMOVED 11/93
2	TOP OH SIGN	874.00			25+66.86	818.90 LT	44 53 49.042	93 13 27.014		LOWERED 6/93
3	TOP TREE	914.69	2		3+31.17	343.08 LT	44 53 56.506	93 13 56.980		

NOTE: ITEM NO. 3 NOT ON AIRPORT PROPERTY

RUNWAY 12R APPROACH

POINT NO.	DESCRIPTION	ELEV.	SURFACE PENETRATION(FT) 50:1 APPROACH	SURFACE PENETRATION(FT) 7:1 TRANSITIONAL	LOCATION STATION	LOCATION OFFSET	GEODETIC POSITION LATITUDE DEG MIN SEC	GEODETIC POSITION LONGITUDE DEG MIN SEC	REMARKS	DISPOSITION
	RUNWAY THRESHOLD	841			21+00.00	0.00	44 53 16.040	93 14 02.874		
1	TOP GROUP TREES	918.42		36	19+18.61	768.37 RT	44 53 10.339	93 14 10.705		REMOVED JUNE 1999
2	TOP GROUP TREES	887.10		20	18+72.97	676.96 RT	44 53 11.496	93 14 10.457		REMOVED JUNE 1999
3	TOP GROUP TREES	880.56		18	17+55.46	646.87 RT	44 53 12.354	93 14 11.633		REMOVED JUNE 1999
4	TOP GROUP TREES	892.63		24	17+23.32	693.45 RT	44 53 12.126	93 14 12.351		REMOVED JUNE 1999
5	TOP GROUP TREES	888.86		14	16+92.11	737.42 RT	44 53 11.915	93 14 13.033		REMOVED JUNE 1999
6	TOP GROUP TREES	911.98		47	13+03.28	666.50 RT	44 53 14.510	93 14 17.140		REMOVED JUNE 1999
7	TOP GROUP TREES	883.49	28		12+27.18	594.48 RT	44 53 15.508	93 14 17.522		REMOVED JUNE 1999
8	TOP GROUP TREES	927.14		36	11+16.18	851.79 RT	44 53 13.908	93 14 20.697		REMOVED JUNE 1999
9	TOP GROUP TREES	904.78		24	10+53.20	785.97 RT	44 53 14.786	93 14 20.969		REMOVED JUNE 1999
10	TOP GROUP TREES	904.16		36	10+06.80	692.76 RT	44 53 15.810	93 14 20.846		REMOVED JUNE 1999
11	TOP GROUP TREES	912.25		42	9+93.35	712.09 RT	44 53 15.717	93 14 21.147		REMOVED JUNE 1999
12	TOP GROUP TREES	899.70		26	9+75.78	735.06 RT	44 53 15.613	93 14 21.520		REMOVED JUNE 1999
13	TOP GROUP TREES	887.95		6	9+56.34	789.29 RT	44 53 15.255	93 14 22.142		REMOVED JUNE 1999
14	TOP GROUP TREES	885.44		6	9+36.17	776.33 RT	44 53 15.468	93 14 22.288		REMOVED JUNE 1999
15	TOP GROUP TREES	883.47		15	8+29.59	700.01 RT	44 53 16.659	93 14 23.001		REMOVED JUNE 1999
16	TOP GROUP TREES	883.66		11	8+23.98	727.55 RT	44 53 16.456	93 14 23.267		REMOVED JUNE 1999
17	TOP GROUP TREES	896.51		19	8+28.03	763.89 RT	44 53 16.128	93 14 23.481		REMOVED JUNE 1999
18	TOP GROUP TREES	891.97		10	7+84.51	792.92 RT	44 53 16.107	93 14 24.207		REMOVED JUNE 1999
19	TOP GROUP TREES	919.83		33	8+02.65	825.50 RT	44 53 15.739	93 14 24.227		REMOVED JUNE 1999
20	TOP GROUP TREES	893.78		10	5+28.37	810.44 RT	44 53 17.274	93 14 27.372		REMOVED JUNE 1999
21	TOP GROUP TREES	882.88		13	4+98.60	715.68 RT	44 53 18.226	93 14 27.041		REMOVED JUNE 1999
22	TOP GROUP TREES	910.40		29	3+06.53	795.19 RT	44 53 18.542	93 14 29.894		REMOVED JUNE 1999
23	TOP GROUP TREES	873.01	3		4+82.53	240.05 RT	44 53 22.320	93 14 23.797		REMOVED JUNE 1999
24	TOP GROUP TREES	870.38	8		8+32.04	540.88 LT	44 53 27.112	93 14 14.010		REMOVED JULY 2000
25	TOP GROUP TREES	871.52		9	9+05.69	658.27 LT	44 53 27.724	93 14 12.288		REMOVED JULY 2000

NOTE: ITEMS 1-23 WERE REMOVED UNDER MAC CONTRACT 106 1 140 - 1998 RWY 17-35 SITE PREPARATION.
NOTE: OBSTRUCTION SURVEY FOR RWY 12R WAS DONE IN MAY 1998.

RUNWAY 12R - 30L

POINT NO.	DESCRIPTION	ELEV.	SURFACE PENETRATION(FT) PRIMARY	SURFACE PENETRATION(FT) 7:1 TRANSITIONAL	LOCATION STATION	LOCATION OFFSET	GEODETIC POSITION LATITUDE DEG MIN SEC	GEODETIC POSITION LONGITUDE DEG MIN SEC	REMARKS	DISPOSITION
	RUNWAY THRESHOLD	841			21+00.00	0.00	44 53 16.040	93 14 02.874		
8	COR. NAVY HANGAR	871		2	42+40.91	752.19 LT	44 53 11.389	93 13 32.043	DRG. 5 OF 28	OBSTRUCTION LIGHTED

RUNWAY 4-22

POINT NO.	DESCRIPTION	ELEV.	SURFACE PENETRATION(FT) PRIMARY	SURFACE PENETRATION(FT) 7:1 TRANSITIONAL	LOCATION STATION	LOCATION OFFSET	GEODETIC POSITION LATITUDE DEG MIN SEC	GEODETIC POSITION LONGITUDE DEG MIN SEC	REMARKS	DISPOSITION
	RWY 22 THRESHOLD	830			160+94.73	0.00	44 53 36.983	93 12 29.845		
135	CONTROL TOWER	991		81	122+59.73	1081.66 LT	44 53 17.769	93 13 18.142	DRG. 5 OF 28	OBSTRUCTION LIGHTED
136	℄ ZANTOP HANGAR	879		17	119+93.93	738.41 LT	44 53 13.517	93 13 17.382	DRG. 5 OF 28	OBSTRUCTION LIGHTED
137	COR. ZANTOP HANGAR	870		15	119+46.53	689.16 LT	44 53 12.833	93 13 17.363	DRG. 5 OF 28	OBSTRUCTION LIGHTED
138	AIRFORCE HANGAR	902		26	156+94.27	829.33 LT	44 53 40.263	93 13 23.593	DRG.16 OF 28	OBSTRUCTION LIGHTED

A.L.P. Drawing No. 21
Current Update: DECEMBER 29, 2000

CURRENT PLOT: DECEMBER 29, 2000

RUNWAY 30R APPROACH

POINT NO.	DESCRIPTION	ELEV.	SURFACE PENETRATION(FT) 50:1 APPROACH	SURFACE PENETRATION(FT) 7:1 TRANSITIONAL	LOCATION STATION	LOCATION OFFSET	GEODETIC POSITION LATITUDE DEG MIN SEC	GEODETIC POSITION LONGITUDE DEG MIN SEC	REMARKS	DISPOSITION
	RUNWAY THRESHOLD	819			122+30.00	0.00	44 52 52.512	93 11 38.297		
1	TOP OH LT	831.26		2	127+62.35	571.73 RT	44 52 44.957	93 11 36.115		OBSTRUCTION LIGHTED
2	TOP TREE	834.01		10	126+37.75	537.83 RT	44 52 45.883	93 11 37.347	MNDOT PROP.	REMOVE
3	TOP TREE	838.49		10	126+28.00	565.52 RT	44 52 45.699	93 11 37.662	MNDOT PROP.	REMOVE
4	TOP TREE	843.14		10	126+02.66	601.85 RT	44 52 45.523	93 11 38.226	MNDOT PROP.	REMOVE
5	TOP TREE	839.51		5	126+50.08	609.37 RT	44 52 45.216	93 11 37.718	MNDOT PROP.	REMOVE
6	TOP TREE	835.17		4	126+53.66	587.83 RT	44 52 45.379	93 11 37.520	MNDOT PROP.	REMOVE

NOTE: ITEMS 2 THROUGH 6 ARE NOT ON AIRPORT PROPERTY. OBJECTS TO BE REMOVED CONTINGENT ON RECEIVING COOPERATION FROM OWNERS.

RUNWAY 30L APPROACH

POINT NO.	DESCRIPTION	ELEV.	SURFACE PENETRATION(FT) 50:1 APPROACH	SURFACE PENETRATION(FT) 7:1 TRANSITIONAL	LOCATION STATION	LOCATION OFFSET	GEODETIC POSITION LATITUDE DEG MIN SEC	GEODETIC POSITION LONGITUDE DEG MIN SEC	REMARKS	DISPOSITION
	RUNWAY THRESHOLD	814			121+30.00	0.00	44 52 24.675	93 12 04.271		
1	TOP TREE	857.87		8	130+84.28	765.79 RT	44 52 13.161	93 11 58.134		REMOVE
2	TOP PP	844.61	5		136+34.39	617.03 LT	44 52 21.993	93 11 41.619		OBSTRUCTION LIGHTED
3	TOP PP	839.23		1	134+43.14	685.11 LT	44 52 23.550	93 11 43.395		OBSTRUCTION LIGHTED
4	TOP TREE	859.66		5	134+42.51	799.66 LT	44 52 24.519	93 11 42.574	AIRFORCE PROP.	TRIM
5	TOP TREE	864.66		5	133+22.75	840.23 LT	44 52 25.476	93 11 43.701	AIRFORCE PROP.	TRIM
6	TOP TREE	872.54		4	133+93.07	899.80 LT	44 52 25.617	93 11 42.437	AIRFORCE PROP.	TRIM
7	TOP EXHAUST PIPE	825.61	1		129+05.41	569.91 LT	44 52 25.341	93 11 50.603	FAA FACILITY	STUDY UNKNOWN
8	APPROACH LIGHT	815.00	1		123+00.00	0.00	44 52 23.647	93 12 01.900	FAA FACILITY	FIXED BY FUNCTION

NOTE: ITEMS 4,5 AND 6 ARE NOT ON AIRPORT PROPERTY. OBJECTS TO BE REMOVED CONTINGENT ON RECEIVING COOPERATION FROM OWNERS.

RUNWAY 12L-30R

POINT NO.	DESCRIPTION	ELEV.	SURFACE PENETRATION(FT) PRIMARY	SURFACE PENETRATION(FT) 7:1 TRANSITIONAL	LOCATION STATION	LOCATION OFFSET	GEODETIC POSITION LATITUDE DEG MIN SEC	GEODETIC POSITION LONGITUDE DEG MIN SEC	REMARKS	DISPOSITION
	RWY 12L THRESHOLD	838			40+30.00	0.00	44 53 34.624	93 13 15.568		
1	SIGNATURE HANGAR	869		19	42+41.73	587.52 RT	44 53 28.582	93 13 17.300	DRG. 5 OF 28	REMOVE/OBST. LIGHTED
2	COR. SIGNATURE	859		11	40+98.36	569.25 RT	44 53 29.473	93 13 18.872	DRG. 5 OF 28	REMOVE
5	℄ SIGNATURE HANGAR	876		17	42+76.16	651.76 RT	44 53 27.863	93 13 17.355	DRG. 5 OF 28	REMOVE
6	BLDG/CHIMNEY	876		23	40+89.90	601.17 RT	44 53 29.246	93 13 19.200	DRG. 5 OF 28	REMOVE

RUNWAY 4 APPROACH

POINT NO.	DESCRIPTION	ELEV.	SURFACE PENETRATION(FT) 50:1 APPROACH	SURFACE PENETRATION(FT) 7:1 TRANSITIONAL	LOCATION STATION	LOCATION OFFSET	GEODETIC POSITION LATITUDE DEG MIN SEC	GEODETIC POSITION LONGITUDE DEG MIN SEC	REMARKS	DISPOSITION
	RUNWAY END	833			50+88.75	0.00	44 52 20.155	93 14 17.944		
	ANTENNA-METRO BANK	960	21		-(4+13.6)	550.7 RT	44 51 37.890	93 15 06.550		OBST. LIGHTED

NOTE:
THERE ARE NO OBSTRUCTIONS TO THE 40:1 DEPARTURE SURFACE FOR RWY 12R, RWY 30L, RWY 12L, RWY 30R, OR RWY 4.

NOTE:
1. OBSTRUCTION INFORMATION OBTAINED BY SURVEY CONDUCTED IN SEPTEMBER 1991 & MAY 1998.
2. GEODETIC COORDINATES ARE NORTH AMERICAN DATUM 1983

MINNEAPOLIS-ST. PAUL INTERNATIONAL AIRPORT
WOLD-CHAMBERLAIN FIELD

OBSTRUCTION TABULATIONS

Metropolitan Airports Commission

TKDA
ENGINEERS · ARCHITECTS · PLANNERS
St. Paul, Minnesota

Sheet 21 of 28

Original Date: 12/09/04

Revision Date: 06/01/19

FAA Approval: Kenneth W. Taire 6/1/2019

RUNWAY 22 APPROACH

POINT NO.	DESCRIPTION	ELEV.	SURFACE PENETRATION(FT) 50:1 APPROACH	SURFACE PENETRATION(FT) 7:1 TRANSITIONAL	LOCATION STATION	LOCATION OFFSET	GEODETIC POSITION LATITUDE DEG MIN SEC	GEODETIC POSITION LONGITUDE DEG MIN SEC	REMARKS	DISPOSITION
	RUNWAY END	830			160+94.75	0.00	44 53 36.983	93 12 29.845		
1	TOP APPR LT	839.06	3		165+84.95	1.41 RT	44 53 40.394	93 12 25.015	FAA FACILITY	FIXED BY FUNCTION
2	TOP APPR LT	842.39	3		167+54.33	1.19 RT	44 53 41.578	93 12 23.352	FAA FACILITY	FIXED BY FUNCTION
3	TOP APPR LT	844.21	2		169+24.25	1.16 RT	44 53 42.764	93 12 21.683	FAA FACILITY	FIXED BY FUNCTION
4	TOP LT POLE	861.37	8		174+88.03	655.94 RT	44 53 42.091	93 12 09.763	ARMY PROPERTY	OBSTRUCTION LIGHTED
5	TOP LT POLE	861.50		2	174+17.57	722.47 RT	44 53 41.169	93 12 09.754	ARMY PROPERTY	OBSTRUCTION LIGHTED
6	CL RD	834.11	1		164+62.54	525.03 LT	44 53 43.217	93 12 31.387	AIRFORCE PROP.	RELOCATE
7	CL RD	845.84	7		167+22.78	564.71 LT	44 53 45.310	93 12 29.219	AIRFORCE PROP.	RELOCATE
8	CL RD	852.09	11		168+45.53	582.83 LT	44 53 46.293	93 12 28.191	AIRFORCE PROP.	RELOCATE
9	CL RD	850.80	6		170+20.12	608.55 LT	44 53 47.691	93 12 26.728	AIRFORCE PROP.	RELOCATE
10	TOP TREE	874.56	22		173+77.41	545.24 LT	44 53 49.743	93 12 22.595	ARMY PROPERTY	REMOVE
11	TOP TREES	889.87	37		174+61.84	480.96 LT	44 53 49.883	93 12 21.134	ARMY PROPERTY	REMOVE
12	TOP TREES	867.89	15		174+48.35	441.71 LT	44 53 49.515	93 12 20.881	ARMY PROPERTY	REMOVE
13	TOP TREE	877.23	22		175+36.73	518.12 LT	44 53 50.665	93 12 20.764	ARMY PROPERTY	REMOVE
14	TOP TREE	873.03	17		175+99.62	520.91 LT	44 53 51.124	93 12 20.173	ARMY PROPERTY	REMOVE
15	TOP TREES	867.31	12		175+68.10	322.56 LT	44 53 49.519	93 12 18.535	ARMY PROPERTY	REMOVE
16	TOP TREES	877.68	21		176+13.56	260.67 LT	44 53 49.404	93 12 17.480	ARMY PROPERTY	REMOVE
17	TOP TREES	860.47	3		176+33.86	299.54 LT	44 53 49.817	93 12 17.662	ARMY PROPERTY	REMOVE
18	TOP LT POLE	884.33	20		180+20.08	710.07 LT	44 53 55.379	93 12 17.899	MNDOT PROP.	OBSTRUCTION LIGHTED
19	TOP LT POLE	882.56	14		182+25.24	715.45 LT	44 53 56.849	93 12 15.935	MNDOT PROP.	OBSTRUCTION LIGHTED
20	TOP LT POLE	878.57	8		183+22.96	537.41 LT	44 53 56.287	93 12 13.227	MNDOT PROP.	OBSTRUCTION LIGHTED
21	TOP GROUP TREES	873.96	4		183+11.80	342.65 LT	44 53 54.849	93 12 11.424	MNDOT PROP.	REMOVE
22	TOP LT POLE	880.97	6		185+25.68	533.89 LT	44 53 57.677	93 12 11.200	MNDOT PROP.	OBSTRUCTION LIGHTED
23	TOP TREE	905.89	33		184+44.38	770.61 LT	44 53 58.763	93 12 14.324	V.A. PROPERTY	REMOVE
24	TOP TREE	894.59	22		184+41.32	797.85 LT	44 53 58.932	93 12 14.621	V.A. PROPERTY	REMOVE
25	TOP PINE	876.91	2		185+49.83	791.78 LT	44 53 59.647	93 12 13.495	V.A. PROPERTY	REMOVE
26	TOP TREES	895.65	21		185+53.84	639.09 LT	44 53 58.609	93 12 11.956	V.A. PROPERTY	REMOVE
27	TOP TREES	887.69	12		186+00.86	632.35 LT	44 53 58.890	93 12 11.428	V.A. PROPERTY	REMOVE
28	TOP TREES	888.54	14		186+21.42	599.01 LT	44 53 58.801	93 12 10.898	V.A. PROPERTY	REMOVE
29	TOP TREES	891.18	14		186+80.00	565.46 LT	44 53 58.975	93 12 09.993	V.A. PROPERTY	REMOVE
30	TOP GROUP TREES	897.61	19		187+35.14	503.16 LT	44 53 58.924	93 12 08.840	V.A. PROPERTY	REMOVE
31	TOP GROUP TREES	881.30	1		187+92.16	446.66 LT	44 53 58.928	93 12 07.725	V.A. PROPERTY	REMOVE
32	TOP GROUP TREES	892.01	10		188+85.70	508.98 LT	44 54 00.016	93 12 07.417	V.A. PROPERTY	REMOVE
33	TOP TREE	893.88	14		187+85.98	688.78 LT	44 54 00.576	93 12 10.163	V.A. PROPERTY	REMOVE
34	TOP GROUP TREES	903.43	21		188+97.59	759.41 LT	44 54 01.848	93 12 09.759	V.A. PROPERTY	REMOVE
35	TOP TREES	892.82	9		189+64.71	648.30 LT	44 54 01.541	93 12 08.009	V.A. PROPERTY	REMOVE
36	TOP TREES	906.33	23		189+54.25	602.12 LT	44 54 01.145	93 12 07.658	V.A. PROPERTY	REMOVE
37	TOP TREES	892.75	15		187+25.98	563.97 LT	44 53 59.286	93 12 09.527	V.A. PROPERTY	REMOVE
38	TOP TREES	892.03	15		186+90.51	732.39 LT	44 54 00.214	93 12 11.529	V.A. PROPERTY	REMOVE
39	TOP TREES	901.98		6	187+78.77	990.07 LT	44 54 02.630	93 12 13.192	V.A. PROPERTY	REMOVE
40	TOP TREE	903.26		25	186+30.03	862.01 LT	44 54 00.697	93 12 13.397	V.A. PROPERTY	REMOVE
41	TOP TREE	885.13		6	185+94.95	864.33 LT	44 53 00.469	93 12 13.764	V.A. PROPERTY	REMOVE
42	TOP 2 TREES	900.92		20	185+51.64	909.09 LT	44 54 00.479	93 12 14.629	V.A. PROPERTY	REMOVE
43	TOP GROUP TREES	926.98		47	183+58.87	870.93 LT	44 53 58.867	93 12 16.149	V.A. PROPERTY	REMOVE
44	TOP LT POLE	887.71		4	179+22.48	893.17 LT	44 53 55.977	93 12 20.655	MNDOT PROP.	REMOVE
45	TOP LT POLE	889.60		7	177+20.50	885.33 LT	44 53 54.513	93 12 22.563	MNDOT PROP.	REMOVE
46	TOP BLDG-VENT	866.57		2	173+14.18	754.72 LT	44 53 50.765	93 12 25.274	AIRFORCE PROP.	REMOVE
47	TOP LT POLE	882.90		21	172+62.17	733.11 LT	44 53 50.251	93 12 25.572	AIRFORCE PROP.	REMOVE
48	TOP TREE	915.19		35	171+15.00	858.92 LT	44 53 50.103	93 12 28.253	RESIDENTIAL	REMOVE
49	TOP TREE	894.69		17	171+03.11	843.93 LT	44 53 49.915	93 12 28.224	RESIDENTIAL	REMOVE
50	TOP TREE	897.41		27	170+36.32	786.20 LT	44 53 49.046	93 12 28.313	RESIDENTIAL	REMOVE
51	TOP TREE	914.58		39	167+25.24	823.03 LT	44 53 47.131	93 12 31.731	RESIDENTIAL	REMOVE
52	TOP TREES	909.14		48	168+35.80	726.14 LT	44 53 47.227	93 12 29.693	RESIDENTIAL	REMOVE
53	TOP LT POLE	876.76		17	168+11.23	714.36 LT	44 53 46.973	93 12 29.819	RESIDENTIAL	OBSTRUCTION LIGHTED
54	TOP PP	884.60		28	167+60.98	693.37 LT	44 53 46.476	93 12 30.106	RESIDENTIAL	OBSTRUCTION LIGHTED
55	TOP TREE	899.61		42	168+95.68	698.92 LT	44 53 47.454	93 12 28.838	RESIDENTIAL	REMOVE
56	TOP GAR 5854	866.84		6	168+88.17	720.29 LT	44 53 47.551	93 12 29.122	RESIDENTIAL	OBSTRUCTION LIGHTED
57	TOP HSE 5854	869.93		14	169+33.63	686.80 LT	44 53 47.634	93 12 28.346	RESIDENTIAL	OBSTRUCTION LIGHTED
58	TOP TREES	927.44		75	168+95.48	664.28 LT	44 53 47.211	93 12 28.495	RESIDENTIAL	REMOVE
59	TOP TREE	897.77		48	169+08.32	647.33 LT	44 53 47.182	93 12 28.207	RESIDENTIAL	REMOVE
60	TOP LT POLE	875.84		28	168+96.60	635.03 LT	44 53 47.015	93 12 28.201	RESIDENTIAL	OBSTRUCTION LIGHTED
61	ANTENNA	849.95	15		165+37.85	310.07 LT	44 53 42.241	93 12 28.535	FAA FACILITY	REMOVE
62	BUILDING	844.92	10		165+37.85	310.07 LT	44 53 42.241	93 12 28.535	FAA FACILITY	REMOVE
63	TOP HOUSE	872.44		1	167+71.39	797.47 LT	44 53 47.275	93 12 31.027	RESIDENTIAL	OBSTRUCTION LIGHTED
64	TOP LT POLE	848.79	1		172+15.85	527.52 RT	44 53 41.123	93 12 13.650	ARMY PROPERTY	OBSTRUCTION LIGHTED
65	TOP LT POLE	861.68		1	175+52.49	724.32 RT	44 53 42.098	93 12 08.410	ARMY PROPERTY	OBSTRUCTION LIGHTED
66	TOP LT POLE	843.88	1		169+38.49	354.56 RT	44 53 40.395	93 12 18.073	ARMY PROPERTY	OBSTRUCTION LIGHTED
67	TOP LT POLE	847.08	4		169+46.58	597.86 RT	44 53 38.753	93 12 15.605	ARMY PROPERTY	OBSTRUCTION LIGHTED
71	TOP LT POLE	846.66	1		171+44.09	599.34 RT	44 53 40.121	93 12 13.649	ARMY PROPERTY	OBSTRUCTION LIGHTED
73	TOP LT POLE	849.20	1		172+87.49	458.98 RT	44 53 42.102	93 12 13.618	ARMY PROPERTY	OBSTRUCTION LIGHTED
95	TREES	861.13	1		178+75.60	4.52 LT	44 53 49.443	93 12 12.390	ARMY PROPERTY	REMOVE
109	TREES	878.90	3		185+87.58	93.35 LT	44 53 55.040	93 12 06.276	MNDOT PROP.	REMOVE
110	TREES	876.55	1		186+34.97	52.83 LT	44 53 55.080	93 12 05.402	MNDOT PROP.	REMOVE
122	TREES	909.22		17	189+14.19	964.31 LT	44 54 03.395	93 12 11.608	V.A.PROPERTY	REMOVE
123	TREES	903.07	16		191+70.17	752.27 LT	44 54 03.701	93 12 07.010	V.A.PROPERTY	REMOVE
124	TREES	889.03	4		190+48.42	561.01 LT	44 54 01.515	93 12 06.329	V.A.PROPERTY	REMOVE
125	TREES	889.78	4		190+64.58	543.70 LT	44 54 01.507	93 12 06.000	V.A.PROPERTY	REMOVE
132	TREES	919.05	26		194+63.54	876.33 LT	44 54 06.615	93 12 05.346	V.A.PROPERTY	REMOVE
133	TREES	905.91	1		200+27.13	297.39 LT	44 54 06.504	93 11 54.122	BUREAU OF MINES	REMOVE
134	TREES	909.72	4		200+91.40	358.51 LT	44 54 07.379	93 11 54.091	BUREAU OF MINES	REMOVE
141	TREE	909.27		25	167+08.98	885.31 LT	44 53 47.453	93 12 32.502	RESIDENTIAL	REMOVE
142	TREE	919.83		39	167+55.71	862.23 LT	44 53 47.618	93 12 31.817	RESIDENTIAL	REMOVE
143	TREE	884.46		29	169+76.70	685.05 LT	44 53 47.923	93 12 27.905	RESIDENTIAL	REMOVE
144	TREE	891.33		29	169+68.41	736.42 LT	44 53 48.224	93 12 28.491	RESIDENTIAL	REMOVE
145	TREE	882.39		21	170+18.94	726.93 LT	44 53 48.510	93 12 27.901	RESIDENTIAL	REMOVE
146	TREE	881.61		15	170+54.38	765.18 LT	44 53 49.025	93 12 27.929	RESIDENTIAL	REMOVE
147	TREE	881.58		10	170+89.77	789.72 LT	44 53 49.506	93 12 27.910	RESIDENTIAL	REMOVE
148	TREES	890.51		20	176+44.98	798.75 LT	44 53 53.377	93 12 22.461	MNDOT PROP.	REMOVE
149	TREES	877.86		15	178+04.03	746.93 LT	44 53 54.129	93 12 20.383	MNDOT PROP.	REMOVE
150	TREES	873.24	11		179+18.39	638.75 LT	44 53 54.172	93 12 18.197	MNDOT PROP.	REMOVE
152	TREES	880.78	18		179+39.00	617.43 LT	44 53 54.167	93 12 17.785	MNDOT PROP.	REMOVE
153	TREES	863.48	1		179+90.58	598.85 LT	44 53 54.397	93 12 17.096	MNDOT PROP.	REMOVE

NOTE: ITEMS 1-5, 8-60 AND 63-187 ARE OFF AIRPORT PROPERTY. OBJECTS TO BE REMOVED CONTINGENT ON RECEIVING COOPERATION FROM OWNERS.

A.L.P. Drawing No. 22
Current Update: DECEMBER 29, 2000

CURRENT PLOT: DECEMBER 29, 2000

RUNWAY 22 APPROACH

POINT NO.	DESCRIPTION	ELEV.	SURFACE PENETRATION(FT) 50:1 APPROACH	SURFACE PENETRATION(FT) 7:1 TRANSITIONAL	LOCATION STATION	LOCATION OFFSET	GEODETIC POSITION LATITUDE DEG MIN SEC	GEODETIC POSITION LONGITUDE DEG MIN SEC	REMARKS	DISPOSITION
	RUNWAY END	830			160+94.75	0.00	44 53 43.962	93 12 20.019		
157	TREES	901.01		21	183+06.97	930.94 LT	44 53 58.924	93 12 17.248	V.A. PROPERTY	REMOVE
158	TREES	910.87		13	183+62.78	994.64 LT	44 53 59.759	93 12 17.325	V.A. PROPERTY	REMOVE
159	TREES	899.48		4	184+74.56	982.38 LT	44 54 00.453	93 12 16.106	V.A. PROPERTY	REMOVE
160	TREES	917.58		32	183+88.93	911.14 LT	44 53 59.358	93 12 16.248	V.A. PROPERTY	REMOVE
161	TREES	917.56		39	184+21.13	860.94 LT	44 53 59.232	93 12 15.439	V.A. PROPERTY	REMOVE
171	TREES	897.79	1		196+42.92	755.31 LT	44 54 07.021	93 12 02.394	V.A. PROPERTY	REMOVE
172	TREES	901.28	8		194+65.24	751.57 LT	44 54 05.755	93 12 04.104	V.A. PROPERTY	REMOVE
174	TREES	907.74		14	194+10.00	979.18 LT	44 54 07.492	93 12 06.874	V.A. PROPERTY	REMOVE
175	TREES	917.01		18	193+97.11	1016.66 LT	44 54 07.329	93 12 07.374	V.A. PROPERTY	REMOVE
176	TREES	924.69	30		194+93.58	937.11 LT	44 54 07.249	93 12 05.647	V.A. PROPERTY	REMOVE
177	TREES	909.70	14		195+95.14	898.74 LT	44 54 07.689	93 12 04.272	V.A. PROPERTY	REMOVE
178	TREES	905.96	9		196+30.73	819.71 LT	44 54 07.386	93 12 03.147	V.A. PROPERTY	REMOVE
186	TREES	869.36	1		182+73.34	430.85 LT	44 53 55.197	93 12 12.668	MNDOT PROP.	REMOVE
187	TREES	885.40	12		184+63.28	373.46 LT	44 53 56.122	93 12 10.238	MNDOT PROP.	REMOVE

NOTE: ITEMS 1-5, 8-60 AND 63-187 ARE OFF AIRPORT PROPERTY. OBJECTS TO BE REMOVED CONTINGENT ON RECEIVING COOPERATION FROM OWNERS.

RUNWAY 22 DEPARTURE

POINT NO.	DESCRIPTION	ELEV.	SURFACE PENETRATION(FT) 40:1 DEPARTURE	LOCATION STATION	LOCATION OFFSET	GEODETIC POSITION LATITUDE DEG MIN SEC	GEODETIC POSITION LONGITUDE DEG MIN SEC	REMARKS	DISPOSITION
	RUNWAY END	830		160+94.75	0.00	44 53 43.962	93 12 20.019		
43	TOP GROUP TREES	926.98	5	183+58.87	870.93 LT	44 53 58.867	93 12 16.149	V.A. PROPERTY	REMOVE
55	TOP TREE	899.61	14	168+95.68	698.92 LT	44 53 47.454	93 12 28.838	RESIDENTIAL	REMOVE
58	TOP TREES	927.44	42	168+95.48	664.28 LT	44 53 47.211	93 12 28.495	RESIDENTIAL	REMOVE
59	TOP TREE	897.77	12	169+08.32	647.33 LT	44 53 47.182	93 12 28.207	RESIDENTIAL	REMOVE
144	TREE	891.33	5	169+68.41	736.42 LT	44 53 48.224	93 12 28.491	RESIDENTIAL	REMOVE

NOTE: ITEMS LISTED ARE OFF AIRPORT PROPERTY. OBJECTS TO BE REMOVED CONTINGENT ON RECEIVING COOPERATION FROM OWNERS.

DISPLACED RUNWAY 22 TERPS SURFACE

POINT NO.	DESCRIPTION	ELEV.	SURFACE PENETRATION(FT) 34:1 APPROACH	SURFACE PENETRATION(FT) 7:1 TRANSITIONAL	LOCATION STATION	LOCATION OFFSET	GEODETIC POSITION LATITUDE DEG MIN SEC	GEODETIC POSITION LONGITUDE DEG MIN SEC	REMARKS	DISPOSITION
	RUNWAY THRESHOLD	827			150+94.73	0.00	44 53 30.003	93 12 39.670		
11	TOP TREES	889.87	1		174+61.84	480.96 LT	44 53 49.883	93 12 21.134	ARMY PROPERTY	REMOVE
43	TOP GROUP TREES	926.98	10		194+01.25	868.77 LT	44 53 58.867	93 12 16.149	V.A. PROPERTY	REMOVE
48	TOP TREE	915.19		22	171+15.00	858.92 LT	44 53 50.103	93 12 28.253	RESIDENTIAL	REMOVE
49	TOP TREE	894.69		4	171+03.11	843.93 LT	44 53 49.915	93 12 28.224	RESIDENTIAL	REMOVE
50	TOP TREE	897.41		16	170+36.32	786.20 LT	44 53 49.046	93 12 28.313	RESIDENTIAL	REMOVE
51	TOP TREE	914.58		21	167+25.24	823.03 LT	44 53 47.131	93 12 31.731	RESIDENTIAL	REMOVE
52	TOP TREES	909.14	38		168+35.80	726.14 LT	44 53 47.227	93 12 29.693	RESIDENTIAL	REMOVE
53	TOP LT POLE	876.76	5		168+11.23	714.36 LT	44 53 46.973	93 12 29.819	RESIDENTIAL	OBSTRUCTION LIGHTED
54	TOP PP	884.60	15		167+60.98	693.37 LT	44 53 46.476	93 12 30.106	RESIDENTIAL	OBSTRUCTION LIGHTED
55	TOP TREE	905.95	32		168+95.68	698.92 LT	44 53 47.454	93 12 28.838	RESIDENTIAL	REMOVE
58	TOP TREES	927.44	53		168+95.48	664.28 LT	44 53 47.211	93 12 28.495	RESIDENTIAL	REMOVE
59	TOP TREE	897.77	23		169+08.32	647.33 LT	44 53 47.182	93 12 28.207	RESIDENTIAL	REMOVE
60	TOP LT POLE	875.84	2		168+96.60	635.03 LT	44 53 47.015	93 12 28.201	RESIDENTIAL	OBSTRUCTION LIGHTED
138	AIRFORCE HANGAR	902		25	156+94.27	829.33 LT	44 53 40.263	93 13 23.593	AIRFORCE PROP.	OBSTRUCTION LIGHTED
141	TREE	909.27		16	167+08.98	885.31 LT	44 53 47.453	93 12 32.502	RESIDENTIAL	REMOVE
142	TREE	919.83		29	167+55.71	862.23 LT	44 53 47.618	93 12 31.817	RESIDENTIAL	REMOVE
143	TREE	884.46	8		169+76.70	685.05 LT	44 53 47.923	93 12 27.905	RESIDENTIAL	REMOVE
144	TREE	891.33	15		169+68.41	736.42 LT	44 53 48.224	93 12 28.491	RESIDENTIAL	REMOVE
145	TREE	882.39	5		170+18.94	726.93 LT	44 53 48.510	93 12 27.901	RESIDENTIAL	REMOVE
146	TREE	881.61	3		170+54.38	765.18 LT	44 53 49.025	93 12 27.929	RESIDENTIAL	REMOVE
160	TREES	917.58	1		183+88.93	911.14 LT	44 53 59.358	93 12 16.248	V.A. PROPERTY	REMOVE
161	TREES	917.56	1		184+21.13	860.94 LT	44 53 59.232	93 12 15.439	V.A. PROPERTY	REMOVE

NOTE: ALL OF THE ITEMS LISTED ARE OFF AIRPORT PROPERTY. OBJECTS TO BE REMOVED CONTINGENT ON RECEIVING COOPERATION FROM OWNERS.

NOTE:
1. OBSTRUCTION INFORMATION OBTAINED BY SURVEY CONDUCTED IN SEPTEMBER 1991 AND MAY 1998
2. GEODETIC COORDINATES ARE NORTH AMERICAN DATUM 1983

MINNEAPOLIS-ST. PAUL INTERNATIONAL AIRPORT
WOLD-CHAMBERLAIN FIELD

OBSTRUCTION TABULATIONS

Metropolitan Airports Commission

TKDA
ENGINEERS · ARCHITECTS · PLANNERS
St. Paul, Minnesota

Sheet 22 Of 28

Original Date: 12/09/04

Revision Date: 06/01/19

FAA Approval: Kenneth W. Taire 6/1/2019

RUNWAY 35 APPROACH

POINT NO.	DESCRIPTION	ELEV.	SURFACE PENETRATION(FT) 50:1 APPROACH	SURFACE PENETRATION(FT) 7:1 TRANSITIONAL	LOCATION STATION	LOCATION OFFSET	GEODETIC POSITION LATITUDE DEG MIN SEC	GEODETIC POSITION LONGITUDE DEG MIN SEC	REMARKS	DISPOSITION
	RUNWAY THRESHOLD	833			100+00.00	00.00	44 51 58.235	93 14 11.922		
1	GLYCOL BLDG.	851.19	19		98+54.37	00.00	44 51 56.821	93 14 11.554		REMOVE
2	24TH. AVE. SO.	828.25			98+00.00	284.79 LT	44 51 55.783	93 14 15.305		
3	26TH AVE. SO.	826.27			98+00.00	461.38 RT	44 51 57.121	93 14 05.118		
4	MESABA HANGAR	895.80	61		97+03.16	475.79 RT	44 51 56.206	93 14 04.677		REMOVE
5	7550 24TH. AVE. SO.	850.80	18		98+00.00	397.55 LT	44 51 55.580	93 14 16.845		REMOVE
6	SUN COUNTRY HANGAR	913.80	75		95+16.08	447.25 RT	44 51 54.339	93 14 04.595		REMOVE
7	7700 24TH. AVE. SO.	866.00	27		95+03.06	490.60 LT	44 51 52.530	93 14 17.366		REMOVE
8	AIRPORT CLINIC	846.20			88+30.68	357.37 RT	44 51 47.523	93 14 04.094		REMOVE
9	SHERATON HOTEL	876.00	12		81+86.36	149.44 LT	44 51 40.358	93 14 09.388		REMOVE
10	EXCEL INN	849.00			82+45.98	313.97 RT	44 51 41.768	93 14 03.212		REMOVE
11	V.F.W.	856.90			80+42.94	584.20 RT	44 51 40.281	93 13 59.011		REMOVE
12	2801 E. 78TH. ST.	846.30			80+65.12	756.00 RT	44 51 40.808	93 13 56.722		REMOVE
13	BLDG.	852.50			80+69.40	441.44 LT	44 51 38.699	93 14 13.080		REMOVE
14	BLDG.	847.90			79+59.57	540.72 LT	44 51 37.454	93 14 14.158		REMOVE
15	GRAND HOTEL	970.70	95		76+55.78	365.57 LT	44 51 34.819	93 14 11.001		REMOVE
16	2670 E. 80TH. ST.	836.20			74+70.12	346.39 RT	44 51 34.293	93 14 00.813		REMOVE
17	PARKING RAMP	826.20			74+67.96	725.44 RT	44 51 34.951	93 13 55.633		REMOVE
18	TEL-TECH	911.00	31		74+35.44	854.69 RT	44 51 34.867	93 13 53.787		REMOVE
19	AMOCO STATION	844.10			80+89.06	719.33 LT	44 51 38.391	93 14 16.923		REMOVE
20	M.O.A. RAMP LT.	927.20		16	63+79.57	1083.51 LT	44 51 21.140	93 14 17.583		REMOVE
21	SIGN	891.10		4	85+10.85	894.21 RT	44 51 45.647	93 13 55.955		OBST. LIGHTED
22	NSP SUBSTATION				77+44.44	470.73 RT	44 51 37.179	93 13 59.808		RELOCATE
23	POWERLINE TOWER	919.50	47		78+40.30	5.60 LT	44 51 37.256	93 14 06.552		RELOCATE
24	POWERLINE TOWER	928.70	58		79+03.06	431.30 LT	44 51 37.102	93 14 12.522		RELOCATE
25	POWERLINE TOWER	927.60		54	79+65.12	805.55 LT	44 51 37.033	93 14 17.787		RELOCATE
26	SUN COUNTRY HANGAR	902.13	55		91+30.06	379.37 RT	44 51 50.469	93 14 04.549		REMOVE

NOTE:
1. TREES, POLES, SIGNS, ETC. THAT PENETRATE THE APPROACH SURFACE OR TRANSITIONAL SURFACE WILL BE REMOVED UNLESS NOTED OTHERWISE.

RUNWAY 17-35

POINT NO.	DESCRIPTION	ELEV.	SURFACE PENETRATION(FT) PRIMARY	SURFACE PENETRATION(FT) 7:1 TRANSITIONAL	LOCATION STATION	LOCATION OFFSET	GEODETIC POSITION LATITUDE DEG MIN SEC	GEODETIC POSITION LONGITUDE DEG MIN SEC	REMARKS	DISPOSITION
	RUNWAY 35 THRESHOLD	833			100+00.00	00.00	44 51 58.235	93 14 11.922		
1	SIGNATURE (SOUTH)	859.28		3	101+05.62	667.72 RT	44 52 00.466	93 14 03.052		REMOVE
2	FEDERAL EXPRESS	869.50	37		106+90.63	210.15 RT	44 52 05.318	93 14 10.794		REMOVE
3	TRANSMITTER ANT.	893.16	60		138+77.65	295.69 RT	44 52 36.415	93 14 17.665		REMOVE
4	GOLF CLUB HOUSE	847.03	14		144+16.79	366.31 LT	44 52 40.462	93 14 28.065		REMOVE
5	GOLF MAINT. BLDG.	853.25	20		132+36.24	486.90 LT	44 52 28.784	93 14 26.733		REMOVE
6	GOLF MAINT. BLDG.	853.47	21		133+47.61	407.05 LT	44 52 30.008	93 14 25.924		REMOVE

NOTE:
1. TREES, POLES, SIGNS, ETC. THAT PENETRATE THE PRIMARY SURFACE OR TRANSITIONAL SURFACE WILL BE REMOVED UNLESS NOTED OTHERWISE.

RUNWAY 17 APPROACH

POINT NO.	DESCRIPTION	ELEV.	SURFACE PENETRATION(FT) 50:1 APPROACH	SURFACE PENETRATION(FT) 7:1 TRANSITIONAL	LOCATION STATION	LOCATION OFFSET	GEODETIC POSITION LATITUDE DEG MIN SEC	GEODETIC POSITION LONGITUDE DEG MIN SEC	REMARKS	DISPOSITION
	RUNWAY THRESHOLD	840			180+00.00	00.00	44 53 15.910	93 14 32.105		

NOTE:
1. TREES, POLES, SIGNS, ETC. THAT PENETRATE THE APPROACH SURFACE OR TRANSITIONAL SURFACE WILL BE REMOVED UNLESS NOTED OTHERWISE.

FUTURE RUNWAY 35 DEPARTURE

POINT NO.	DESCRIPTION	ELEV.	SURFACE PENETRATION(FT) 40:1 DEPARTURE	LOCATION STATION	LOCATION OFFSET	GEODETIC POSITION LATITUDE DEG MIN SEC	GEODETIC POSITION LONGITUDE DEG MIN SEC	REMARKS	DISPOSITION
	RUNWAY THRESHOLD	833		100+00.00	00.00	44 51 58.235	93 14 11.922		
4	MESABA HANGAR	895.80	20	97+03.16	475.79 RT	44 51 56.206	93 14 04.677		REMOVE
6	SUN COUNTRY HANGAR	913.80	34	95+16.08	447.25 RT	44 51 54.339	93 14 04.595		REMOVE
15	GRAND HOTEL	970.70	44	76+55.78	365.57 LT	44 51 34.819	93 14 11.001		REMOVE
24	POWERLINE TOWER	928.70	8	79+03.06	431.30 LT	44 51 37.102	93 14 12.522		RELOCATE
25	POWERLINE TOWER	927.60	9	79+65.12	805.55 LT	44 51 37.033	93 14 17.787		RELOCATE
26	SUN COUNTRY HANGAR	902.13	12	91+30.06	379.37 RT	44 51 50.469	93 14 04.549		REMOVE

FUTURE RUNWAY 22

POINT NO.	DESCRIPTION	ELEV.	SURFACE PENETRATION(FT) PRIMARY	SURFACE PENETRATION(FT) 7:1 TRANSITIONAL	LOCATION STATION	LOCATION OFFSET	GEODETIC POSITION LATITUDE DEG MIN SEC	GEODETIC POSITION LONGITUDE DEG MIN SEC	REMARKS	DISPOSITION
	RUNWAY END	830			170+94.75	0.00	44 53 43.962	93 12 20.019		
1	TOP APPR LT	839.06	9		165+84.95	1.41 RT	44 53 40.394	93 12 25.015	FAA FACILITY	FIXED BY FUNCTION
2	TOP APPR LT	842.39	12		167+54.33	1.19 RT	44 53 41.578	93 12 23.352	FAA FACILITY	FIXED BY FUNCTION
3	TOP APPR LT	844.21	14		169+24.25	1.16 RT	44 53 42.764	93 12 21.683	FAA FACILITY	FIXED BY FUNCTION
6	CL RD	834.11		1	164+62.54	525.03 LT	44 53 43.217	93 12 31.387	AIRFORCE PROP.	RELOCATE
7	CL RD	845.84		7	167+22.78	564.71 LT	44 53 45.310	93 12 29.219	AIRFORCE PROP.	RELOCATE
8	CL RD	852.09		9	168+45.53	582.83 LT	44 53 46.293	93 12 28.191	AIRFORCE PROP.	RELOCATE
9	CL RD	850.80		5	170+20.12	608.55 LT	44 53 47.691	93 12 26.728	AIRFORCE PROP.	RELOCATE
47	TOP LT POLE	882.90		20	172+62.17	733.11 LT	44 53 50.251	93 12 25.572	AIRFORCE PROP.	OBSTRUCTION LIGHTED
48	TOP TREE	915.19		34	171+15.00	858.92 LT	44 53 50.103	93 12 28.253	RESIDENTIAL	REMOVE
49	TOP TREE	894.69		15	171+03.11	843.93 LT	44 53 49.915	93 12 28.224	RESIDENTIAL	REMOVE
50	TOP TREE	897.41		27	170+36.32	786.20 LT	44 53 49.046	93 12 28.313	RESIDENTIAL	REMOVE
51	TOP TREE	914.58		38	167+25.24	823.03 LT	44 53 47.131	93 12 31.731	RESIDENTIAL	REMOVE
52	TOP TREES	909.14		47	168+35.80	726.14 LT	44 53 47.227	93 12 29.693	RESIDENTIAL	REMOVE
53	TOP LT POLE	876.76		16	168+11.23	714.36 LT	44 53 46.973	93 12 29.819	RESIDENTIAL	OBSTRUCTION LIGHTED
54	TOP PP	884.60		27	167+60.98	693.37 LT	44 53 46.476	93 12 30.106	RESIDENTIAL	OBSTRUCTION LIGHTED
55	TOP TREE	905.96		47	168+95.68	698.92 LT	44 53 47.454	93 12 28.838	RESIDENTIAL	REMOVE
56	TOP GAR 5854	866.84		5	168+88.17	720.29 LT	44 53 47.551	93 12 29.122	RESIDENTIAL	OBSTRUCTION LIGHTED
57	TOP HSE 5854	869.93		13	169+33.63	686.80 LT	44 53 47.634	93 12 28.346	RESIDENTIAL	OBSTRUCTION LIGHTED
58	TOP TREES	927.44		74	168+95.48	664.28 LT	44 53 47.211	93 12 28.495	RESIDENTIAL	REMOVE
59	TOP TREE	897.77		47	169+08.32	647.33 LT	44 53 47.182	93 12 28.207	RESIDENTIAL	REMOVE
60	TOP LT POLE	875.84		27	168+96.60	635.03 LT	44 53 47.015	93 12 28.201	RESIDENTIAL	OBSTRUCTION LIGHTED
61	ANTENNA	849.95	20		165+37.85	221.07 LT	44 53 42.241	93 12 28.535	FAA FACILITY	STUDY UNKNOWN
62	BUILDING	844.92	15		165+37.85	221.07 LT	44 53 42.241	93 12 28.535	FAA FACILITY	STUDY UNKNOWN
63	TOP HOUSE	872.44		1	167+71.39	797.47 LT	44 53 47.275	93 12 31.027	RESIDENTIAL	OBSTRUCTION LIGHTED
64	TOP LT POLE	848.79	1		172+15.85	527.52 RT	44 53 41.123	93 12 13.650	ARMY PROPERTY	REMOVE
66	TOP LT POLE	843.88	1		169+38.49	354.56 RT	44 53 40.395	93 12 18.073	ARMY PROPERTY	REMOVE
67	TOP LT POLE	847.08		3	169+46.58	597.86 RT	44 53 38.753	93 12 15.605	ARMY PROPERTY	REMOVE
68	TOP LT POLE	843.89	14		170+63.90	238.40 RT	44 53 42.082	93 12 17.981	ARMY PROPERTY	REMOVE
69	TOP LT POLE	842.48		13	170+38.09	500.10 RT	44 53 40.074	93 12 15.665	ARMY PROPERTY	REMOVE
70	TOP LT POLE	843.88	14		171+21.93	410.55 RT	44 53 41.285	93 12 15.721	ARMY PROPERTY	REMOVE
71	TOP LT POLE	846.66		17	171+44.09	599.34 RT	44 53 40.121	93 12 13.649	ARMY PROPERTY	REMOVE
72	TOP LT POLE	845.62	16		171+92.17	366.02 RT	44 53 42.086	93 12 15.468	ARMY PROPERTY	REMOVE
73	TOP LT POLE	849.20	19		172+87.49	458.98 RT	44 53 42.102	93 12 13.618	ARMY PROPERTY	REMOVE
135	CONTROL TOWER	991		81	122+59.73	1081.66 LT	44 53 17.769	93 13 18.142	FAA FACILITY	OBSTRUCTION LIGHTED
136	& ZANTOP HANGAR	879		17	119+93.93	738.41 LT	44 53 13.517	93 13 17.382	FIXED BASE OP.	OBSTRUCTION LIGHTED
137	COR. ZANTOP HANGAR	870		15	119+46.53	689.16 LT	44 53 12.833	93 13 17.363	FIXED BASE OP.	OBSTRUCTION LIGHTED
138	AIRFORCE HANGAR	902		26	156+94.27	829.33 LT	44 53 40.263	93 13 23.593	AIRFORCE PROP	OBSTRUCTION LIGHTED
141	TREE	909.27		24	167+08.98	885.31 LT	44 53 47.453	93 12 32.502	RESIDENTIAL	REMOVE
142	TREE	919.83		38	167+55.71	862.23 LT	44 53 47.618	93 12 31.817	RESIDENTIAL	REMOVE
143	TREE	884.46		28	169+76.70	685.05 LT	44 53 47.923	93 12 27.905	RESIDENTIAL	REMOVE
144	TREE	891.33		28	169+68.41	736.42 LT	44 53 48.224	93 12 28.491	RESIDENTIAL	REMOVE
145	TREE	882.39		20	170+18.94	726.93 LT	44 53 48.510	93 12 27.901	RESIDENTIAL	REMOVE
146	TREE	881.61		14	170+54.38	765.18 LT	44 53 49.025	93 12 27.929	RESIDENTIAL	REMOVE
147	TREE	881.58		9	170+89.77	789.72 LT	44 53 49.506	93 12 27.910	RESIDENTIAL	REMOVE

NOTE: ITEMS 1-5, 8-60 AND 63-189 ARE NOT ON AIRPORT PROPERTY. OBJECTS TO BE REMOVED CONTINGENT ON RECIEVING COOPERATION FROM OWNERS.

FUTURE RUNWAY 22 DEPARTURE

POINT NO.	DESCRIPTION	ELEV.	SURFACE PENETRATION(FT) 40:1 DEPARTURE	LOCATION STATION	LOCATION OFFSET	GEODETIC POSITION LATITUDE DEG MIN SEC	GEODETIC POSITION LONGITUDE DEG MIN SEC	REMARKS	DISPOSITION
	RUNWAY END	830		170+94.75	0.00	44 53 43.962	93 12 20.019		
10	TOP TREE	874.56	2	173+77.41	545.24 LT	44 53 49.743	93 12 22.595	ARMY PROPERTY	REMOVE
11	TOP TREES	889.87	15	174+61.84	480.96 LT	44 53 49.883	93 12 21.134	ARMY PROPERTY	REMOVE
13	TOP TREE	877.23	1	175+36.73	518.12 LT	44 53 50.665	93 12 20.764	ARMY PROPERTY	REMOVE
23	TOP TREE	905.89	7	184+44.38	770.61 LT	44 53 58.763	93 12 14.324	V.A. PROPERTY	REMOVE
40	TOP TREE	903.26	1	186+30.03	862.01 LT	44 54 00.697	93 12 13.397	V.A. PROPERTY	REMOVE
161	TREES	917.56	19	184+21.13	860.94 LT	44 53 59.232	93 12 15.439	V.A. PROPERTY	REMOVE
176	TREES	924.69	1	194+93.58	937.11 LT	44 54 07.249	93 12 05.647	V.A. PROPERTY	REMOVE

NOTE: ITEMS LISTED ARE NOT ON AIRPORT PROPERTY. OBJECTS TO BE REMOVED CONTINGENT ON RECIEVING COOPERATION FROM OWNERS.

DISPLACED RUNWAY 4 MLS SURFACE

POINT NO.	DESCRIPTION	ELEV.	SURFACE PENETRATION(FT) 34:1 APPROACH	SURFACE PENETRATION(FT) 7:1 TRANSITIONAL	LOCATION STATION	LOCATION OFFSET	GEODETIC POSITION LATITUDE DEG MIN SEC	GEODETIC POSITION LONGITUDE DEG MIN SEC	REMARKS	DISPOSITION
	RUNWAY THRESHOLD	831			66+38.75	0.00	44 52 30.976	93 14 02.725		
	NO OBJECTS PENETRATE THE 34:1 TERPS SURFACE									

NOTE:
1. OBSTRUCTION INFORMATION OBTAINED BY SURVEY CONDUCTED IN APRIL 1994.
2. GEODETIC COORDINATES ARE NORTH AMERICAN DATUM 1983.

MINNEAPOLIS-ST. PAUL INTERNATIONAL AIRPORT
WOLD-CHAMBERLAIN FIELD

OBSTRUCTION TABULATIONS

Metropolitan Airports Commission

TKDA ENGINEERS · ARCHITECTS · PLANNERS
St. Paul, Minnesota

Sheet 23 of 28

Original Date: 12/09/04

Revision Date: 06/01/19

FAA Approval: Kenneth M. Taire 6/1/2019

CURRENT PLOT: DECEMBER 29, 2000

A.L.P. Drawing No. 23
Current Update: DECEMBER 29, 2000

Exhibit 337-1 - Wildlife Hazard Management Plan

Revision Log	
Date	**Reason**
5/1/2021	Revised to address Wildlife Hazard Assessment.
4/12/2024	Revised Section L to remove specific references to permits, removed Appendix B which contained the referenced permits in Section L, updated sections E and F with current statistics, updated equipment and personnel in Section M, corrected a typo in Section Q.

Exhibit 337-1 - Wildlife Hazard Management Plan

A. Purpose

The purpose of the Wildlife Hazard Management Plan (WHMP) is to mitigate the risk that wildlife poses to aircraft at Minneapolis-St. Paul International Airport (MSP).

B. Policy

The Metropolitan Airports Commission (MAC) is committed to ensuring the safety of aircraft using MSP. While the safety of aircraft at MSP is paramount, it is not possible to prevent all wildlife strikes. This Wildlife Hazard Management Plan aims to reduce the frequency and severity of strikes by focusing management efforts on species and habitats that constitute the greatest risk to aircraft that operate at MSP.

C. Goals and Objectives

The goal of the MSP WHMP is to minimize the risk to aircraft operations by reducing wildlife hazards and mitigating risks caused by wildlife activities on and in the vicinity of the airport.

The objectives of the MSP WHMP are to:

1. Target zero tolerance species and those habitats that primarily support them both on and off the airport.

2. Ensure compliance with all relevant airport operational and environmental legislation and regulations.

3. Ensure that adequate systems are in place to define roles and responsibilities and procedures for managing wildlife risks at MSP.

4. Define the methodology by which wildlife hazards are managed at MSP.

5. Establish a monitoring program for all aspects of the WHMP.

D. History

In 2018, USDA Wildlife Services conducted a 12-month long Wildlife Hazard Assessment at MSP from January to December. The objectives of the Wildlife Hazard Assessment were:

1. Identify the bird and mammal species, numbers, locations, local movements and activities, and seasonal occurrences of wildlife observed at MSP.
2. Identify features on and near the airport that attract hazardous wildlife.
3. Provide general and site specific recommendations to reduce wildlife hazards at MSP.

In addition, the Wildlife Hazard Assessment included recommendations for mitigation of identified wildlife attractants and management of wildlife species that may have posed a threat to aviation safety.

E. Wildlife Strikes

From 2019 to 2023, MSP has experienced approximately 559 wildlife strikes.

- 2019 - 94 Wildlife Strikes
- 2020 - 57 Wildlife Strikes
- 2021 - 118 Wildlife Strikes
- 2022 - 153 Wildlife Strikes
- 2023 - 137 Wildlife Strikes

F. Background

MSP is a Class I certificated airport located approximately seven miles southeast of downtown Minneapolis, MN and eight miles west of downtown Saint Paul, MN in southeastern Hennepin County, MN at latitude 44-52-55.044N and longitude 93-13-18.3560W. MSP is bordered on the north by State Highways 62 and 55, on the east by State Highway 5, to the south by Interstate 494, and the west by State Highway 77.

MSP serves international and domestic flights of major commercial airlines as well as regional, charter, air freight, general aviation, and military aircraft. Generally, MSP serves between 30 million and 40 million passengers and accommodates between 300,000 and 350,000 operations annually.

The airport is managed and run by the Metropolitan Airports Commission (MAC), a public corporation established by the Minnesota State Legislature to provide for coordinated aviation services throughout the Twin Cities metropolitan area.

MSP is approximately 2,930 acres and has four runways, nineteen taxiways, two terminals, one Fixed Base Operator, six deice aprons and two cargo aprons.

Total annual precipitation at MSP averages 29.41 inches of rain and 55.9 inches of snow. The median growing season is 160 days, with an annual mean temperature of 45 degrees.

G. On-Airport Habitat

Vegetation: Most of the Air Operations Area (AOA) was formerly cropland and is now maintained in short grass. Since 1987, turf establishment specifications call for hydroseeding of exposed areas with 25-141 General Roadside mix which contains:

- Kentucky Bluegrass (29%)
- Perennial Rye-grass (21%)
- Smooth Brome grass (14%)
- Canada Bluegrass (14%)
- Creeping Alfalfa (6%)
- Slender Wheat-grass (4%)
- Switch grass (3%)
- Timothy (3%)
- Redtop (3%)
- White Clover (3%)

Turf areas are maintained by mowing to a height of approximately 3-4 inches.

Vegetation on the airport can and does attract wildlife for activities such as nesting, loafing and feeding.

Water Resources: There are three areas with water on the AOA. The first is a detention pond located south of runway 12R/30L at the end of a landside parking lot. This pond is covered with netting, thereby excluding wildlife from accessing it. The second area is a small wetland located east of the approach end of

runway 17 and the third area is a small wetland located west of the approach end of runway 17.

Buildings: There are a number of buildings and structures located on the AOA such as hangars, terminals, jetways, maintenance facilities, antennas, signs, lights, etc., that may provide nesting and perching sites for various species of birds.

H. Off-Airport Habitat

Surrounding land uses: MSP is located in the flat uplands approximately 100 feet above the Mississippi and Minnesota River valleys near the confluence of the two rivers. These valleys are rimmed with bluffs that steepen as the confluence is reached but contain several large lakes, marshes and wooded areas. The remainder of the uplands, except portions of Fort Snelling National Cemetery, surrounding MSP has been highly developed for urban uses, including industrial, commercial and residential. The bluffs leading to the river valleys and associated river bottoms are unsuitable for industrial or commercial application and are maintained primarily as natural areas.

The airport is adjacent to the Fort Snelling Golf Course, Fort Snelling State Park, Minnesota River National Wildlife refuge and the Fort Snelling National Cemetery.

The land use areas around the airport can provide significant nesting, roosting, loafing and feeding sites for a number of wildlife species.

Water Resources: MSP has a significant number of bodies of water that surround it. Some of the closer ones include:

- Gun Club Lake
- Lake Nokomis
- Long Meadow Lake
- Minnesota River
- Mississippi River
- Mother Lake
- MSP Detention Ponds
- Snelling Lake
- Taft Lake

The water resources around the airport may provide significant nesting and feeding sites for a number of wildlife species. Appendix A shows the location of the water resources listed above.

I. WILDLIFE

There are a number of wildlife species, including birds, mammals and reptiles that have been struck, hazed, removed or observed on or near MSP. Birds make up the vast majority of wildlife on the airport, followed by mammals.

J. LIST OF INDIVIDUALS HAVING AUTHORITY AND RESPONSIBILITY FOR IMPLEMENTING EACH ASPECT OF THE PLAN

As the certificate holder, the Metropolitan Airports Commission maintains the authority for the implementation of this wildlife hazard management plan.

Airside Operations

- Manager – Airside Operations is responsible for the oversight and management of the MSP Wildlife Hazard Management Plan and shall be identified as the MSP Wildlife Program Manager.

- Assistant Managers – Airside Operations shall be responsible for the implementation of the MSP Wildlife Hazard Management Plan, including completing FAA Form 5200-7 upon notification of a wildlife strike and shall document all wildlife activity when requested.

- Airside Operations Coordinator shall be responsible for completing FAA Form 5200-7 upon notification of a wildlife strike and shall document all wildlife activity when requested.

U.S. Department of Agriculture Wildlife Services (USDA WS)

The MAC maintains an annual contract with USDA WS to provide the following:

- Personnel to coordinate and conduct wildlife hazard management activities.
- A qualified Airport Wildlife Biologist to provide training to airport staff.
- 3-4 wildlife surveys per month
- Quarterly activity reports.

- An annual report of all activities and recommendations

MSP Wildlife Team

Consists of the Airside Operations Manager, select Assistant Managers, USDA WS qualified Airport Wildlife Biologist and specialists who have undergone additional training and certification and are authorized to use lethal force on wildlife at MSP.

Federal Aviation Administration MSP Air Traffic Control Tower (ATCT)

Responsible for the movement of aircraft in and around the air as well as the ground at MSP. The ATCT is normally the first point of notification for any wildlife strikes on or around MSP.

Minnesota Department of Natural Resources (MN DNR) Wildlife Division

Responsible for issuing all wildlife depredation permits for the state.

United States Fish and Wildlife Service (USFWS)

Responsible for issuing depredation permits as authorized by the Migratory Bird Treaty Act (MBTA) to those applicants who meet the necessary qualifications.

K. List prioritizing the following actions identified in the Wildlife Hazard Assessment and target dates for their initiation and completion.

Wildlife population management (list of problem wildlife populations and mitigation actions/target dates).

From 2019 MSP Wildlife Hazard Assessment received by MAC in January 2020.

1. Adopt a zero-tolerance policy toward large sized hazardous wildlife. (p. 40). Completed 2019.
2. Maintain adequate wildlife control supplies (pyrotechnics, propane cannons, etc.). (p. 40) Completed 2019.
3. MAC should continue efforts to harass bald eagles from MSP. (p. 44). Completed 2019.
4. MAC should continue efforts to harass snowy owls when present at MSP. (p. 44) Completed 2019.

5. MAC should continue to harass and lethally remove waterfowl as necessary. (p. 44). Completed 2019.
6. Haze consistently. (p. 41). Completed 2019.
7. Increase hazing efforts during migration periods. (p. 41). Completed 2019.
8. Maintain a policy of lethal control for persistent wildlife. (p. 41). Completed 2019.
9. Increase airfield patrols during inclement weather. (p. 50). Completed 2019.
10. Cooperate with adjacent landowners to manage wildlife hazards. (p. 41). Completed 2020.

Habitat Modification (list of wildlife attractants and mitigation actions/target dates).

From 2019 MSP Wildlife Hazard Assessment.

1. MAC should utilize grass management as a method of habitat modification to prevent the use of open grass areas by Canada geese. (p. 43). Completed 2019.
2. MAC should mitigate the water hazards near Runway 17. (p. 43). Under review.
3. MAC should remove any dead or dying trees that may be used for perching or roost locations by birds. (p. 44). Under review.
4. MAC should install a fence skirt to prevent digging mammals from entering the AOA in identified problem areas. (p. 42). Under review.

Land use changes (list of land use on and near the airport that attract wildlife and mitigation actions/target dates).

From 2019 MSP Wildlife Hazard Assessment.

1. Utilize grass management to deter wildlife in problem areas. (p. 42). Completed 2019.
2. Evaluate potential wildlife hazards when planning new construction or land use changes. (p. 42). Completed 2019.

Ongoing data collection and analysis.

From 2019 MSP Wildlife Hazard Assessment.

1. Ensure continued support and proper use of the Wildlife-Aircraft Strike Reporting System. (p. 38) Completed 2019.
2. Monitor wildlife populations and use patterns on and around the airfield. (p. 41). Completed 2020.

Record keeping.

From 2019 MSP Wildlife Hazard Assessment.

1. Update the existing Wildlife Hazard Management Plan (WHMP) based on this Wildlife Hazard Assessment. (p. 38). Completed 2021.
2. Continue the use of an airport wide record keeping system for wildlife strikes and control/hazing actions in database format. (p. 39). Completed 2019.
3. Train all Airside Operations personnel in wildlife hazing procedures and species identification. (p. 39). Completed 2019.
4. Annually review federal and state threatened and endangered species lists. (p. 40). Completed 2020.
5. Maintain permits to control wildlife. (p. 40). Completed 2019.

L. Requirements for and, where applicable, copies of local, state and Federal wildlife control permits.

MSP shall maintain wildlife control permits in conformity with this Wildlife Hazard Management Plan and the permits will be made available to the FAA upon request.

M. Identification of resources that the certificate holder will provide to implement the plan.

Audio Repellents
- Vehicle sirens

Pyrotechnics
- 15mm Banger/Screamers
- 18mm
- 12 Gauge Shell Crackers

Visual Repellents
- Effigy – Coyote, Red Fox

- Lasers

Non-lethal Projectiles
- Paintball Gun

Capture Tools
- Swedish Goshawk Traps
- Bownet Traps
- Bal-chatri Traps
- Netgun
- Ketch Poles
- Pet Porters/Kennels
- Starling traps
- Pigeon traps
- Foot-hold Traps
- Clover Traps
- Conibear Traps
- Box Traps
- Snares

Removal Tools (Lethal - inventory with serial numbers maintained by Airside Operations)
- Firearms
  - 12 Gauge Shotguns
  - .22 Rifles
  - .223 Rifle
  - .243 Rifles
- Dart Guns
- Air Rifles
- Captive Bolt
- CO_2 Euthanization Chamber

Miscellaneous
- Polaris Ranger
- Boat and motor
- Binoculars
- Spotting Scopes
- Spot lights
- Wildlife Reference Manuals
- Cameras

- Thermal Imaging
- Bird Strike kits

N. PROCEDURES TO BE FOLLOWED DURING AIR CARRIER OPERATIONS THAT AT A MINIMUM INCLUDES:

Designation of personnel responsible for implementing the procedures. (Wildlife patrol staffing and primary responsibilities, hours of availability, etc.

Airside Operations staff are on the airfield or available to respond to any wildlife issue on the Air Operations Area 24x7x365.

Provisions to conduct physical inspections of the aircraft movement areas and other areas critical to successfully manage known wildlife hazards before air carrier operations begin.

Wildlife surveys are conducted by USDA Wildlife Services and are designed to identify trends in hazardous wildlife activity around the airport environment. Routine inspections of the movement and safety areas are conducted at least once daily.

Airport perimeter inspections are conducted weekly.

Random inspections for wildlife are conducted on an ongoing basis and are dependent on time of day, wildlife activity, season and weather.

Post strike inspections are conducted after most wildlife strikes have been reported to Airside Operations. Inspections may include movement area surfaces, safety areas, and aircraft surfaces for any evidence of the wildlife strike or ongoing wildlife activity.

O. WILDLIFE HAZARD CONTROL MEASURES.

An integrated approach is used to manage wildlife hazards on or near MSP that pose a risk to aircraft operations utilizing the following principles:

Habitat Modification/Exclusion – altering features of the environment to

reduce, eliminate or exclude food, water and shelter to reduce the attractiveness of the airport to wildlife.

Targeted Species
- Canada geese (Zero Tolerance)
- Mallard ducks
- American coot
- European starlings
- Blackbirds
- Red-tailed hawks
- American kestrels
- Bald eagles (Zero Tolerance)
- Rock doves
- White-tailed deer (Zero Tolerance)
- Red fox (Zero Tolerance)
- Coyotes (Zero Tolerance)

Harassment – any nonlethal act of pursuit, disturbance or annoyance of wildlife which results in significant disruptions to normal patterns of behavior, i.e., being scared or chased from the immediate area without causing any physical injuries.

Targeted Species
- Canada geese (Zero Tolerance)
- Mallard ducks
- American coot
- European starlings
- Blackbirds
- Red-tailed hawks
- American kestrels
- Snowy owls
- Bald eagles (Zero Tolerance)
- Rock doves
- Ring-bill gulls (Zero Tolerance)
- White-tailed deer (Zero Tolerance)
- Red fox (Zero Tolerance)
- Coyotes (Zero Tolerance)

Capture and Relocation – use of devices to restrain wildlife and then transport them to release areas away from the airport.

Targeted Species

- Red-tailed hawks
- American kestrels
- Snowy owls

Removal – any lethal method of control of wildlife.

Targeted Species (Zero Tolerance)
- Canada geese
- Ring-billed gulls
- White-tailed deer
- Coyotes
- Red fox

P. WAY TO COMMUNICATE EFFECTIVELY BETWEEN PERSONNEL CONDUCTING WILDLIFE CONTROL OR OBSERVING WILDLIFE HAZARDS AND THE AIR TRAFFIC CONTROL TOWER.

All personnel conducting wildlife management activities on the movement area or in safety areas will be trained in communications with ATCT and utilize vehicles equipped with radios and beacons. Wildlife personnel will maintain appropriate communications with the Air Traffic Control Tower (ATCT) in accordance with MAC Ordinances and guidelines identified in the MSP Movement Area Handbook. ATCT will be advised whenever any wildlife management activity may impact aircraft operations.

Airside Operations will immediately notify ATCT whenever they are made aware of any wildlife activity that poses a threat to aircraft operations.

Q. PROCEDURES TO REVIEW AND EVALUATE THE WHMP EVERY 12 CONSECUTIVE MONTHS OR FOLLOWING A TRIGGER EVENT.

The MSP Wildlife Hazard Management Plan will be reviewed at least once every 12 consecutive months or when one of the following occurs:

- An air carrier aircraft experiences multiple wildlife strikes.
- An air carrier experiences substantial damage from striking wildlife.
- An air carrier aircraft experiences an engine ingestion of wildlife.

In lieu of maintaining a formal Wildlife Hazard Working Group, the MSP Wildlife

Hazard Program Manager or his designee shall present and discuss the MSP Wildlife Hazard Management Plan at least once annually at a number of meetings that may include:

- MSP Airport Safety Committee Meeting.
- MSP FAA ATCT Customer Forum.
- U.S. Air Force Reserves 934th and Minnesota Air National Guard 133rd .Airfield Operations Board (AOB) and Bird Hazard Working Group (BHWG) Meeting.

The MSP Wildlife Program Manager will review all recommended changes and will update the MSP Wildlife Hazard Management Plan with approved changes.

USDA Wildlife Services submits an annual report to the MSP Wildlife Program Manager. The report includes summaries of wildlife activity observed, hazed and removed as well as recommendations to improve the wildlife hazard management program.

Review of strikes - After receiving confirmation of a wildlife strike at MSP, member(s) of the MSP Wildlife Team may review details of the strike and determine if any changes need to be implemented to habitat, management strategies, training or the MSP Wildlife Hazard Management Plan.

R. A TRAINING PROGRAM CONDUCTED BY A QAWB TO PROVIDE AIRPORT PERSONNEL WITH THE KNOWLEDGE AND SKILLS NEEDED TO SUCCESSFULLY CARRY OUT THE WHMP.

The MSP Wildlife Training Program for Airside Operations follows AC 150/5200-36B, current edition, Qualifications for Wildlife Biologist Conducting Wildlife Hazard Assessments and Training Curriculum for Airport Personnel Involved in Controlling Wildlife Hazards on Airports.

Airside staff shall receive training in the following areas:

- Review of MSP Wildlife Hazard Management Plan and Wildlife Hazard Assessment.
- Wildlife hazards.
- Wildlife strike documentation.
- Wildlife management activity documentation.

- Wildlife identification.

In addition to the basic training, MSP Wildlife Team members will complete the following training:

- Shotgun qualification.
- Rifle qualification (Only for advanced team members).
- Air Rifle qualification.
- Chemical immobilization.

In order to maintain qualification as a MSP Wildlife Team member, staff must complete and maintain the following certifications:

- MN State Firearms Safety Instructor.
- NRA Shotgun Course.
- NRA Rifle Course (Only for advanced team members).

MSP Wildlife Team members may assist the qualified Airport Wildlife Biologist and serve as trainers for internal and external training.

APPENDICES

Appendix A

Off-Airport Water Resources

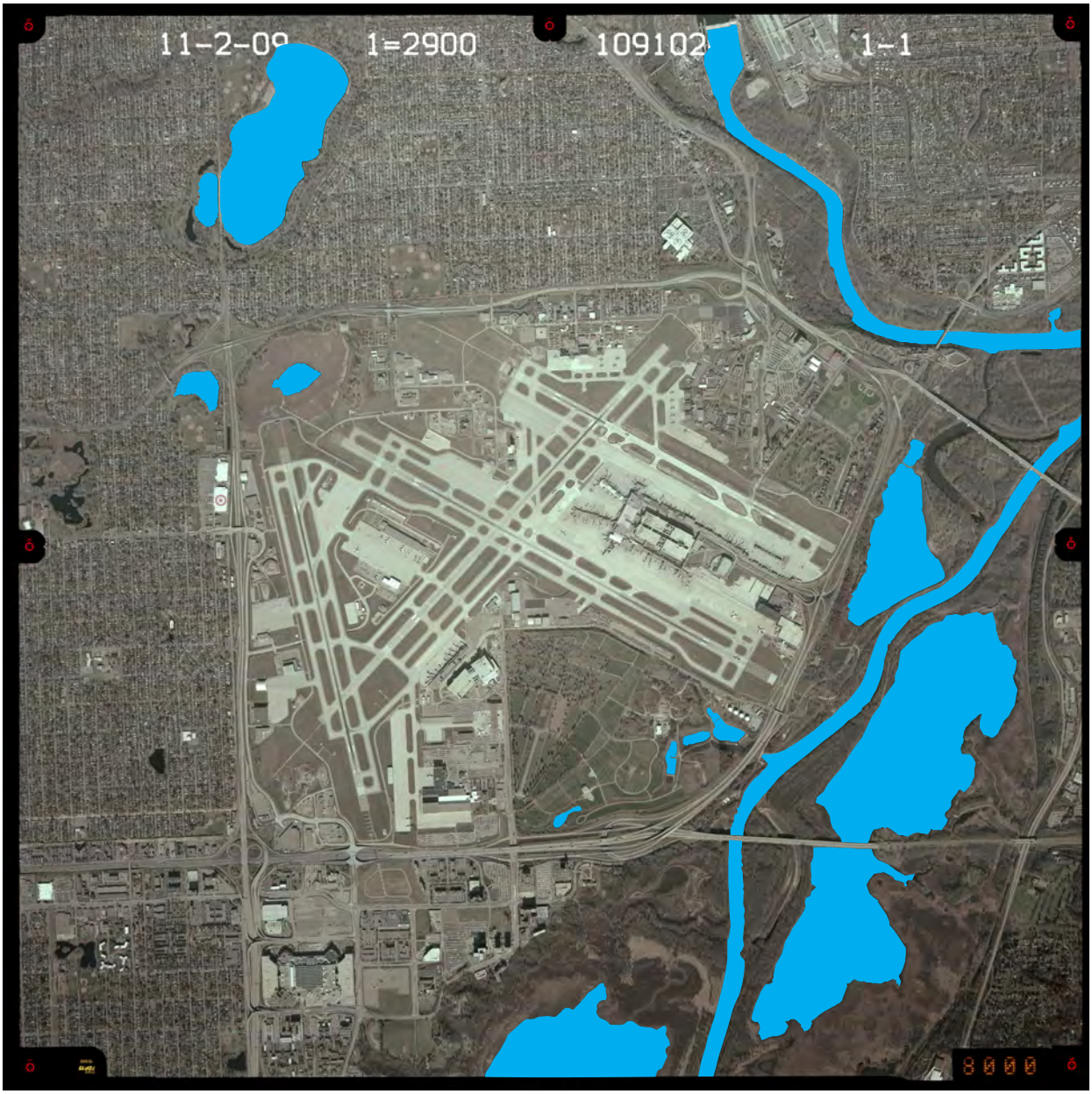

Exhibit 339-1 - NOTAM Information

MAC Airside Operations will utilize the FAA Digital NOTAM System to issue and cancel NOTAMs. The FAA Digital NOTAM System along with an airport status dashboard is a form of NOTAM distribution to the following parties:

1. FAA - Minneapolis ATCT
2. FAA - Minneapolis TRACON
3. MSP Air Carriers
4. MAC Departments

MAC Airside Operations uses Cityworks software as a system of record for NOTAMs. Cityworks has an integration feature that populates NOTAMs issued in the FAA Digital NOTAM System into the Cityworks platform for NOTAM documentation. An example of the Airport Condition Report is below:

Airport Condition Report:

Request 120615
NOTAM
Zone:

Metropolitan Airports Commission
Status: OPEN

Initiated By: Integration, MAC
Initiated Date: 11/12/2025 7:39:07 AM
Shop:
Project Name:
Closed By:
Close Date:
Location:
Details:

X: **Y:**

Callers:

Caller Comments:

Last Name	First Name	Call Time	Office Phone	Type
UNKNOWN		11/12/2025 7:39:07 AM		

Request Information:

Field	Value
Event Start Date/Time	
Event End Date/Time	
Reason	
Description	
Category	
Surface	
NOTAM Reference ID	78565027
Comments	
*Airfield/Airport	MSP
*Keyword	RWY
*NOTAM Text	!MSP 11/145 MSP RWY 12L/30R CLSD EXC XNG 2511121435-2511121455
NOTAM Originator	
*Issue Date/Time UTC	11/12/2025 1:32:00 PM
*Issue Date/Time Loc	11/12/2025 7:32:00 AM
*Effective Start Date/Time UTC	11/12/2025 2:35:00 PM
*Effective Start Date/Time Loc	11/12/2025 8:35:00 AM
*Effective End Date/Time UTC	11/12/2025 2:55:00 PM
*Effective End Date/Time Loc	11/12/2025 8:55:00 AM
Cancelled By	
*Cancelled Date/Time UTC	
*Cancelled Date/Time Loc	
Cancellation Notes	

Page 1 of 2

11/12/2025 2:11:11 PM

Request Information:

Field	Value
*Status	ACTIVE
*NOTAM Number	
Requested By	Add in Caller Section
Work Order Number	
*NOTAM Text Continued	

Related Work Orders:

Work Order Id	Zone	Description	Asset	Initiate Date/Time	Status

Related Inspections:

Inspection Id	Description	Inspection Date	Inspected By	Status

Comments:

Date	Name	Comments

Weather Observations:

Observation Date:	Temperature:
Wind Direction:	Wind Speed:
Dew Point:	Wind Gust:
Weather:	Visibility:
Precipitation Rate:	Ceiling:

Attachments:

Exhibit 400-1 - Maintenance Corrective Action Form for PAPIs, Generators and EMAS

Corrective action for repairs of the PAPIs, generators and EMAS will be documented on the Maintenance Corrective Action Form.

Corrective Action Form

Corrective Action Inspection Type: ☐ Generator ☐ PAPI ☐ EMAS **Location:** _____

Inspection Date: _____ **Completed by:** _____

Inspection Checklist Item Number: _____ **Corrective Action Date:** _____

Corrective Action: _____

_____

_____

Inspection Checklist Item Number: _____ **Corrective Action Date:** _____

Corrective Action: _____

_____

_____

Inspection Checklist Item Number: _____ **Corrective Action Date:** _____

Corrective Action: _____

_____

_____

Inspection Checklist Item Number: _____ **Corrective Action Date:** _____

Corrective Action: _____

_____

_____

Inspection Checklist Item Number: _____ **Corrective Action Date:** _____

Corrective Action: _____

_____

_____

Exhibit 500-1 - Airport Emergency Services at Minneapolis-Saint Paul International Airport

FEDERAL AVIATION ADMINISTRATION, MINNEAPOLIS AIRPORT TRAFFIC CONTROL TOWER (MSP) AND METROPOLITAN AIRPORTS COMMISSION (MAC)

LETTER OF AGREEMENT

EFFECTIVE: May 20, 2022

SUBJECT: Airport Emergency Services at Minneapolis-Saint Paul International Airport (MSP)

1. PURPOSE: Defines responsibilities of Minneapolis Airport Traffic Control Tower (MSP) and the Metropolitan Airports Commission (MAC) concerning fire and aircraft emergency procedures.

2. CANCELLATION: The Federal Aviation Administration, Minneapolis Airport Traffic Control Tower and Metropolitan Airports Commission, Airport Emergency Services at Minneapolis-Saint Paul International Airport Letter of Agreement dated February 15, 2021 is cancelled.

3. RESPONSIBILITIES:

a. MSP must:

(1) Notify the MAC Emergency Communications Center of impending or actual aircraft emergencies via MSP red emergency phone and provide the following data:

(a) Alert category;

(b) Aircraft identification or flight number;

(c) Aircraft type;

(d) Landing runway and estimated time of arrival in minutes;

(e) Nature of problem.

(2) Provide the following information as soon as practicable either on the initial red emergency phone call or via the appropriate tower frequency:

(a) Number of persons on board

(b) Amount of fuel on board.

(3) Provide priority handling of responding emergency vehicles.

(4) Notify “emergency vehicles” when the alert aircraft is “next-to-land” via the appropriate tower frequency.

FAA Acceptance*: Kenneth M. Fairs
Acceptance Date: September 12 2022
*For inclusion to the ACM only

FAA Approval:_____

(5) Control air and ground traffic to avoid conflicts in the area of the emergency when the emergency occurs on the airport proper.

(6) Inform all aircraft to remain clear of the emergency area when the accident has occurred off the airport proper.

(7) Notify the FAA Regional Operational Center (ROC) of any aircraft accidents at MSP. The ROC is responsible for notifying the National Transportation Safety Board (NTSB).

b. MAC must:

(1) Receive MSP clearance via the appropriate tower frequency (see below) for all vehicles responding to an alert prior to entering or crossing a runway or entering a protected Instrument Landing System (ILS) Critical Area. This applies to Aircraft Rescue and Fire Fighting (ARFF) vehicles only**.**

(a) Runway 30L/12R or 4/22 126.7
(b) Runway 30R/12L 123.95
(c) Runway 35/17 123.67

(2) Require emergency vehicles responding to on-airport, non-aircraft emergencies to inform MSP of their destination whenever the movement area is used as a route to the emergency.

(3) Require emergency vehicles responding to routine calls for service to use the perimeter roads whenever possible while proceeding to and from the scene.

(4) Advise MSP when permanent changes occur for radio call signs or station assignments for ARFF equipment, or when ARFF equipment is added or removed.

c. Procedures:

(1) Any information received by MSP pertaining to an impending aircraft emergency must be made available to the MAC Emergency Communications Center. The emergency will not be considered in "alert" status until MSP notifies the MAC via red emergency phone.

(2) The red emergency phone must be tested daily at 8:00 a.m. local time. The test must be initiated by MSP.

(3) The following alert categories must be used by MSP and MAC:

(a) **Alert 1** – The emergency vehicles and crews should stand-by at the station house for a possible emergency and expect further instructions.

(b) **Alert 2** – Stand-by at predetermined locations at a runway for an incoming aircraft with a problem.

FAA Acceptance*: Kenneth M. Fairs
Acceptance Date: September 12 2022
*For inclusion to the ACM only
FAA Approval:_____

Original Date: 12/09/04
Revision Date: 08/26/22

(c) Alert 3 – Proceed to the location of an incident/damaged aircraft; i.e., hot brakes, collapsed gear, an aircraft off the paved surface or reports of fire on an aircraft.

(d) "Crash" – Proceed to the location of an aircraft crash with serious injury and/or death.

(4) MSP will notify emergency vehicles upon cancellation of an alert via the appropriate tower frequency or the Discreet Emergency Frequency (DEF).

.

(5) In addition to the preceding instructions and in the event of a vehicle or aircraft accident involving potentially radioactive materials, MSP must be responsible for the following:

(a) Notify the MAC Emergency Communications Center via red emergency phone that there is a possible radiation hazard accident, the condition and location of the accident, and current surface wind readings.

(b) Inform all air traffic on the field and in the vicinity of the airport that an accident has occurred, and a radiation hazard exists.

(c) Provide updated surface wind readings to responding emergency vehicles.

(d) If the accident occurs on the airport, the runway(s) or other surfaces involved must not be used until the MAC has determined that a hazard no longer exists.

(e) Inform all aircraft in the vicinity of the accident to remain clear of the area.

(f) If a control aircraft is used, MSP must relay information as is necessary between emergency vehicles and the control aircraft.

(6) In the event of an accident involving a United States military aircraft with nuclear cargo or nuclear weapons on board, the term "BROKEN ARROW" must be used in lieu of 'radiation hazard accident' in all communications.

4. DISCRETE EMERGENCY FREQUENCY RESPONSIBILITIES:

a. MSP must:

(1) Assign an available ATCT frequency and issue instructions for MAC ARFF and the emergency aircraft to switch to the DEF when determined to be operationally advantageous. The preferred DEF will be 123.875.

(2) Issue instructions to aircraft and vehicles not involved in the emergency to switch to another frequency.

(3) Monitor the DEF at all times and not transmit on the frequency, except for emergency related communications.

FAA Acceptance*: Kenneth M. Faire
Acceptance Date: September 12 2022
*For inclusion to the ACM only

Original Date: 12/09/04

FAA Approval:_____

Revision Date: 08/26/22

(4) If a situation arises other than an aircraft emergency where the use of a DEF would be beneficial, i.e., bomb threat, disabled aircraft, etc., consider a request by MAC to assign a DEF.

(5) When notified by MAC that the status of the emergency allows the release of the DEF, issue instructions to the emergency aircraft and all responding vehicles to return to the normal ground control frequency.

b. MAC must:

(1) Utilize appropriate Tower frequency until MSP assigns a DEF.

(2) Once directed to switch to the DEF, may initiate direct contact with the emergency aircraft and vice-versa.

(3) Normally limit communication on the DEF to MAC ARFF, the emergency aircraft and MSP.

(4) Initiate a request to MSP for use of a DEF for situations other than an aircraft emergency. Under these conditions, MAC ARFF may authorize MAC Airport Police, MAC Airside Operations or MAC Field Maintenance to use the DEF.

(5) Notify MSP when use of the DEF is no longer required.

5. ATC-0 Event:

a. MSP must:

(1) Notify MAC Airside Operations that ATC services are unavailable.

(2) Issue NOTAM that ATC is closed, and MSP CTAF 126.70 is in effect.

(3) Notify MAC Airside Operations when ATC services resume.

(4) Cancel NOTAM.

b. MAC must:

(1) Issue NOTAM that ARFF is monitoring CTAF 126.70 for ARFF response.

(2) Airside Operations will monitor CTAF 126.70 for ARFF response.

(3) Airside Operations will notify ARFF and the MAC Emergency Communications Center of the ATC-0 event.

(4) Airside Operations will notify the MAC Emergency Communications Center of any request for ARFF response including:

(a) Aircraft call sign.

FAA Acceptance*: Kenneth M. Fairs
Acceptance Date: September 12 2022
*For inclusion to the ACM only
FAA Approval:_____

(b) Aircraft location.

(c) Aircraft problem.

(5) Must cancel NOTAM upon notification by MSP that ATC services have resumed.

6. DEVIATIONS. Deviations from the procedures contained herein must be approved only after coordination between the Minneapolis Airport Traffic Control Tower and the Metropolitan Airports Commission.

Heidi Wulf
Air Traffic Manager
Minneapolis Airport Traffic Control Tower

Chad Leqve
Vice President, Management and Operations
Metropolitan Airports Commission

FAA Acceptance*: Kenneth M. Faire
Acceptance Date: September 12 2022
*For inclusion to the ACM only

Exhibit 500-2 Land and Hold Short Operations (LAHSO) Procedures

FEDERAL AVIATION ADMINISTRATION, MINNEAPOLIS AIRPORT TRAFFIC CONTROL TOWER (MSP) AND METROPOLITAN AIRPORTS COMMISSION (MAC)

LETTER OF AGREEMENT

EFFECTIVE: April 1, 2013

SUBJECT: Land and Hold Short Operations (LAHSO) Procedures

1. PURPOSE. This agreement delineates the responsibilities of MSP and MAC that are necessary for initiating and carrying out Land and Hold Short Operations (LAHSO) on specified runways at Minneapolis-Saint Paul International Airport.

2. CANCELLATION. The Federal Aviation Administration, Minneapolis Airport Traffic Control Tower and Metropolitan Airports Commission Letter of Agreement, Land and Hold Short Operations (LAHSO) Procedures, dated October 31, 2008 is cancelled.

3. BACKGROUND. LAHSO is an air traffic control procedure that permits the issuance of landing clearances to aircraft to land and hold short of an intersecting runway, taxiway, or other designated point on the runway. It is a procedure designed to increase airport capacity and to more efficiently move aircraft within the terminal airspace and on the airport surface.

4. APPROVED LAHSO RUNWAYS/LOCATIONS. The following runway hold short locations are approved for conducting LAHSO at MSP:

Runway	Location	Designation
30L	Prior to Taxiway A9/W9 intersection	Day, night
22	Prior to Taxiway K intersection	Day, night

5. RESPONSIBILITIES OF MAC: In order to conduct LAHSO at MSP, MAC agrees to be responsible for the following actions:

a. Install and maintain LAHSO runway markings and signs at all of the above specified locations in accordance with FAA Advisory Circular (AC) 150/5340-1, Standards for Airport Markings, and AC 150/5340-18, Standards for Airport Sign Systems.

b. Provide MSP with distance measurements from the landing threshold to the LAHSO runway position marking at each specified LAHSO location.

c. Install and maintain a LASHO in-pavement lighting system at all LAHSO locations. The lighting system shall be designed and installed in accordance with AC 150/5340-30, Design and Installation Details for Visual Aids.

d. Notify MSP at (612) 713-4055 whenever runway markings, signs, and/or lighting systems are inoperative.

e. Issue appropriate Notices to Airmen (NOTAM) relating to LAHSO.

6. RESPONSIBILITIES OF MSP. In conducting LAHSO at the Minneapolis-Saint Paul International Airport, MSP shall be responsible for the following:

a. Publish a list of runways at MSP that are approved for LAHSO, together with the available landing distance for each hold-short location.

b. Terminate LAHSO on any approved runway location whenever MAC reports that signs and markings are not installed or conditions are not in accordance with FAA Order 7110.118, Land and Hold Short Operations.

c. Terminate LAHSO at any location when, in the judgment of the air traffic manager, conditions precludes the use of LAHSO.

d. Meet annually with MAC and the LAHSO Development Team, or as necessary, to review LAHSO related events or issues.

7. DEVIATIONS. Deviations from procedures identified herein shall be approved only after coordination between the Minneapolis Airport Traffic Control Tower and the Metropolitan Airports Commission.

Elaine A. Buckner
Air Traffic Manager
Minneapolis Airport Traffic Control Tower

Roy Fuhrman
Vice President, Management and Operations
Metropolitan Airports Commission

Exhibit 500-3 Movement/Non-Movement Areas

Movement/Non-Movement Area Letter of Agreement

Federal Aviation Administration, Minneapolis Airport Traffic Control Tower (MSP), Minneapolis Terminal Radar Approach Control (M98), Minneapolis Technical Operations (MSP TECHOPS), and Metropolitan Airports Commission (MAC)

Letter of Agreement (Effective: December 1, 2025)

Subject: Movement/Non-Movement Areas

1. Purpose:
This Letter of Agreement defines jurisdictional responsibilities between Minneapolis Airport Traffic Control Tower (MSP), Minneapolis Terminal Radar Approach Control (M98), Minneapolis Technical Operations (MSP Tech Ops), and the Metropolitan Airports Commission (MAC) for operating on Minneapolis-St. Paul International Airport.

2. Cancellation:
Cancels the Movement/Non-Movement Areas Letter of Agreement dated August 31, 2020.

3. Responsibilities:

a. Definitions:

1) **Movement Area:** All runways and taxiways as depicted in the movement area map, requiring aircraft to make radio contact with MSP for clearance to enter and operate in.

2) **Non-Movement Area:** Includes parking, cargo areas, and vehicle service roads. No radio contact with MSP required, delineated per FAA standards.

3) **Open:** A surface that is usable for aircraft operations.

4) **Closed:** A surface that is unusable for aircraft operations except when coordinated in accordance with paragraph 3.a.5.a)-c).

5) The following definitions only apply when used for coordinating the status of closed Movement areas or closed Non-Movement areas:
   a) Unrestricted – Aircraft may taxi on, taxi across, or park.
   Example _ "*"Runway 4/22 closed, unrestricted."*
   b) Taxi – Aircraft may taxi on or taxi across.
   Example – "Runway 30L/12R closed, taxi approved."
   c) Crossing – Aircraft may taxi across.
   MAC will advise MSP where crossing is approved.

6) **Runway Safety Area (RSA):** A defined surface surrounding the runway prepared or suitable for reducing the risk of damage to aircraft in the event of an excursion, overshoot, or undershoot from the runway.

7) **Taxiway Dual-Purpose Lighting:** Special lighting installed to allow runway 4/22 to be used for taxi purposes. This lighting consists of unidirectional red stop bar lights, in-pavement runway guard lights, elevated stop bar lights, elevated taxiway lights, and green centerline lead in lights. The tower lighting panel has been programmed to turn off

all taxiway lighting when the runway lights are energized.

b. Movement Area Jurisdiction Excluding Runways

1. **MSP Responsibilities:**

a) Authority over all open airport movement areas and RSAs.
b) Provides advisories related to aircraft movement in non-movement areas, which are advisory only and do not imply control responsibility.

2. **MAC Responsibilities:**

a) Airside Operations has authority over all closed movement areas and associated RSAs.
b) Must advise MSP of non-runway surface area openings and closings on the appropriate ground control frequency.
c) Must advise MSP when movement areas excluding runways are available for use using the terms defined in paragraph 3.a.5.a)-c).
d) Must limit access to movement on or across all taxiways only to those pedestrians and vehicle operators with an operational need.
e) Must require all vehicle operators to yield the right-of-way to aircraft at all times.
f) Must require all authorized vehicle operators, unless escorted, to monitor the appropriate ground control frequency when operating on non-runway movement areas and the appropriate local control frequency when on runways or in RSAs.
g) Must maintain appropriate vehicle service roads (VSR) and VSR signage to prevent unauthorized entry into the movement area.
h) Must require all vehicle operators to obey all VSR signals, flag personnel, and signage.
i) Must require all vehicle operators to come to a complete stop prior to crossing taxiways on VSRs.
j) Must require all vehicle operators to follow all rules and regulations published in MAC *Air Operations Area Operating Ordinance*, (current version).
k) Must require all vehicle operators to obtain ATC clearance prior to entering protected ILS critical areas when weather conditions are less than a ceiling of 800 feet or visibility less than 2 miles for ILS critical area protection.

3. **MSP Tech Ops:**

a) Must coordinate all movement area operations with the MAC.

c. Runway Jurisdiction

1. **MSP Responsibilities:**

a) Activates taxiway Dual-Purpose Lighting for taxi operations on runway 4/22.
b) Must not cross a taxiing general aviation, aircraft under tow, or a repositioning aircraft at the intersection of runway 12R/30L on runway 4/22 unless escorted by MAC.

c) Must not cross any aircraft at the intersection of runway 12R/30L and runway 4/22 unless an operational necessity exists.
d) Notify MAC Airside Operations that a vehicle was observed entering the runway surface without prior coordination or authorization from ATC. MAC Airside Operations will close the runway as they deem appropriate. This applies only to unauthorized vehicles that are not in communication with ATC and are not approved to operate in the movement area.

2. **MAC Responsibilities:**

a) Retains sole authority to officially open or close a runway.
b) Must advise MSP of runway openings and closings on the appropriate local control frequency.
c) Must require all vehicle operators to obtain clearance from MSP, on the appropriate local control frequency, prior to entering or crossing any open runway.
d) Must limit access to movement on or across all runways only to those pedestrians and vehicle operators with an operational need.
e) When MAC closes a runway, that surface is released to MAC for movement area access purposes.
f) Must advise MSP when closed runways are available for use using the terms defined in paragraph 3.a.5.a)-c).
g) Any portion of a closed runway that has been made available to MSP for aircraft ground movement (taxiing) purposes, i.e., crossing point, must be treated as a taxiway in that all vehicles (other than vehicles operated by a driver with a MAC-issued Runway or Taxiway Driver's License) must contact MSP to cross or access those portions of the closed runway.
h) Is responsible for placing barricades and/or lighted mobile runway closed "X" signs for long term closures.
i) Immediately respond to close and inspect surface for FOD when ATC notifies MAC that the condition in 3.c.1.d was met.

d. Runway Safety Area Jurisdiction and Access

1) The MAC retains sole authority to approve access to any unpaved RSA.
2) The MAC must limit access to movement on or across all unpaved RSAs, only to those pedestrians and vehicle operators with an operational need.
3) MAC Airside Operations will normally provide MSP with 30 minutes lead time prior to allowing access to an unpaved RSA. MAC Airside Operations must also provide MSP with the identity of who will be accessing the unpaved RSA and an estimate of the length of time they will be in the area.
4) MAC Airside Operations must initiate the RSA coordination process by coordinating with the MSP Supervisor.
5) All questions regarding the RSA should be directed to MAC Airside Operations.
6) The MAC must require all vehicle operators to obtain clearance from MSP on the appropriate local control frequency prior to entering any RSA of an open runway.
7) The MAC must require all vehicle operators to advise MSP on the appropriate local control frequency when they are clear of any RSA of an open runway.

8) When a movement area is closed within an active RSA, MAC must use coordination and notification procedures established herein if pedestrians and vehicle operators have need to access the RSA on this closed movement area.

e. Foreign Object Debris (FOD):

1) Upon receiving a report of FOD on a runway or taxiway, MSP must immediately suspend operations to the affected surface and notify MAC.
2) MAC will notify MSP on the appropriate frequency that the affected runway or taxiway surface is closed, inspect the affected runway or taxiway, then notify MSP on the appropriate frequency when the runway or taxiway is open.

f. Runway Inspections

1) When a runway inspection is required without delay, the MAC must request a Critical Runway Inspection. Immediately upon receipt of this request, MSP must stop all departures that have not begun take-off roll on that runway. MSP must allow only those aircraft within a two-mile final to land on that runway. If, in the judgment of MSP, safety would be compromised by issuing go-around instructions to an aircraft more than two miles from the airport, the aircraft may be cleared to land on that runway. All other aircraft must be held until the MAC can provide further information on the status of the runway. The MAC must only request a Critical Runway Inspection under extreme and/or unusual circumstances.
2) When a runway inspection is required with minimal delay, the MAC must request a Priority Runway Inspection. MSP must hold all departures which have not been cleared for take-off on that runway and normally must not allow any aircraft other than those inside of the final approach fix to land on that runway. All other aircraft in the landing and departure sequence must be held until the MAC provides information on the status of the runway.
3) When normal delays can be accepted prior to a runway inspection, the MAC must request a Runway Inspection.

g. Surface Closure Coordination

1) MAC Airside Operations will normally provide MSP with 30 minutes lead time prior to closing a movement area surface. MAC Airside Operations must also provide MSP with an estimate of the length of the closure during the coordination of the closure.
2) MAC Airside Operations should always initiate the runway closure coordination process by establishing a conference call involving the MSP Supervisor/Traffic Management Unit (TMU) and M98 Supervisor. All other movement area surfaces must be coordinated with the MSP Supervisor.
3) The MSP supervisor must advise MAC Airside Operations as soon as possible when a runway configuration change is anticipated.
4) MAC Airside Operations must advise MSP at least ten minutes prior to the estimated reopening time if they cannot return the movement area surface on time and provide MSP with a new time estimate for opening the movement area surface.
5) All questions regarding the return of the movement area surface should be directed to MAC Airside Operations.
6) MSP must not allow an aircraft to taxi on or across a closed movement area surface unless approved by MAC Airside Operations.

7) As stated in paragraphs 3.b.2.b and 3.c.2.b, the official status of a surface area must be stated by MAC Operations on local control or ground control frequencies.
8) Runway 4/22 Taxiway Dual-Purpose Lighting coordination - From Taxiway to Runway:
    a. MSP must advise MAC no less than 30 minutes in advance when the use of runway 4/22 for landing/departing operations is anticipated.
    b. MAC must remove the lighted X's and inspect all runway lighting to ensure it is working properly, and Taxiway Dual-Purpose Lighting is turned off.
    c. MAC will reopen the runway and cancel appropriate NOTAMs
9) Runway 4/22 Taxiway Dual-Purpose Lighting coordination - From Runway to Taxiway:
    a. MSP must advise MAC when the use of runway 4/22 for landing/departing operations is no longer needed.
    b. MAC will issue appropriate NOTAMs designating the runway for taxi use.
    c. MAC will close the runway.
    d. MAC must reposition the lighted X's and inspect all Taxiway Dual – Purpose Lighting to ensure it is working properly, and runway lighting is turned off.

h. Snow Removal Operations

1) **Runway Crossings:**
    a. The MAC must limit all crossing of active runways during snow/ice operations to only those vehicles directly involved in removal of snow/ice from the airport movement area, or for emergency response.
    b. During snow/ice control operations, there are times when plows are required to cross active runways. MAC may request a Priority Runway Crossing. MSP will normally give priority to the plowing operation and must hold all ground movements except those already cleared for take-off and for arrival aircraft inside of the final approach fix. Only those vehicles working as a single unit may cross the runway on a priority request. All other vehicles must make their own requests to cross active runways.

2) **Return of Closed Runways:**
    a. The MAC will normally return a closed runway with all priority taxiways opened. If MAC is unable to return any of the priority taxiways, they must notify MSP and report which priority taxiways are not open.

3) **Braking Action reports**:
    a. MSP must solicit pilot reports or runway braking action from the first aircraft arrival after a runway reopening and report to Airside Operations if it is less than good.
    b. MSP must solicit pilot reports or runway braking action and notify MAC Airside Operations when runway surface braking action conditions have deteriorated or improved from their previously reported condition.
    c. MSP must report to the MAC Airside Operations, pilot reports or observations of any conditions that may affect the safe use of the movement area.
    d. Upon receiving a pilot report of "NIL" braking, MSP must immediately suspend operations to the affected surface.

i. Field Conditions and Runway Condition Codes:

1) MAC Airside Operations must update the Field Conditions (FICON), and Runway Condition Codes (RwyCCs) as needed to provide timely, accurate field conditions. FICONs and RwyCCs will be disseminated via the FAA Digital NOTAM System.
2) Runway Condition Codes: MAC Airside Operations must notify MSP when the RwyCC for any third of an active runway is 5 or less. Notification must include the runway, and the RwyCC for each third of the runway in order of touchdown, mid-field, and rollout.
3) MSP must notify MAC Airside Operations upon receiving any reports from the users regarding field conditions, i.e., snow piles, windrows, etc.

j. Taxiway Design Group VI Aircraft Movements:

1) Per the Dakota-Minnesota ADO, in the areas of the no-taxi islands, there are not sufficient safety separation standards for a 180 degree turn for TDG6. It is also noted that only Taxiway A allows for taxiing TDG 6 aircraft (even with restrictions). Therefore, MSP will not conduct 180 degree turns for TDG6 aircraft in either the PQCD or ABCD no-taxi island areas, and these areas are noted in exhibits utilized by MAC and MSP to supplement the MSP Movement/Non-Movement Area LOA.

4. Exhibits

Several exhibits exist providing supplemental information for operational use for aircraft movements but are maintained separately from this LOA. These exhibits are summarized below:

a. Movement Area Map
b. Operational Restrictions Maps
c. 180 degree turns for TDG6 Aircraft

5. Deviations

Deviations from the procedures outlined in this Letter of Agreement must be approved only after coordination between the following entities:

a. Minneapolis Airport Traffic Control Tower (MSP)
b. Metropolitan Airports Commission (MAC)
c. Minneapolis Terminal Radar Approach Control
d. Minneapolis Technical Operations

Signatories

Signed by:
JOSEPH HARRIS
3CF5FF1199D3455...
Vice President, Management & Operations
Metropolitan Airports Commission

DocuSigned by:
Maggie Ronken
8041C4C02634483...
Maggie Ronken
Air Traffic Manager
Minneapolis Airport Traffic Control Tower

Signed by:
Daniel Picardo
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Manager, Minneapolis Central Group
FAA Technical Operations

Signed by:
James Ipsen
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Air Traffic Manager (A)
Minneapolis Terminal Radar Approach Control

Exhibit 500-4 Runway Lighting for CAT II and III Approaches

FEDERAL AVIATION ADMINISTRATION, MINNEAPOLIS AIRPORT TRAFFIC CONTROL TOWER (MSP) AND METROPOLITAN AIRPORTS COMMISSION (MAC)

LETTER OF AGREEMENT

EFFECTIVE: April 1, 2013

SUBJECT: Runway Lighting for CAT II and III Approaches

1. PURPOSE: This Letter of Agreement addresses an engine generator associated with the runway, touchdown zone and centerline lights on Runways 12R/30L, 12L/30R, and 17/35. The tower cab has remote start and stop of each engine generator.

2. CANCELLATION: The Federal Aviation Administration, Minneapolis Airport Traffic Control Tower and Metropolitan Airports Commission, Runway Lighting for CAT II and III Approaches Letter of Agreement, dated October 31, 2008 is cancelled.

3. RESPONSIBILITIES:

a. MSP shall advise MAC Airside Operations (612-726-5111) when the engine generator for the runway lighting is started and stopped.

b. MAC shall advise MSP whenever the runway lighting system does not meet Category II or III requirements.

4. DEVIATIONS. Deviations from procedures identified herein shall be approved only after coordination between the Minneapolis Airport Traffic Control Tower and the Metropolitan Airports Commission.

Elaine A. Buckner
Air Traffic Manager
Minneapolis Airport Traffic Control Tower

Roy Fuhrman
Vice President, Management and Operations
Metropolitan Airports Commission

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Exhibit 500-5 Surface Movement Guidance Control System Procedures

FEDERAL AVIATION ADMINISTRATION, MINNEAPOLIS AIRPORT TRAFFIC CONTROL TOWER (MSP) AND METROPOLITAN AIRPORTS COMMISSION (MAC)

LETTER OF AGREEMENT

EFFECTIVE: April 1, 2013

SUBJECT: Surface Movement Guidance Control System Procedures

1. PURPOSE: This Letter of Agreement Defines responsibilities and procedures to be used by Minneapolis Airport Traffic Control Tower (MSP) and the Metropolitan Airports Commission (MAC) associated with the MSP Surface Movement Guidance Control System (SMGCS) Plan, which controls the movement of aircraft and vehicles during periods of low visibility. MSP Runway Visual Range (RVR) values will be used to determine implementation of the SMGCS Plan.

2. CANCELLATION: The Federal Aviation Administration, Minneapolis Airport Traffic Control Tower and Metropolitan Airports Commission Surface Movement Guidance Control System (SMGCS) Procedures, Letter of Agreement dated October 31, 2008 is cancelled.

3. RESPONSIBILITIES:

a. MSP shall:

(1) Notify MAC Airside Operations at (612) 726-5111 when the RVR value for Runway 12R, 12L, 30L, or 35 drops below 1200 feet, and Runways 30R and 04-22 are below operational minimums.

(2) Consider the daily crash phone test sufficient for SMGCS conditions crash phones tests.

(3) Include a message on the ATIS that SMGCS procedures are in effect.

(4) Relay to MAC Airside Operations requests for follow-me service.

(5) Notify MAC Airside Operations at (612) 726-5111 when no longer deemed necessary due to prevailing weather conditions.

b. MAC shall:

(1) Implement the MSP SMGCS Plan when conditions of paragraph 3, a., (1) are met.

(2) Advise MSP, Lockheed Martin Automated Flight Service Station, air carriers and other airport tenants via NOTAM that SMGCS procedures are in effect.

(3) Enforce vehicle movement restrictions as defined in the SMGCS Plan.

(4) Provide follow-me service on a personnel available and priority task basis.

(5) Notify MSP, Lockheed Martin Automated Flight Service Station, air carriers and other airport tenants when SMGCS procedures are no longer in effect.

(6) If the SMGCS Plan is not implemented, close any movement area surface if either MSP or MAC personnel feel low-visibility conditions present an immediate safety hazard.

4. DEVIATIONS. Deviations from procedures identified herein shall be approved only after coordination between the Minneapolis Airport Traffic Control Tower and the Metropolitan Airports Commission.

Elaine A. Buckner
Air Traffic Manager
Minneapolis Airport Traffic Control Tower

Roy Fuhrman
Vice President, Management and Operations
Metropolitan Airports Commission

Exhibit 500-6 Minneapolis Airport Traffic Control Tower Contingency Plan - Temporary Tower - Delta Deice Facility

FEDERAL AVIATION ADMINISTRATION, MINNEAPOLIS AIR TRAFFIC CONTROL TOWER, METROPOLITAN AIRPORTS COMMISSION, AND DELTA AIR LINES, INC.

LETTER OF AGREEMENT

EFFECTIVE: June 30, 2024

SUBJECT: Minneapolis Air Traffic Control Tower Contingency Plan – Temporary Tower

1. **PURPOSE:** This letter of agreement defines the roles, responsibilities, and procedures for establishing a temporary tower operation in the event of an evacuation of the Minneapolis Air Traffic Control Tower.

2. **CANCELLATION:** The Federal Aviation Administration, Minneapolis Air Traffic Control Tower, the Metropolitan Airports Commission, and Delta Air Lines, Inc. at MSP Airport Letter of Agreement dated February 28, 2009, is cancelled.

3. **SCOPE AND TERM:** This letter of agreement represents an agreement between the Minneapolis Air Traffic Control Tower (MSP ATCT), the Metropolitan Airports Commission (MAC), and Delta Air Lines, Inc. (DAL) for events that require the evacuation of the MSP ATCT. This letter of agreement shall continue until terminated by any party hereto by providing thirty (30) days' prior written notice to each other party hereto at the appliable address below its signature block.

4. **RESPONSIBILITIES:** In the event that the MSP ATCT must be evacuated:

a. MSP ATCT shall:

(1) Notify the MAC Airside Operations at (612)726-5111 of the need to implement the alternate tower cab contingency plan.

(2) Request MAC Airside Operations to provide an escort to meet MSP ATCT personnel in the parking lot adjacent to the MSP ATCT to transfer personnel to the DAL de-icing tower adjacent to the Runway 12L Deice Pad.

(3) Establish temporary tower operations at the DAL de-icing tower until normal operations can be resumed in the MSP ATCT. MSP ATCT shall use commercially reasonable efforts to resume operations from the control tower as soon as practicable.

(a) Use the PET 2000 emergency transceivers to establish two-way VHF communications on MSP published tower and ground control frequencies.

(b) Utilize VHF communications frequencies assigned to DAL de-icing operations, as required, after coordination with DAL and NOTAMS are issued regarding the use of these frequencies with Leidos Flight Service.

b. MAC shall:

(1) Notify DAL that MSP ATCT needs to use the DAL de-icing tower.

(2) Provide an escort between the control tower and the DAL de-icing tower adjacent to the Runway 12L Deice Pad.

(3) Provide personnel to manually operate MAC-owned airfield lighting, NAVAIDs, and other systems that are normally operated from the permanent control tower.

c. DAL shall:

(1) Provide access to the Runway 12L de-icing operations center, located northwest of the MSP ATCT, to MSP ATCT staff for the purposes of providing temporary tower services.

(2) Provide access to the frequencies assigned to DAL, as necessary, to facilitate ATC communications between FAA personnel in the de-icing tower and aircraft on, or in the vicinity of the Minneapolis/St. Paul International Airport.

(3) Provide access to DAL's commercial telephone lines in the de-icing tower for communication with Minneapolis Air Route Traffic Control Center (ARTCC) and other business-related telecommunications requirements.

d. Any access to or use by the MSP ATCT of the DAL de-icing operations center, the frequencies, or the telephone lines referenced in c. (1), (2), and (3) above shall not disturb or interfere in any way with DAL's operations.

e. Hold Harmless Agreement:

(1) In accordance with and subject to the conditions, limitations and exceptions set forth in the Federal Tort Claims Act of 1948, as amended (28 USC 2671 et seq.), hereafter termed "the Act" MSP ATCT will be liable to persons damaged by any personal injury, death or injury to or loss of property, which is caused by a negligent or wrongful act or omission of an employee of the MSP ATCT while acting within the scope of his office or employment under circumstances where a private person would be liable in accordance with the law of the place where the act or omission occurred. The foregoing shall not be deemed to extend the MSP ATCT's liability beyond that existing under the Act at the time of such act or omission or to preclude the MSP ATCT from using any defense available in law or equity.

(2) DAL will only be liable to persons damaged by any personal injury, death, or injury to or loss of property, which is caused by a grossly negligent or wrongful act or omission of an employee of DAL while acting within the scope of his office or employment under circumstances where a private person wound be liable in accordance with the law of the place where the act or omission occurred. The foregoing shall not be deemed to extend DAL's liability beyond that existing at the time of such act or omission or to preclude DAL from using any defense available in law or equity.

(3) Notwithstanding anything in any agreement or lease between the MAC and DAL to the contrary, DAL shall not be required to indemnify or hold harmless the MAC, its commissioners, officers, or employees from or against any actions to the extent arising from or relating to MSP ATCT's use of the DAL facilities hereunder.

MARGARET SPENCE RONKEN Digitally signed by MARGARET SPENCE RONKEN Date: 2024.06.18 10:28:07 -05'00'

Margaret Ronken
Acting Air Traffic Manager
Minneapolis Air Traffic Control Tower
6311 34th Avenue South
Minneapolis, Minnesota 55450

Brian J. Pickett Digitally signed by Brian J. Pickett Date: 2024.07.03 13:56:12 -04'00'

Brian J. Pickett
Managing Director – Flying Operations
Delta Air Lines, Inc.
1030 Delta Blvd.
Atlanta, Georgia 30354
ATTN: Managing Director - Properties

Chad Leqve
Vice President, Management and Operations
Metropolitan Airports Commission
Minneapolis-St. Paul International Airport
MAC General Office
6040 28th Avenue South
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Exhibit 500-7 Notification Process by the Metropolitan Airports Commission for Surface Area Notices to Airmen

FEDERAL AVIATION ADMINISTRATION, MINNEAPOLIS AIRPORT TRAFFIC CONTROL TOWER (MSP), MINNEAPOLIS TERMINAL RADAR APPROACH CONTROL (M98) AND METROPOLITAN AIRPORTS COMMISSION

LETTER OF AGREEMENT

Effective Date: April 1, 2013

SUBJECT: Notification Process by the Metropolitan Airports Commission for Surface Area Notices to Airmen

1. PURPOSE. This agreement identifies responsibility for notification of the Minneapolis Airport Traffic Control Tower (MSP) and the Minneapolis Terminal Radar Approach Control (M98) of Surface Area Notices to Airmen (NOTAMs) created by the Metropolitan Airports Commission (MAC).

2. CANCELLATION. The Minneapolis Airport Traffic Control Tower, Minneapolis Terminal Radar Approach Control and Metropolitan Airports Commission Notification Process by the Metropolitan Airports Commission for Surface Area NOTAMs, Letter of Agreement dated October 15, 2011 is cancelled.

3. SCOPE. The procedures outlined herein are to be used to standardize procedures between MSP, M98 and MAC regarding the notification of Surface Area NOTAMs created and directly-entered by MAC in the FAA Direct-entry Digital NOTAM system.

4. DEFINITION. MAC, for the purposes of this agreement, have the following positions authorized to issue and cancel NOTAMs on behalf of the airport:

Manager – Airside Operations
Assistant Manager – Airside Operations
Operations Coordinator - Airside Operations
Systems Administrator - Airside Operations

5. RESPONSIBILITIES. According to the NOTAM Manual (JO 7930.2), MAC is responsible for observing and reporting the condition of movement areas and other surface area NOTAMs associated with the Airport. The Surface Area NOTAMs include: Aerodrome, Runway, Taxiway, Apron, Ramp, Services and Obstructions on the Airport property.

6. NOTAMs. Under the current, legacy NOTAM system, MAC contacts Flight Service (FSS) about the need to create Surface Area NOTAMs. FSS is responsible for the classification, accuracy, format, dissemination, and cancellation of the NOTAM information from MAC and also notifying MSP and M98.

7. DIRECT-ENTRY DIGITAL NOTAMs. During the term of this agreement, MAC will be participating in a one year test of the FAA's Direct-entry Digital NOTAM system. MAC will be using FAA Web-based software to directly enter Surface Area NOTAMs to the United States NOTAM System (USNS) and bypass FSS.

8. NOTIFICATION. Because MAC will be directly entering NOTAMs into the USNS and bypassing FSS, MAC will also be required to notify MSP and M98. The notification process will be as follows:

a. MAC must notify MSP via FAX or phone and relay the following information:

(1) the NOTAM keywords Aerodrome, Runway, Taxiway, Ramp/Apron, Obstruction or Services.

(2) its designator (such as 12L/30R or 12R de-ice pad).

(3) the start time, end time or the expected time period of the NOTAM.

(4) the reason/condition for all of the following keyword NOTAMs:

(a) Aerodrome – all NOTAMs.

(b) Runway – all NOTAMs.

(c) Taxiway:

(i) All movement area NOTAMs.

(ii) All non-movement area NOTAMs that impact normal flow operations.

(d) Ramp/Apron – all NOTAMs that impact normal flow operations.

(e) Obstruction – all NOTAMs.

(f) Services - all NOTAMs.

Example: "Runway 12R/30L closed from two one zero zero to two two zero zero UTC."

b. MAC must also notify M98 via FAX or phone and relay the following information:

(1) the NOTAM keywords Aerodrome, Runway, Obstruction, or Services.

(2) its designator (such as 12R/30L).

(4) the start time, end time or the expected time period of the NOTAM.

(5) the reason/condition for all of the following keyword NOTAMs:

(a) Aerodrome – all NOTAMs.

(b) Runway – all NOTAMs.

(c) Obstruction – all NOTAMs.

(d) Services – all NOTAMs.

9. FAILURE OF THE DIRECT-ENTRY NOTAM SYSTEM. If there is a failure to the direct-entry system, MAC must alert MSP and M98 to this fact and then revert back to the legacy system using FSS.

10. EXTENSION. This agreement may be extended by written agreement of the parties.

Elaine A. Buckner
Air Traffic Manager
Minneapolis Airport Traffic Control Tower

Roy Fuhrman
Vice President, Management and Operations
Metropolitan Airports Commission

Diane D. Langer
Air Traffic Manager
Minneapolis Terminal Radar Approach Control

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Exhibit 500-8 Reporting Airport Movement Area Conditions and Notification

Lockheed Martin Flight Services Fort Worth Hub, Metropolitan Airports Commission, Minneapolis-St. Paul Airport Traffic Control Tower, and Minneapolis Terminal Radar Approach Control

LETTER OF AGREEMENT

EFFECTIVE: March 17, 2010

SUBJECT: Reporting Airport Movement Area Conditions and Notification

1. PURPOSE: To provide operating procedures and define responsibilities for the exchange of airport movement area condition information among the Metropolitan Airports Commission Operations (MAC Ops), Minneapolis-St. Paul Airport Traffic Control Tower (MSP ATCT), Minneapolis Terminal Radar Approach Control (M98), and Lockheed Martin Flight Services (LMFS), Fort Worth (FTW) Hub.

2. CANCELLATION: The Federal Aviation Administration, Minneapolis Airport Traffic Control Tower, Minneapolis Terminal Radar Approach Control, and Lockheed Martin, Flight Services, Fort Worth Automated Flight Service Station Letter of Agreement, Information Dissemination, dated August 5, 2009 is cancelled.

3. SCOPE: The procedures contained herein apply to movement area conditions as reported by Airport Operations and disseminated in accordance with FAA Order 7930.2. This Letter of Agreement only applies to the Minneapolis St. Paul International Airport (MSP), MN.

4. RESPONSIBILITIES:

a. Signatories to this letter shall insure all personnel are familiar with these procedures.

b. The procedures contained herein apply to movement area conditions as reported by Airport Operations and disseminated in accordance with FAA Orders 7110.65, 7930.2, 7110.10 and Advisory Circular 150/5200-28.

c. All parties are responsible for providing current telephone numbers in a timely manner:

LMFS FTW Hub: (817) 541-3474	MSP ATCT: (612) 713-4055
MAC Ops: (612) 726-5111	M98 TRACON: (612) 713-4050

5. PROCEDURES: In order to ensure accurate and timely reporting of movement area conditions, the following procedures shall be followed:

a. MAC Operations shall:

(1) Provide LMFS FTW Hub, in writing, with the names of persons authorized to issue and cancel NOTAM information on behalf of Airport Operations. When a personnel change becomes necessary, a revised listing of all authorized personnel shall be forwarded to LMFS FTW Hub on the authorization form provided by LMFS FTW Hub.

(2) Submit NOTAM information to LMFS via phone at (877) 487-6867 or electronically through the Lockheed Martin e-NOTAM Portal at http://lme-notam.com.

(3) Notify MSP ATCT and M98 TRACON with new, amended, or canceled NOTAMs.

(4) Notify MSP ATCT and M98 TRACON of changes to movement areas and airport conditions, not currently issued as a NOTAM, which are reported by other sources and which could have an adverse impact on the safety of aircraft operations at the airport.

(5) Advise LMFS if unable to notify MSP ATCT or M98 TRACON of any changes to movement areas and airport conditions, request LMFS specialist pass the information to MSP ATCT.

b. LMFS shall:

(1) Accept information on airport movement areas and field conditions that meet NOTAM criteria. Disseminate said NOTAMs in accordance with FAA Order 7930.2, with the exception of NOTAM information that originates from MAC Operations regarding MSP Airport.

(2) Notify MAC Operations of changes to movement areas and airport conditions, not currently issued as a NOTAM, which are reported by other sources and which could have an adverse impact on the safety of aircraft operations at the airport.

(3) Notify MSP ATCT and M98 TRACON of all NOTAMs affecting the airport in the event MAC Operations advises it is unable to do so.

c. MSP ATCT shall:

(1) Distribute NOTAMs received from Airport Operations in accordance with FAA regulations.

(2) Notify MAC Operations of changes to movement areas and airport conditions, not currently issued as a NOTAM, which are reported by other sources and which could have an adverse impact on the safety of aircraft operations at the airport.

Kenny Jones
Operations Manager
Lockheed Martin Flight Services
Fort Worth Hub

Steve Wareham
Director of MSP Operations
Metropolitan Airports Commission
Minneapolis-St. Paul International Airport

Dawn M. Ingraham
District Manager
Minneapolis Airport Traffic Control Tower
Minneapolis Terminal Radar Approach Control

Exhibit 500-9 Notice to Airmen (NOTAM) Notification Responsibility

LOCKHEED MARTIN FLIGHT SERVICES CENTERAL SERVICE AREA FORT WORTH HUB AND MINNEAPOLIS AIR TRAFFIC CONTROL TOWER AND TRACON AND METROPOLITAN AIRPORTS COMMISSION, MINNEAPOLIS, MINNESOTA

LETTER OF AGREEMENT

EFFECTIVE: June 11, 2007

SUBJECT: Notices to Airmen (NOTAM) Notification Responsibility

1. PURPOSE: To provide NOTAM notification procedures for Metropolitan Airports Commission (MAC) issued NOTAMs pertaining to the Minneapolis-St. Paul International Airport.

2. CANCELLATION: Princeton Automated Flight Service Station and Minneapolis Air Traffic Control Tower, Metropolitan Airports Commission, Letter of Agreement, Notification Procedures for Continuous Snow Removal on Multiple Runways, dated February 27, 1998.

3. SCOPE: The NOTAM notification procedures outlined herein are to be followed for MAC issued NOTAMs pertaining to the Minneapolis-St. Paul International Airport (MSP), Minneapolis, Minnesota.

4. RESPONSIBILITIES:

a. The MAC shall be responsible for notifying the following facilities of all MAC issued NOTAMs and cancellations pertaining to the Minneapolis-St. Paul International Airport:

(1) The Lockheed Martin Flight Services, Central Service Area Fort Worth Hub.

(2) The Minneapolis Air Traffic Control Tower (MSP ATCT).

(3) MSP TRACON (M98 TRACON).

b. The Lockheed Martin Flight Services, Central Service Area Fort Worth Hub shall be responsible for issuing and canceling NOTAMs received from the MAC in accordance with FAA Order 7930.2, Notices to Airmen.

5. PROCEDURES:

a. The MAC shall notify the MSP ATCT, M98 TRACON, and the Lockheed Martin Flight Services, Central Service Area Fort Worth Hub of all MAC issued NOTAMs and cancellations.

(1) The primary means for the MAC to forward NOTAM information to the Lockheed Martin Flight Services, Central Service Area Fort Worth Hub is via facsimile to 817-490-6649. During facsimile outages or when a need for further clarification dictates, the NOTAM Specialist at the Fort Worth Hub should be called by dialing any one of the following numbers: toll-free 877-4-US-NTMS (877-487-6867) or the supervisor's desk at 817-541-3468 / 3470 / 3472 / 3474.

(2) Facsimile numbers for MSP ATCT and M98 TRACON are 612-713-4074 and 612-713-4071, respectively.

b. The Lockheed Martin Flight Services, Central Service Area Fort Worth Hub shall issue and cancel NOTAMs received from the MAC in accordance with FAA Order 7930.2, Notices to Airmen.

Dawn M. Ingraham
District Manager
Minneapolis Air Traffic Control Tower and TRACON
Minneapolis-St. Paul International Airport
6311 34th Avenue South
Minneapolis, MN 55450
612-713-4000

Steve Wareham
Airport Director
Minneapolis-St. Paul International Airport
Metropolitan Airports Commission
4300 Glumack Drive
Room LT-3000
St. Paul, MN 55111

Hugh K. Giggy
Central Service Area Manager
Lockheed Martin Flight Services
5300 Alliance Gateway Freeway, Suite 500
Fort Worth, Texas 76177

Exhibit 500-10 Runway Safety Areas

FEDERAL AVIATION ADMINISTRATION, MINNEAPOLIS AIRPORT TRAFFIC CONTROL TOWER (MSP ATCT), MINNEAPOLIS TECHNICAL OPERATIONS (MSP TECH OPS) AND METROPOLITAN AIRPORTS COMMISSION (MAC)

LETTER OF AGREEMENT

EFFECTIVE: 10/17/2022

SUBJECT: Runway Safety Areas (RSA)

1. PURPOSE. This Letter of Agreement defines jurisdictional responsibilities between Minneapolis Airport Traffic Control Tower (MSP ATCT), Minneapolis Technical Operations (MSP Tech Ops) and the Metropolitan Airports Commission (MAC) for operating within Runway Safety Areas at Minneapolis-St. Paul International Airport.

2. CANCELLATION. This Letter of Agreement will remain in effect until canceled by Minneapolis Airport Traffic Control Tower (MSP ATCT), Minneapolis Technical Operations (MSP Tech Ops) and the Metropolitan Airports Commission (MAC).

3. DEFINITIONS. Runway Safety Area (RSA) – a defined surface surrounding the runway prepared or suitable for reducing the risk of damage to airplanes in the event of an excursion, overshoot, or undershoot from the runway. The RSA at MSP are depicted in Attachment 1. The unpaved RSA includes those portions of the RSA not designated as a movement area.

4. RESPONSIBILITIES.

a. MAC Responsibilities

(1) Must retain sole authority to approve access to the unpaved portion of any RSA.

(2) Ensure the safety of RSA and specify what activities, if any, may take place in an RSA during aircraft operations.

(3) Must limit access to, movement on or across all unpaved RSA, only to personnel with an operational need.

(4) Must require all personnel to monitor the appropriate MSP ATCT local control frequency when in RSA.

(5) Must require all personnel follow all rules and regulations published in MAC Ordinance 127, or as it may be amended.

(6) Ensure personnel who are authorized to operate in an RSA receive initial and recurrent training on the provisions of this LOA or are escorted and supervised by MAC Airside Operations.

FAA Acceptance*: Kenneth M. Faire
Acceptance Date: December 02 2022
*For inclusion to the ACM only

(7) MAC Airside Operations will normally provide MSP ATCT with 30 minutes lead time prior to allowing access to an unpaved RSA. MAC Airside Operations must also provide MSP ATCT with the identity of who will be accessing the unpaved RSA and an estimate of the length of time they will be in the area.

(8) The MAC must require all personnel to obtain clearance from MSP ATCT on the appropriate local control frequency prior to entering any RSA of an open runway.

(9) All questions regarding any RSA should be directed to MAC Airside Operations at (612) 726-5111.

(10) The MAC must require all personnel to advise MSP ATCT on the appropriate local control frequency when they are clear of any RSA of an open runway.

(11) When a movement area is closed within any active RSA, MAC must use coordination and notification procedures established herein if personnel have need to access any RSA on this closed movement area.

b. MSP ATCT Responsibilities.

(1) Provide clearance for entry into the requested RSA in accordance with the provisions of this LOA.

(2) Provide advisories to arriving and departing aircraft concerning personnel operating in the requested RSA IAW FAA JO 7110.65.

(3) Ensure that personnel under MSP ATCT authority receive training (initial and recurrent) on the provisions of this agreement.

(4) Not approve entry into any RSA when weather conditions are less than reported ceiling 800 feet or visibility of 2 miles.

c. MSP TECH OPS Responsibilities.

(1) Must coordinate all unpaved RSA operations with MAC.

(2) Receive clearance from MSP ATCT to enter and move within any RSA.

(3) Maintain two-way radio communication with MSP ATCT on the proper local control frequency while operating in any RSA.

(4) Advise MSP ATCT and MAC Airside Operations when work is completed and the RSA is clear.

(6) Ensure all personnel under MSP Tech Op's authority receive training (initial and recurrent) on the provisions of this agreement.

FAA Acceptance*: Kenneth M. Faire
Acceptance Date: December 02 2022
*For inclusion to the ACM only
FAA Approval:_____

5. PROCEDURES.

a. All requests to enter the unpaved portion of any RSA must be directed to MAC for approval.

b. MAC Airside Operations must initiate any Runway Safety Area coordination process by coordinating with the MSP ATCT Supervisor at (612) 713-4055.

c. MAC has determined that any RSA must be clear of all vehicles and equipment during aircraft operations. Personnel may be in any RSA during aircraft operations with proper coordination.

d. If work in any RSA necessitates utilizing vehicles or equipment, MAC must coordinate a runway closure with MSP ATCT prior to the vehicles or equipment entering any RSA.

e. Personnel must maintain two-way radio communication with MSP ATCT while in any RSA.

f. Personnel whose work has been coordinated through MAC must contact and maintain communication with MSP ATCT on 123.95 for 12L/30R, 126.7 for 12R/30L and 4/22, or 123.675 for 17/35 to request access to any RSA. They may not enter any RSA until instructed to do so by MSP ATCT.

g. Personnel must advise MSP ATCT when they exit any RSA. Subsequent re-entry into any RSA requires subsequent MSP ATCT approval.

h. Arriving Emergency Aircraft. MSP ATCT must instruct personnel to exit any RSA for an arriving emergency aircraft. Personnel must exit any RSA immediately and advise MSP ATCT of any equipment, etc., that could not be removed from any RSA.

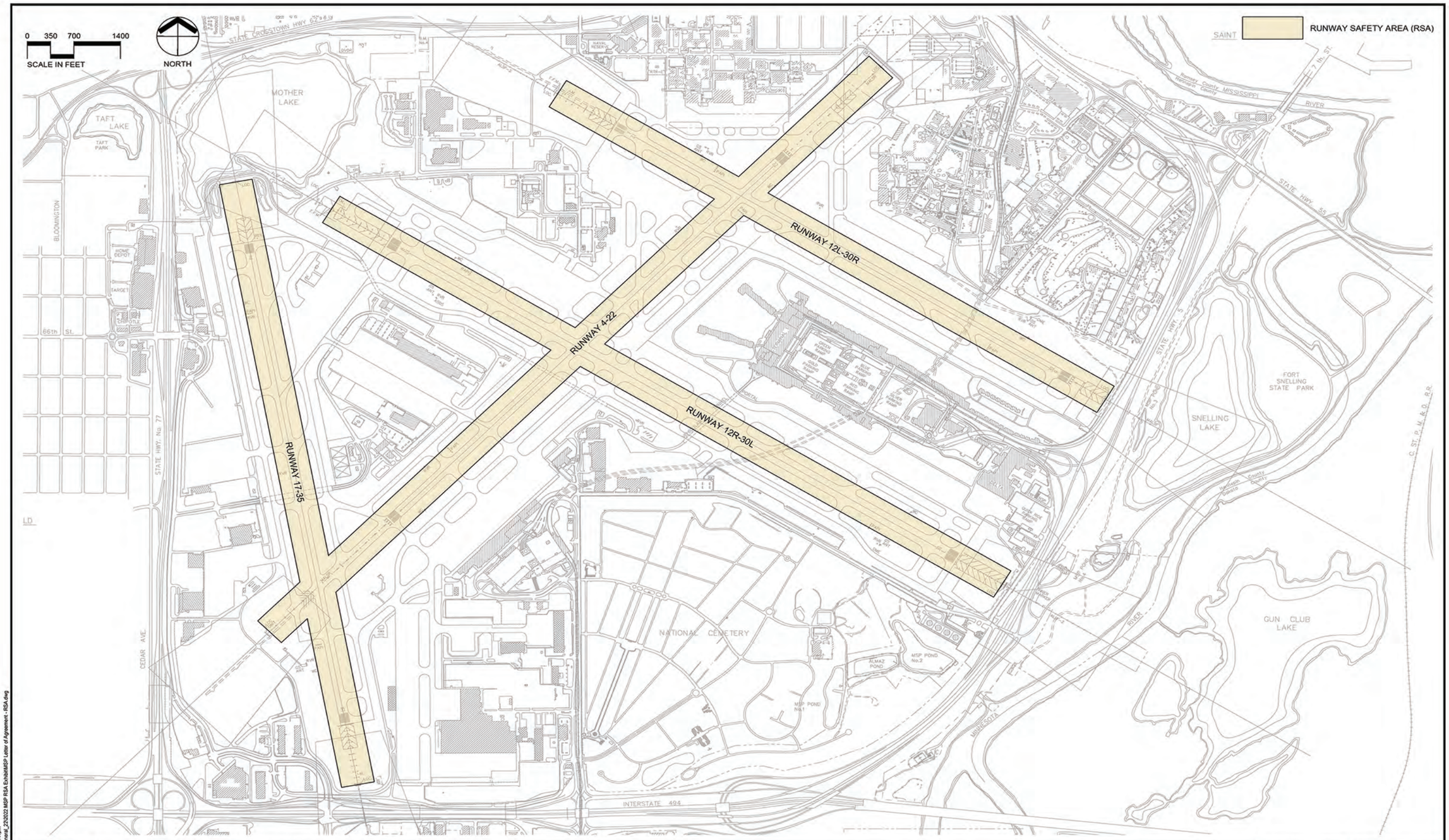
6. DEVIATIONS. Deviations from procedures identified herein must be approved only after coordination between the Minneapolis Airport Traffic Control Tower, Minneapolis-Technical Operations, and the Metropolitan Airports Commission.

Heidi Wulf
Air Traffic Manager
Minneapolis Airport Traffic Control Tower

Daniel Picardo
District Facilities Manager
Minneapolis Technical Operations

DocuSigned by:
Chad Leqve
Chad Leqve
Vice President, Management & Operations
Metropolitan Airports Commission

FAA Acceptance*: Kenneth M. Faire
Acceptance Date: December 02 2022
*For inclusion to the ACM only



Metropolitan Airports Commission	RUNWAY SAFETY AREAS (RSA)	Original Date: 12/09/04	Revision Date: 11/18/22	DATE	DRAWING NO.
	MINNEAPOLIS-ST. PAUL INTERNATIONAL AIRPORT	FAA Approval:____	FAA Acceptance*: Kenneth M. Taire Acceptance Date: December 02 2022 *For inclusion to the ACM only	7/18/2022	1

CURRENT: Jul 18, 2022 - 2:41pm
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Exhibit 500-11 Minneapolis Airport Traffic Control Tower - MSP Temporary Tower - Orange Ramp

Minneapolis Airport Traffic Control Tower and Metropolitan Airports Commission

LETTER OF AGREEMENT

EFFECTIVE: June 3, 2024

SUBJECT: MSP Temporary Tower

1. PURPOSE. This letter of agreement defines duties and responsibilities for establishing temporary tower operations at the MSP Airport Terminal 2 Orange Parking Ramp stairwell level 9 and 10 in the event of an evacuation of the Minneapolis Airport Traffic Control Tower.

2. SCOPE. This letter of agreement represents an agreement between the Minneapolis Airport Traffic Control Tower (MSP) and the Metropolitan Airports Commission (MAC) for events that require the evacuation of the control tower.

3. RESPONSIBILITIES.

a. MSP ATCT must:

(1) Notify MAC Airside Operations at 612-726-5111 of the need to implement temporary tower operations at the Terminal 2 parking ramp.

(2) If required, request MAC Airside Operations to provide initial transportation for personnel and equipment from outside the ATCT security gate to level 8 of the Terminal 2 Orange ramp.

(3) Bring all required equipment and supplies required for ATCT operations.

(4) Establish temporary tower operations on level 9 and 10 of the Terminal 2 Orange ramp stairwell until normal operations can be resumed in the permanent control tower.

(5) Use PET 2000 emergency transceivers to establish two-way VHF communications on MSP published tower and ground control frequencies.

(6) Utilize the MSP Operational Contingency Plan (OCP) cell phones. OCP phone "A", 612-804-1749, will be used for a telephone bridge between ZMP and M98. OCP phone "B", 612-787-5470, will be used for other business-related telephone communication.

(7) If required, request MAC Airside Operations to provide transportation for the initial group from the Terminal 2 Orange ramp back to the permanent ATCT

(8) Notify MAC Airside Operations when temporary tower operations are no longer required.

b. MAC must:

(1) If requested by ATC, provide one MAC vehicle for initial transportation for MSP ATCT personnel and equipment from outside the ATCT security gate to level 8 of the Terminal 2 Orange Ramp.

(2) Provide access for MSP ATCT personnel to the closed levels of the Orange ramp stairwell to facilitate temporary tower operations.

(3) Communicate with MSP ATCT via the MSP OCP cell phone B at 612-787-5470.

(4) Provide personnel to manually operate MAC-owned airfield lighting, NAVAIDs, and other systems that are normally operated from the permanent control tower.

(5) Provide personnel to manage interior light settings at the temporary site when requested and available.

(6) Provide access for ATCT personnel to/from the parking ramp as needed.

(7) If requested by ATC, provide transportation for the initial group back to the permanent ATCT.

4. **BACKGROUND.** The Terminal 2 Orange Parking Ramp stairwell levels 9 and 10 provides for adequate visual line of sight (LOS) and Radio Line of Site (RLOS) for temporary ATCT operations to runways 12R/30L, 04/22, and 17/35 as well as a majority of taxiways and non-movement areas on the south side of Terminal 1.

Margaret Ronken
Air Traffic Manager (A)
Minneapolis Airport Traffic Control Tower

Chad Leqve
Vice President, Management and Operations
Metropolitan Airports Commission

Exhibit 500-12 SMS Implementation Plan Approval Letter

U.S. Department
of Transportation
Federal Aviation
Administration

Great Lakes Region
2300 East Devon Ave.
Des Plaines, IL 60018

March 27, 2024

Mr. Brian Ryks, Executive Director
Minneapolis-St. Paul International / Wold Chamberlain
6040 28th Ave. South
Minneapolis, MN 55450

RE: Approval of Part 139 SMS Implementation Plan for Minneapolis-St. Paul International / Wold Chamberlain Airport (MSP).

Mr. Ryks:

The Federal Aviation Administration (FAA) has approved the Implementation Plan submitted by Minneapolis-St. Paul International / Wold Chamberlain Airport, Minneapolis, MN. This plan is to be used to comply with 14 CFR § 139.403. The certificate holder is responsible for adhering to all elements and timelines contained in the plan. Updates to the approved plan timelines or elements will be submitted to the FAA but will not require further FAA approval providing the requirements as defined in 14 CFR parts §139.402 and §139.403 continue to be met.

In accordance with the requirements as defined in part 139.403(c)-(d), you must submit your SMS manual within 12 months from the date of this approval letter. In addition, you must fully implement your SMS as identified in your implementation plan, no later than 36 months from the date of this letter.

Please contact me if you have any questions.

Sincerely,

Paul Williams
Lead Airport Certification Safety Inspector – AGL
FAA Office Of Airports

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Exhibit 500-13 Taxiway A and Taxiway B Convergence Taxi and Pushback Procedures

Taxiway A and Taxiway B Convergence Taxi and Pushback Procedures Letter of Agreement
Federal Aviation Administration, Minneapolis Airport Traffic Control Tower (MSP) and Metropolitan Airports Commission (MAC)
Letter of Agreement (Effective: April 14, 2025)

Subject: Taxi and Pushback Procedures in Zone of Restricted Operations on Taxiways A and B at MSP

1. Purpose:
Minneapolis-St. Paul International Airport has a defined area of aircraft restriction at the convergence of Taxiways A and B that is restricted to single aircraft taxi. This Letter of Agreement defines the allowable and restricted taxi and pushback operations in this restricted area. The restricted area is shown in Exhibit A attached to this Letter of Agreement.

2. Responsibilities:

a) MSP will control taxi and pushback operations within the restricted area in accordance with the operational procedures stated in this Letter of Agreement.

b) MAC will publish and disseminate the operational procedures stated in this Letter of Agreement to the appropriate stakeholders and air carriers.

3. Operations:

Pushbacks at gate G3 will encroach into the taxiway object free area of Taxiway A7 and will require aircraft traffic on Taxiway A to hold outside of the restricted area west of Taxiway A7 or hold short to the east of Taxiway A5.

Pushbacks at the following gates will encroach into the taxiway object free area of Taxiway A5 and will disallow the use of Taxiway A5 during the pushback operation:

a) G4

b) G5

c) G6

d) G8

Simultaneous pushbacks from gates within the restricted area are allowed.

Aircraft destined for gates G4, G5, G6, and G8 may taxi to their gate from the east if there is a pushback at gate G3.

Aircraft destined for gate G3 may taxi to their gate from the west if there are pushbacks at gates G4, G5, G6, or G8.

Aircraft held on Taxiway A during a pushback operation in the restricted area may continue their taxi after the aircraft that has been pushed back has begun their taxi and is established on the Taxiway A or Taxiway B centerline.

Aircraft on Taxiway A may not taxi behind aircraft taxiing to gates within the restricted area until the aircraft taxiing into the gate is clear of the Taxiway A taxiway object free area.

When an aircraft is pushed or parking at Gate G3, Taxiway A7 is not usable. When aircraft are pushed or parking at Gates G4-G8, Taxiway A5 is not usable; Taxiway A4 is usable with a turn away from the restricted area of Gates G4-G8.

4. Exhibits:

a) MSP Operational Restrictions Map

b) Gate G3 pushback

c) Gate G4 pushback

d) Gate G5 pushback

e) Gate G6 pushback

f) Gate G8 pushback

Signed by:
Brittany Stapf
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Brittany Stapf
MSP Air Traffic Manager
Federal Aviation Administration

DocuSigned by:
Joe Harris
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Joe Harris
Vice President, Management and Operations
Metropolitan Airports Commission

Signed by:
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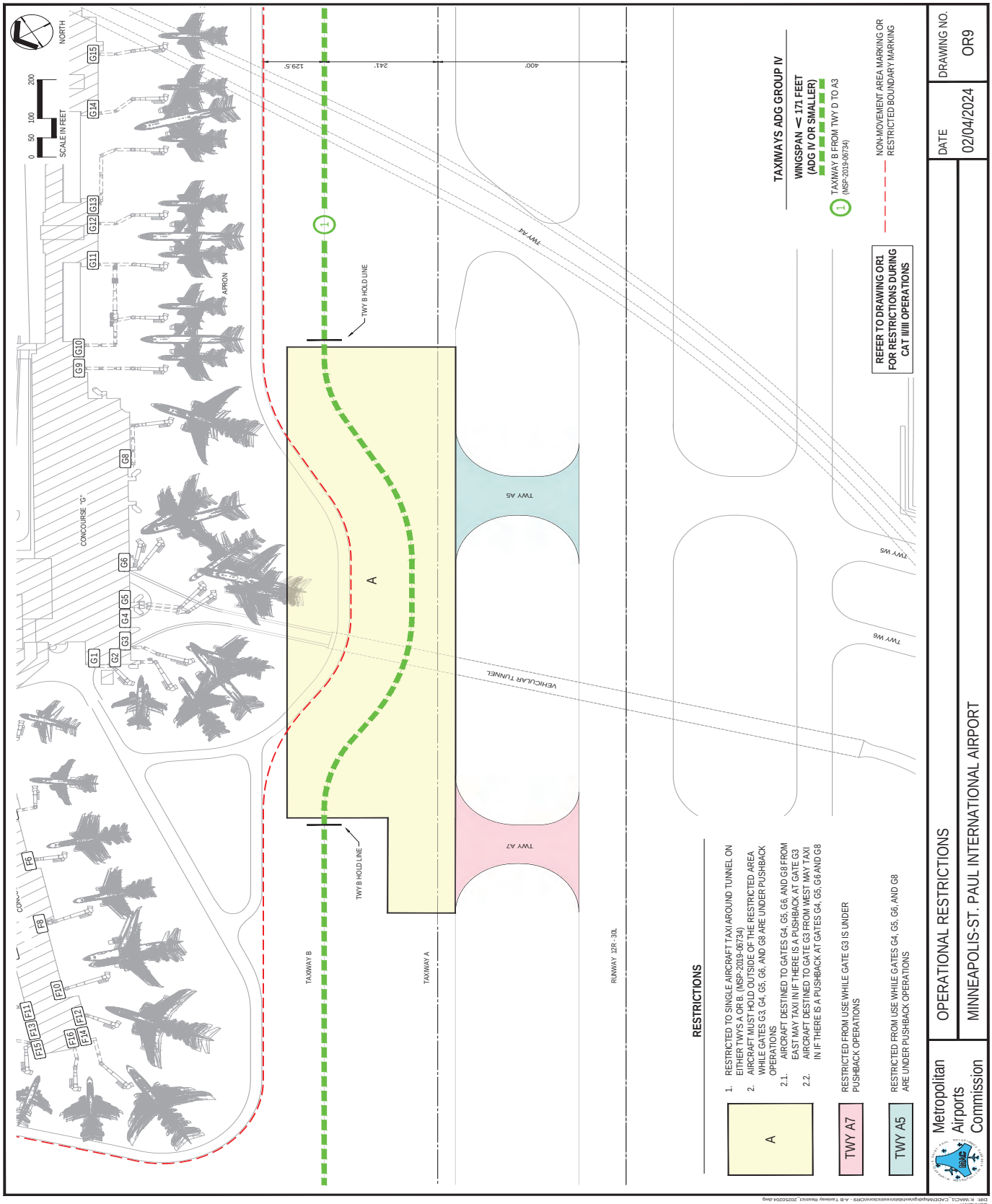
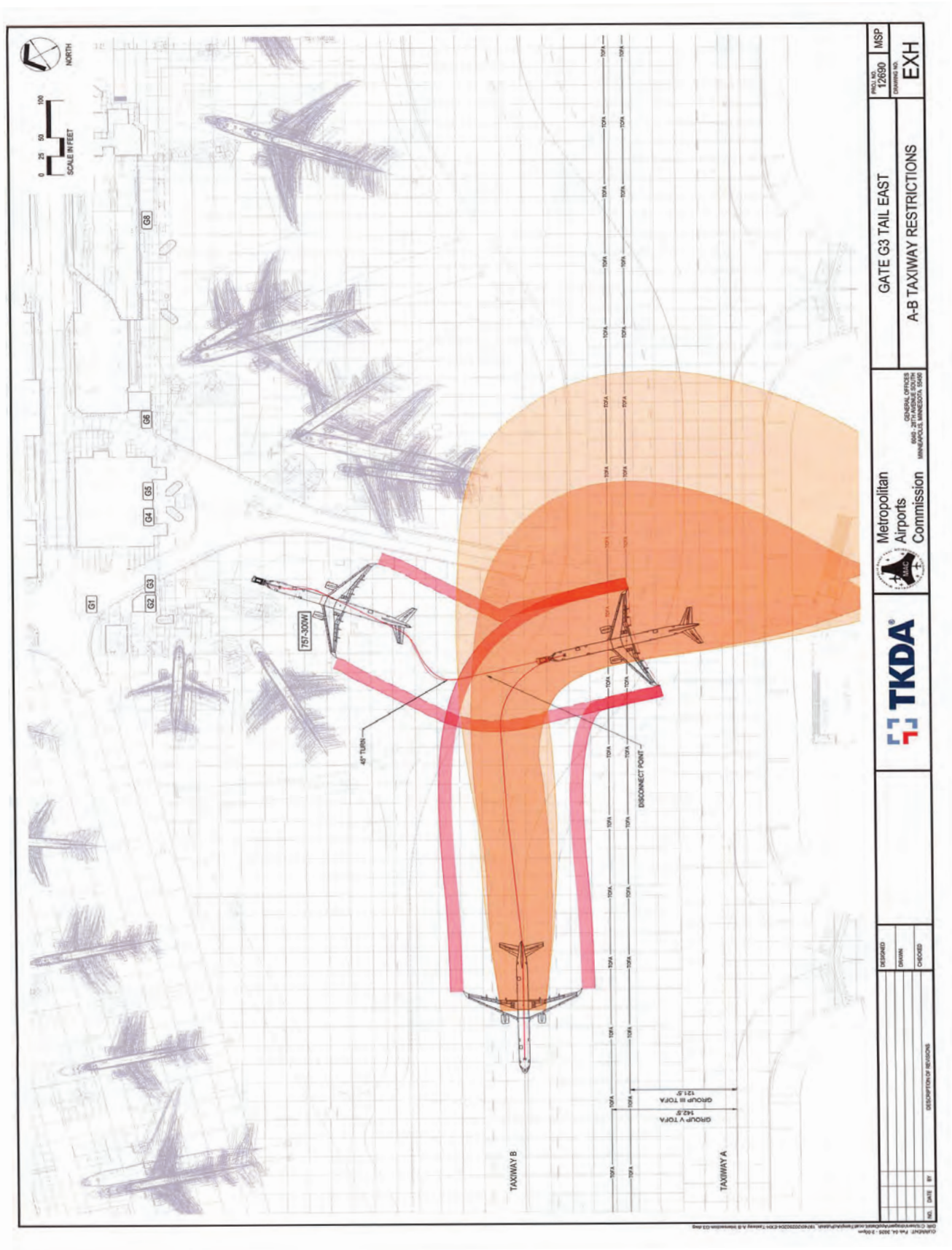
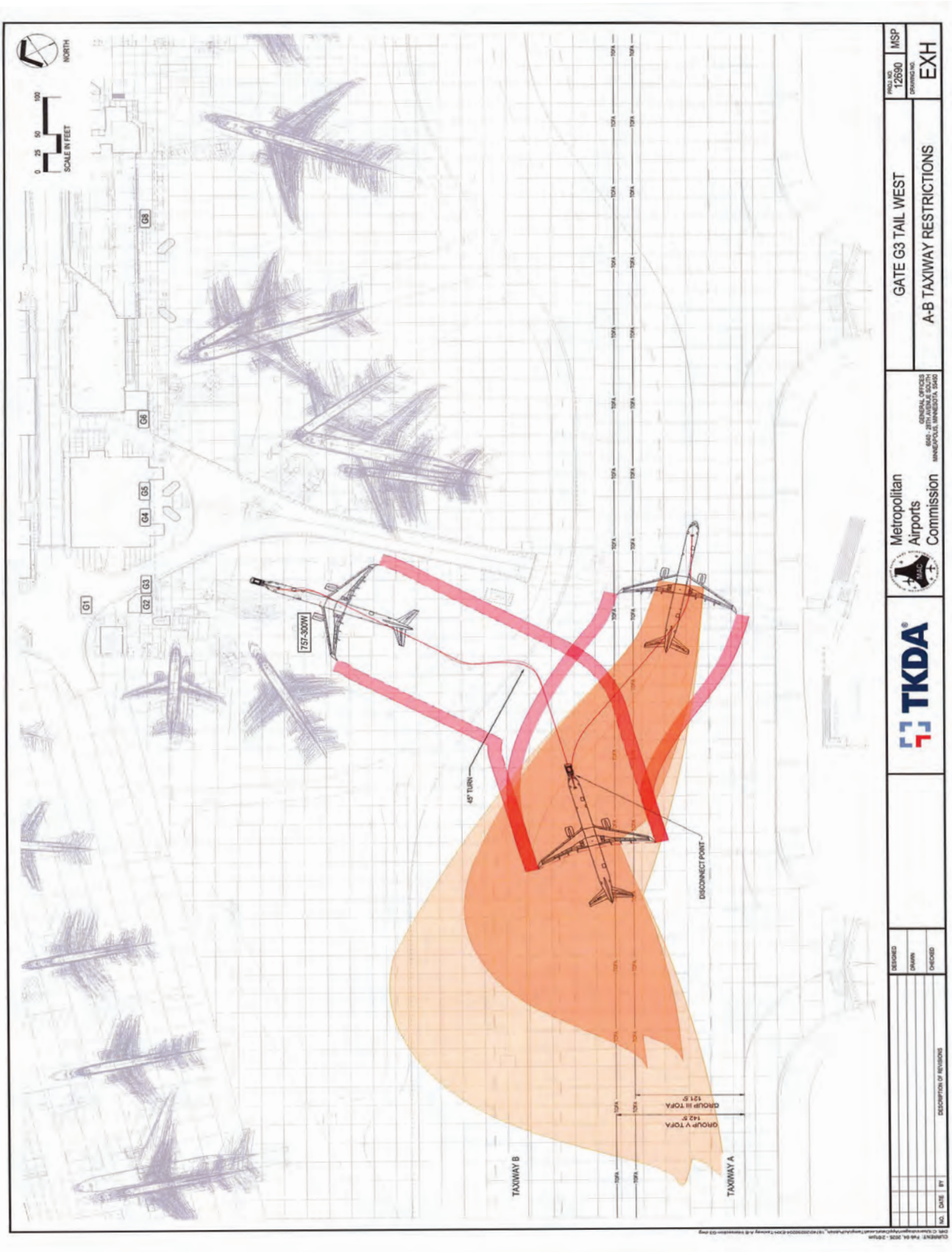
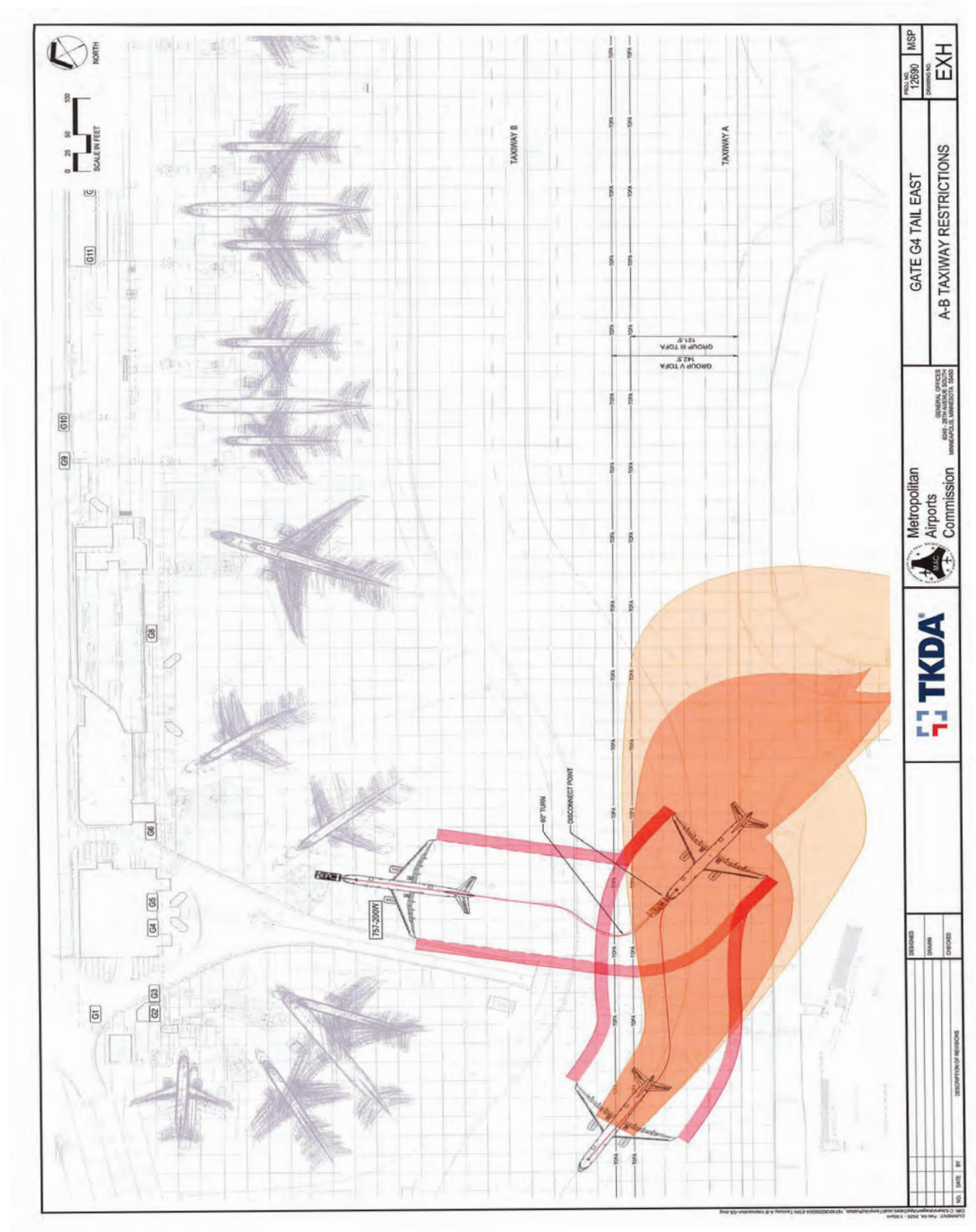
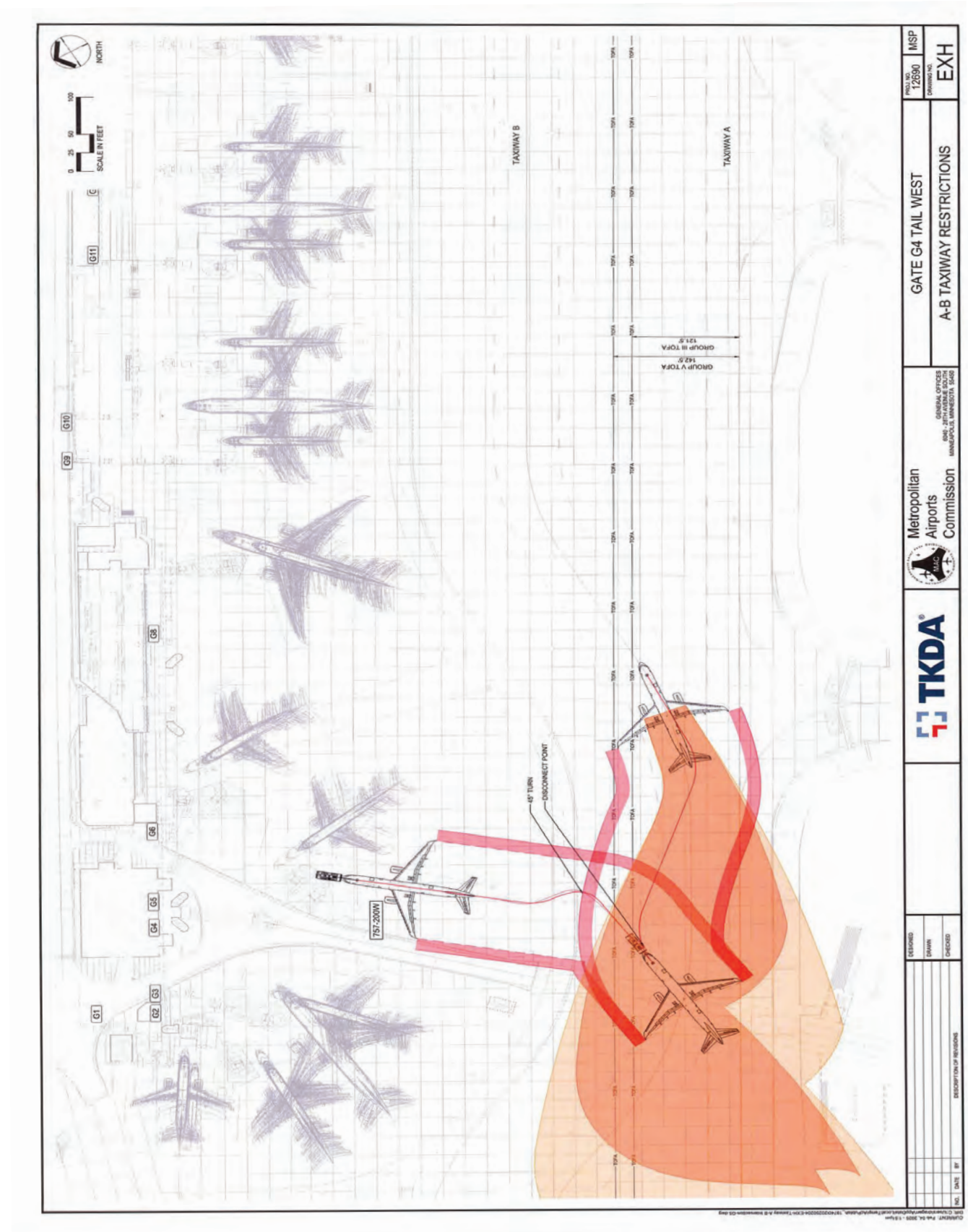
Jerah Kavoosi
MSP NATCA Representative
Federal Aviation Administration











Original Date: 12/09/04

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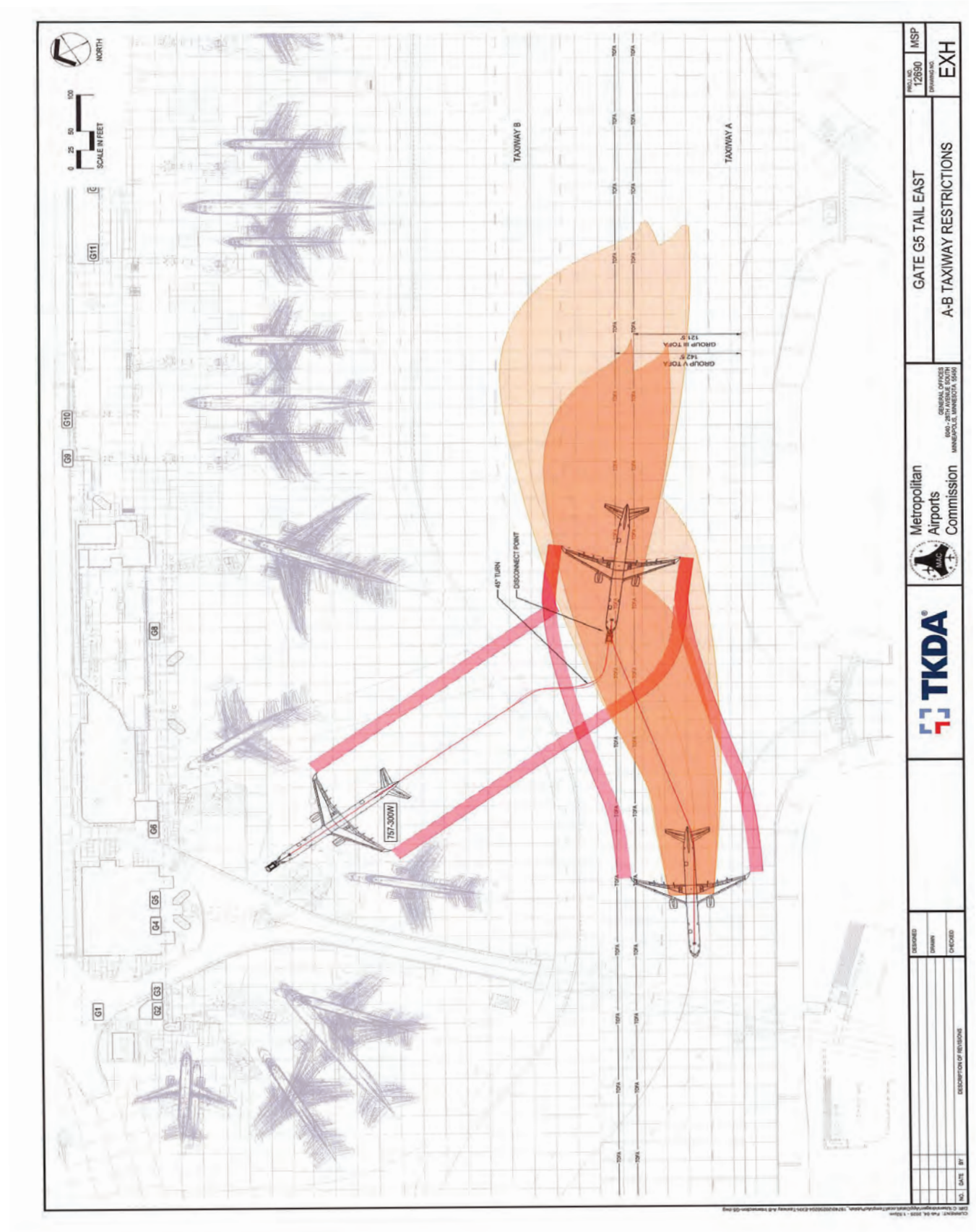
FAA Airports
Date: Jul 21 2025



Original Date: 12/09/04

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FAA Acceptance:

FAA Airports Date: Jul 21 2025