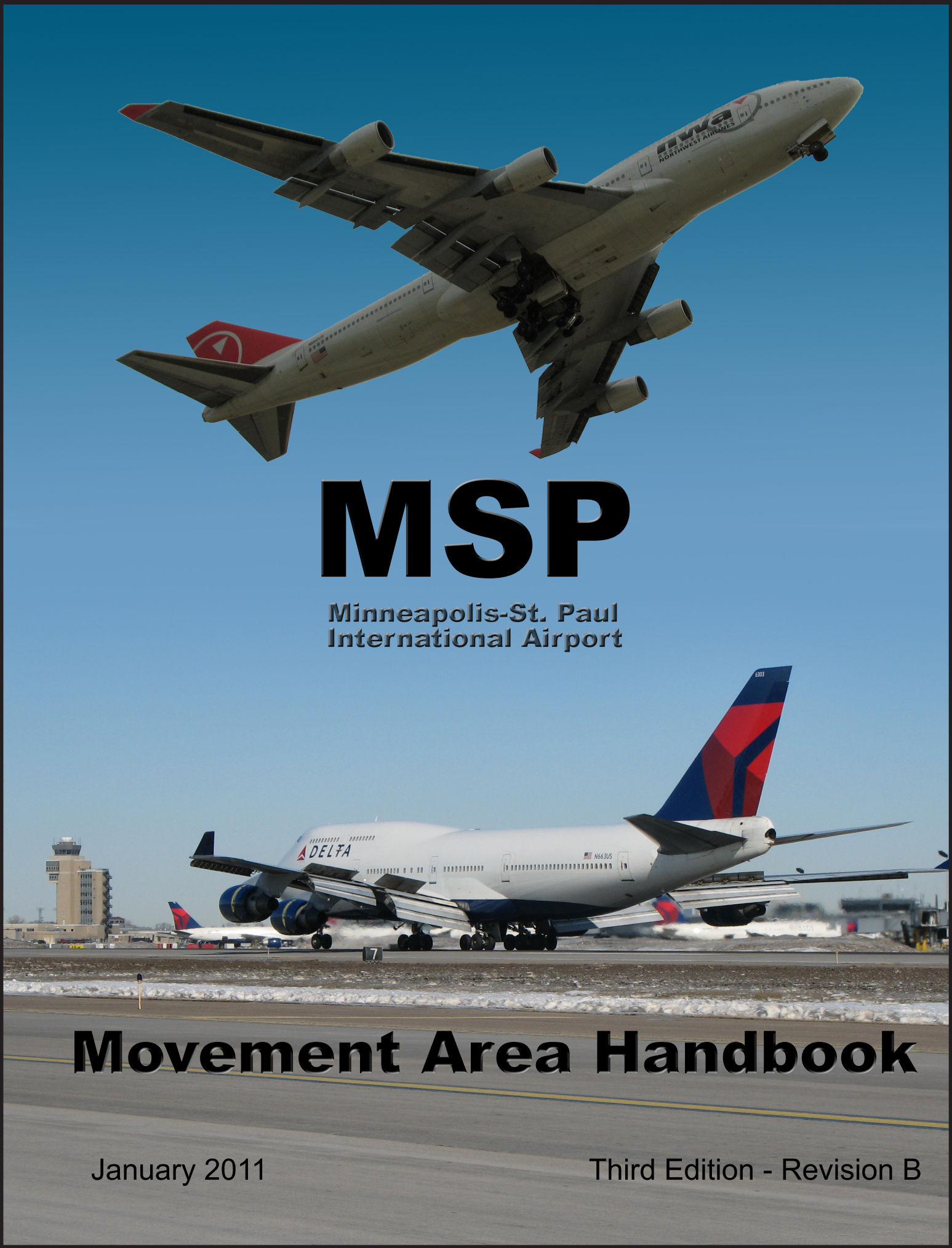

MSP

Minneapolis-St. Paul International Airport

Movement Area Handbook

January 2011

Third Edition - Revision B

PREFACE

This handbook consists of one volume of general driving information about the Minneapolis – St. Paul International Airport (MSP). It has been designed to provide you with material that you can study on the job and, in so doing, acquire knowledge of the airport. In most cases, you will find that this handbook furnishes all the information you need to drive on the Movement Area at the airport.

In case you have any questions, comments or suggestions concerning this handbook or any other items pertaining to vehicle operations at Minneapolis – St. Paul International Airport, please contact the MSP Drivers' Training Center (DTC).

Minneapolis – St. Paul
Metropolitan Airports Commission
Drivers' Training Center
4300 Glumack Drive
Suite 3000
St. Paul, MN 55111

(Office/Voice Mail) 612-467-0974
(Fax) 612-726-5074
(E-mail) DTC@mspmac.org

If you need immediate assistance pertaining to operational matters at MSP, please contact a member of the Metropolitan Airports Commission's (MAC) Airside Operations Department at (612) 726-5111. These people are available 24 hours a day for questions or consultation.

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Airport Layout Plans by
TKDA

If anyone has any changes or recommendations on how to improve this handbook for future printings, please contact John E. Ostrom at the above address for the MSP Drivers' Training Center or else via office phone at 612-726-5780 or e-mail at john.ostrom@mspmac.org.

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CHAPTER 1

INTRODUCTION

Introduction

1.1 Purpose

The purpose of this Movement Area Handbook is to provide training and education to those individuals who operate vehicles and/or equipment on the Movement Area at Minneapolis - St. Paul International Airport (MSP). The intent of this handbook is to supply the reader with information on procedures required for safe vehicle operations on all portions of the Air Operations Area (AOA) at MSP.

The Movement Area Handbook is meant to give the driver a general overview of the requirements and rules for operating on the roadways, ramps, taxi-ways and runways at MSP. The information contained in Chapters 1 - 11 is not meant to be all-inclusive. For a complete listing of the requirements and rules necessary to operate on the AOA, drivers should thoroughly read and understand Metropolitan Airports Commission (MAC) Ordinance 105 which is located in Appendix A of this handbook.

1.2 Goals

The goal of this program is safety through the practice of defensive driving and compliance with airport rules and ordinances. Accomplishing this goal requires that airlines, tenants and other users of the airport work closely with the MAC to ensure all drivers are properly trained while also promoting strict adherence to the rules and ordinances pertaining to the AOA. An enforce-ment program is in place to monitor and enforce these rules.

1.3 Authority

The Metropolitan Airport Commission’s Airport Director reserves the right to limit the number of drivers and to authorize those drivers that show a need to operate vehicles/equipment on the AOA.

CHAPTER 2

MSP GENERAL INFORMATION

MSP General Information

2.1 Welcome to Minneapolis-St. Paul International Airport

According to ACI-NA's 2009 statistics, Minneapolis - St. Paul International Airport (MSP) is the 17th busiest airport in the world for aircraft operations. In 2009 there were approximately 1,185 aircraft operations per day at MSP for a total of 432,395 aircraft operations for the year. MSP currently has four runways. There are approximately 500 companies with employees that operate vehicles on the airport for a total of about 12,000 drivers. Due to the number of aircraft operations, vehicle operators, complexity of the airport and the demanding environment that you will be operating in, we strongly recommend that you fully familiarize yourself with the information contained in this handbook so that you will be prepared to operate here in as safe a manner as possible.

CHAPTER 3

3.1 Definitions

Air Operations Area (AOA): All areas at MSP inside the perimeter fence. It includes runways, taxiways, ramps, and roadways.

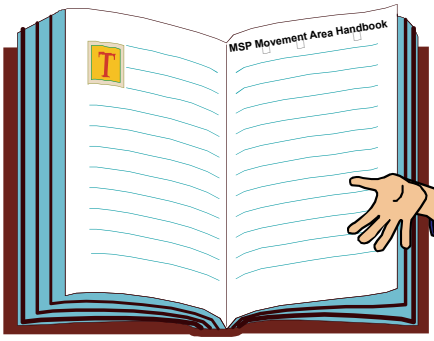
Movement Area: All runways, taxiways and their associated safety areas.

Non-Movement Area: All areas within the AOA that aren't runways, taxiways or safety areas.

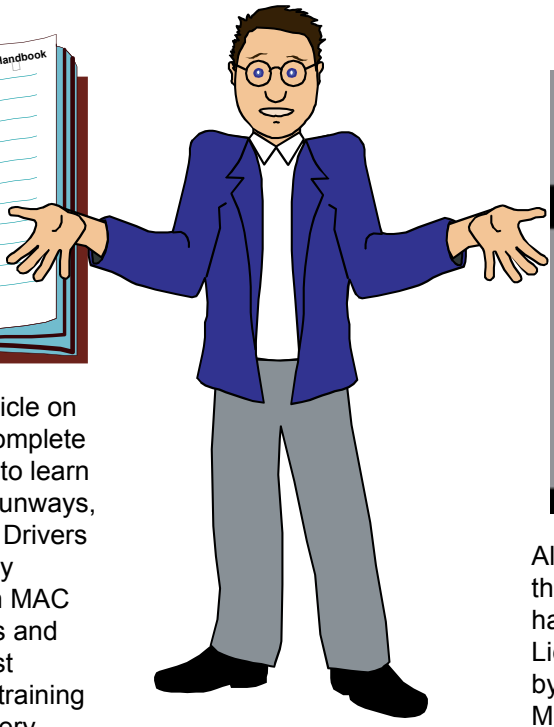
3.2 Driver Requirements

Drivers at MSP must have a valid state driver's license. Each driver shall carry his or her state driver's license at all times while operating on the AOA.

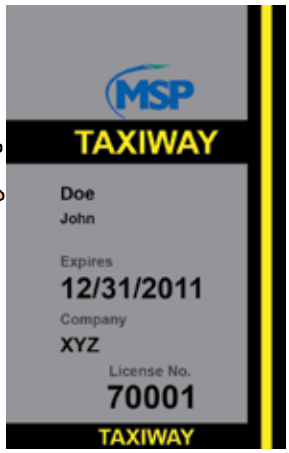
All drivers must also have (and display) a valid MSP Security Badge that authorizes access to the AOA. Currently only yellow and red badges allow access to the AOA.



Each driver operating a vehicle on the Movement Area must complete driver's training and testing to learn the rules for driving on the runways, taxiways and safety areas. Drivers shall get training provided by MAC or their company (with MAC approved training objectives and materials). Each driver must complete recurrent driver's training and testing at least once every twelve months. Upon successful completion of testing, all Movement Area Drivers will be issued a Movement Area License with the appropriate endorsement.



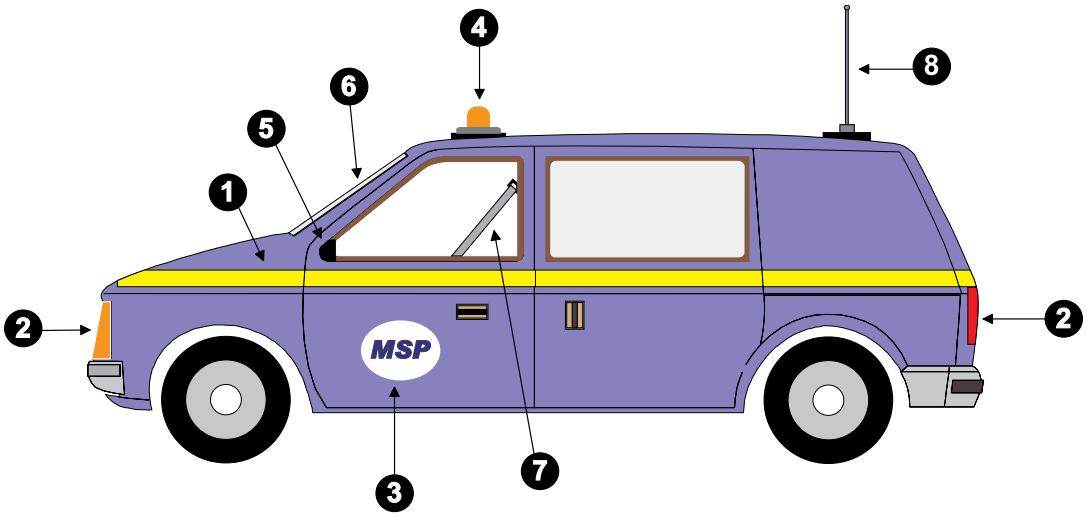
Driver



All drivers operating on the Movement Area must have a valid MSP Driver's License or be under escort by a person with a valid Movement Area Driver's License or be issued a Conditional Movement Area Permit (CMAP).

3.3 Vehicle Requirements

The following graphic shows some of the vehicle requirements for operating on the Movement Area at MSP:



1. Reflectorized logo or striping of at least 50 sq. inches on each side of the vehicle
2. Operating headlights and taillights (or reflectorized material for vehicles not manufactured with headlights or taillights)
3. Company logo on the Driver's side of each vehicle (logos may not be displayed on the inside of the driver's window)
4. An amber beacon on the highest point of the vehicle which must be on at all times when operating on the AOA*.
5. At least one rear-view mirror*
6. The windshield should not be cracked, discolored, or be obstructed by posters, stickers or signs
7. Seat belts for all passengers*
8. Operable two-way radio capable of communicating with the ATCT.
9. A seat for every passenger on the vehicle
10. No extended superstructure or unsecured loads that obstruct the movement of the vehicle
11. Properly functioning brakes, tires and steering
12. Any vehicle operated on the AOA is required to have a minimum of $5,000,000 insurance.

*These items do not apply to specialized airport equipment such as tugs, baggage carts, and belt loaders

CHAPTER 4

NON-MOVEMENT AREA

Non-Movement Area

4.1 Defensive Driving

The concept of Defensive Driving is centered around the idea of operating a vehicle in a reasonable and responsible manner to help protect the occupants of your vehicle, as well as those you share the road with.

Practicing the guidelines listed in this section will help you become a Defensive Driver both on the Airport and anywhere else you happen to drive.

The first thing to remember when operating on the Airport is:

All Aircraft Have the Right of Way!

This is regardless of whether they are ready to move, under tow or taxiing under their own power.

4.1.1. Pre-Trip Safety Inspection

Before getting into your vehicle for the first time each day, make a pre-trip exterior check on the overall condition of the vehicle and ensure that all of your lights are functioning and that the tires are properly inflated.

Adjust your seat and mirrors, secure loose items and fasten your seat belt **before** putting your vehicle into gear.

4.1.2 Seat Belts

Always wear your seat belt. Even in vehicles equipped with airbags, seat belts must be worn. Airbags are designed as supplemental restraint devices only, and do not replace seat belts.

4.1.3 S.C.C.

Three important defensive driving concepts that should be followed in all driving situations are **Scanning, Communication** and **Cushion of Safety**

Non-Movement Area

Scanning refers to looking all around the vehicle - in front, to both sides and to the rear. On open roads, scan about 12 to 15 seconds ahead, which is equal to about 1/4 mile. In congested areas, scan about 1 to 1 1/2 blocks ahead, or 3-5 gates ahead while operating near the terminal buildings.

Scanning is the most important key for safe driving on the airport. A vehicle operator's eyes provide more than 90 percent of all the information needed for safe driving. This is especially important on aprons due to the volume and types of traffic in these areas.

> Another important part of scanning is checking your mirrors, it is recommended that you check your mirrors every 3 to 5 seconds. Before making a turn, it is also important to check your blind spot for aircraft, vehicles, or pedestrians that may not be visible in your mirrors.
>
> When you scan other vehicles keep in mind that if you can't see the inside rear view mirror of another vehicle, you are probably in the driver's blind spot. Also remember that aircraft have very limited visibility from the cockpit, which is one of the reasons vehicles should always yield the right-of-way to aircraft.

As you scan your driving environment, it is also important to anticipate and respond in a defensive manner.

Anticipate what other vehicles and aircraft might do. This is the second most important process when operating a vehicle on the AOA. Look at what is around you and anticipate what other vehicles and aircraft are going to do next. Listen to the appropriate ATCT ground control or local radio frequencies to determine where aircraft and vehicles are being directed. Anticipating in this manner provides an extra margin of safety.

Respond to what is seen and anticipated. If all vehicle operators are looking and anticipating, then responding to varying driving conditions should be a free-flowing exercise.

Communication refers to using headlights and directional signals, sounding your horn, and positioning your vehicle to help in relaying your intentions to other drivers.

Proper use of headlights includes not using high beams when driving in fog or when other vehicles are approaching.

As a general rule, you should signal at least 100 feet before a turn.

Cushion of Safety refers to the area around your vehicle that you should try to keep clear of other vehicles and pedestrians. Remember that you have the most control over the area in front of your vehicle as you can increase this particular cushion of safety simply by slowing down.

4.1.4 Following Distance

In ideal conditions, it is recommended that you try to maintain a following distance of at least three seconds. This will give you enough time to see hazards, react to them and stop safely if necessary to avoid a crash.

When driving in heavy traffic, construction areas or during bad weather, or if you are suffering from fatigue or other conditions that may affect your ability to drive at your peak level, add one more second to your following distance for each poor condition.

Your following distance should also be increased if you have a tailgater.

4.1.5 Backing your Vehicle

Before backing your vehicle, be certain that the area behind your vehicle is clear of pedestrians, other vehicles or objects. If you are unsure, get out of the vehicle and check the area. Once you're sure the area is clear, back slowly but immediately so the situation does not change.

Non-Movement Area

4.1.6 Distractions

Driving safely requires giving your full attention to the road and possible hazards. Anything that takes your attention away from driving is unsafe. To avoid being distracted, it is recommended that you do not use a cell phone to talk or text while driving. If you must use the phone, pull off to a safe place to do so.

4.1.7 Stopping Distance

Three factors affect how long it takes a vehicle to stop:

Perception Distance is the distance a vehicle travels before a driver spots a hazard and decides to take action. Avoiding distractions, and utilizing proper scanning techniques can help reduce this distance.

Reaction Distance is the distance a vehicle travels while the driver is moving his or her foot from the accelerator to the brake.

Since the average reaction time is 3/4 of a second, covering your brake is recommended when you spot a hazard to help reduce yoru reaction distance.

Braking Distance is the distance the vehicle travels from the time the brake is applied until the vehicle stops.

4.1.8 Traffic Lights/ Stop Signs

When stopping in a line of traffic, stop far enough behind the vehicle in front so that you can see the rear tires of that vehicle touching the pavement.

If you are stopped at a stoplight, be sure that when the light turns green you pause to be sure the intersection is clear before proceeding.

4.1.9 Hydroplaning

Hydroplaning occurs when a film or sheet of water builds beneath a vehicle's tires, causing them to lose their grip on the road surface. This can greatly reduce your ability to brake and steer your vehicle.

Hydroplaning can occur at speeds as low as 30 mph. When hydroplaning conditions exist, reduce your speed and increase your following distance. Brake and steer gently to help prevent skidding and sliding.

4.1.10 Traffic Sign recognition

To assist in safe driving during low visibility conditions, it is important to recognize the shapes and colors associated with signs, both on the airport and on public roadways

Red signs generally mean Stop, Yield, Do Not Enter or Wrong Way. On the Airport, Red signs are Mandatory Instruction Signs.

White rectangular signs are regulatory signs which convey information related to such things as speed limits or no passing zones.

Yellow signs are general warning signs. On the Airport, most yellow signs are taxiway direction signs.

Orange signs indicate construction zones.

4.2 Operating on the Non-Movement Area

Be fully aware of all the actual and potential hazards that exist when driving on the Non-Movement Area. These hazards can include: Aircraft, Jet Blast/ Jet Ingestion, Poor Surface Conditions, Inclement Weather and other **Vehicle Operators**.

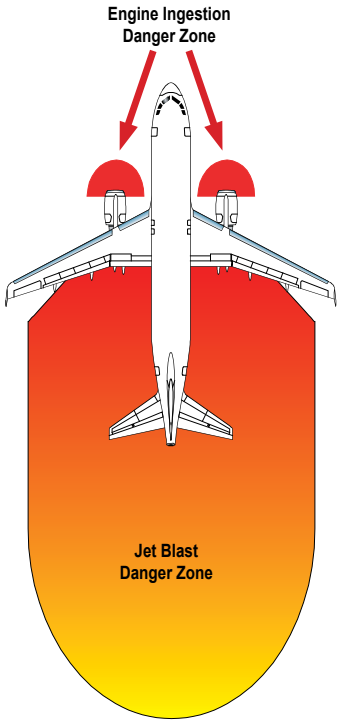
The Non-Movement Area contains the Aprons that are used for parking aircraft while they are loaded and serviced for takeoff. Aircraft servicing includes: Fueling, Passenger Loading and Unloading of Aircraft, Towing, Deicing, Food Service, Lavatory Service and Aircraft Maintenance. All of these services are performed by ramp personnel and require some type of vehicle operation.

The many vehicle movements and associated servicing can result in Congestion, Confusion and Chaos around the aircraft. **Extreme caution** and **care** need to be used when operating on any apron surface.

By following the Defensive Driving principles discussed earlier in this Chapter, vehicle operators on the Non-Movement Area can greatly reduce unsafe driving conditions and the potential for accidents.

4.3 Jet Blast / Engine Ingestion

Jet Blast is very dangerous and efforts should be made to avoid it at all times. An aircraft with its red (or white) beacon illuminated (depending on the aircraft, the beacon may be on the underside of the fuselage or on top of its tail) usually indicates that the engines are running or are about to be started. It is possible for jet blast to reach speeds of 590 mph and a temperature of 370 degrees Fahrenheit approximately 25 feet behind the engine. Even at 100 feet behind the engine, jet blast may still be up to 95 mph and about 140 degrees Fahrenheit.



A small slope in the apron, snow, ice and/or deicing fluids on the apron may require greater thrust to initially move the aircraft. A good rule to follow is to remain at least 200 feet behind an operating jet engine.

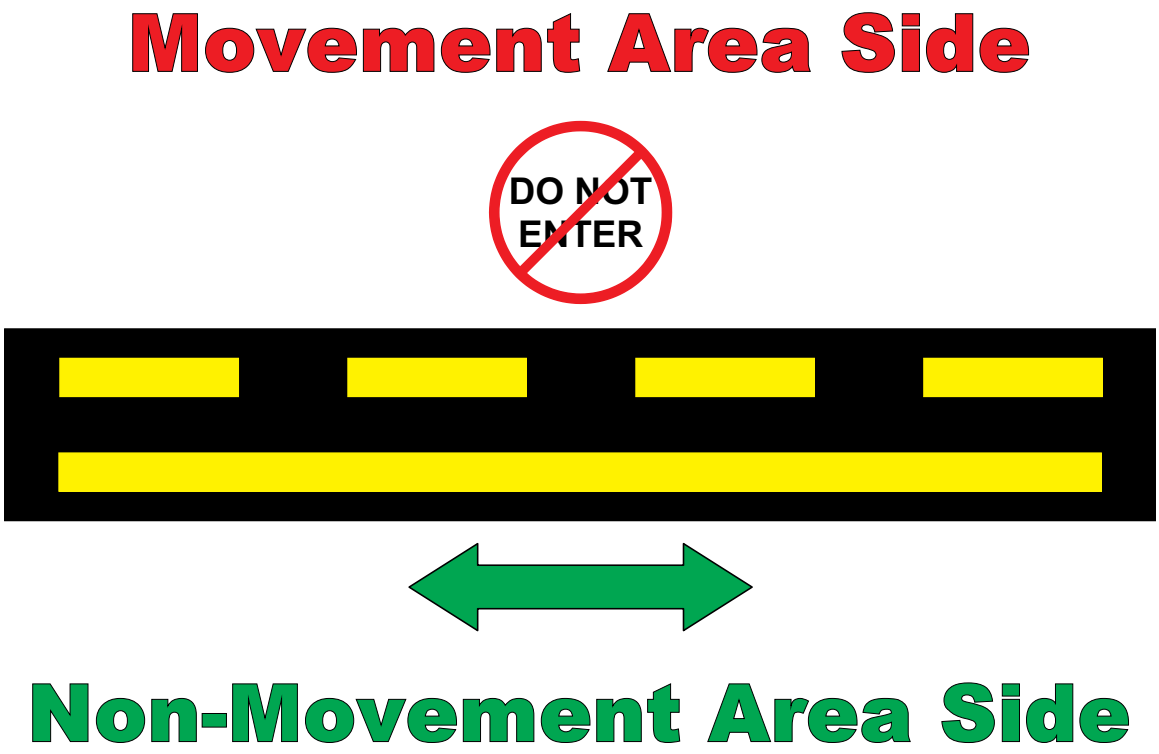
Be aware of other items that may have accidentally been left behind a jet engine as they may be blown into other vehicles.

Just as dangerous as jet blast is the intake of a jet engine. It acts like a giant vacuum cleaner picking up any loose items that may be close to the opening.

Finally, be sure to allow adequate clearance around all aircraft with propellers, as any contact almost always results in severe damage or injury. Prop wash can also throw debris.

4.4 Non-Movement Area Boundary Markings

Non-movement area boundary markings are used when there is a need to delineate the movement area from the non-movement area. The markings consist of two yellow lines (one solid and one dashed). The solid line is located on the non-movement area side while the dashed yellow line is located on the movement area side.



AOA Drivers may not cross the Non-Movement Area Boundary marking unless they are under the escort of a licensed Movement Area Driver.

Movement Area Drivers may only cross the Non-Movement Area Boundary marking for operational necessity, training and emergency response.

4.5 Speed Limits

- 5 miles per hour (mph) in gate areas or within the immediate vicinity of parked aircraft.

- 15 miles per hour (mph) on designated roadways or on any ramp areas.

- 30 miles per hour (mph) on taxiways

- 40 miles per hour (mph) on runways

- Other limits, as posted

As a reminder, <u>these speed limits may not actually be physically posted</u> on the roadways, ramps, taxiways or runways, but they must be obeyed.

4.6 Use of Designated Roadways

Anyone driving a vehicle within the AOA shall use designated roadways when available and to the extent possible. If a vehicle's destination is located off the designated roadway, the driver of the vehicle shall use the roadway as long as reasonable. **Remember, no driver shall drive beyond four (4) gates without using the ramp roadway.** While driving along the roadway system a driver may cross certain taxiways at the designated crossing point.

The following rules apply to driving on the designated roadways:

1. Aircraft have the Right-of-Way over vehicles at all times without exception.

2. All drivers shall enter the designated roadway at a 90 degree angle, at the closest point that it can be done safely.

3. When following other vehicles, do so at safe distances in order to ensure against accidents should the lead vehicle have to make a sudden stop

4. Passing is only allowed when it can be done safely and traffic control devices permit it.

5. Don't stop or park any vehicle on the designated roadway, except to yield to an aircraft or if necessary to prevent harm to persons or property.

6. Do not drive between an aircraft and a marshaller or wing-walker unless approved by the marshaller, wing-walker or aircraft

7. Do not drive a vehicle towing more than (5) five baggage carts or dollies within the AOA.

See Figure 4-2.

4.7 Prohibited Parking Areas

Vehicles shall not stop or park, except in laid out parking areas designated by MAC. In accordance with this, vehicles shall not be parked in any of the following areas:

1. Within an intersection or on a roadway.

2. Within 30 feet of any flashing beacon, stop sign or traffic control signal located at the side of a roadway.

3. Alongside or opposite any street excavation or obstruction when such stopping, standing or parking would obstruct traffic.

4. At any place where traffic control devices prohibit stopping or parking, or where the curb or edge of the roadway is painted yellow.

5. Within an area that restricts the movement of a passenger loading bridge or aircraft.

See Figure 4-2.

4.8 Stalled Vehicles

Drivers shall not 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 turned on, the driver shall immediately notify MAC Airside Operations at 612-726-5111, and the driver shall take immediate action to remove such vehicle.

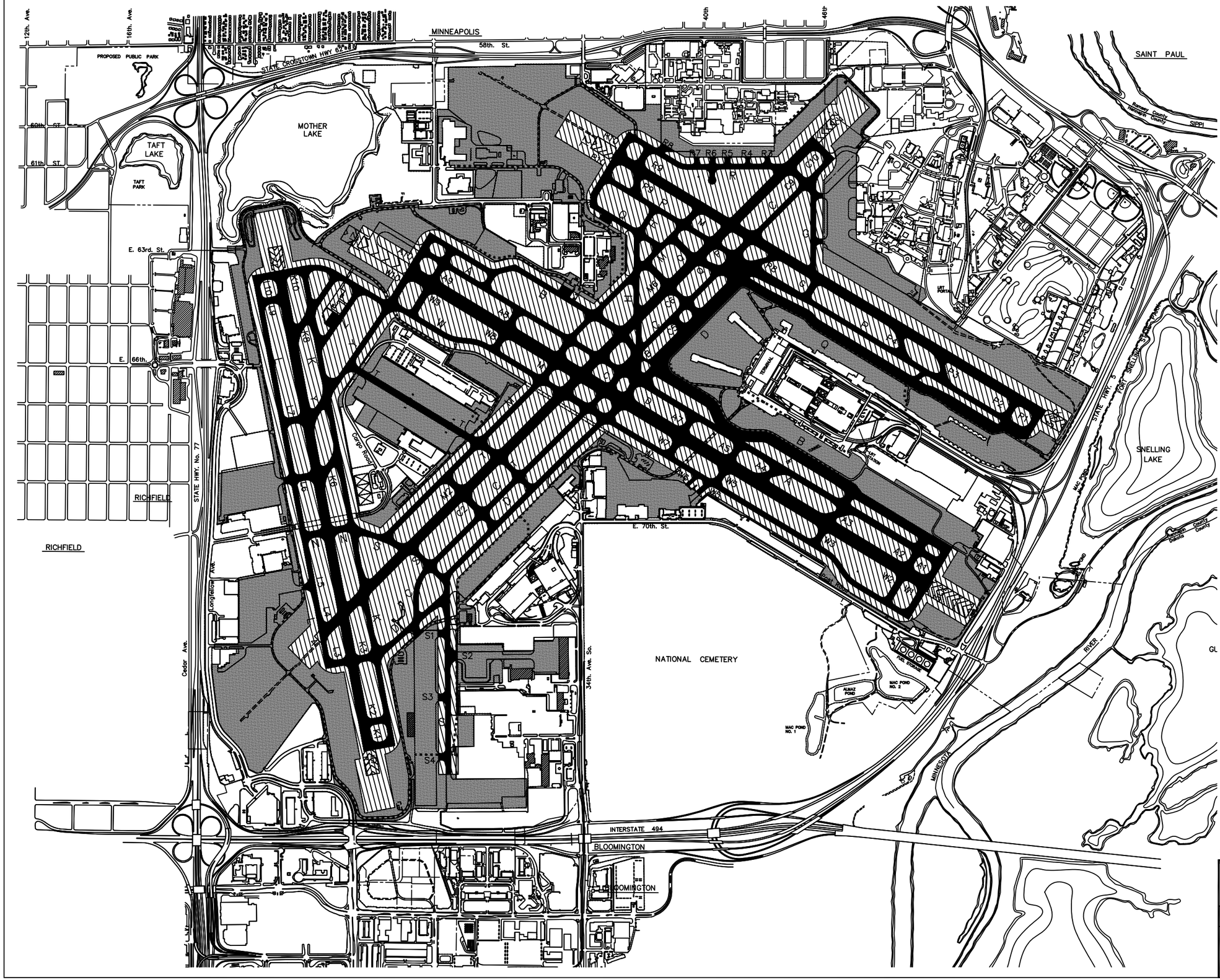
4.9 Dangerous Driving Practices

1. Reckless Driving
Do not drive in a manner that indicates an intentional disregard for the safety of persons or property.

2. Careless Driving
Do not operate any vehicle carelessly 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.

3. Driving Under the Influence
Drivers shall not consume or be under the influence of alcohol or a controlled substance while operating a vehicle on the AOA. For purposes of this ordinance, a Blood Alcohol Concentration (BAC) of .04 is used as the threshold for being under the influence. In addition, no driver shall violate the Minnesota Open Bottle Law.

Not only are these dangerous practices, but they may also lead to immediate suspensions and/or revocations of an individual's AOA driving privileges.



INFORMATION NOT VERIFIED

CURRENT: JANUARY 2014

Figure 4-1

Air Operations Area (AOA)

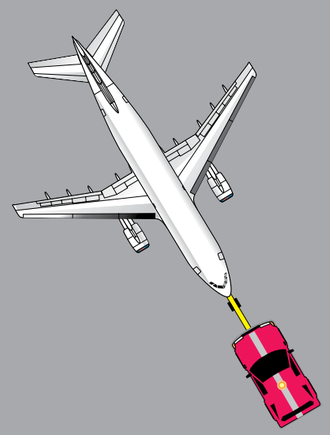
MSP INTERNATIONAL AIRPORT

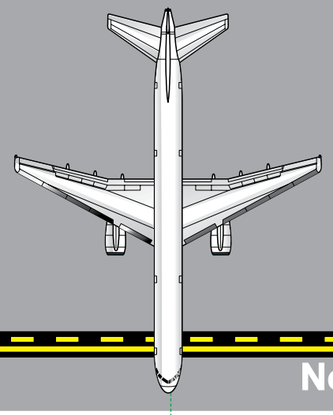
Metropolitan Airports Commission

GENERAL OFFICES
6040–28TH AVENUE SOUTH
MINNEAPOLIS, MINNESOTA 55450

Movement Area

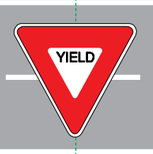
Vehicles are not authorized in the Movement Area unless:
- they have a Movement Area License; or
- they have been issued a Conditional Movement Area Permit (CMAP); or
- they are under the escort of a licensed Movement Area Driver



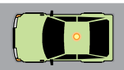


Non-Movement Area Boundary Marking

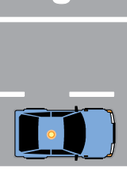
Roadway speed limits are15 mph unless posted otherwise



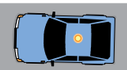
All Vehicles must give Right of Way to Aircraft at all times



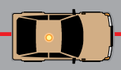
Designated Roadway



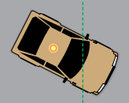
Vehicles must enter or exit the roadway at a 90 degree angle



Roadway speed limits are15 mph unless posted otherwise

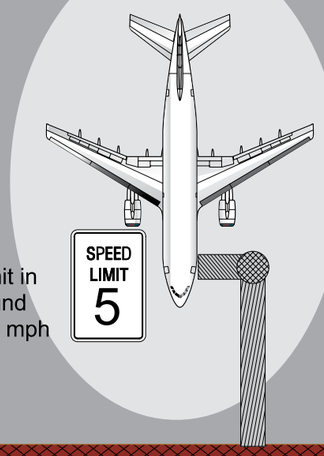


Vehicles moving more than 4 gates must use the designated roadway

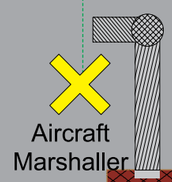


Vehicles must not drive between an aircraft and its Marshaller or Wingwalkers

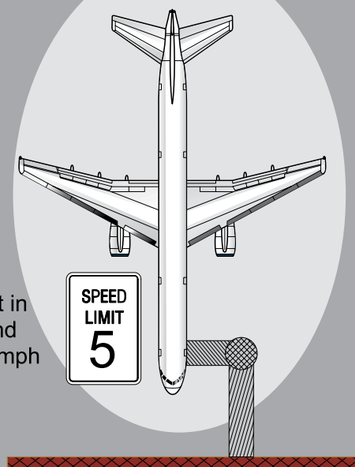
Non-Movement Area



Speed limit in and around aircraft is 5 mph



Aircraft Marshaller



Speed limit in and around aircraft is 5 mph

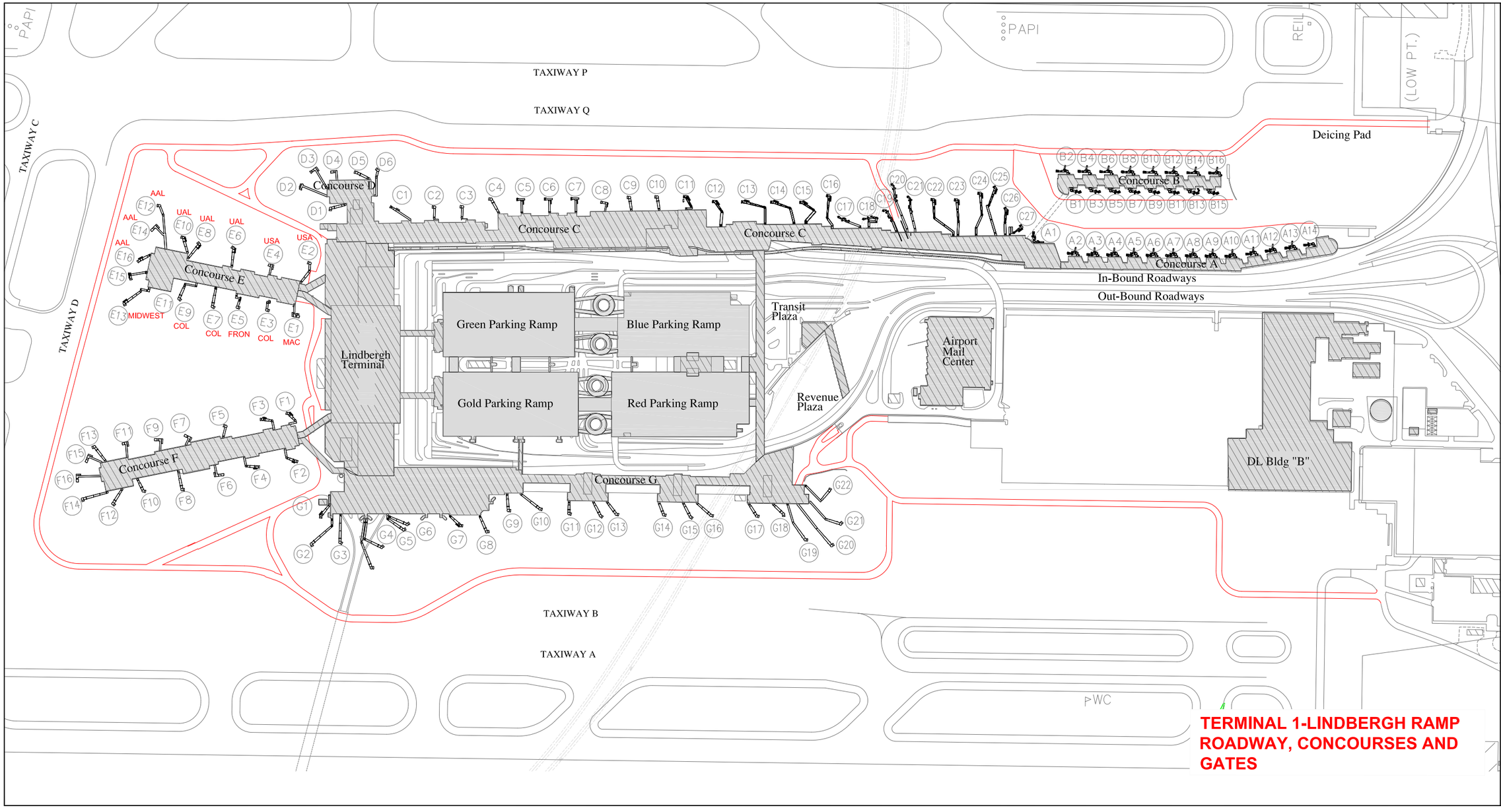
Gate 1

Gate 2

Gate 3

Gate 4

Figure 4-2
Non-Movement Area



Metropolitan Airports Commission
6040 28th Avenue So.
Minneapolis, MN 55450

PROJECT NORTH
TRUE NORTH

Project Title
TERMINAL 1 – LINDBERGH FACILITIES ALLOCATION

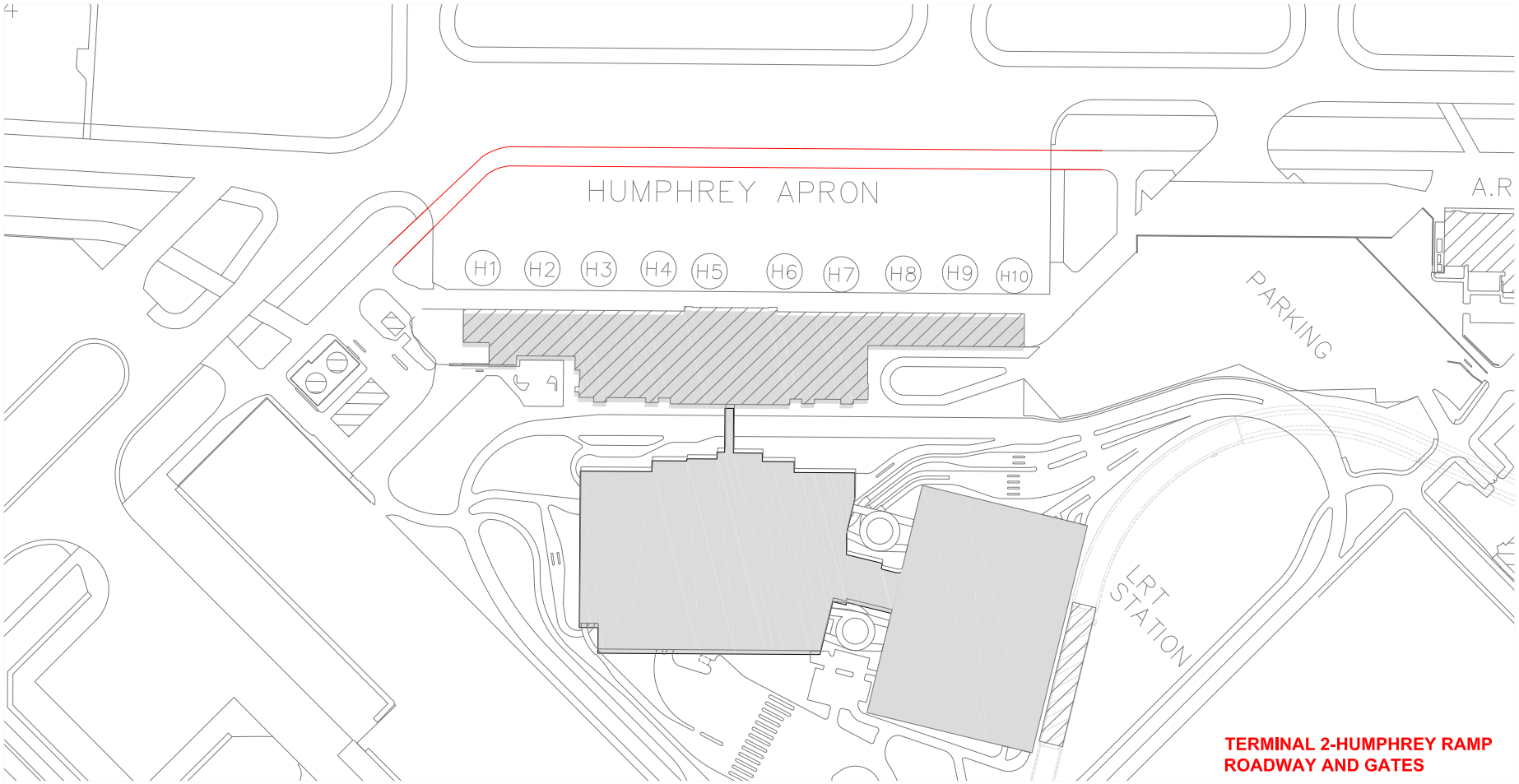
MINNEAPOLIS/ST.PAUL INTERNATIONAL AIRPORT

Drawing Title
GATE ASSIGNMENTS

Updated
06/28/10

Drawing Number
FIGURE 4-3

TERMINAL 1-LINDBERGH RAMP ROADWAY, CONCOURSES AND GATES



TERMINAL 2-HUMPHREY RAMP ROADWAY AND GATES

Metropolitan Airports Commission

6040 28th Avenue So.
Minneapolis, MN 55450

PROJECT NORTH

TRUE NORTH

Project Title
TERMINAL 1 – LINDBERGH FACILITIES ALLOCATION

MINNEAPOLIS/ST.PAUL INTERNATIONAL AIRPORT

Drawing Title
GATE ASSIGNMENTS

Updated
06/28/10

Drawing Number
FIGURE 4-4

CHAPTER 5

MOVEMENT AREA

Movement Area

The Movement Area includes all runways, taxiways and associated safety areas at MSP. Vehicles are under the control of the Air Traffic Control Tower (ATCT) while operating on movement areas. Extreme caution needs to be exercised when driving on these surfaces. Taxiways and runways are the primary surfaces for the movement of aircraft.

5.1 Runways

A runway is a rectangular area prepared for landing and takeoff of aircraft. There are four runways at MSP; however, since aircraft can depart and arrive from both ends, there are eight runway designators: 12R, 30L, 12L, 30R, 4, 22, 17 and 35.

Prior to entry onto any open runway, positive communications contact needs to be established with the ATCT. Without authorization, entry onto a runway is prohibited and is considered a runway incursion. In an effort to eliminate vehicle runway incursions at MSP, the number of vehicles crossing runways must be reduced. Vehicles are permitted to cross open runways only for emergency response, operational necessity and training. Vehicles must use the perimeter roadway where it is available. Vehicles identified as having an operational necessity include those performing Airport Certification Manual duties, including snow and ice control duties, slow-moving vehicles, vehicles that cannot legally or physically utilize the roadway tunnel system, and vehicles as authorized by the Director - MSP Operations. These restrictions apply to **all** runways at MSP. Runway crossings for point-to-point travel for the sole purposes of convenience sake and saving travel time are **not** permitted, **even if the runway is closed**.

5.1.1 Runway Numbering

A runway is usually aligned with the prevailing winds. Runways are numbered in relation to their magnetic heading, rounded off to the nearest 10 degrees. For example, runway 12R is numbered this way because it is 120 degrees, +/- 5 degrees, from magnetic north. Runway 30L is 300 degrees, +/- 5 degrees, from magnetic north and is exactly 180 degrees from 12R. Runways 04 and 22 are 040 degrees and 220 degrees +/- 5 degrees from magnetic north respectively and runways 17 and 35 are 170 and 350 degrees, +/- 5 degrees, from magnetic north.

5.1.2 Runway Lettering

The letters differentiate between left (L) and right (R) parallel runways. Runways 12R/30L and 12L/30R are parallel runways while runway 4/22 is the crosswind runway and 17/35 is the north/south runway.

5.1.3 Runway Dimensions

Runway 12R/30L is the southern most of the two parallel runways and is 10,000 feet long and 200 feet wide.

Runway 12L/30R is the northern parallel runway and is 8,200 feet long when used for departures in both the 12 and 30 directions. Due to a 200' displaced threshold on the 30 end, there is only 8,000 usable feet for arrivals in that direction. The runway is 150 feet wide.

Runway 4/22 is the crosswind and longest runway. It is 11,006 feet long when used for departures in the 4 and 22 directions. Due to a 1,550 foot displaced threshold on the 04 end, there is only 9,456 usable feet for arrivals in that direction. Due to a 1,000 foot displaced threshold on the 22 end, there is only 10,006 usable feet when the runway is used in the 22 direction for arrivals. The runway is 150 feet wide.

Runway 17/35 is 8,000 feet long and is 150 feet wide

5.2 Runway Safety Areas (RSA)

All runways have a safety area surrounding them. This Runway Safety Area is a cleared, drained, and graded area abutting the edges of a usable runway and symmetrically located about the runway. The runway safety area enhances the safety of aircraft which undershoot, overrun, or veer off of the runway and it provides greater accessibility for firefighting and rescue equipment during incidents. Runway Safety Areas extend 250 feet in either direction from the centerline and include symmetrical rectangles located and extending 1000 feet beyond each end of all runways, except as noted in the table on the next page.

Runway Safety Area Dimensions					
Location	RSA 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’	630’	160’	216’
Runway 30R	500’	620’			
Runway 17	500’	1,000’			
Runway 35	500’	1,000’			

Runway safety areas should not be entered at anytime unless the vehicle has clearance from the ATCT. Anyone wanting to work in the Runway Safety Area must first contact Airside Operations.

5.2.1 EMAS

The safety area at the approach end of Runway 30L is augmented with an Engineered Material Arresting System (EMAS) which provides enhanced overrun safety. The EMAS is composed of cellular cement material which crushes under the weight of an aircraft to provide controlled deceleration in case of an overrun. The EMAS dimensions are approximately 160 feet long x 216 feet wide and 24 inches deep.

5.3 Taxiways

A taxiway is a surface designed to provide access to and from the runways and other areas of the airport, including the terminal area. Taxiways are a system of roads for aircraft by which they get to and from aprons and runways. Authorized vehicles are permitted to drive on taxiways for emergency response, operational necessity and training purposes only. Driving on taxiways for point-to-point travel for the sole purposes of convenience sake and saving travel time is **not** permitted. Vehicles must use the perimeter roadway where it is available.

At MSP there are 18 Taxiways:

A - Alpha
B - Bravo
C - Charlie
D - Delta
G - Golf
H - Hotel
K - Kilo
L - Lima
M - Mike
N - November
P - Papa
Q - Quebec
R - Romeo
S - Sierra
T - Tango
W - Whiskey
Y - Yankee
Z - Zulu

5.4 Taxiway Feeders

There are points of access along the taxiways for entering and exiting ramps and the runways. These points of access are called feeders. The feeders for taxiways at MSP are as follows:

A - A1, A2, A3, A4, A5, A7, A8, A9, 10

B - B8

C - C2, C5, C6, C9, C10

D - Has no numbered feeders

G - G1, G2

H - Has no numbered feeders

K - K1, K2, K3, K6, K8, K10

L - L3, L4, L5, L6, L7, L9, L10

M - M2, M6

N - Has no numbered feeders

P - P1, P2, P3, P4, P8, P9, P10

Q - Has no numbered feeders

R - R3, R4, R5, R6, R7, R8, R9, R10

S - S1, S2, S3, S4

T - Has no numbered feeders

W - W1, W2, W3, W5, W6, W7, W8, W9, W10

Y - Has no numbered feeders

Z - Has no numbered feeders

5.5 Taxiway Safety Areas

All taxiways at MSP are 75 feet wide and have a **Safety Area** surrounding them. The safety area is an area provided to minimize the probability of serious damage to aircraft accidentally entering these areas. All vehicle operators need to be aware that these areas exist and should use caution when operating in and around them. **The safety area should be visualized as an imaginary surface centered directly over the taxiway.** These areas range from 125 to 214 feet wide depending on the size of the aircraft that are authorized to operate on the taxiway. The safety area can also be visualized as ½ the distance listed below, and extending out from each side of the centerline. This means that if the safety area is 214 feet wide, the safety area extends out 107 feet on each side of the taxiway centerline. (See figure 5-2 which illustrates a taxiway safety area). Safety area width for all taxiways used by air carrier aircraft are listed below:

TAXIWAY	LOCATION	WIDTH
A	Taxiway A1 to Taxiway A10	214 feet
B	Taxiway A1 to Taxiway A3	125 feet
B	Taxiway A3 to Taxiway D	171 feet
B	Taxiway D to Taxiway A10	214 feet
C	Taxiway S to Taxiway C10	214 feet
D	Taxiway K to Taxiway P	214 feet
G	Runway 12L/30R to Taxiway C	214 feet
H	Runway 4/22 to Taxiway P	214 feet
K	Taxiway K1 to Taxiway K10	214 feet
L	Taxiway L3 to Taxiway L10	214 feet
M	Taxiway S to Taxiway B	214 feet
M	Taxiway B to Taxiway H	171 feet
M	Taxiway H to Runway 12L/30R	214 feet
N	Taxiway S to Taxiway L	214 feet
P	Taxiway P1 to Taxiway P10	214 feet
Q	Taxiway P2 to Taxiway D	125 feet
Q	Taxiway D to Taxiway M	214 feet
Q	Taxiway M to Taxiway P10	171 feet
R	Taxiway R10 to Runway 4/22	214 feet
S	Taxiway K to Taxiway S4	214 feet
T	Taxiway D to Taxiway M	214 feet
T	Taxiway M to Taxiway Y	171 feet
W	Taxiway W1 to Taxiway W10	214 feet
Y	Taxiway K to Taxiway W	214 feet
Z	Taxiway K to Taxiway W	214 feet

5.6 MSP Movement Area Drivers' License Request Process

1. **Request for Letter of Authorization:** The requestor sends a letter requesting authorization for any drivers to operate vehicles on the Movement Area to the MSP Drivers' Training Center (DTC). The letter will include the names of the drivers, reason for the need to drive on the Movement Area, name and duration of the project (if appropriate), and where they will need to drive on the Movement Area.

2. **Review of Request and License Classification:** The request will be reviewed by the DTC Program Manager to determine if it is valid and the information is complete and accurate. If there are any recommended revisions, the request will be sent back to the requestor to make the appropriate changes. If there are no recommended revisions, the classification of access will be assigned based on the needs of the requestor. Movement Area Classification will be separated into five categories, Runway, Taxiway, Tow, Pushback and Limited.
   - Runway classification authorizes Drivers to operate on all runways and taxiways.
   - Taxiway classification authorizes Drivers to operate only on taxiways with no access to runways.
   - Pushback classification authorizes Drivers to operate a Vehicle when moving an Aircraft from the Gate onto a Taxiway or Taxiway Safety Area and bringing the vehicle directly back to the Gate and to conduct Off-Gate Deicing while in direct performance of their job duties
   - Tow classification 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 classification also authorizes Drivers to conduct Aircraft Pushback and Off-Gate Deicing operations.
   - Limited may be applied to any of the classification above and restricts the Driver to operating a Vehicle to specific location(s) of the AOA within that classification.

   The DTC Program Manager will send the requestor the appropriate number of copies of the Movement Area Driver's License Request Form. The appropriate persons should complete sections 1 and 2.

Movement Area

3. **Approval of Request:** If the DTC Program Manager denies the request, the process ends. If the request is approved, then the requestor is sent the appropriate training material such as the MSP Movement Area Handbook, Ordinance 105, and a list of the training objectives.

4. **Training and Familiarization:** The requestor is responsible for training all of its own drivers and preparing them for both the written and practical tests. If the requestor is either a non-MAC or non-FAA entity, then a MAC department will provide familiarization of the work areas for the drivers requesting access to the Movement Area and may provide training to those drivers to prepare them for the electronic and practical tests. Pushback and Tow classifications do not require a practical test.

5. **Testing:** The Drivers Training Standards Board (DTSB) will design the questions for both the electronic and practical tests based on the minimum standards/training objectives. The requesting drivers will be administered the electronic test at the MSP DTC and the practical test by one of their department's or any other authorized trainers. Non-MAC and non-FAA drivers will be administered the tests by an authorized trainer from the Airside Operations department.

   Passing score for both tests will be 95% of all sections. Those drivers that fail any section(s) of the tests will be required to take a re-test on those sections. If the re-test is failed, then the driver will be trained to 95% of the test materials by any of the following methods:

   - Electronic re-test
   - Written re-test
   - Oral re-test
   - Practical re-test (demonstration of knowledge)

   Once the tests are passed, the MSP DTC will complete the appropriate portions of Section 3 of the Driver's License Request Form

6. **Driver's License:** The MSP DTC will issue a Movement Area Driver's License, identifying the driver, company, expiration of license and the classification of the license.

7. **Expiration:** The driver's Movement Area License will expire 12 months from the date of issuance. New licenses will be issued to those drivers who have successfully completed recurrent driver's training and testing.

8. **Replacement License:** In the event that a replacement Movement Area Driver's License is needed, Sections 1 and 2 must be complete on a new Driver's License Request Form and submitted to the DTC:

   The DTC will send the replacement Movement Area Driver's License to the driver's supervisor within a reasonable amount of time.

5.7 Movement Area Surface Closure Procedures

1. MAC Airside Operations coordinates and issues all NOTAMs.
2. Airside Operations[1] closes the surface on the appropriate VHF air traffic frequency [123.95, 126.7 or 123.675 for runways; 121.8, 121.9 or 127.925 for taxiways].
3. Airside Operations advises the requesting agency the surface is closed.
4. The agency/department the closure was coordinated for **must** check-in with Airside Operations prior to entering the safety area.
5. Any other agency/department wishing to also utilize the surface closure **must** check-in with Airside Operations prior to entering the safety area.
6. Agencies/individuals must communicate clear of the closed surface to **Airside Operations**. Under no circumstances are agencies/individuals to report clear to air traffic control if the surface is closed.
7. Prior to opening a runway, Airside Operations issues warning announcements on the 800 MHZ MACAF Talkgroups.
8. Airside Operations opens the surface on the appropriate VHF air traffic frequency [123.95, 126.7 or 123.675 for runways; 121.8, 121.9 or 127.925 for taxiways].

[1] *Airside Operations is responsible for all surface closing and reopening communications with ATC. If the task is delegated to another MAC department, ATC must be notified in advance and provided with the call sign of the designated party.*

5.8 Runway Incursions

Runway safety is one of the FAA's highest priorities – specifically the problem of runway incursions. A runway incursion is defined as "any occurrence at an aerodrome involving the incorrect presence of an aircraft, vehicle or person on the protected area of a surface designated for the landing and take-off of aircraft."

Though relatively few in number when compared to the massive amount of traffic that moves safely through our nation's airports every day, runway incursions present a special problem. Not only do they have the potential to put more lives at risk due to the number and proximity of aircraft operating on the airport surface, they also take place in a complex and dynamic environment where root causes are difficult to isolate.

At the simplest level, incursions occur because people make mistakes. Humans are superbly skilled at making decisions under a wide range of circumstances but, for a variety of reasons, they are also fallible. Consider this human vulnerability within the context of the numerous variables that may contribute to human error and you can appreciate the problem. Its not just a pilot, controller, or vehicle operator problem, it a problem that all of us in the aviation community share.

As mentioned above, the FAA defines a runway incursion as "any occurrence at an aerodrome involving the incorrect presence of an aircraft, vehicle or person on the protected area of a surface designated for the landing and take-off of aircraft."

For MAC's purpose, this definition is both broad and cumbersome. For these and other reasons, MAC has created their own definition of a runway incursion at MSP:

Runway Incursion – The entering of any <u>open</u> runway or associated safety area without positive clearance from the Air Traffic Control Tower.

Movement Area

A runway incursion can be and is one of the most serious offenses that a vehicle operator may commit due to the potential catastrophic consequences that could result. For this reason, if for no others, is why vehicle operators must be knowledgeable of airport rules, regulations, and operating procedures. Vehicle operators should also be aware of their position and alert to their surroundings at all times.

5.8.1 Runway Incursion Protocol

In the event that a driver realizes a runway incursion has been committed, the following guidelines should be followed:

1. Clear the runway immediately and contact the ATCT to advise them of your actions.

2. Immediately notify Airside Operations and your supervisor of the runway incursion.

The following procedure has been implemented to report, respond to and document runway incursions. For the purposes of this process, the definition of the Airport Director is the same as defined in MAC Ordinance 105.

5.8.2 Runway Incursion Procedures

1. MAC Airside Operations is notified of the runway incursion.

2. MAC Airside Operations advises MAC Communications who in turns notifies the Airport Police of the runway incursion.

3. MAC Airside Operations and the Airport Police respond to the runway incursion.

4. The Airport Police Department may issue a Citation to the driver for the appropriate violation(s) of Ordinance 105.

5. The driver's supervisor will be notified immediately by MAC Airside

Operations.

6. The driver's supervisor will review the incursion with the driver. A certified Movement Area Trainer will provide remedial training for the driver. The driver will be administered an electronic test at the MSP DTC. Passing score for the test is 95% of all sections. Those drivers that fail any section(s) of the test will be required to take a re-test on those sections. If the re-test is failed, then the driver will be trained to 95% of the test materials by any of the following methods:
   - Electronic re-test
   - Written re-test
   - Oral re-test
   - Practical re-test (demonstration of knowledge)

7. There will be an investigation of the incursion by MAC Airside Operations to determine all factors involved, and an attempt to identify the cause(s) of the incursion. All pertinent information will be made available to the investigator(s).

8. A board shall be selected to review the incursion and all investigative findings as soon as practicable. The purpose of the Review Board will be to identify all factors involved in the incursion and to recommend what actions need to be taken to prevent the incursion from recurring.

9. The Review Board shall submit their recommendations to the Airport Director as soon as practicable after the Board's termination.

10. Based on the Review Board's recommendations, the Airport Director will determine what course of action to take. The Airport Director's decision will be implemented by the appropriate persons.

The Runway Incursion Review Board process does not supersede the driver's ability to appeal the citation as described in Section 5.10 of Ordinance 105.

5.9 Runway Incursion Review Board

Purpose

The Runway Incursion Review Board was established as part of the Minneapolis-St. Paul International Airport's (MSP) Runway Safety Program to conduct independent reviews of all runway incursions at MSP. The purpose of the Review Board is to look at all of the facts and identify the cause(s) of and factors surrounding the runway incursion and then to make recommendations to prevent a similar occurrence. The Review Board has no regulatory or enforcement powers.

Investigation

Following a runway incursion committed by a vehicle or a pedestrian, there are two separate investigations that are undertaken. The Airport Police Department, for the purpose of collecting information, conducts the first investigation and determines whether or not there has been a violation of local, state and/or federal laws and ordinances. The second investigation is administrative in nature and is conducted by the Airside Operations Department for two reasons; first, the gathering of information for use in the Review Board and secondly for use in the Airport's response to the FAA's investigation of the incident. The following information may be obtained during the course of the two investigations and used by the Review Board:

1. Written driver's report
2. Written witness report(s)
3. Reports filed by the FAA (Forms 8020-24 and 8020-25)
4. Transcripts of any radio traffic recounting the runway incursion
5. The driver's AOA driver's training records
6. The driver's department's AOA Drivers' Training Program
7. The Airport Police Report
8. The Airside Operations Investigation Report
9. Climatological data
10. The Airside Operations Daily Log

Inquiry

After all of the investigations have been completed, the Review Board will be convened. The Board consists of standing members representing:

- FAA Airport Traffic Control Tower – Operations
- FAA Airport Traffic Control Tower – Quality Assurance
- MAC Field Maintenance
- MAC Airside Operations
- MAC Risk Management
- MAC Airport Police
- MAC Fire

Often times, individuals other than the standing members are invited to participate in the Review Board process as a matter of providing specialized or technical expertise and/or additional information that was unable to be obtained through the investigative process.

After reviewing all of the information provided by the investigations and the participants, the standing members will submit a final report of the Review Board to the Airport Director, containing at least the following information:

- Runway incursion synopsis
- Review Board members present
- Participants involved
- Items and information examined
- Cause(s) and possible cause(s) of the runway incursion
- Factors involved in the runway incursion
- Recommendations on how to prevent a similar runway incursion from recurring

Safety and process improvement recommendations are the most important parts of the Review Board's mandate. Recommendations are based on findings of the investigations, and may address deficiencies that do not pertain directly to what is ultimately determined to be the cause of the incursion.

To ensure that the Review Board's investigations focus only on improving runway safety and the prevention of similar incursions, the Review Board's analysis of factual information and its determination of probable cause should not be used for the purpose of disciplining those persons responsible for the runway incursion.

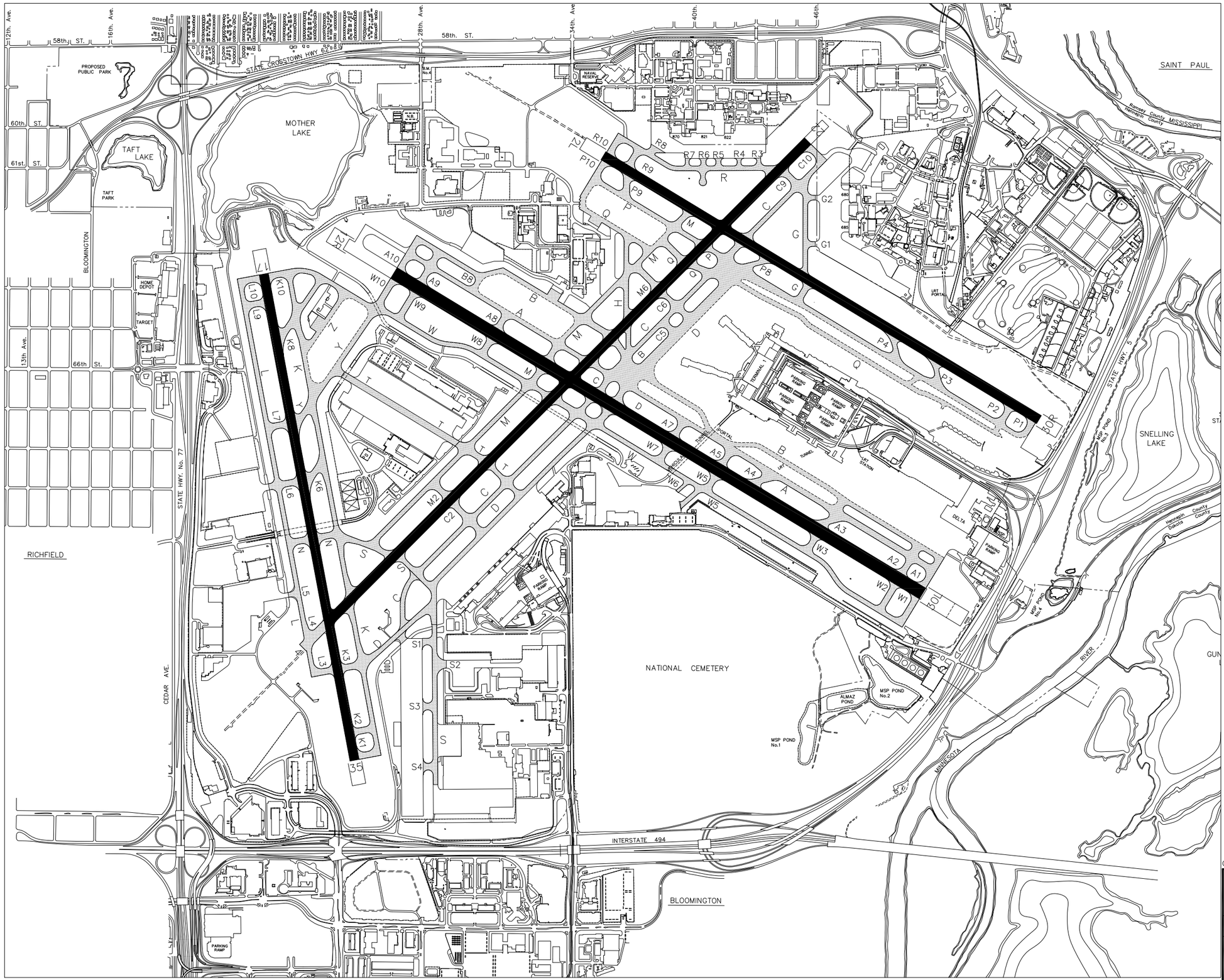
Implementation

Based on the Review Board's Final Report, the Airport Director will deny, modify or approve the recommendations as submitted. All Runway Incursion Review Board recommendations that are approved by the Airport Director will be given ownership and assigned to a department and individual(s) for completion.

All individuals assigned to complete a recommendation will submit in writing to the Airport Director, with a copy to the Runway Incursion Program Manager, the following information:

- How the recommendations will be completed. If the recommendation can not be completed fully, then an explanation of why it can not and what will be completed.
- An estimated time of completion.
- The date the recommendation has been completed.

All items will be tracked and reviewed annually at the MSP Runway Safety Action Team (RSAT) meetings.



INFORMATION NOT VERIFIED

CURRENT UPDATE: JANUARY 2014

Figure 5-1
MOVEMENT AREA
MSP INTERNATIONAL AIRPORT

Metropolitan Airports Commission
GENERAL OFFICES
6040-28TH AVENUE SOUTH
MINNEAPOLIS, MINNESOTA 55450

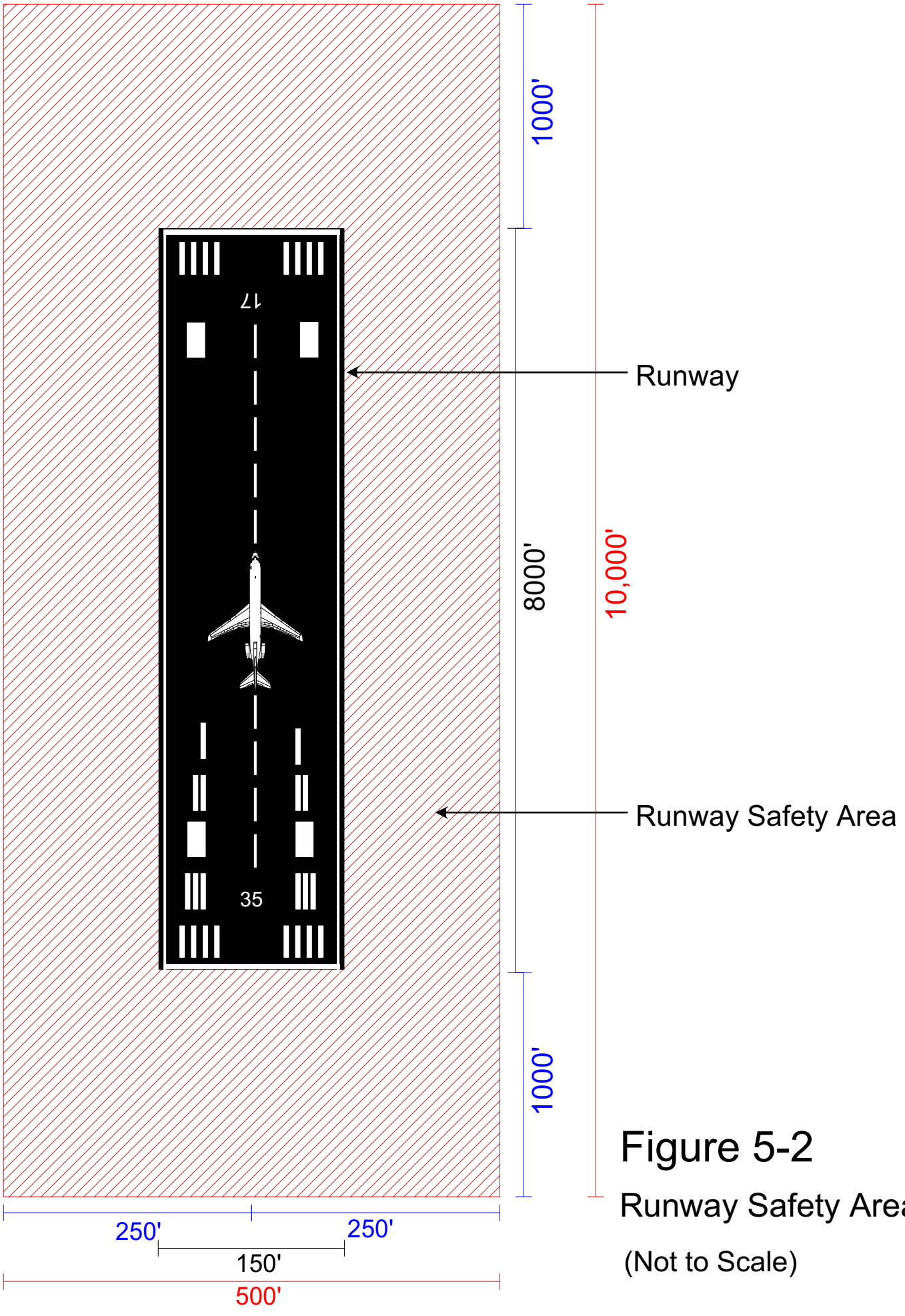


Figure 5-2

Runway Safety Area

(Not to Scale)

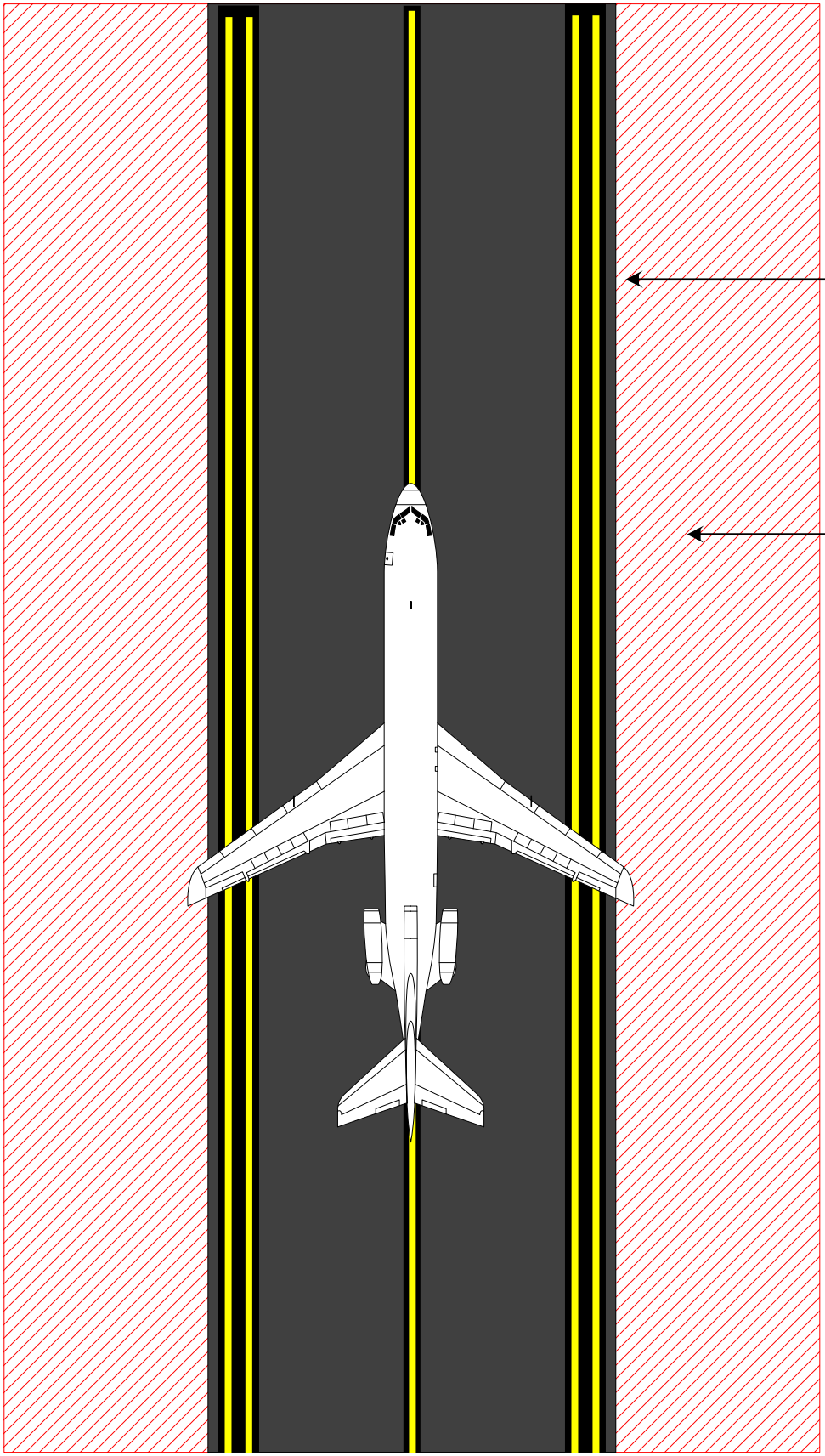


Figure 5-3

Taxiway Safety Area

(Not to Scale)

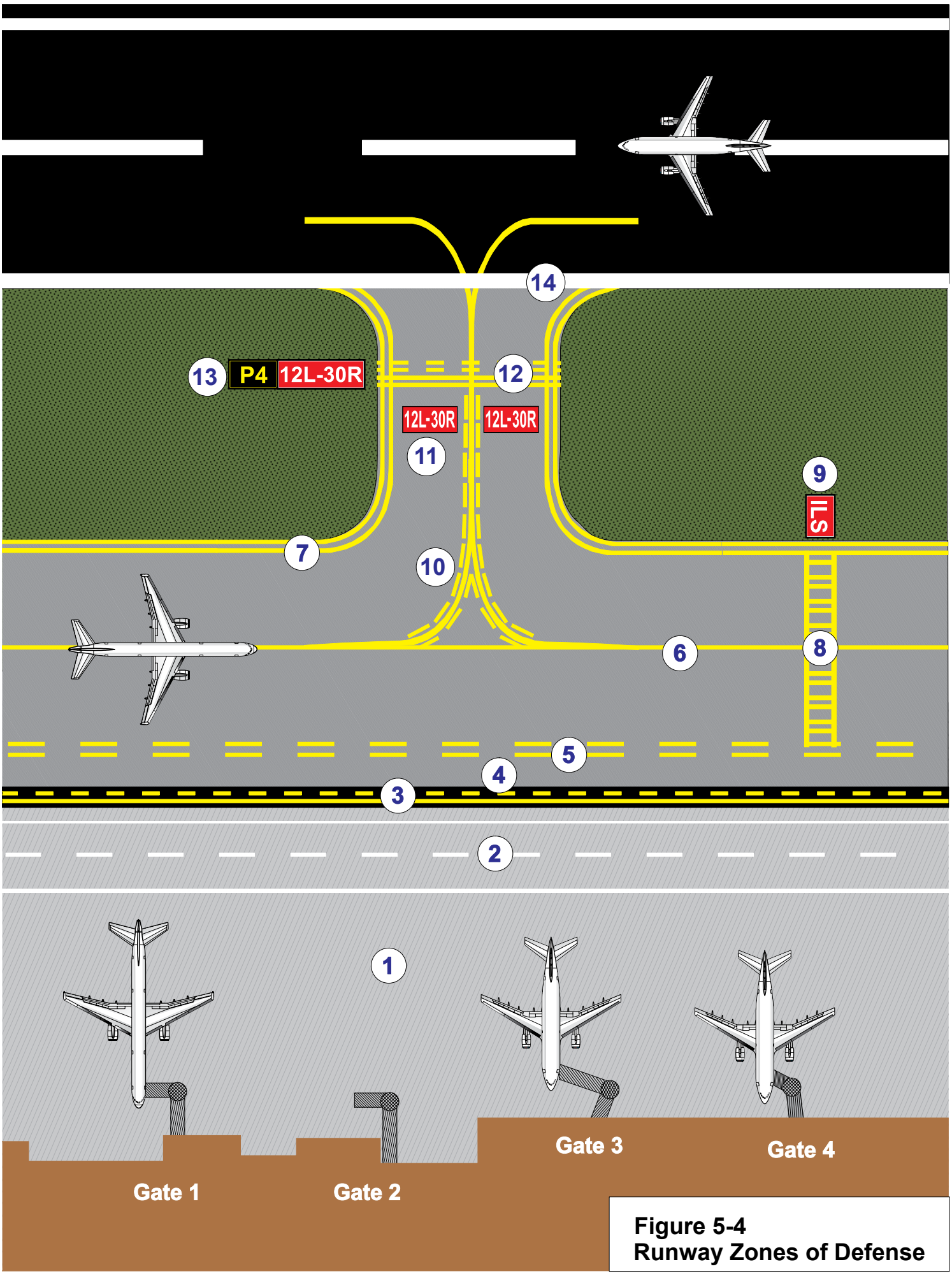


Figure 5-4
Runway Zones of Defense

Runway Zones of Defense

Figure 5-4 shows the different ramp, taxiway and runway markings and signs that form a zone of defense that can help protect the runway. By being able to recognize these different markings and signs, a driver should be able to identify when they are on the Movement Area and approaching the runway environment.

1. Ramp
   This is where the majority of aircraft handling operations occur. The Ramp includes the Ramp Roadway. The speed limit on the Ramp is 15 mph unless around aircraft at which time it is 5 mph.

2. Ramp Roadway
   This is part of the Ramp Area. All vehicles are required to drive on the road. The speed limit on the road is 15 mph unless posted otherwise. Vehicles are not authorized to drive off of the road towards the Non-Movement Line.

3. Non-Movement Line
   This line defines the Non-Movement Area from the Movement Area. Crossing this line into the Movement Area without the proper authorization is considered a Movement Area Incursion and is a violation of MAC Ordinance 105.

4. Taxiway Safety Area
   This area is right next to the Taxiway and provides a buffer for the aircraft in the event that it would leave the Taxiway.

5. Dashed Taxiway Edge Line
   This is one of two types of Taxiway edge lines. This line defines the outermost limits of the Taxiway. The reason that the edge line is dashed is because it tells the pilot that the surface on the other side of the line is full strength pavement and will support the aircraft.

6. Taxiway Centerline
   This line is a guide for the aircraft to keep its nosewheel on. By following this line, aircraft are guaranteed that they will stay on the full strength pavement of the Taxiway.

7. Continuous Taxiway Edge Line
   This is the second of two types of Taxiway edge lines. This line defines the outermost limits of the Taxiway. The reason that the edge line is continuous is because it tells the pilot that the surface on the other side of the line is not full strength pavement and will not support the aircraft.

8. ILS Holding Position Marking
   This marking identifies the boundary for the Instrument Landing System (ILS) Critical Area. These lines tell both aircraft and vehicles that if they pass beyond this point during instrument conditions, they may interfere with and possibly interrupt electronic navigational signals to arriving aircraft. If the Critical Area is being protected, all vehicles and aircraft are required to hold short of these markings and call for clearance from the Air Traffic Control Tower (ATCT) prior to proceeding beyond this point.

Movement Area

9. ILS Holding Position Sign
This sign is always used in conjunction with the ILS Holding Position Markings. The sign is another visual indicator to identify the boundaries of the ILS Critical Area to both vehicles and aircraft.

10. Enhanced Taxiway Centerline Marking
Within 150 feet of a runway holding position marking, the taxiway centerline marking is enhanced by a parallel line of yellow dashes on each side of centerline. The purpose of this enhancement is to warn pilots and vehicle operators that they are approaching a runway holding position marking and they should prepare to stop unless they have been cleared onto or across the runway by the Air Traffic Control Tower.

11. Surface Painted Holding Position Sign
These signs have a red background with a white inscription and supplement the signs located at the holding position.

12. Runway Holding Position Marking
This marking identifies the boundary for the runway safety area. These lines tell both aircraft and vehicles that if they pass beyond this point, they will be entering the runway safety area and jeopardizing obstruction clearance minimums for arriving aircraft. All authorized vehicles and aircraft are required to hold short of these markings and call for clearance from the Air Traffic Control Tower prior to proceeding beyond this point. Crossing this line without proper authorization from the MAC and the Air Traffic Control Tower is a Runway Incursion and a violation of MAC Ordinance 105.

13. Runway Holding Position Sign
This sign is always used in conjunction with the Runway Holding Position Markings. The sign is another visual indicator to identify the boundaries of the Runway Safety Area to both vehicles and aircraft.

14. Runway Side Stripe
This line identifies the beginning of a runway from the side. Crossing this line means that you are on the runway. Crossing this line without proper authorization from the MAC and the Air Traffic Control Tower is a Runway Incursion and a violation of MAC Ordinance 105.

CHAPTER 6

SPECIAL DRIVING CONDITIONS

Special Driving Conditions

6.1 Night Driving

Nighttime driving at the airport can be a very stressful experience. The driver that operates on the airport at night has to deal with a multitude of colored lights and associated glare; moving aircraft that can be virtually lost in a background of lights; and poorly lit driving conditions. It is because of these elements that the driver operating at night should slow down and take special care when driving. Beacons and appropriate lighting should always be used when operating at night or other limited visibility conditions.

It's much easier to become confused or lost when driving on the airport at night. Because of this, drivers should be more aware of their surroundings and the landmarks around them. Special emphasis should be placed on keeping an eye out for signs and pavement markings to ensure that an incursion of any kind does not occur.

During low light conditions, vision changes occur which may cause lights to blur together. Also, distance determination might be affected making it more difficult for a driver to determine the actual distance of objects such as aircraft or other vehicles. Because of these reasons and others, it can not be emphasized enough that extreme caution should be used when operating at night.

6.2 Inclement Weather Driving

Aircraft apron operations present unique problems that often compound already difficult winter driving conditions. Slippery surfaces, low visibility, unlit vehicles and aircraft movement can create hazardous situations.

Just as would be the case on major highways, slower speeds are necessary during winter driving conditions. Visibility and braking conditions require extra distance between vehicles. Wind-driven or jetblast-driven snow will create visibility problems. Contrary to its main function, aircraft deicing fluid will freeze on the ramp if the surface temperature is low enough. Deicing fluid and compacted snow and ice will create poor or nil braking conditions. Drivers should always be cognizant of their positions on the apron, as markings may become obscured.

During periods of snowfall and snow removal operations, all vehicle operators should drive with vehicle headlights on. High beam settings should not be used, as they tend to blind other operators, both vehicle and aircraft. It should be remembered that aircraft always have the right-of-way unless restricted by the FAA Control Tower during snow removal. ATCT normally instructs all aircraft to taxi with their lights on at all times during periods of snowfall. However, it is very important to listen as well as look for aircraft during periods of low visibility. Also important to remember is that all snow removal equipment conducting snow and ice control operations have right of way over all non-emergency vehicles.

Special Driving Conditions

6.3 Surface Movement Guidance Control System (SMGCS)

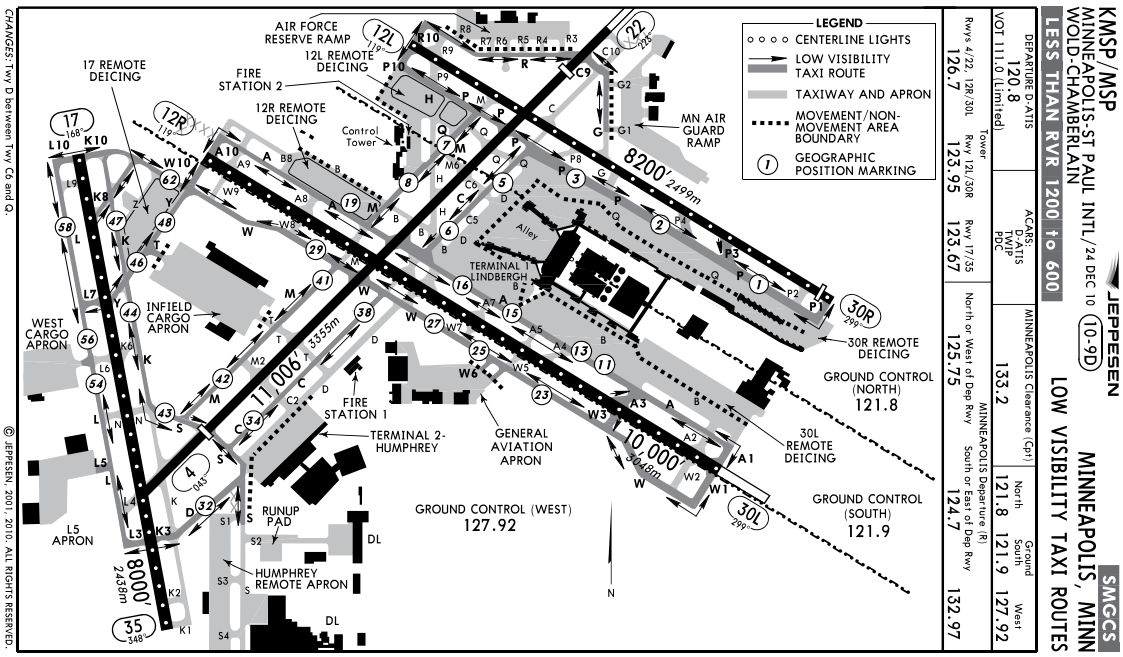
The Surface Movement Guidance Control System (SMGCS) Operations Plan describes procedures, enhancements, pavement markings and actions at the airport that are applicable to the airport operator, air traffic control, air carriers, aircraft operators and airport tenants when operating in low visibility conditions.

SMGCS procedures are implemented when visibility drops below 1,200 feet (approximately ¼ mile) but vehicle restrictions do not go into effect until visibility drops below 600 feet.

When visibility drops below 600 feet (approximately 1/8 mile), all vehicles with Movement Area access **MUST RECEIVE AIR TRAFFIC CLEARANCE TO ENTER THE MOVEMENT AREA.**

When visibility drops below 300 feet (approximately 1/16 mile), **VEHICLE OPERATIONS ON THE NON-MOVEMENT AND MOVEMENT AREAS ARE PROHIBITED**, except for emergency response or follow-me service.

Visibility information and applicable restrictions will be disseminated by Airside Operations via one or more of the following methods; the Airport Message Sending System, Alertfind, Text Messaging and 800 MHZ MACAF Talkgroups.



6.4 When An Accident Occurs

Most driving accidents can be prevented by following good driving habits, obeying all traffic laws and rules, and keeping alert for any changes in traffic and road conditions. In spite of all this, accidents do happen.

When involved in a vehicle/equipment accident on the airport, certain guidelines must be followed. These guidelines will allow the proper agencies to respond as quickly as possible to assess the damage and help the injured. The guidelines are listed below:

1. Stop at once and give aid to anyone injured in the accident.

2. Contact the Airport Emergency Communications Center as soon as possible for Police, Fire and Medical response. This can be done several ways:

    A. Picking up any courtesy phone (marked by a blue light) in the terminal and dialing 911.
    B. Dialing 911 on any non-cell phone.
    C. Dialing 911 on any cell phone and identifying that you are at the airport.
    D. Calling the Airport Emergency Communications Center on the MAC911 800 MHZ Talkgroup.
    E. Dialing 612-726-5577.

3. Do not move the vehicle/equipment without permission of a police officer unless required in order to prevent further damage or personal injury.

4. Do not leave the scene of the accident, wait until an Airport Police Officer arrives and advises the parties involved that they may leave.

5. All accidents involving vehicles must be reported to the Airport Police Department and the driver's supervisor.

Remember, these guidelines apply to any type of accident on the airport.

6.5 Foreign Object Debris (FOD) Damage Prevention

Foreign object debris at airports includes any object found in an inappropriate location that – as a result of being in that location – can damage equipment or injure personnel. The resulting FOD Damage is estimated to cost the aerospace industry $4 billion a year. MSP Airport, along with many of its airlines and airport tenants, has a FOD-prevention program of training, facility inspection, maintenance, and coordination between all affected parties that helps minimize FOD and its effects. FOD includes a wide range of materials, including loose hardware, pavement fragments, catering supplies, building materials, rocks, sand, pieces of luggage, and even wildlife. FOD is found at terminal gates, cargo aprons, taxiways, runways, and run-up pads. It causes damage through direct contact with aircraft, such as cutting airplane tires or being ingested into engines, or as a result of being thrown by jet blast and damaging aircraft or injuring people.

To prevent FOD-related damage, Ordinance 105 prohibits personnel from littering on the AOA. In addition, all personnel are expected to pick up any FOD that they come across while operating on the AOA. In the event that FOD is on the Movement Area, contact Airside Operations immediately at 612-726-5111.

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CHAPTER 7

SIGNS AND MARKINGS

Signs and Markings

Signs

Signs are used at MSP to provide information to pilots and vehicle operators when operating aircraft and vehicles on runways and taxiways. There are six basic types of signs, which are color coded for specific uses. The six types of signs are:

1. Mandatory Instruction Signs
2. Location Signs
3. Direction Signs
4. Destination Signs
5. Taxiway Ending Markers
6. Runway Distance Remaining Signs

7.1 Mandatory Instruction Signs

These signs convey a message, which if not carried out, could create an unsafe condition. These signs have white inscriptions on a red background and are lighted at night or during limited visibility operations. All vehicles are required to stop at these signs before proceeding, unless cleared by the Air Traffic Control Tower. Another name for Mandatory Instruction Signs is Holding Position Signs.

7.1.1 Holding Position Signs for Runways

The inscription on a holding position sign at a runway is the runway numbers, such as “12R-30L.” The runway numbers are separated by a dash and their arrangement indicates the direction to the corresponding runway threshold. For example, the sign “12R-30L” indicates that the runway “12R” threshold is to the left, while the runway “30L” threshold is to the right. The holding position sign at each takeoff end of the runway contains the inscription for the takeoff runway only. For example, the sign “30R” indicates that you are at the approach end of runway 30R. These signs are located at all runways and all runway approach ends. There is always a Holding Position Marking next to this sign.

7.1.2 Holding Position for ILS Critical Areas

The inscription on a sign for an Instrument Landing System (ILS) critical area is “ILS.” During ILS conditions, vehicles must stop at this sign and call ATCT for clearance before proceeding. Going beyond this sign could affect the ILS Navaid signals being used by any aircraft on final. There is always an ILS Holding Position Marking next to this sign. These signs can be found on taxiways “W”, “Y” and “R”.

7.1.3 Holding Position Signs for Runway Approach Areas

This sign is installed on taxiways located in approach areas where aircraft or vehicles would either cross the runway safety area or penetrate the airspace required for the approach or departure runway. The inscription on a sign for a runway approach area is the associated runway designation such as 4 followed by a dash and the abbreviation “APCH” for approach. This type of sign can be found at the intersections of Taxiways “C” and “G”, and ”S” and “M”. There is always a Holding Position Marking next to this sign. **Vehicles are not required to stop at these positions.**

7.1.4 No Entry Sign

This sign indicates that entry into a particular area is prohibited to aircraft.

7.1.5 Land and Hold Short Operations (LAHSO)

LAHSO is used by ATCT to land aircraft on a runway while guaranteeing that the aircraft will hold short of a specific point. At MSP LAHSO is used on Runway 30L to hold short of A9 and on runway 22 to hold short of K. There are Holding Position Signs, Holding Position Markings and in-pavement lighting for each of the LAHSO points.

7.2 Location Signs

These signs identify the taxiway or runway upon which the aircraft is located. The signs are also used to identify the boundary of the runway safety area/ Obstacle Free Zone (OFZ) or ILS critical areas. The signs are lighted at night or during limited visibility operations.

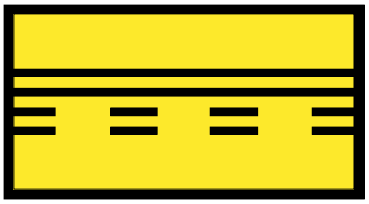
7.2.1 Taxiway Location Signs

These signs identify the taxiway on which the aircraft or vehicle is located. The signs have yellow inscriptions on a black background with a yellow border and do not contain arrows.

7.2.2 Runway Location Signs

These signs are installed on runways where two runways are in proximity which could create confusion. The signs have yellow inscriptions on a black background with a yellow border and do not contain arrows.

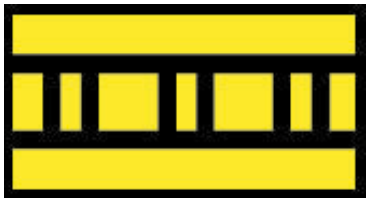
7.2.3 Runway Safety Area/OFZ and Runway Approach Boundary Signs



These signs identify the boundary of the runway safety area/OFZ or the runway approach area to pilots or vehicle operators exiting these areas. They have a black inscription that depicts the hold line marking on a yellow background. These signs are used on taxiways where Air Traffic Controllers commonly ask pilots or vehicle operators to report “clear of the runway.” These signs are located on the back of Mandatory Instruction Signs when appropriate.

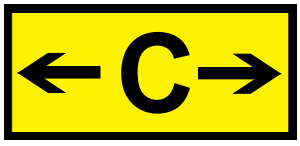
7.2.4 ILS Critical Area Boundary Signs

These signs identify the boundary of the ILS critical area to pilots and vehicle operators who are exiting this area. They have a black inscription that depicts the ILS



hold line marking on a yellow background. These signs are used at taxiways where the Air Traffic Controller commonly asks the pilot or vehicle operator to report "clear of the ILS critical area." The pilot or vehicle operator can use the sign as a guide in deciding when to report back to the controller. These signs are only installed on the back of ILS Holding Position Signs.

7.3 Direction Signs



These signs indicate directions of other taxiways leading out of an intersection. The signs have black inscriptions on a yellow background and always contain arrows. The arrows are oriented to approximate the direction of the turn. The signs are lighted at night or during limited visibility operations.

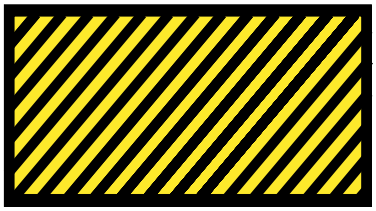
7.4 Destination Signs

Destination signs have black inscriptions on a yellow background and always contain an arrow. These signs indicate the general direction to a remote location. The signs are lighted at night or during limited visibility operations.

7.4.1 Outbound Destination Signs

Outbound destination signs are used to identify directions to the takeoff runways. These routes usually begin at the entrance to a taxiway from a ramp area. The inscription is the runway number plus an arrow indicating the direction.

7.5 Taxiway Ending Marker



These signs indicate that a taxiway does not continue beyond an intersection. They have yellow and black diagonal stripes. The only Taxiway Ending Marker at MSP is located at the intersection of taxiways "C" and "S."

7.6 Runway Distance Remaining Signs

These signs are used to provide runway distance remaining information to pilots when landing or taking off. They have white numerals on a black background and are lighted at night or during low visibility operations.

Each sign inscription consists of a number, which denotes the remaining distance on the runway in thousands of feet. The signs are installed at 1000 foot +/- 50 foot intervals along the side of the runway so that they can be seen from both directions. Displaced threshold areas which are used for takeoffs and rollout are treated as part of the runway for purposes of locating the signs.

Pavement Markings

Runway and taxiway markings are essential for the safe and efficient use of the airport. The following are the different markings for taxiways and runways.

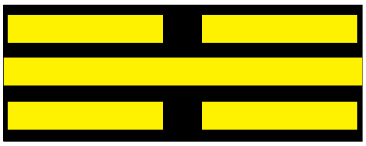
7.7 Taxiway Pavement Markings

All taxiway-marking colors are yellow. On light colored surfaces, outlining with a black border at least 6 inches wide may increase the contrast of the markings.

7.7.1 Taxiway Centerline Markings

The taxiway centerline marking is a continuous yellow line with a minimum width of 6 inches. On a taxiway curve, the taxiway centerline marking continues from the straight portion of the taxiway at a constant distance from the outside edge of the curve. At taxiway intersections with a runway end, the taxiway centerline marking is terminated at the runway edge. For taxiways crossing a runway, the taxiway centerline marking may continue across the runway but may be interrupted for the runway markings.

7.7.2.1 Enhanced Taxiway Centerline Markings



An enhanced taxiway centerline marking consists of a parallel line of yellow dashes on either side of the existing taxiway centerline. Taxiway centerline markings are enhanced for 150 feet prior to a runway holding position marking. The purpose of these markings are to identify to a pilot or vehicle operator that they are approaching the runway holding position.

7.7.2 Taxiway Edge Markings

Taxiway edge markings are used to delineate the edge of the taxiway. They are primarily used when the taxiway does not correspond with the edge of the pavement. There are two types of markings used depending on whether the aircraft is supposed to cross the taxiway edge; they are continuous or dashed.

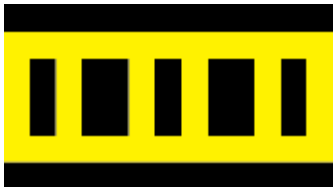
7.7.2.1 Continuous Markings

Continuous taxiway edge markings are used to delineate the taxiway edge from the shoulder or some other contiguous paved surface not intended for use by aircraft. The markings consist of a continuous double yellow line, with each line being at least six inches in width and spaced six inches apart.

7.7.2.2 Dashed Markings

Dashed taxiway edge markings are used when there is an operational need to define the edge of a taxiway or taxilane on a paved surface where the pavement next to the edge is intended for use by aircraft. The markings consist of a broken double yellow line with each line being at least six inches in width and spaced six inches apart. The lines are 15 feet in length with gaps of 25 feet.

7.7.3 Holding Position Markings for ILS



ILS (Instrument Landing System) holding position markings are used to protect ILS localizer and glideslope critical areas. The markings resemble a ladder painted on the surface. The inscription for the mandatory instruction sign is “ILS.” There is always an ILS Critical Area Holding Position Sign next to this marking.

7.7.4 Non-Movement Area Boundary Markings

Non-movement area boundary markings are used when there is a need to delineate the movement area from the non-movement area. The markings consist of two yellow lines (one solid and one dashed). The solid line is located on the non-movement area side while the dashed yellow line is located on the movement area side.

7.7.5 Surface Painted Markings

In situations where it is not possible to install an above ground sign array, surface painted signs are used to provide directional guidance to pilots and vehicle operators, and to provide reinforcement at runway holding positions.

7.7.5.1 Surface Painted Location Sign

These signs have a black background with a yellow inscription and are used when it is not possible to provide a location sign along the edge of the taxiway or when it is necessary to supplement such signs. These signs are located on the right side of the taxiway centerline.

7.7.5.2 Surface Painted Taxiway Direction Signs

These signs have a yellow background with a black inscription, and are used when it is not possible to provide a taxiway direction sign along the edge of a taxiway at an intersection, or when necessary to supplement such signs. These signs are located adjacent to the taxiway centerline, with signs indicating turns to the left on the left side of the centerline and signs indicating turns to the right on the right side of centerline.

7.7.5.3 Surface Painted Holding Position Sign

These signs have a red background with a white inscription and supplement the signs located at a runway holding position. At MSP, there are a set of two surface painted holding position signs at each taxiway feeder that intersects a runway.

7.8 Runway Pavement Markings

All runways at MSP are marked in accordance with their present usage, other than for a few exceptions. Runway 4/22 is a non-precision instrument runway and is marked as a precision instrument runway, while Runway 17 is a non-precision instrument runway and is marked as such. Runway markings are always white. On light-colored runway pavements, markings are outlined with a black border at least 6 inches wide to increase the contrast of the markings. The chart below details the markings found on each category of Runway:

Precision Instrument	*Non-Precision Instrument*
1. Centerline Marking 2. Designation Marking 3. Threshold Marking 4. Aiming Point Marker 5. Touchdown Zone Marking 6. Side Stripes	1. Centerline Marking 2. Designation Marking 3. Threshold Marking 4. Aiming Point Marker

7.8.1 Centerline Markings

The runway centerline markings are located on the centerline of the runway and consist of a line of uniformly spaced stripes and gaps. The stripes are 120 feet in length, and the gaps are 80 feet in length. The minimum width of the stripes for a precision instrument runway is 3 feet.

7.8.2 Designation markings

Runways are identified by numbers that indicate the nearest 10-degree increment of the azimuth when on the runway centerline. The magnetic azimuth of the runway centerline is measured clockwise from the magnetic north when viewed from the direction of approach. For example, where the magnetic azimuth is 303 degrees, the runway designation marking would be 30. When a magnetic azimuth ends in the number “5,” such as 045 degrees, the runway designation can be either 4 or 5. Single digits are not preceded by a zero. For parallel runways, the supplemental letter is determined by the order shown from left to right, when viewed from the direction of approach. For two parallel runways: “L,” and “R” are used. At MSP, when looking at the parallel runways in the 30 direction, they would be called “30L” and “30R.”

7.8.3 Threshold Markings

The runway threshold is the beginning of that portion of the runway usable for landing. The markings consist of twelve to sixteen longitudinal stripes (depending on runway width - 12 for a 150' wide runway and 16 for a 200' wide runway) of uniform dimensions arranged symmetrically about the runway centerline. The stripes are 150 feet long and 5.75 feet wide and are spaced 5.75 feet apart except for the center space, which is 11.5 feet. For runways greater than 150 feet in width, the width of the markings and spaces between the markings may be increased proportionally or additional stripes may be added to both sides.

7.8.4 Touchdown Zone Markings

Touchdown zone markings consist of groups of one, two and three rectangular bars symmetrically arranged in pairs about the runway centerline. The stripes are 75 feet long and six feet wide. These markings denote the touchdown zone of the runway, which is the first 3,000 feet of the runway beginning at the threshold.

7.8.5 Aiming Point Marker

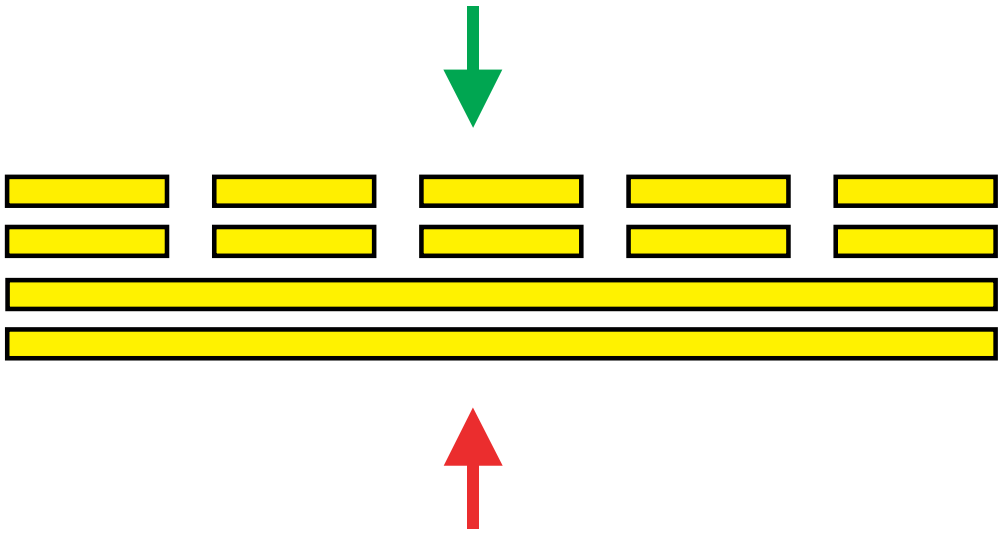
The aiming point markings are a part of the touchdown zone markings and are located 1000 feet from the approach end of the runway. The stripes are 30 feet wide and 150 feet long.

7.8.6 Side Stripes

Runway side stripes consist of continuous stripes located along each side of the runway to provide contrast with the surrounding terrain and/or to delineate the full strength runway pavement area. The maximum distance between the outer edges of the stripes is 200 feet. The stripes have a minimum width of 36 inches for precision instrument runways. The stripes extend to the end of displaced threshold areas which are used for takeoffs or rollouts.

7.8.7 Holding Position Markings

Holding position markings consist of a painted hold line and a mandatory instruction sign. The markings are located on all surfaces that intersect a runway. The painted hold line consists of two continuous yellow lines and two dashed yellow lines, spaced 6 inches between lines and perpendicular to the taxiway centerline. These lines may also be highlighted by black lines. The solid lines of the holding position markings are always on the side where the aircraft is to hold. Holding position markings are painted at Taxiway/Runway and Runway/Runway intersections. When approaching the holding position markings from the red arrow, vehicles are required to stop and request clearance from ATCT before proceeding. When approaching the holding position markings from the green arrow, vehicles are required to continue beyond the markings.

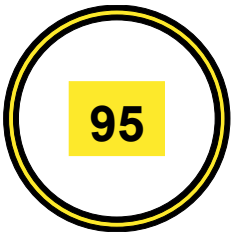


7.9 Miscellaneous Pavement Markings

7.9.1 Control Circle 79 (aka Circle 79)

This is a point for transfer of control over aircraft movements from Delta Connection Ramp Control in the non-movement area to Air Traffic Ground Control in the movement area. Circle 79 is located on the northwest end of the B concourse.

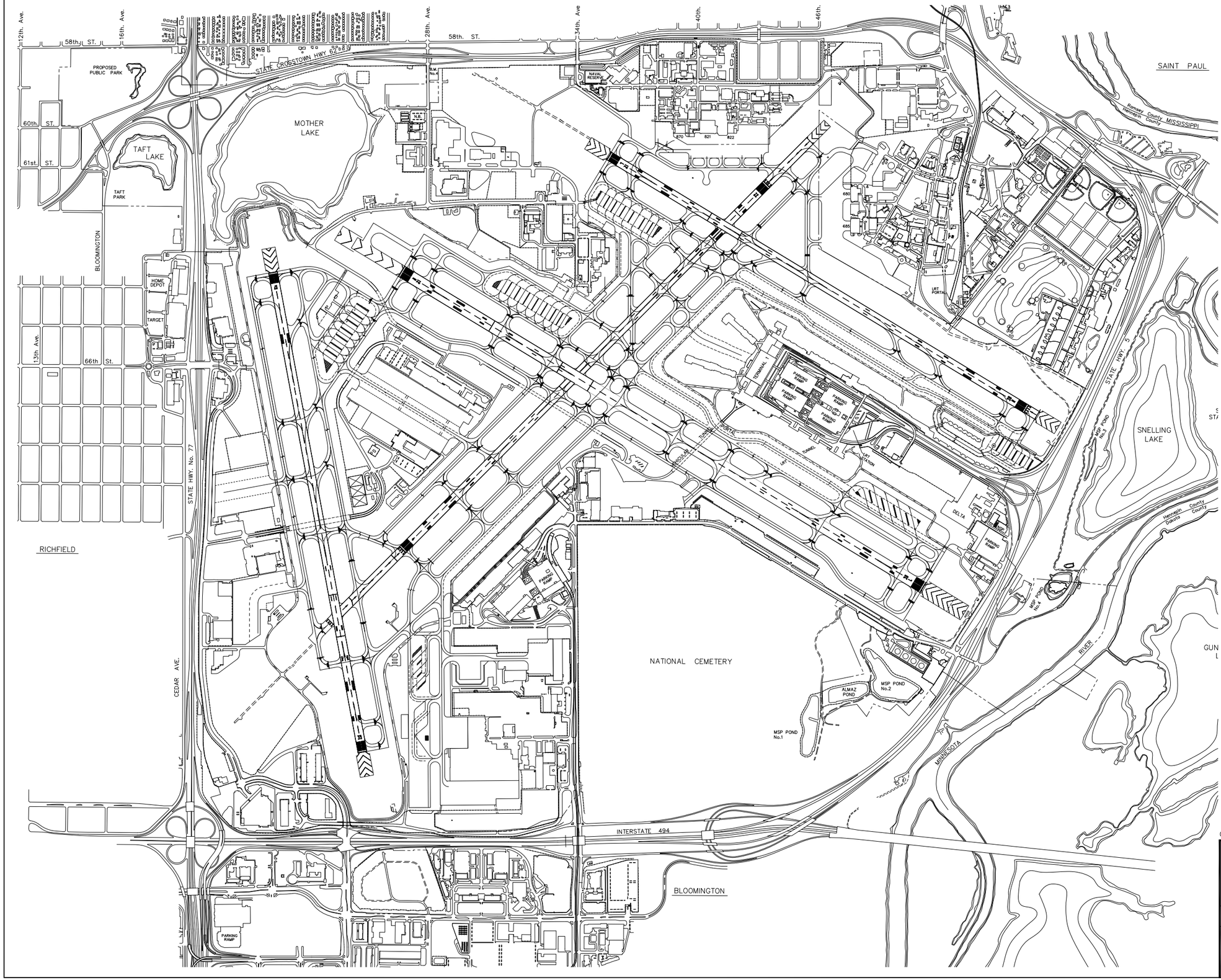
7.9.2 Control Circle 95 (aka Circle 95)



This is a point for transfer of control over aircraft movements from Air Traffic Ground Control in the movement area to Delta Connection Ramp Control movement area in the non-movement area. Circle 95 is located on the southeast end of the B concourse.

7.9.3 Geographic Position Markings

These markings consist of a number painted inside a seven foot diameter pink circle. These markings are installed when points are necessary to identify the location of taxiing aircraft during low visibility operations. Low visibility operations are those that occur when the runway visual range (RVR) is below 1200 feet.



NOTES:

ALL RUNWAY AND TAXIWAY MARKINGS ARE IN ACCORDANCE WITH FAA AC 150/5340-1L

PRECISION INSTRUMENT RUNWAY MARKING ON ALL RUNWAYS EXCEPT RUNWAY 17
RUNWAY 17 IS NON-PRECISION

INFORMATION NOT VERIFIED

CURRENT UPDATE: JANUARY 2014

Figure 7-1

TAXIWAY & RUNWAY PAVEMENT MARKINGS

MSP INTERNATIONAL AIRPORT

Metropolitan Airports Commission
GENERAL OFFICES
6040-28TH AVENUE SOUTH
MINNEAPOLIS, MINNESOTA 55450

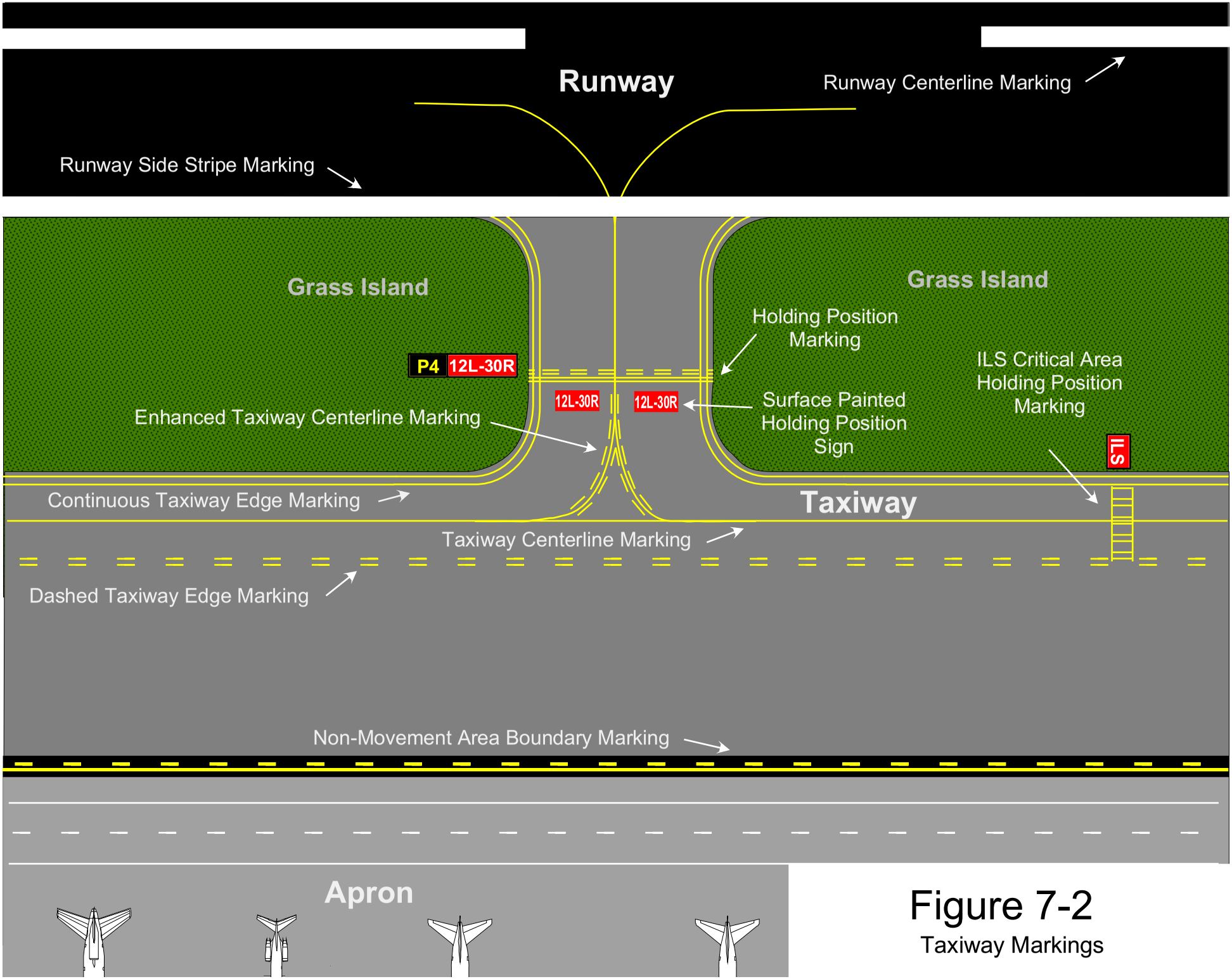


Figure 7-2
Taxiway Markings

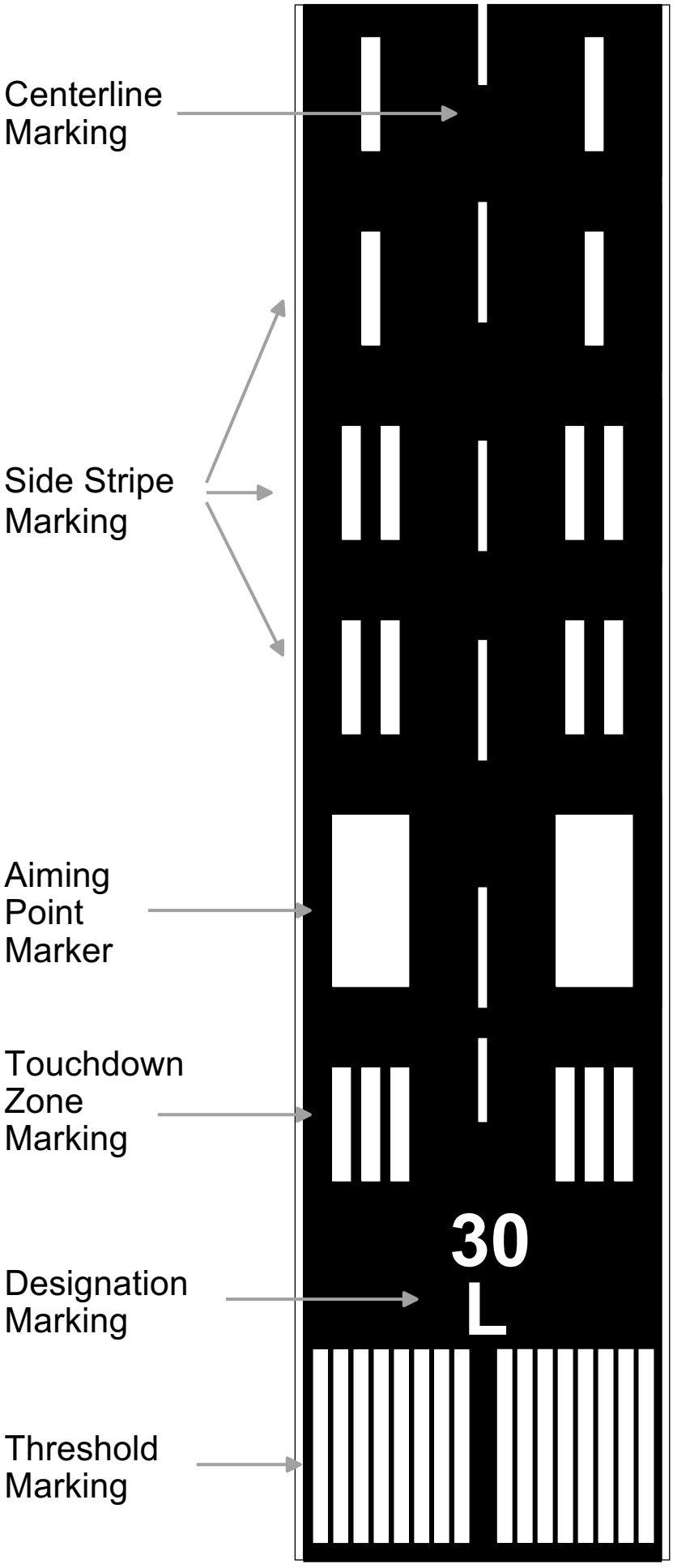


Figure 7-3

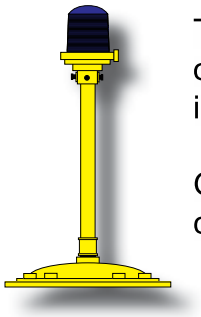
Precision Instrument Runway Markings


CHAPTER 8
MSP
Runway Safety
LIGHTING & NAVIGATION AIDS

Lighting

Airport lighting allows aircraft to utilize an airport during periods of darkness or times of low visibility. Without lights, aircraft would basically be restricted from operating at airports except when there's sunshine and blue skies.

8.1 Taxiway Lighting



These lights are used to outline the edges of taxiways during periods of darkness or reduced visibility. All taxiway lights are blue and have 3 intensity settings, 3 being the highest and 1 being the lowest.

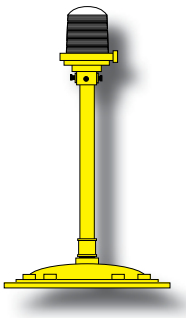
Green centerline reflectors are used to identify the centerline of certain portions of taxiways B and Q at MSP.

8.2 Runway Lighting

8.2.1 Runway End Identifier Lights (REIL)

REILs consist of two synchronized white flashing lights, one on each side of the runway threshold, which provide rapid and positive identification of the approach end of a particular runway. Runways 30R and 17 are the only runways with this type of lighting at MSP.

8.2.2 Runway Edge Lights



These lights are used to outline the edges of runways during periods of darkness or reduced visibility. These light systems are classified according to the intensity or brightness that they are capable of producing. All runway lights at MSP are High Intensity Runway Lights (HIRL) and have 5 intensity settings, 5 being the highest and 1 being the lowest. The runway edge lights are white, except on instrument runways where amber lights replace the white lights on the last 2,000 feet of the runway to form a caution zone. Runway edge lights may also be red if the runway has a displaced threshold.

8.2.3 Runway Guard Lights

Runway Guard Lights (RGLs) are designed to facilitate taxiing during low visibility operations. These lights provide a distinctive warning to aircraft and vehicles that they are approaching a runway holding position, these lights do not indicate whether a runway is open or closed. Each elevated runway guard light fixture consists of two flashing unidirectional yellow lights. These are located at all taxiway feeder entrances to Runways at MSP.

In addition, in-pavement runway guard lights (shown below) are also installed at holding positions where the taxiway is wider than 150 feet, or has centerline lights. The in-pavement runway guard lights consist of a row of flashing unidirectional lights and are installed at Taxiways A3, A4, K6, K8, K10, L4, and Y at MSP.

8.2.4 Threshold Lights

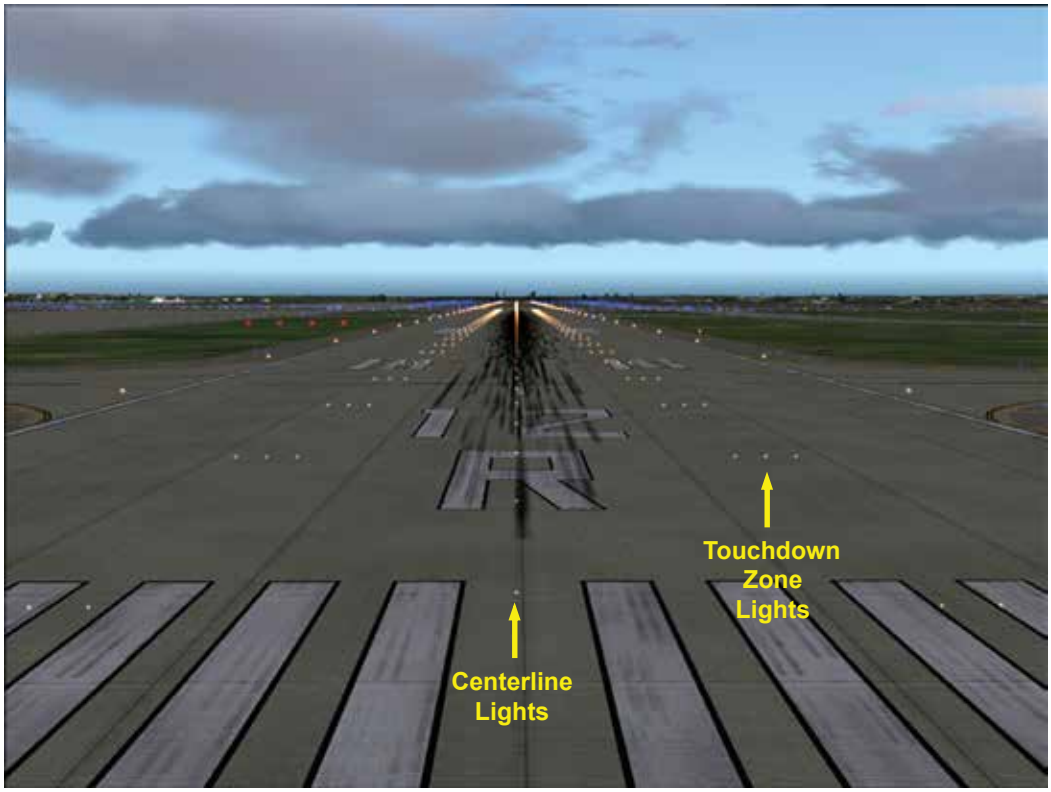
These lights mark both the approach and departure ends of the runway. There are two sets of four lights that emit green light out to approaching aircraft to indicate the approach end and two sets of four lights that emit red light at the opposite end of the runway to indicate the departure end.

8.2.5 Precision Approach Path Indicator (PAPI) Lights

These lights consist of 4 lamp boxes and are normally located on the left side of the runway as viewed from the approach direction approximately 1,000 feet from the threshold. The PAPI's furnish the pilot with visual approach slope information to provide guidance for safe descent. This system is intended primarily for use during Visual Flight Rule (VFR) conditions or clear sky and good visibility conditions.

8.3 In-Pavement Runway Lighting

Touchdown Zone Lighting and Runway Centerline Lighting are installed in the pavement of some precision approach runways and all Category II and III runways to facilitate landing under adverse visibility conditions. Runway 30L is a Category II runway and Runways 12L, 12R and 35 are Category III runways.



Lighting and Navigation Aids

8.3.1 Touchdown Zone Lights

Touchdown zone lights consist of two sets of three rows of white flush mounted transverse light bars installed in the runway pavement located symmetrically along the runway centerline normally at 100 foot intervals. The basic system extends 3,000 feet down the runway from the approach end. These lights are found on Runways 12R, 12L, 30L and 35 at MSP.

8.3.2 Centerline Lights

Centerline lights are flush-mounted in the pavement along the centerline of the runway. Starting 75 feet from either end of the runway, they are spaced at 50 foot intervals the remaining length of the runway. Runways 12R/30L, 12L/30R and 17/35 all have centerline lights. Each centerline light fixture has bulbs on both sides. Centerline lights are white, except for the Runway Remaining Lights on the last 3,000 feet.

8.3.3 Runway Remaining Lights

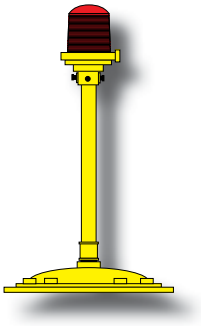
These are the centerline lights in the final 3,000 feet of a runway. An aircraft arriving or departing runways 12L, 12R, 17, 30R, 30L or 35 will see alternating red and white centerline lights from the 3,000 foot remaining point to the 1,000 foot remaining point. The last 1,000 feet has all red centerline lights.

8.4 Miscellaneous Airport Lighting

8.4.1 Airport Beacon

The beacon is located on the North side of the airport just west of the Air Force Reserve Base. The beacon is a visual navigation aid displaying alternating white and green flashes to indicate a lighted, civilian, land airport. Whenever the beacon is illuminated during daytime hours, drivers should assume that the airport is under instrument conditions and aircraft are using the Instrument Landing System (ILS). During these conditions, all drivers operating on the Movement Area will hold short and call ATCT for clearance at the ILS Holding Position prior to entering a protected critical area. In addition, drivers operating on Non-Movement Areas will not proceed past the stakes outlining a protected Critical Area without receiving clearance from ATCT.

8.4.2 Obstruction Lights



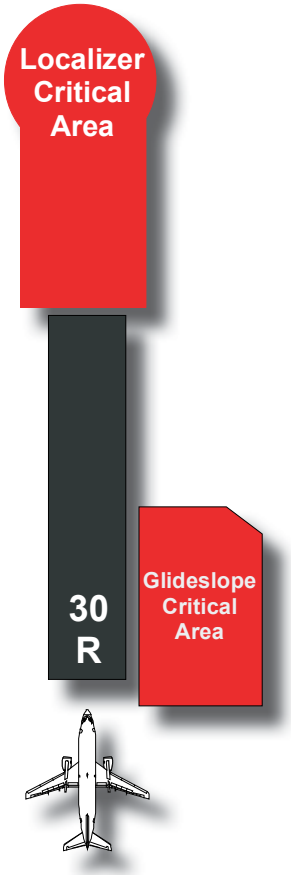
Obstruction lighting is used to warn pilots that a hazard exists and that caution should be used when moving in the area. Obstruction lights are red and are used during the hours of darkness and periods of limited visibility. Construction activities, holes, trenches, equipment and structures are all examples of where obstruction lights may be used.

8.5 Navigation Aids

8.5.1 Instrument Landing System (ILS)

8.5.1.1 Glideslope

The glideslope is a part of the ILS Navigation System that provides vertical guidance for aircraft during the approach and landing. All runways at MSP other than Runways 4,22 and 17 have a glideslope. The glideslope antenna is normally located approximately 1,000 feet beyond the approach end of a runway and between 250 and 650 feet offset from the runway centerline. The glideslope antennas for runways 30R and 12R are located on the right side of the runway while the glideslope antennas for runways 12L, 30L and 35 are located on the left side.

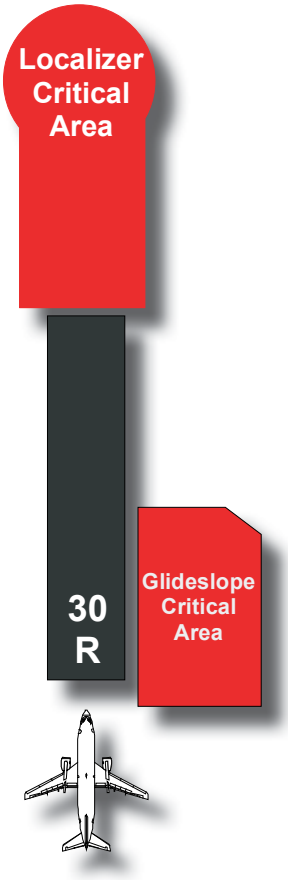


Glideslope Critical Area

A rectangular tract surrounding the glideslope antenna should be graded and kept free and clear of objects that could interrupt the signal. This area is outlined with ILS Holding Position Signs at points where it crosses a taxiway. Flexible stake-type signs labeled “CRITICAL AREA” are used to outline the critical area in turf areas. ***If the Critical Area is being <u>protected</u> (the glideslope for that end of the runway is in use <u>and</u> weather conditions include a ceiling at or below 800 feet OR visibility of 2 miles or lower),*** **all vehicles should remain clear of the critical area unless coordinated with ATCT.** For example: Runway 30R is active and aircraft are operating under instrument conditions as shown in the diagram on the left. Prior to entering the Glideslope Critical Area identified in red, vehicles must first coordinate with ATCT. Vehicle operators shall contact Airside Operations if they are unsure if a Critical Area is being protected.

8.5.1.2 Localizer

The localizer is another part of the ILS Navigation System and provides lateral guidance to aircraft on an approach to the runway. All runways at MSP have a localizer and it is typically located on the extended centerline of the runway, 1,000 feet beyond the departure end.



Localizer Critical Area

The localizer antenna requires a key-hole or rectangular shaped cleared area which surrounds it and extends towards and overlies a portion of the runway. This area should be kept free and clear of all objects that could possibly affect the localizer signal. Flexible stake-type signs labeled “CRITICAL AREA” are used to outline the critical area in turf areas. ***If the Localizer Critical Area is being protected (the localizer for that end of the runway is in use and weather conditions include a ceiling at or below 800 feet OR visibility of 2 miles or lower),* all vehicles should remain clear of the critical area unless coordinated with ATCT.** For example: Runway 30R is active and aircraft are operating under instrument conditions as shown in the diagram on the left. Prior to entering the 30R Localizer Critical Area (located near the 12L end of the runway) identified in red, vehicles must first coordinate with ATCT. Vehicle operators shall contact Airside Operations if they are unsure if a Critical Area is being protected.

8.5.2 Airport Surveillance Radar (ASR)

This radar is used by the air traffic control tower and provides the position of the aircraft in terms of azimuth and range data. It does not provide elevation data and is designed for range coverage up to 60 nautical miles.

ASR Critical Area

Due to the nature of this equipment, all vehicles should maintain as great a distance as possible when operating in the vicinity of the Airport Surveillance Radar (ASR).

8.5.3 Runway Visual Range

This is an instrumentally derived value representing the distance a pilot will see down the runway from the touchdown, midpoint, or rollout portions of the runway. It is based on the sighting of either high intensity runway lights or the visual contrast of other targets, whichever yields the greatest visual range. The equipment that enables the RVR value to be obtained consists of a projector and receiver. There are eleven RVR sites at MSP:

12L/30R: Touchdown, Mid-field and Rollout
12R/30L: Touchdown, Mid-field and Rollout
04/22: Touchdown and Rollout
17/35: Touchdown, Mid-field and Rollout

8.5.4 Wind Socks

These are located along the runways and are lighted during periods of darkness or reduced visibility. The wind socks are made of flexible fabric and move freely when subjected to air movement. The wind socks indicate the wind direction and wind force by noting which way the sock is pointing and whether the sock hangs limply or is extended. The sock points to the direction

that the wind is blowing and is designed to be fully extended with a wind of 15 knots. Variable winds will make the sock swing back and forth, while wind gusts will cause it to swing up and down.

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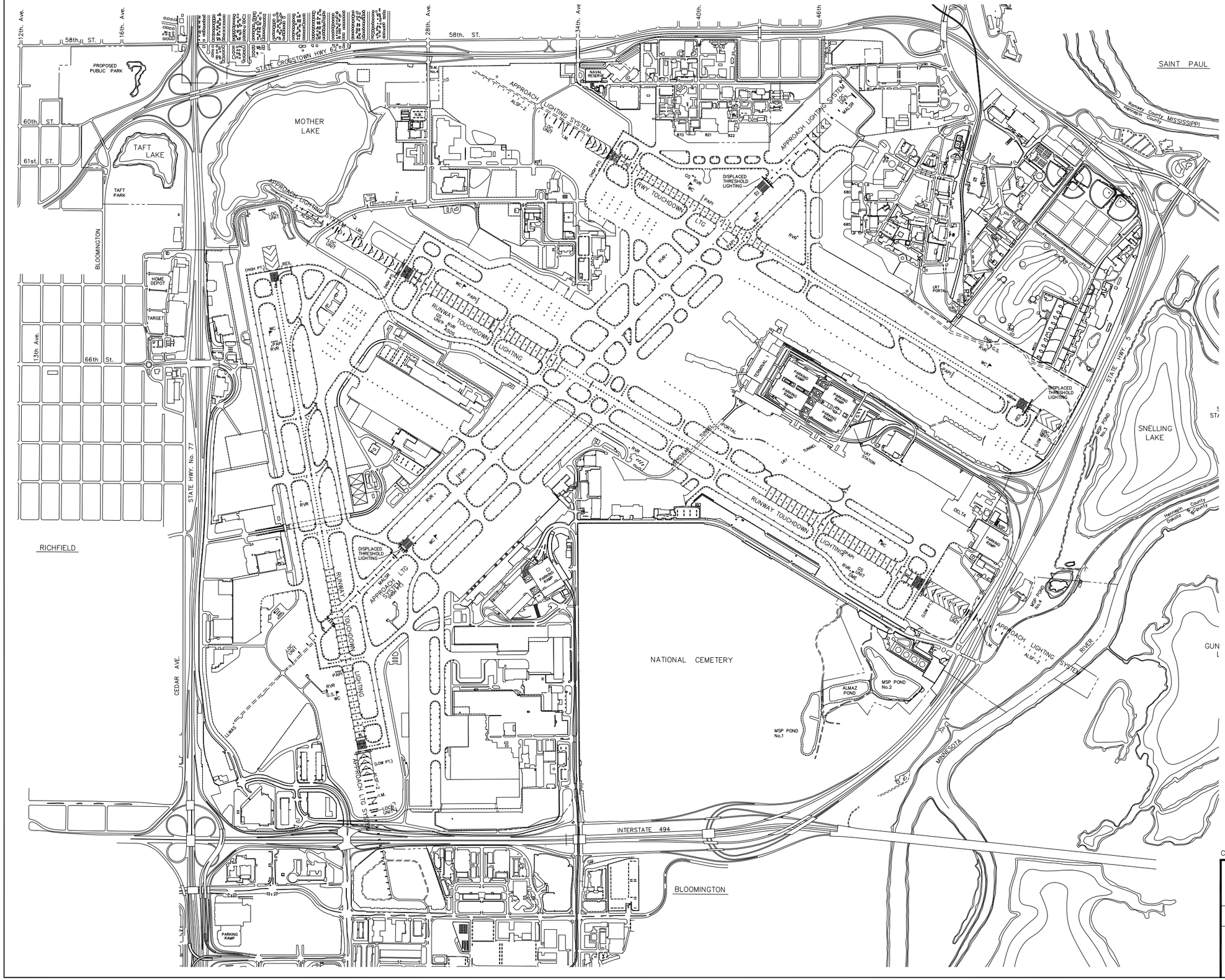

RUNWAY 4–22

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

RUNWAY 12R–30L / 12L–30R / 17–35

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

CENTERLINE LIGHTING
LIGHTS PER FAA SPEC L–850A

GUARD LIGHTS
LIGHTS PER FAA SPEC L–804

RUNWAY 12R, 30L, 12L, 35

TOUCHDOWN LIGHTS
LIGHTS PER FAA SPEC L–850B

TAXIWAY EDGE LIGHTING SYSTEM

BLUE MARKER LIGHTS
LIGHTS PER FAA SPEC L–861T

TAXI GUIDANCE LIGHTING SYSTEM
LIGHTED SIGNS PER FAA SPEC L–858

TAXI REFLECTORS
REFLECTORS PER FAA SPEC L–853

ALS – RUNWAY 4, 22, 12R, 30L, 12L, 35
REIL – RUNWAY 30R, 17
RVR – RUNWAY 4–22, 12R–30L, 12L–30R, 17–35
PAPI – RUNWAY 4, 22, 12R, 30L, 12L, 30R, 17, 35
WC – RUNWAY 4, 22, 12R, 30L, 12L, 30R, 17, 35

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Figure 8-1
AIRPORT LIGHTING

MSP INTERNATIONAL AIRPORT

Metropolitan Airports Commission
GENERAL OFFICES
6040–28TH AVENUE SOUTH
MINNEAPOLIS, MINNESOTA 55450

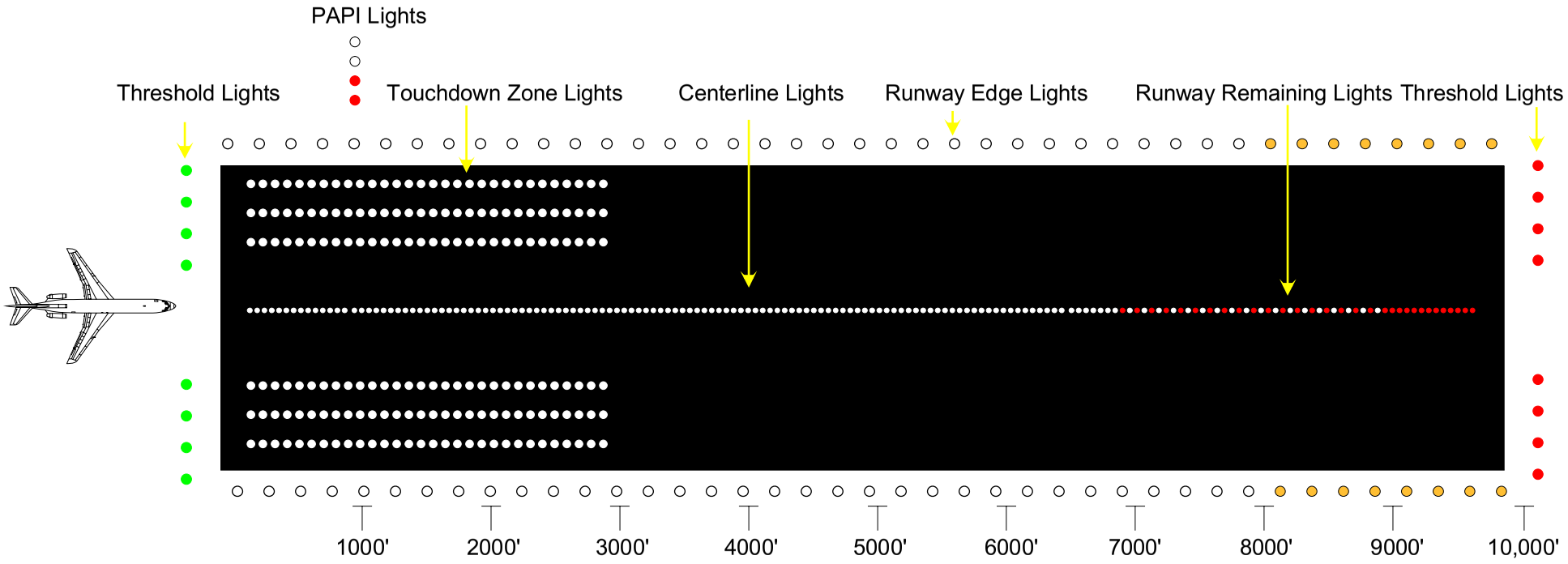
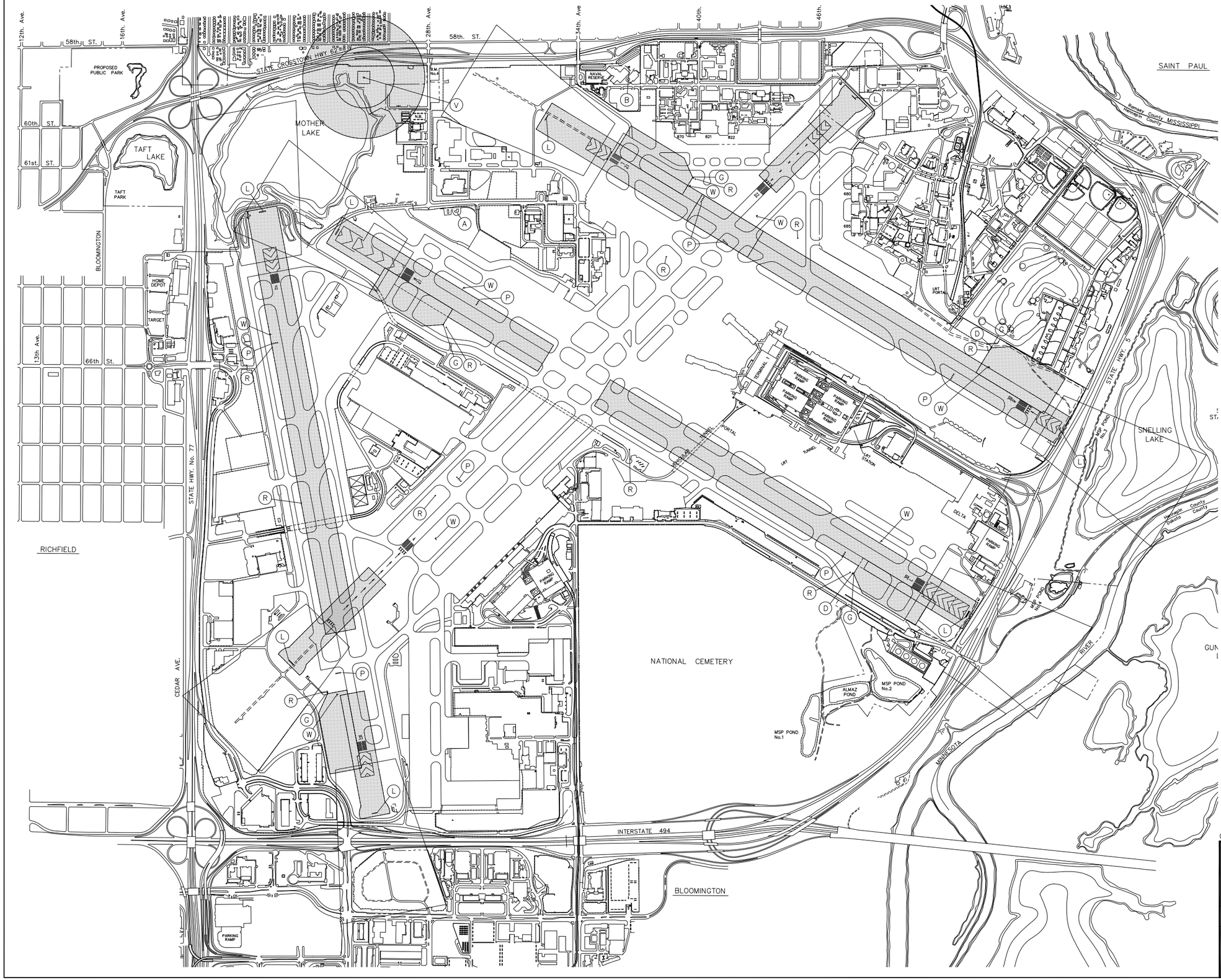


Figure 8-2
Runway Lighting



KEY:

- (A) ASR SITE
- (B) BEACON
- (D) DME
- (G) GLIDE SLOPE
- (L) LOCALIZER ARRAY
- (P) PAPI
- (R) RVR UNIT
- (V) VOR
- (W) WINDCONE

CRITICAL AREAS

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Figure 8-3
NAVIGATIONAL AIDS & CRITICAL AREAS

MSP INTERNATIONAL AIRPORT

Metropolitan Airports Commission
P.O. BOX 11700
TWIN CITY AIRPORT STATION
ST. PAUL, MINNESOTA 55111

CHAPTER 9

COMMUNICATIONS

Communications

In the Air Traffic Control System, radio communication is a vital link between controllers, pilots and ground vehicle operators. Proper radio communication is one of the basics for safety, orderliness and efficiency in this system.

9.1 Radio Procedures

Comprehending or **Understanding** directions from the controller and being certain that the controller understands or comprehends requests and responses are the basics for good radio communications. This process is ensured through a system of checks and balances.

Before making a transmission, there are several things to do. The first thing is **LISTEN.** Listen to the radio frequency before transmitting. If there is a conversation in progress, wait until it is completed before starting your transmission. Conversations in progress could range from a controller issuing instructions to a pilot for taxiing to a maintenance vehicle making a request to cross a runway.

The next thing to consider before transmitting, is **WHAT YOU WANT TO SAY** before you start your transmission. If you know exactly what you want to say and how you will say it, your transmission will be more concise and understandable.

When you have been instructed by a controller to proceed with something, you should acknowledge that you have received and understood the instructions by repeating the instructions and stating your call sign. If for some reason you don't understand what the controller has told you, or you think that the controller does not understand what you have said, **STOP!** Either confirm what the controller has told you, or clarify to the controller what you are requesting. You are better off to question something and fully understand it, rather than proceeding forward.

When transmitting, the microphone should be close to your lips but not touching them. After you key the mike, pause for a half-second before making your transmission. This will ensure that your first word is transmitted. When speaking, talk in a normal conversational tone and try not to yell, slur your words, or talk too fast.

Communications

When attempting to contact the tower, your transmission must contain certain information and be in a specific format. The following information should be included in your transmission:

1. **The name of the facility being called.**
2. **Your call sign**
3. **Your location.**
4. **Your request or message.**

An example transmission might sound like the following:

Minneapolis Ground Control, Mac 24 on Hotel to cross Runway Four Two Two.

After you have made your transmission, wait a short while before attempting it again. Many times, the controllers have heard you and are attempting to either locate your position or are coordinating your request with another controller before giving you a reply. After approximately 30 seconds, if you have not heard a reply, repeat your transmission. If you still don't get a reply, check that your radio equipment is turned on and that you are transmitting on the correct frequency. While waiting for a reply or checking your equipment, always be sure to keep an eye on the tower for light gun signals that may be directed toward you.

9.2 Phonetic Alphabet

In the aviation community, letters, numbers and time are used quite often and can be both confusing and misinterpreted. To prevent this confusion from occurring, the International Civil Aviation Organization (ICAO) established an alphabet that allows words to replace letters. These words were chosen for their unique sound, thereby reducing the chance of confusion with another letter.

This alphabet is commonly known as the **ICAO International Phonetic Alphabet**.

A - Alpha	**H - Hotel**	**O - Oscar**	**V - Victor**
B - Bravo	**I - India**	**P - Papa**	**W - Whiskey**
C - Charlie	**J - Juliet**	**Q - Quebec**	**X - X Ray**
D - Delta	**K - Kilo**	**R - Romeo**	**Y - Yankee**
E - Echo	**L - Lima**	**S - Sierra**	**Z - Zulu**
F - Foxtrot	**M - Mike**	**T - Tango**	
G - Golf	**N - November**	**U - Uniform**	

9.3 Numbers

Single digit numbers are pronounced as they normally sound except for the number **“9.”** This is pronounced **“Niner”** in radio transmissions. The reason for this is that the number nine sounds similar to the number five.

Numbers of two or more digits are generally spoken as a series of single digits, with the exception of round numbers, such as hundreds or thousands. The following are examples of how numbers should be pronounced during radio transmissions:

25	**Two Five**
332	**Three Three Two**
600	**Six Hundred**
0900	**Zero Niner Hundred**
29,600	**Two Niner Thousand Six Hundred**

Radio Frequencies are also spoken as separate numbers. For example, **121.9** is spoken as **“One Two One Point Niner.”** Another example is **126.7, “One Two Six Point Seven.”**

Time is expressed as minutes after the hour when the hour is understood. The time may be stated as **“Three Niner”** for **39** minutes after the hour or as **“Five Eight”** for **58** minutes after the hour.

9.4 Time

Another significant standard in the field of aviation is the use of the 24-hour clock in conjunction with **Universal Coordinated Time, (UTC)**. The 24-hour clock eliminates the a.m. and p.m. designators that exist with the standard 12-hour clock. **UTC** (also called **ZULU** time) puts all aviation communications on the same worldwide time standard. This avoids any possible confusion when crossing time zones.

With the 24-hour clock, the hours of the day are numbered consecutively, as **0000** (Midnight), **0100**, **0200**, to **1200** (Noon). The afternoon hours continue as **1300** (1:00 p.m.), **1400**, **1500**, and on to **2400**. Midnight can be expressed as either **0000** or **2400**.

Time is spoken as in the following examples:

0823	**Zero Eight Two Three**	**8:23 a.m.**
1456	**One Four Five Six**	**2:56 p.m.**
2359	**Two Three Five Niner**	**11:59 p.m.**

Time can be converted to UTC by the using the table below:

TIME ZONE	TO GET UTC
Eastern Standard Time	Add 5 hours*
Central Standard Time	Add 6 hours*
Mountain Standard Time	Add 7 hours*
Pacific Standard Time	Add 8 hours*

* During daylight savings, reduce figures by 1 hour

9.5 Radio Checks

Occasionally, it is desirable to ask a facility to evaluate the strength and quality of your transmissions. Simply say, **"Radio Check, Please."** A reply of **"Loud and Clear"** means strength and quality are good. **"Weak and Clear"** means strength is poor, but quality is good.

9.6 Air Traffic Control Light Gun Signals

In the event that you lose radio communications with the ATCT, **YOU SHOULD LEAVE THE MOVEMENT AREA IMMEDIATELY.** If for some reason, you can not leave the movement area, the tower has a high powered light gun that emits colored light beams. A vehicle operator should position his/her vehicle such that the headlights are facing the tower. The headlights should then be repeatedly turned on and off to attempt to get the attention of the controller. Once the ATCT is aware of the vehicle, they will advise the operator of what to do with the light gun signals. These procedures should be used in **EMERGENCY** situations only. These high intensity beams all have meanings and all individuals that operate on a movement area must know them. The following table shows the light gun signals and their meanings:

Movement of Vehicles	Color and Type of Signal
Steady Green	Cleared to cross, proceed
Steady Red	**STOP**
Flashing Red	Clear the Taxiway or Runway
Flashing White	Return to starting point on airport
Alternating Red and Green	Exercise extreme caution

9.7 Commonly Used Radio Phrases

Abeam	Out from or across from
Acknowledge	Let me know that you have received and understood the message
Affirmative	Yes
Correction	An error has been made in this transmission. The correct version is...
Go Ahead	Proceed with your message
How Do You Hear Me	Self-explanatory
I Say Again	Self-explanatory
Negative	That is not correct, no
Out	This conversation is ended and no response is needed
Read Back	Repeat my message back to me
Roger	I have received all of your last transmission (This word is used to acknowledge receipt and shall not be used for other purposes)
Say Again	Repeat your last transmission
Speak Slower	Self-explanatory
Stand By	If used by itself, means “I must pause for a few seconds”, the transmission should be concluded and contact should be re-established later
That Is Correct	Self-explanatory

9.8 ATCT Frequencies Used at MSP

It is very important to understand that the ATCT at MSP utilizes several different frequencies. Following are the most commonly used frequencies by both aircraft and vehicles:

121.90	South Ground Control
121.80	North Ground Control
127.925	West Ground Control
126.70	South Local Control
123.95	North Local Control
123.675	West Local Control
135.35	Arrival ATIS (Automated Terminal Information Service)
120.80	Departure ATIS (Automated Terminal Information Service)
133.57	Ground Metering

Ground Control frequencies are used by aircraft and vehicles when operating on the ramps and taxiways. 121.90 is used to control traffic on the south side of the field, while 121.80 is used for the north side and 127.925 is used for the west side. 121.90 is the primary ground control frequency when ATCT decides to combine ground control frequencies during periods of low activity. During peak times, 121.80 and 127.925 may also be used if 121.90 is out of service or has a stuck microphone.

Local Control frequencies are used by aircraft requesting clearance to takeoff or land and by vehicles when it becomes necessary to proceed on an open runway (ex. inspections, sanding operation, or retrieving FOD). 126.70 is used to control traffic using Runway 12R/30L while 123.95 is used for Runway 12L/30R and 123.675 is used for Runway 17/35. 126.70 is the primary local control frequency when ATCT decides to combine local control frequencies during periods of low activity. 123.95 and 123.675 may also be used if 126.70 is out of service or has a stuck microphone. Since Runway 4/22 crosses all three zones (North, South and West) of frequencies, initial calls should be made on the frequency based on the zone you are starting in.

Figure 9-1 shows the FAA ATCT frequency assignments for MSP. Taxiway feeder C6 is the dividing line between the North and South sides of the airport

while Taxiway W is the dividing line between the South and West sides of the airport for radio frequency usage. All vehicles North of C6 should use frequencies 121.8 and 123.95. Vehicles South of C6 and North of Taxiway W should use frequencies 121.9 and 126.70. Vehicles South of Runway 12R/30L should use frequencies 127.925 and 123.675. If in doubt about which frequency to contact the ATCT on, use the primary Ground (121.9) or the primary Local (126.7) frequencies

ATIS is a continuous broadcast of current weather conditions and NOTAM information at the airport. This frequency provides necessary information to aircraft while reducing congestion on other frequencies.

Ground Metering (also referred to as Metering) is a frequency utilized by aircraft to receive push-back clearance.

9.9 MAC 800 MHZ Airfield (AF) Talkgroups

There are six Airfield talkgroups to be used by MAC employees of the Operational Group operating on the AOA. They are:

- MACAF
- MACAF1
- MACAF2
- MACAF3
- MACAF4
- MACAFALL

All MAC vehicles, other than ARFF or Police, operating on a Movement or Safety Area, are required to monitor one of these talkgroups. The table below shows the primary purpose of each of the six Airfield talkgroups for both Summer (Day-to-Day) and Winter (Snow/Ice Control Event) operations.

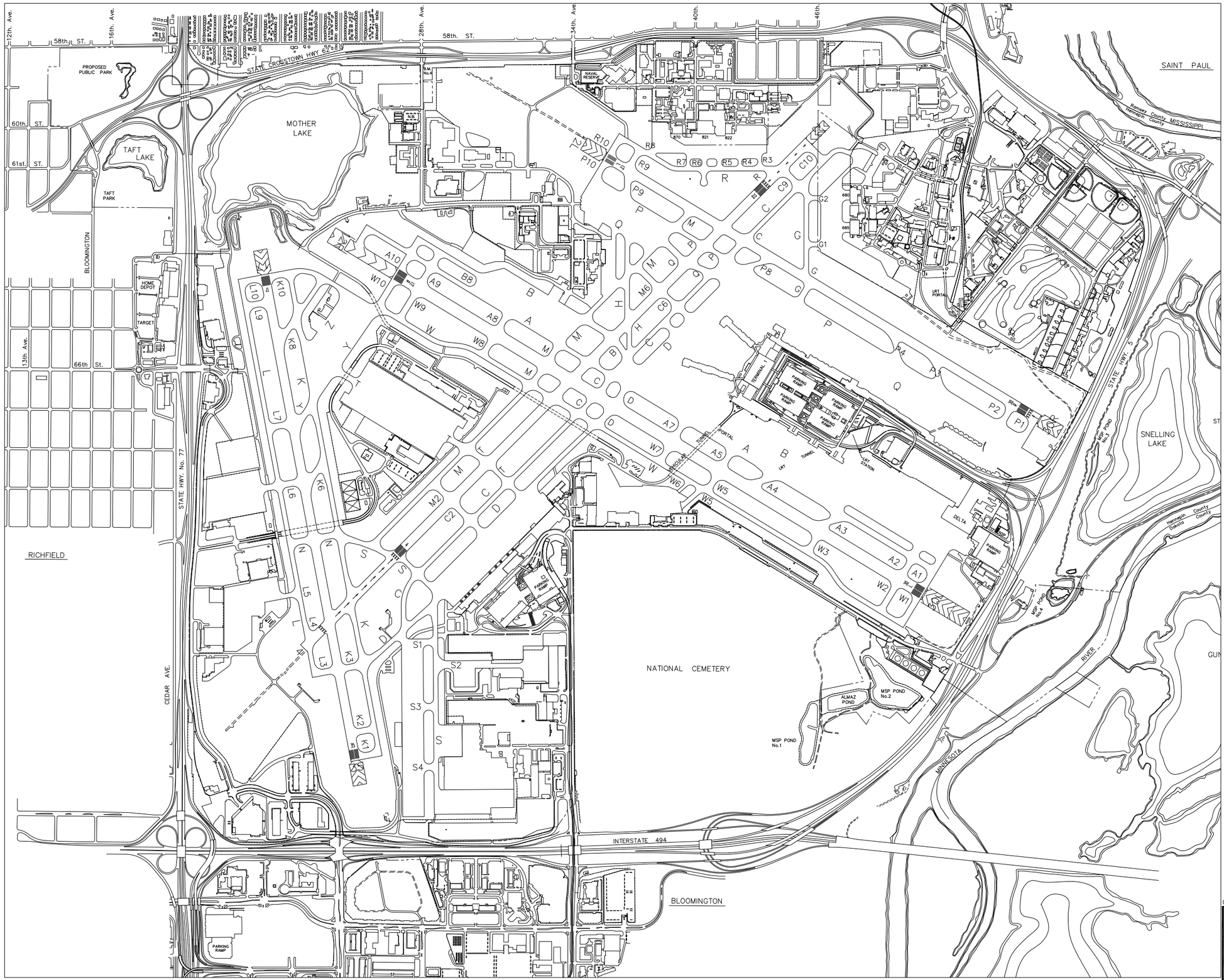
There are two other talkgroups that MAC employees should be familiar with:

MACCOM is used as an inter-departmental hailing frequency.

MAC911 is monitored by the Airport Emergency Communications Center and used for emergency communications only. Using this talk group is equivalent to calling “911” on a telephone.

Communications

	Summer	Winter
MACAF	Primary AOA talk group. Available for use by all persons operating on the AOA. All personnel operating on any Movement Area/Safety Area shall be on this channel unless directed otherwise. Airside will monitor this channel at all times. Anyone needing to contact Airside will use this channel unless they have been assigned to another talk group.	Primary AOA talk group. Available for use by all persons operating on the AOA. All personnel operating on any Movement Area/Safety Area shall be on this channel unless directed otherwise. Airside will monitor this channel at all times. Anyone needing to contact Airside will use this channel unless they have been assigned to another talk group.
MACAF1	Field Maintenance talk group. This channel is intended for Field Maintenance day-to-day operations. Airside may monitor this channel as needed.	Landside and Roadway Snow Crews talk group. This channel will be assigned to all Airside and Field Maintenance personnel conducting snow removal on the Landside, roads and general areas. Airside will monitor this channel during active snow removal operations.
MACAF2	North runway talk group. This channel is intended for anyone operating on Runways 12L/30R and 12R/30L during closures but may be assigned as needed. Airside will monitor this channel when it has been assigned.	North runway snow crew talk group. This channel will be assigned to all Airside and Field Maintenance personnel conducting snow removal on Runways 12L/30R and 12R/30L. This will be the North Runway Snow Crew's primary channel. Airside will monitor this channel during active snow removal operations.
MACAF3	South runway talk group. This channel is intended for anyone operating on Runway 17/35 during closures but may be assigned as needed. Airside will monitor this channel when it has been assigned	South runway snow crew talk group. This channel will be assigned to all Airside and Field Maintenance personnel conducting snow removal on the Runway 17/35. This will be the South Runway Snow Crew's primary channel. Airside will monitor this channel during active snow removal operations.
MACAF4	Open talk group. Will be assigned as needed. Airside will monitor this channel when it has been assigned.	Lindbergh and Humphrey Ramp Snow Crews talk group. This channel will be assigned to all Airside and Field Maintenance personnel conducting snow removal on ramps and in the gates. Airside will monitor this channel during active snow removal operations.
MACAFALL	Surface opening/Emergency notification (multi-select)	Surface opening/Emergency notification (multi-select)



MSP INTERNATIONAL AIRPORT

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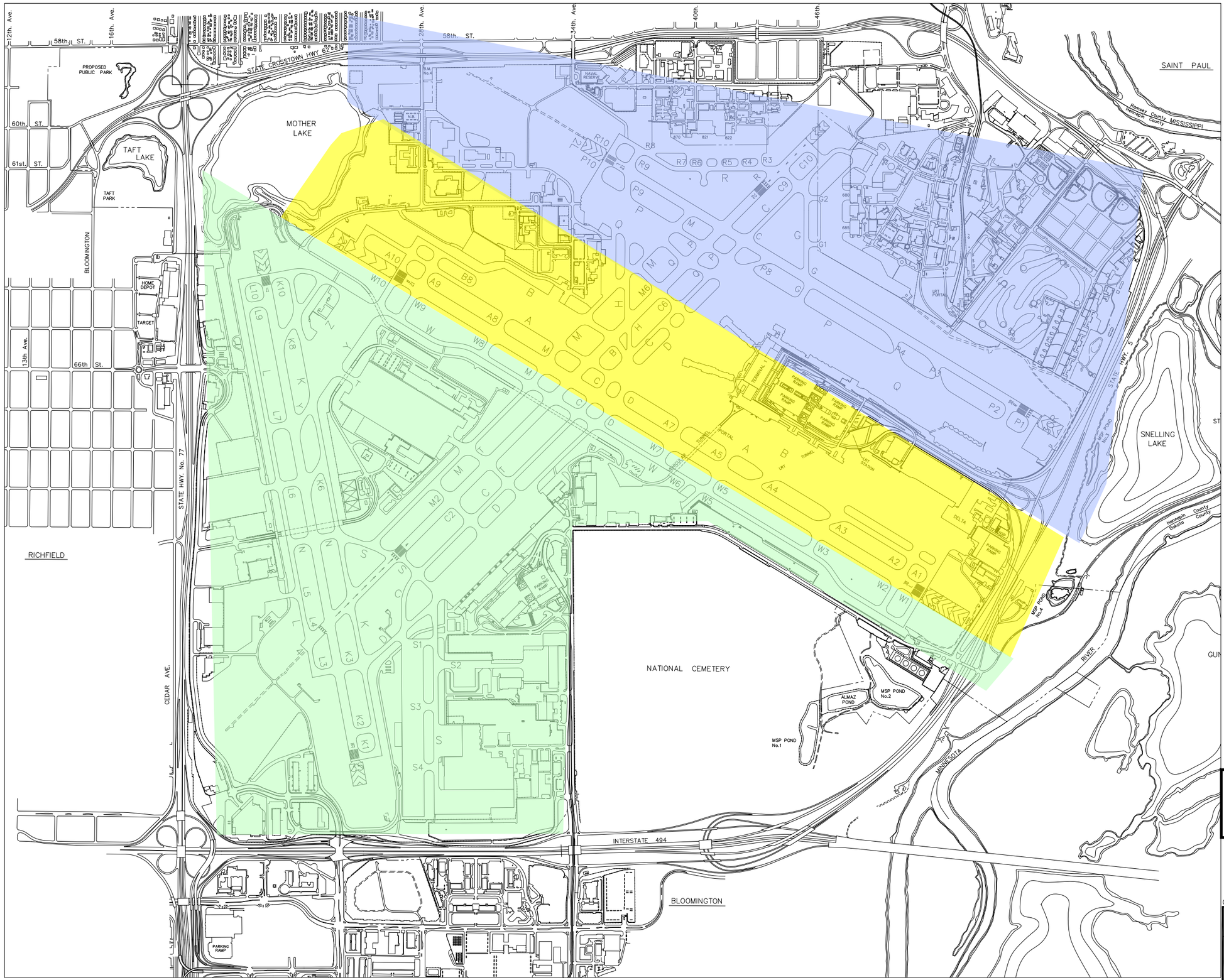
MINNEAPOLIS, MINNESOTA 55450



700 0 700 1400 2100

SCALE IN FEET

North Ground - 121.8

North Local - 123.95

South Ground - 121.9

South Local - 126.70

West Ground - 127.925

West Local - 123.675

Ground Metering - 133.57

Departure ATIS - 120.80

Arrival ATIS - 135.35

Figure 9-1
FAA ATCT Frequencies

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CURRENT UPDATE: JANUARY 2014

MSP INTERNATIONAL AIRPORT

Metropolitan Airports Commission

GENERAL OFFICES
6040-28TH AVENUE SOUTH
MINNEAPOLIS, MINNESOTA 55450

CHAPTER 10

AIRCRAFT IDENTIFICATION

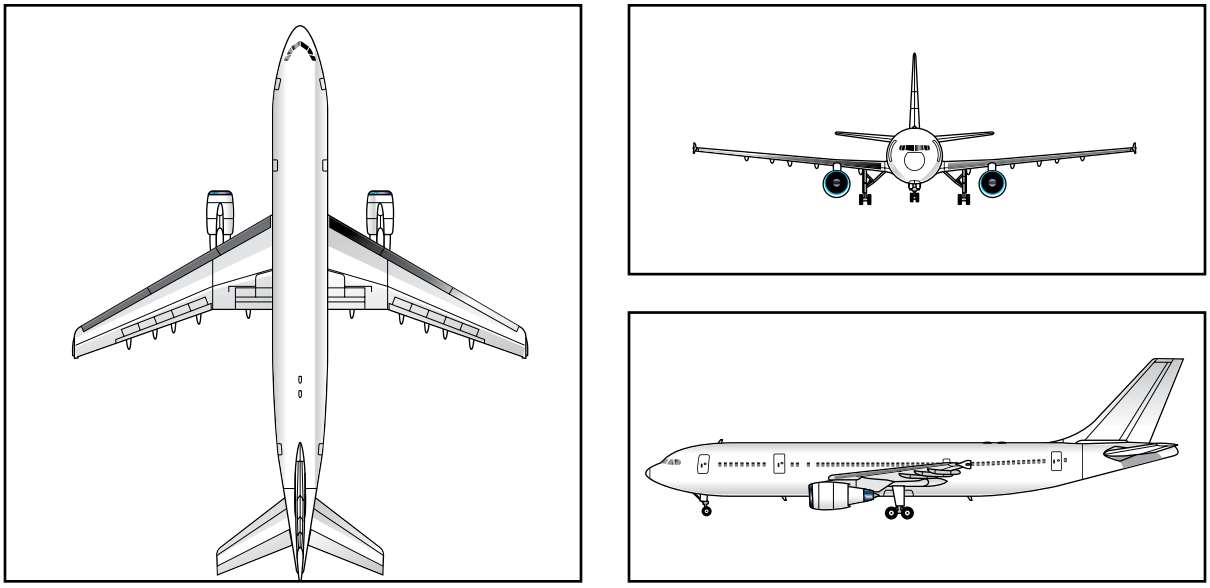
10.1 Aircraft Identification

There are many different types of aircraft operating at MSP. The types include private, cargo, military, regional and air carrier. A controller might refer to an aircraft that is either moving or stationary when issuing instructions to a vehicle on the radio frequency. Therefore, it is important to be familiar with as many different types of aircraft as possible. This section will describe only the air carrier, regional and military aircraft that currently operate at MSP on a regular basis. For more information on identifying various types of aircraft, refer to Advisory Circular 150/5300-13 Airport Design.

Aircraft Identification

A-300

Figure 10-1



Manufacturer: Airbus

Accommodations: Flight crew of 2 and up to 336 passengers

Wing Span: 147’ 1”

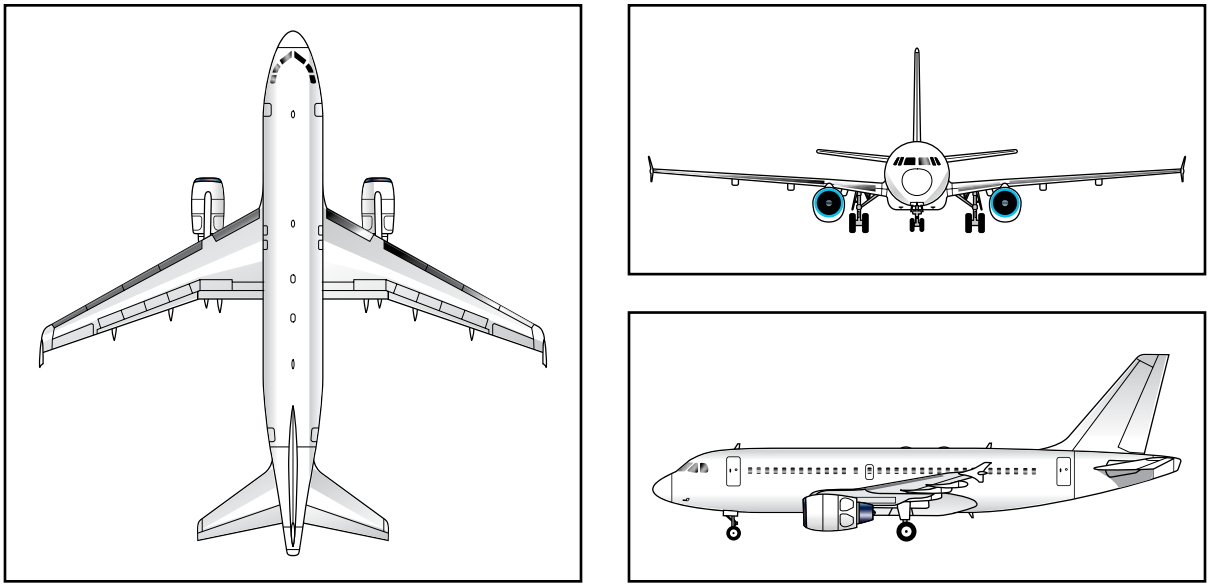
Length: 177’ 5”

Airlines using at MSP: FedEx, UPS

Aircraft Identification

A-318/319

Figure 10-2



Manufacturer: Airbus

Accommodations: Flight Crew of 2 and up to 142 passengers

Wing Span: 111’ 10”

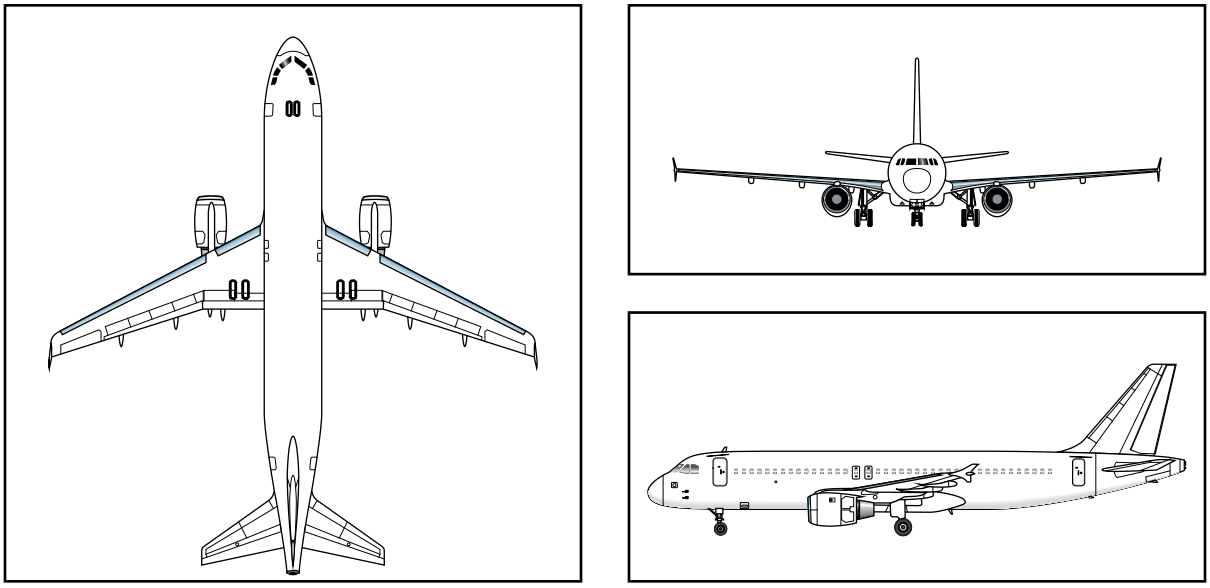
Length: 103’ 2” - 111’ 0”

Airlines using at MSP: Delta, Frontier, United, US Airways

Aircraft Identification

A-320

Figure 10-3



Manufacturer: Airbus

Accommodations: Flight Crew of 2 and up to 179 passengers

Wing Span: 111’ 10”

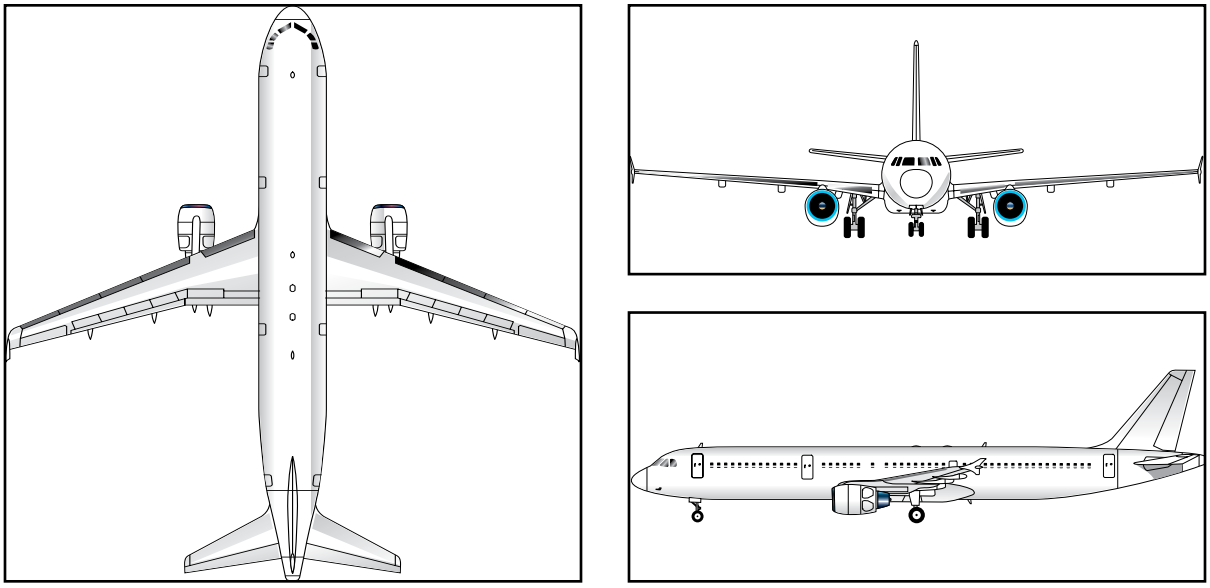
Length: 123’ 3”

Airlines using at MSP: Delta, United, US Airways

Aircraft Identification

A-321

Figure 10-4



Manufacturer: Airbus

Accommodations: Flight Crew of 2 and up to 220 passengers

Wing Span: 111’ 10”

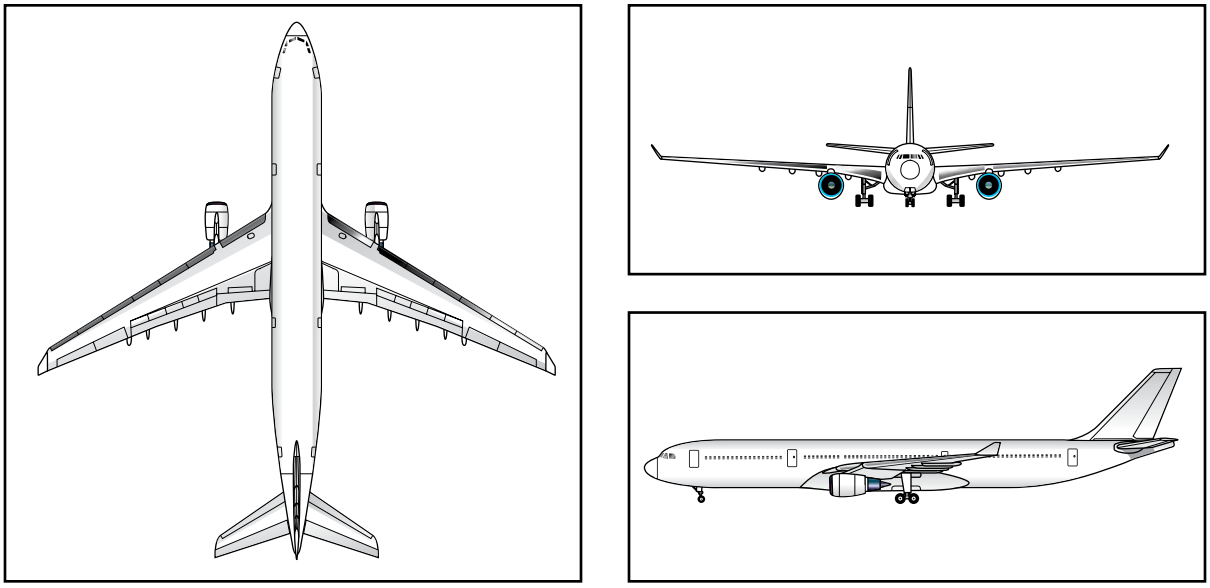
Length: 146’ 0”

Airlines using at MSP: US Airways

Aircraft Identification

A-330

Figure 10-5



Manufacturer: Airbus

Accommodations: Flight Crew of 2 and up to 440 passengers

Wing Span: 197’ 10”

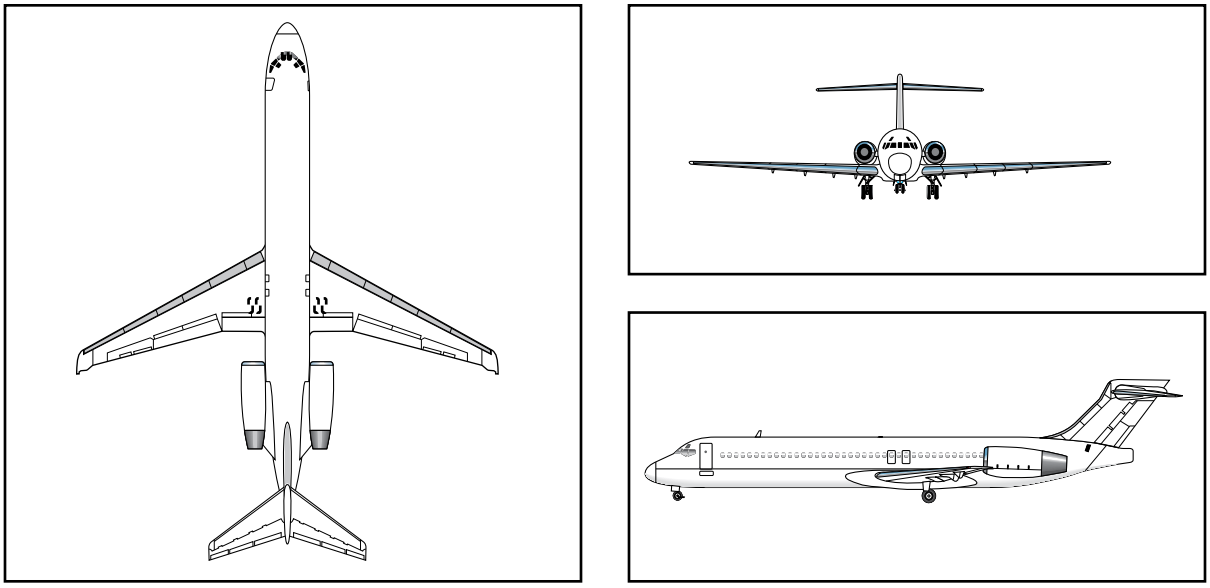
Length: 193’ 7” - 210’ 0”

Airlines using at MSP: Delta

Aircraft Identification

B-717

Figure 10-6



Manufacturer: Boeing

Accommodations: Flight Crew of 2 and up to 106 passengers

Wing Span: 93’ 3”

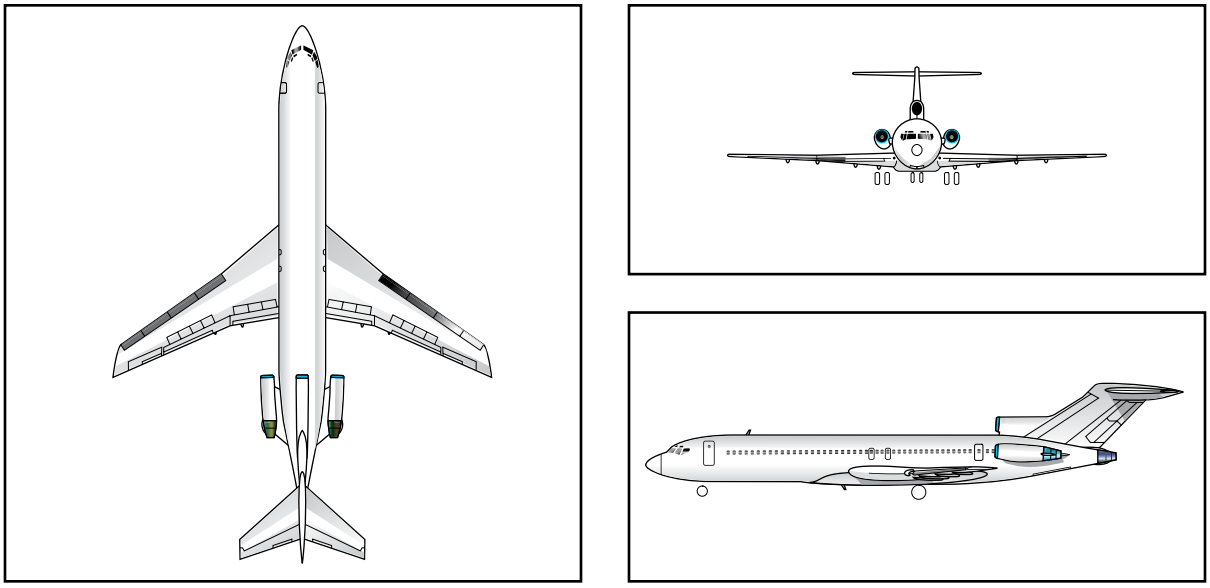
Length: 124’ 0”

Airlines using at MSP: AirTran

Aircraft Identification

B-727

Figure 10-7



Manufacturer: Boeing

Accommodations: Flight Crew of 3 and up to 189 passengers

Wing Span: 108’ 0”

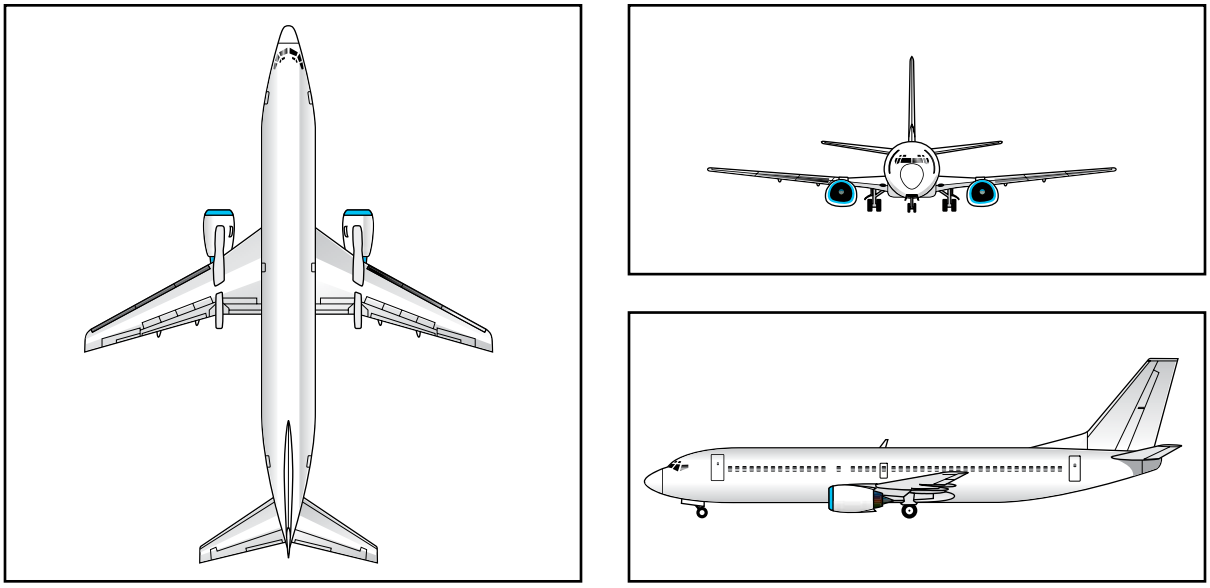
Length: 153’ 2”

Airlines using at MSP: FedEx

Aircraft Identification

B-737

Figure 10-8



Manufacturer: Boeing

Accommodations: Flight Crew of 2 and up to 189 passengers

Wing Span: 94’ 9” - 117’ 5”

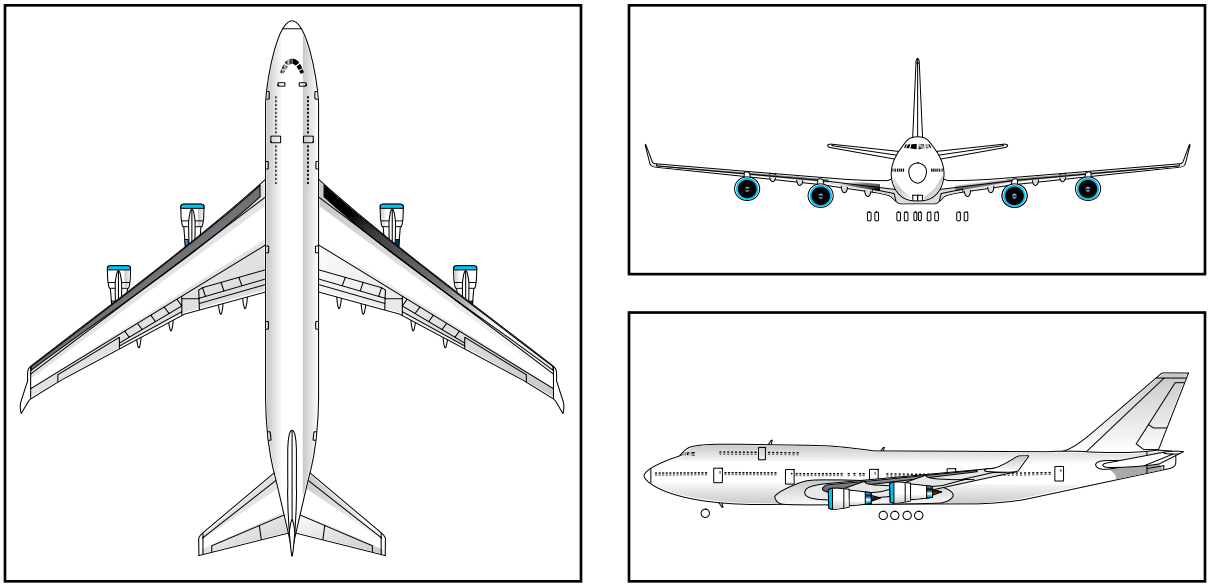
Length: 109’ 7” - 138’ 2”

Airlines using at MSP: AirTran, Alaska, American, Continental, Delta, Southwest, Sun Country

Aircraft Identification

B-747

Figure 10-9



Manufacturer: Boeing

Accommodations: Flight Crew of 2 and up to 568 passengers

Wing Span: 211’ 5”

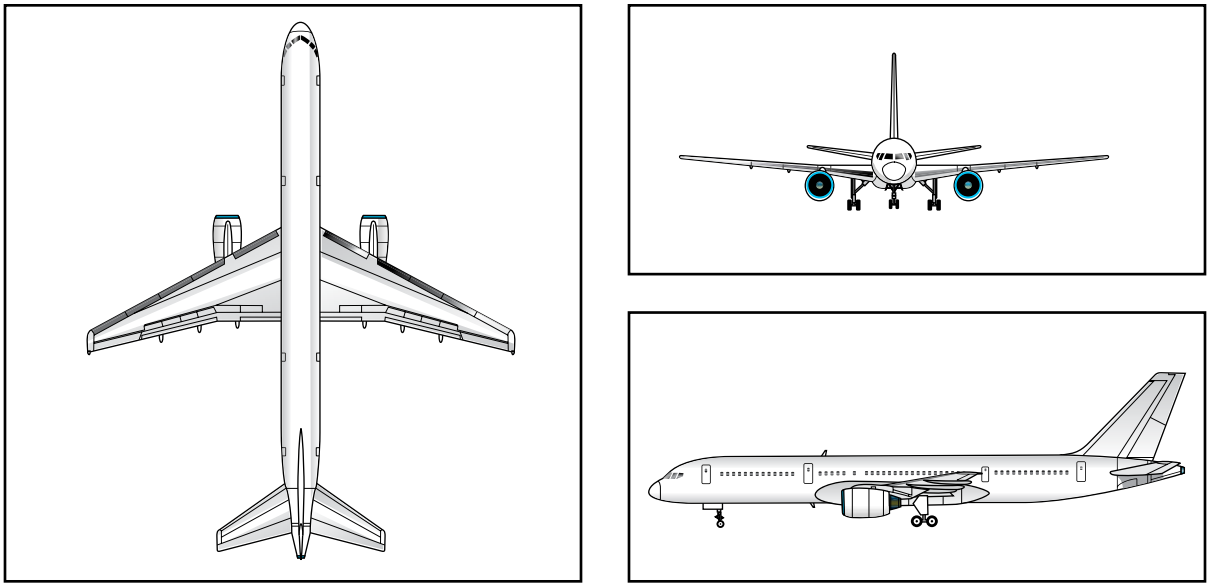
Length: 231’ 10”

Airlines using at MSP: Delta

Aircraft Identification

B-757

Figure 10-10



Manufacturer: Boeing

Accommodations: Flight Crew of 2 and up to 280 passengers

Wing Span: 124’ 10” (134’ 9” with winglets)

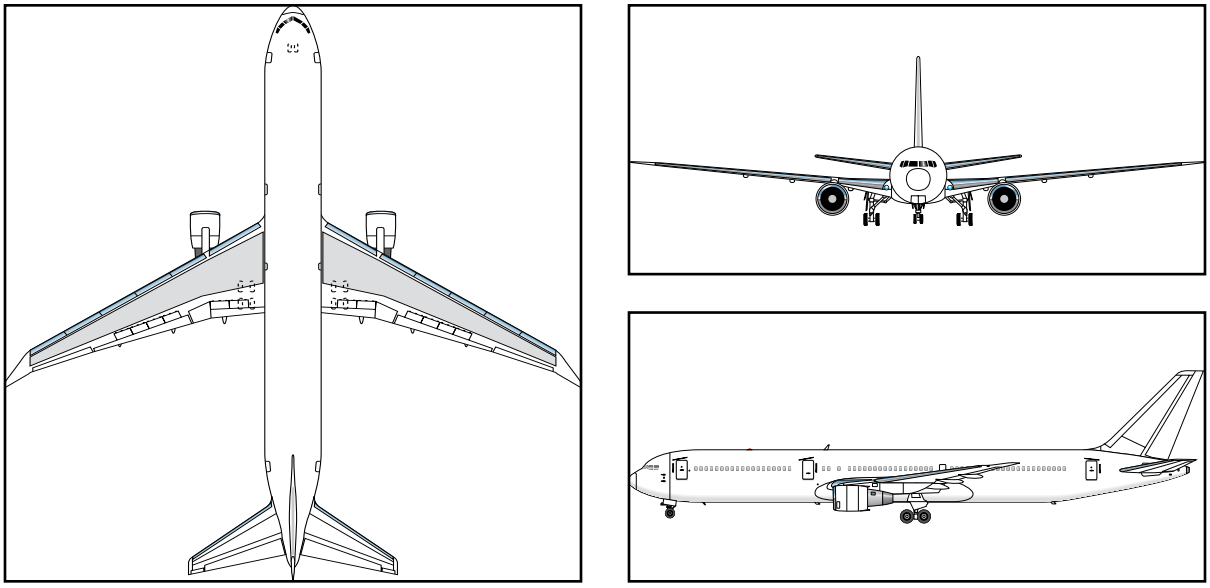
Length: 155’ 3” - 178’ 7”

Airlines using at MSP: Delta, Icelandair, UPS

Aircraft Identification

B-767

Figure 10-11



Manufacturer: Boeing

Accommodations: Flight Crew of 2 and up to 375 passengers

Wing Span: 156’ 1” - 170’ 4”

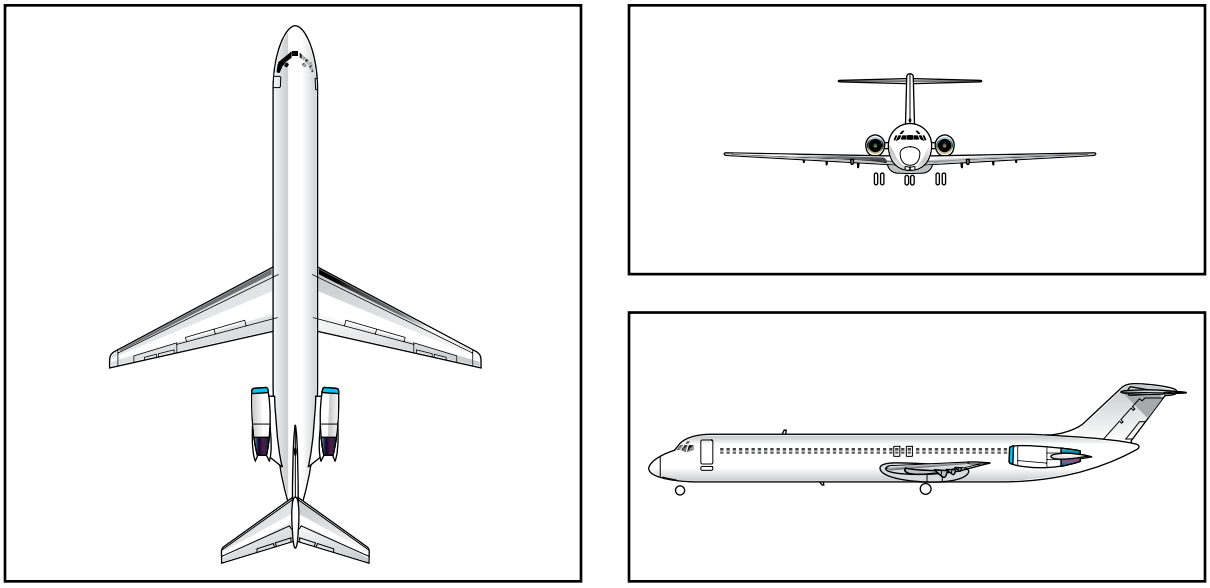
Length: 159’ 2” - 201’ 4”

Airlines using at MSP: Delta, DHL, ABX Air

Aircraft Identification

DC-9

Figure 10-12



Manufacturer: McDonnell Douglas

Accommodations: Flight Crew of 2 and up to 139 passengers

Wing Span: 89’ 5” - 93’ 5”

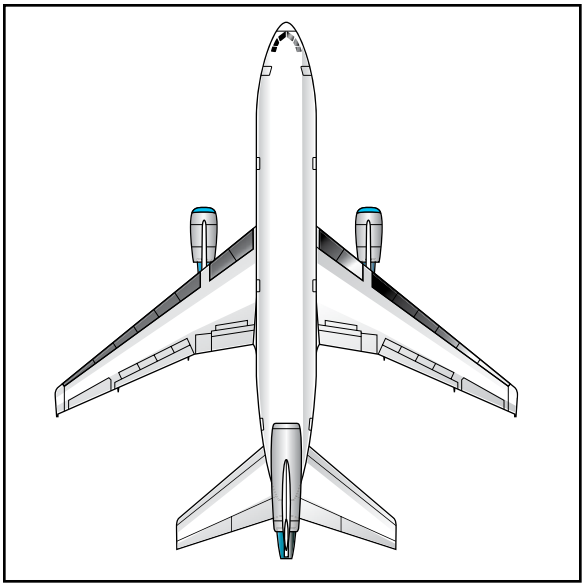
Length: 104’ 5” - 133’ 7”

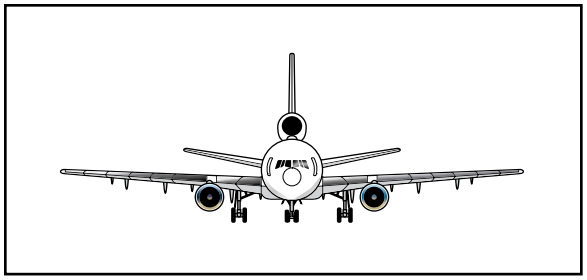
Airlines using at MSP: Delta

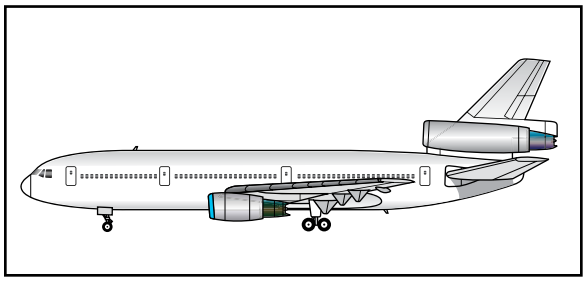
Aircraft Identification

DC-10

Figure 10-13







Manufacturer: McDonnell Douglas

Accommodations: Flight Crew of 3 and up to 380 passengers

Wing Span: 165’ 5”

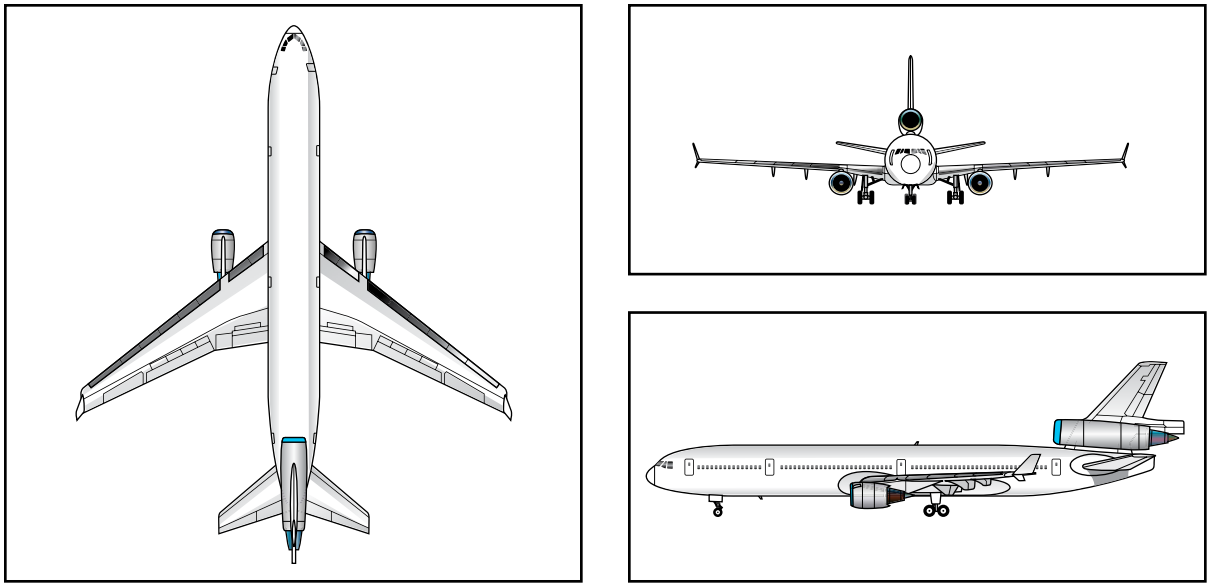
Length: 182’ 1”

Airlines using at MSP: FedEx

Aircraft Identification

MD-11

Figure 10-14



Manufacturer: McDonnell Douglas

Accommodations: Flight Crew of 2 and up to 410 passengers

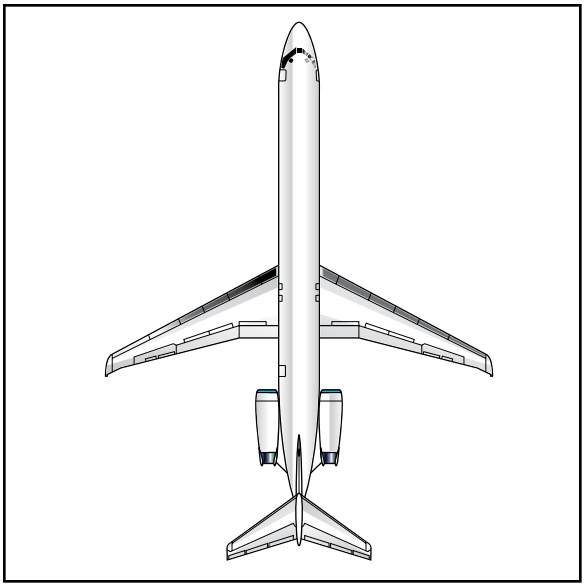
Wing Span: 169” 6”

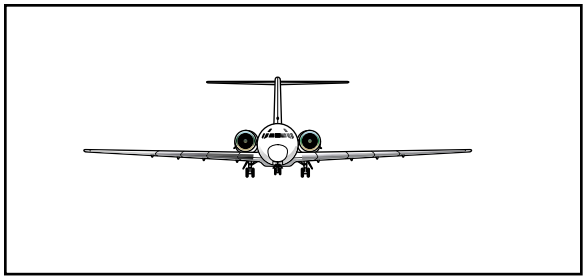
Length: 200’ 10”

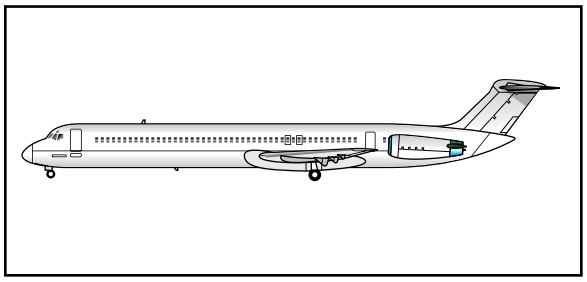
Airlines using at MSP: UPS

MD-80/90

Figure 10-15







Manufacturer: McDonnell Douglas

Accommodations: Flight Crew of 2 and up to 172 passengers

Wing Span: 107’ 8”

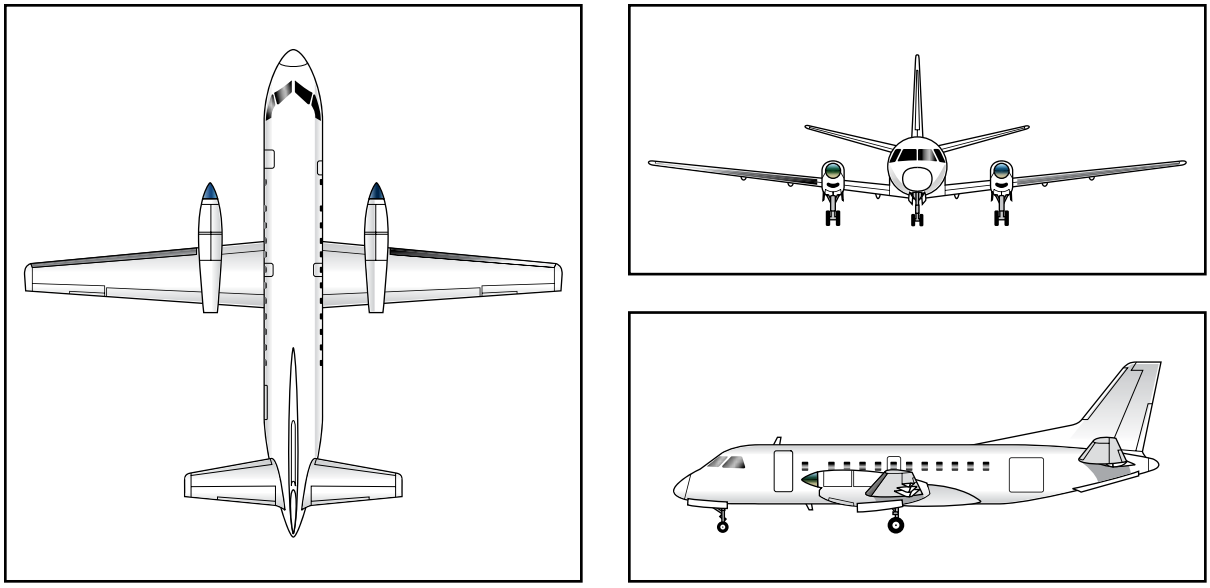
Length: 147’ 8” - 152’ 6”

Airlines using at MSP: American, Delta

Aircraft Identification

SF-340

Figure 10-16



Manufacturer: Saab

Accommodations: Flight Crew of 2 and up to 37 passengers

Wing Span: 70’ 4”

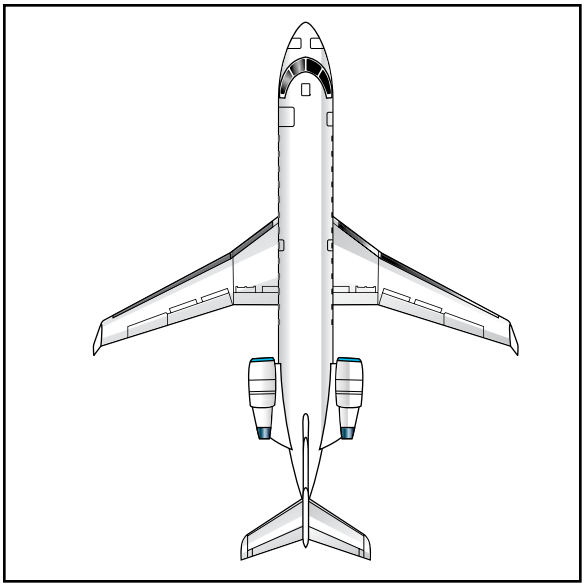
Length: 64’ 9”

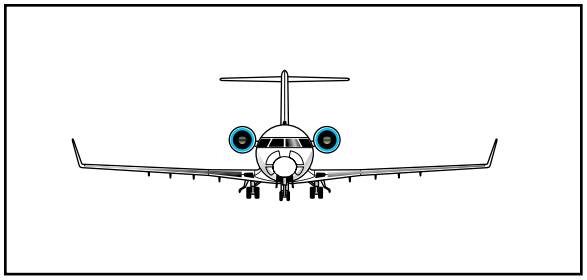
Airlines using at MSP: Delta Connection

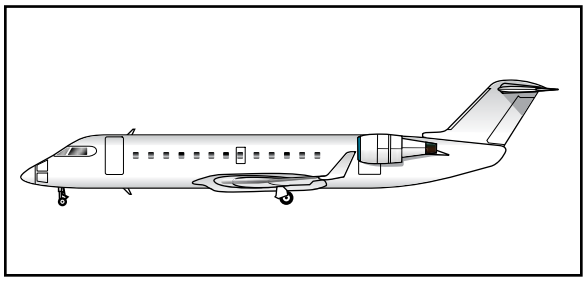
Aircraft Identification

CRJ

Figure 10-17







Manufacturer: Bombardier

Accommodations: Flight Crew of 2 and up to 78 passengers

Wing Span: 69” 7” - 81’ 6”

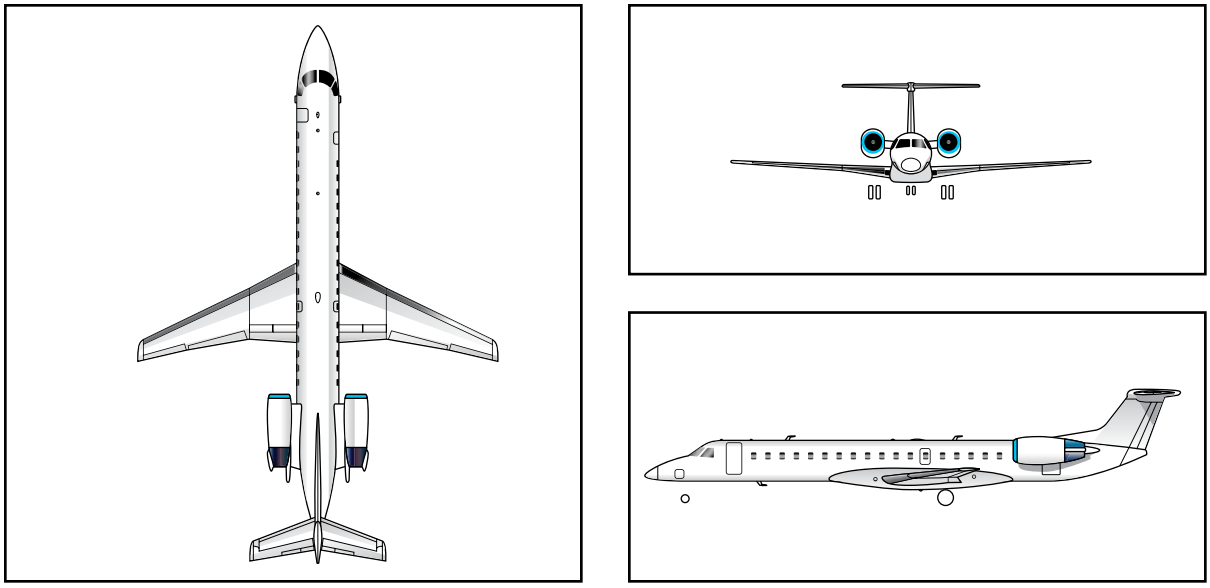
Length: 87’ 10” - 119’ 4”

Airlines using at MSP: Air Canada, American, Delta Connection, US Airways

Aircraft Identification

ERJ

Figure 10-18



Manufacturer: Embraer

Accommodations: Flight Crew of 2 and up to 50 passengers

Wing Span: 65’ 9”

Length: 86’ 5” - 98’ 0”

Airlines using at MSP: American, Continental, Frontier

Aircraft Identification

EMB-170/175

Figure 10-19

Manufacturer: Embraer

Accommodations: Flight Crew of 2 and up to 70 passengers

Wing Span: 85’ 4”

Length: 98’ 1” - 103’ 11”

Airlines using at MSP: Delta Connection, Frontier, United, US Airways

Aircraft Identification

EMB-190/195

Figure 10-20

Manufacturer: Embraer

Accommodations: Flight Crew of 2 and up to 70 passengers

Wing Span: 94’ 3”

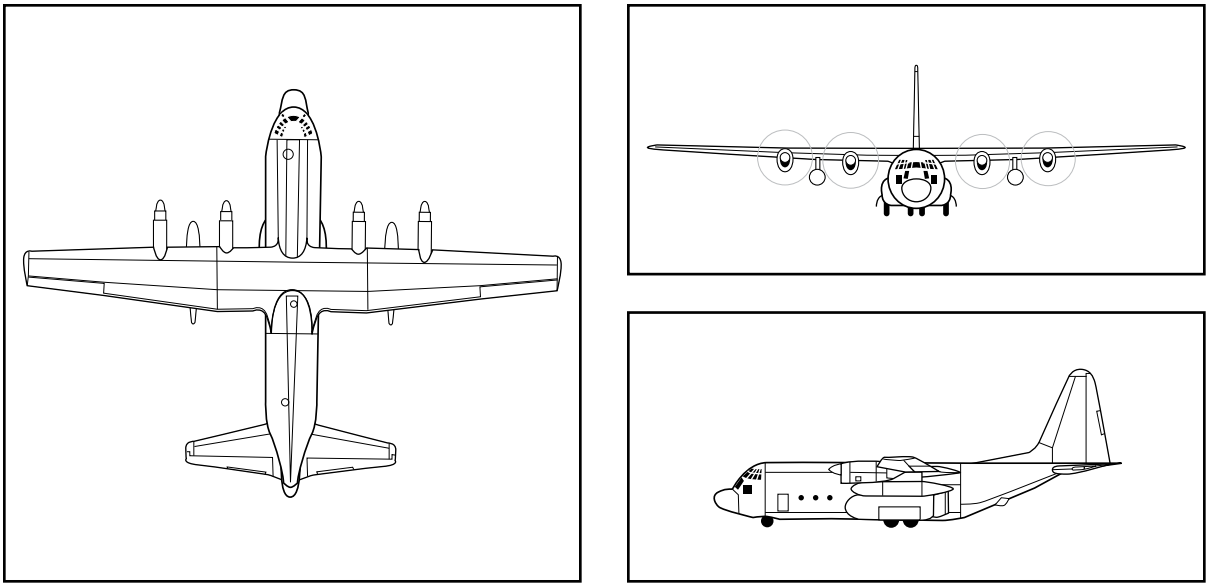
Length: 118’ 11” - 126’ 10”

Airlines using at MSP: Frontier, US Airways

Aircraft Identification

C-130

Figure 10-21



Manufacturer: Lockheed

Accommodations: Flight Crew of 4

Wing Span: 132’ 7”

Length: 112’ 9”

Airlines using at MSP: Minnesota Air National Guard, U.S. Air Force Reserve

10.2 Aircraft Lighting

10.2.1 Position Lights/Navigation Lights

These lights consist of any one of a group of lights mounted on an aircraft to make its dimensions, position and direction of motion visible at night or under conditions of poor visibility. These lights are in the following positions as seen when sitting in the aircraft: See Figure 10-22.

Red: Steady burning light on the left wingtip.

Green: Steady burning light on the right wingtip.

White: Steady burning light in varying locations.

10.2.2 Anti-Collision Lights

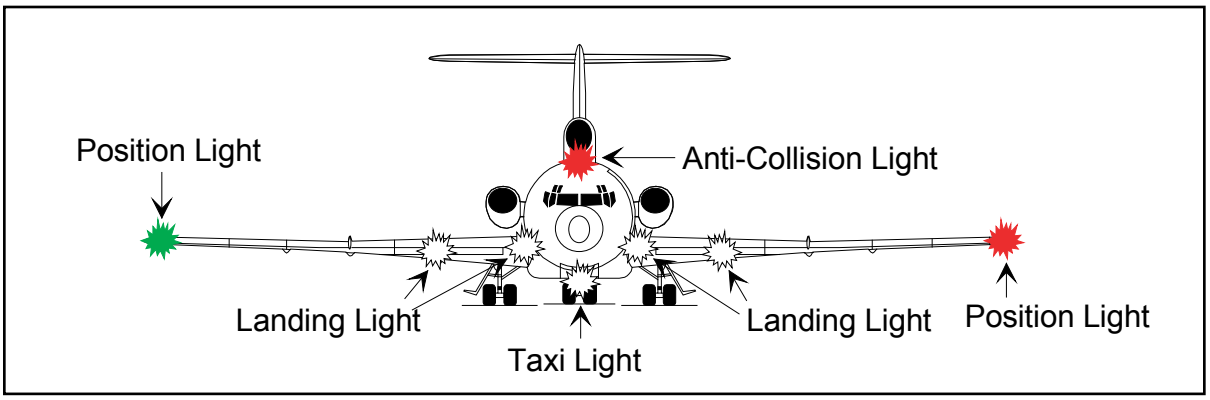
These consist of one or more rotating beacons and/or strobe lights colored either red or white. The FAA recommends that air carriers and commercial operators turn on their rotating beacons any time their engines are operating. See Figure 10-22.

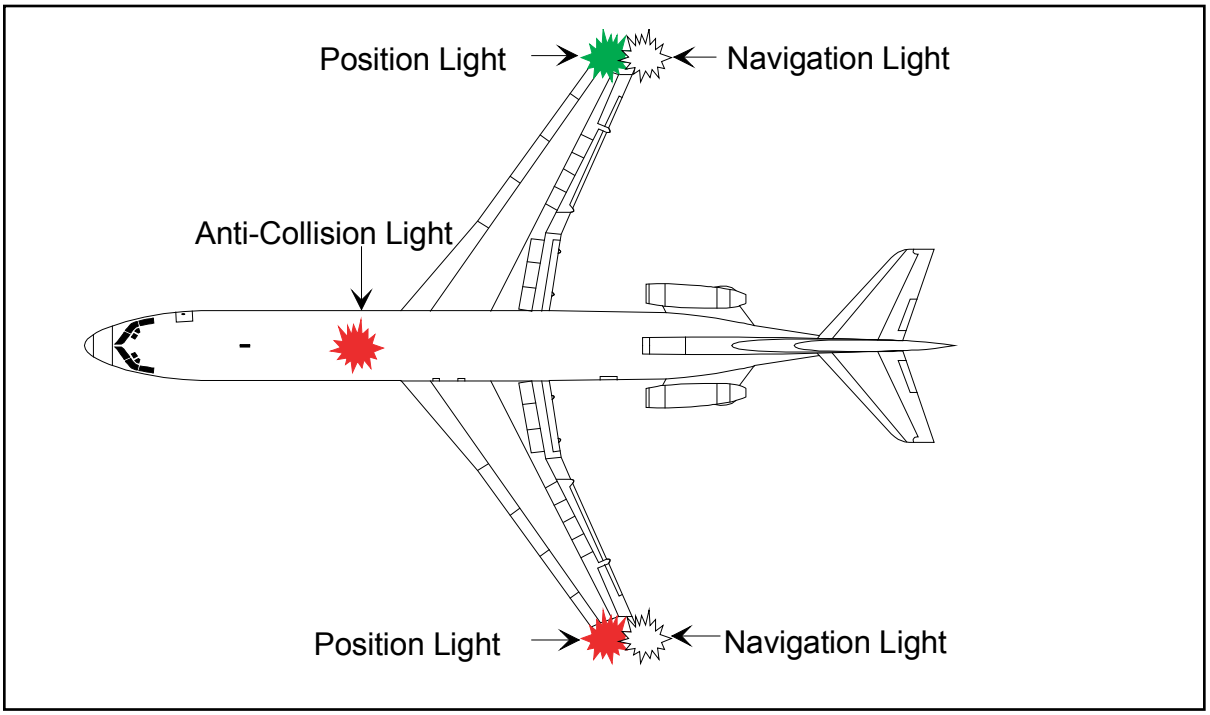
10.2.3 Landing Lights

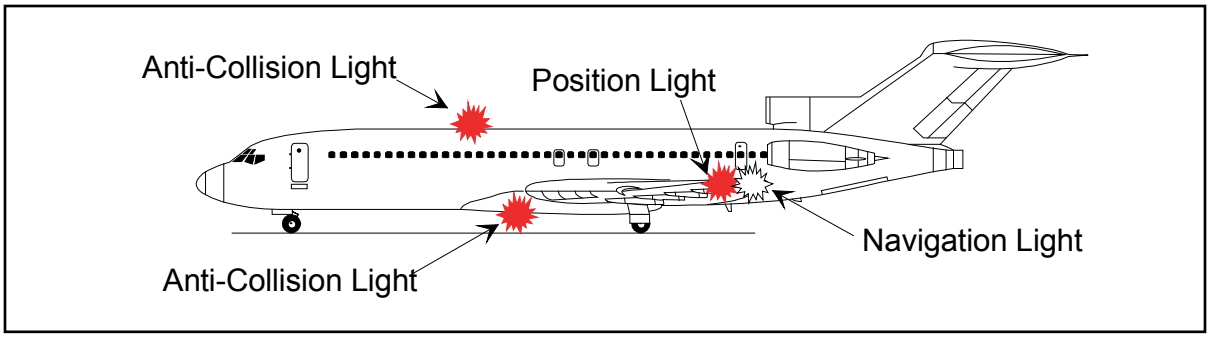
These lights are used to improve visibility during landing and sometimes during taxi operations. See Figure 10-22.

Aircraft Lighting

Figure 10-22







CHAPTER 11

Enforcement and Appeals

11.1 Enforcement

MAC Ordinance No. 105 was created to help ensure safe and proper driving behavior while operating on the airport. MAC has charged the Airport Police Department (APD) with the primary responsibility of enforcing the Ordinance requirements. There are four (4) categories of violations that will be enforced. A point system associated with the violation categories, identified in Exhibit II of the ordinance (Appendix A), has been created identifying the number of points that will be assigned to a driver's MSP Driver's record for each violation. The number of points varies from one (1) to eleven (11) depending on the severity of the violation. The four categories of violations and their associated points are:

Minor Infraction; One (1) point for each violation

Major Infraction; Three (3) points for each violation

Gross Infraction; Six (6) points for each violation

Severe Infraction; Eleven (11) points for each violation

Points are cumulative and remain on a driver's record for a period of two (2) years from the date of the violation.

In those instances where a violation has occurred and the driver can not be found, the driver's employer will be held accountable and issued a citation for the violation. Companies can be issued fines for any violation of the ordinance. The fine schedule can be found in Exhibit I of the ordinance.

NOTE: Drivers may also be required to complete additional training depending on the specific violation or point accumulation. Companies can receive fines of up to $1,000 and drivers can receive a two-year revocation of their driving privileges from a single incident which results in multiple violations.

11.2 Citation Types

Any driver or company who violates the ordinance may be issued any of the following citations for their violation.

- Warning Citation
- Administrative Citation
- Immediate Suspension
- Impoundment of vehicle

Warning Citations

Depending on the circumstances, a driver may be issued a Warning Citation for an ordinance violation. A driver may receive two Warning Citations for the exact same violation before points will be applied to their MSP Driver's Record. Any driver receiving three Warning Citations for the exact same violation within a 24 month period from when the first warning was issued will be issued an Administrative Citation by the MSP Drivers' Training Center.

Administrative Citations

If a violation occurs and a Warning Citation is not issued, then an Administrative Citation will be issued. It is up to the discretion of the MAC Representative to determine if a Warning or Administrative Citation should be issued.

Immediate Suspension

Certain violations of the ordinance may result in an Immediate Suspension of the driver's MSP driving privileges. Companies may not receive an Immediate Suspension. In the event that a driver receives an Immediate Suspension, an Administrative Citation will always be issued.

Impoundment of Vehicle

Certain violations of the ordinance may result in the Impoundment of a Vehicle. In the event that a driver or company's vehicle is impounded, an Administrative Citation will always be issued.

11.3 Suspension / Revocation

Section 5.4 of MAC Ordinance 105 lists specific penalties for specific accumulated point levels that will be enforced. Accumulating enough points in a 24 month period will result in a suspension and/or revocation. The criteria for these penalties are listed below:

Seven (7) Day Suspension of MSP Driving Privileges
When a driver's MSP Driver's Record reaches 7 - 10 points, the driver will be suspended from operating a vehicle on the airport for 7 days. The DTC will determine the start and end date of the suspension. If a driver's record is within the 7 - 10 point range and he/she receives another citation, but the points associated with that citation do not take the driver out of the 7 - 10 point range, then there will not be another 7 day suspension. However, if the driver's record falls below the 7-10 point range and he/she receives a citation with points that bring them back into the 7-10 point range, then the driver's MSP driving privileges will be suspended for another 7 days.

Thirty (30) Day Suspension of MSP Driving Privileges
When a driver's MSP Driver's Record reaches 11 - 14 points, the driver will be suspended from operating a vehicle on the airport for 30 days. The DTC will determine the start and end date of the suspension. If a driver's record is within the 11 - 14 point range and he/she receives another citation, but the points associated with that citation do not take the driver out of the 11 - 14 point range, then there will not be another 30 day suspension. But, if the driver's record falls below the 11 - 14 point range and he/she receives a citation with points that bring them back into the 11- 14 point range, then the driver's MSP driving privileges will be suspended for 30 days.

Two (2) Year Revocation of MSP Driving Privileges
When a driver's MSP Driver's Record reaches 15 or more points, their MSP driving privileges will be revoked from operating a vehicle on the airport for 2 years. The DTC will determine the start and end date of the revocation.

11.4 Appeals

Both drivers and companies have the right to request a hearing to appeal any Administrative Citation that results in the application of points to their MSP Driver's Record. There is no appeal for a warning citation.

11.5 Procedures To Request An Appeal

Requests for appeals must be submitted in writing to the MSP Drivers' Training Center and received within 14 calendar days after the citation has been issued. The appeal must state the reasons the driver/company feels the citation should be dismissed. The Hearing Officer shall set the date, time, and location of the hearing. Forms to request an appeal are located at the Lindbergh Terminal outside the MAC Police Operations Center (POC) and at the Employe Break Room located on the West Mezzanine of the Lindbergh Terminal through doors LT-3150-01A and LT-3150-01B.

Appeal forms can be submitted by putting them in the collection boxes located outside the MAC Police Operations Center (POC), Employee Break Room or by faxing them to the MSP DTC at (612) 726-5074.

The DTC will give the driver or company at least 5 days notice of when and where the hearing will occur. MAC reserves the right to review any appeal, for a violation that does not result in a driver's suspension, by sake of the appeal form itself. If a hearing is held, the driver/company may present any relevant evidence pertaining to the facts constituting grounds for the notice. Please note that all testimony will be taken under oath.

The hearing officer will then make a determination concerning whether or not the violation occurred. The hearing officer is limited to determine only if the citation issued will be upheld or dismissed. The hearing officer cannot change point assessments or lengths of suspensions/revocations. The hearing officer may render a determination at the hearing or delay announcing their findings. In any case, a report containing the hearing officer's findings will be issued as soon as practical after the hearing.

Please note that if the driver/company does not appear at the prescribed hearing date, time, and location, the appeal will proceed without their input. The hearing officer will render a determination based on the information provided. The driver/company will be afforded one opportunity to reschedule

their hearing provided the request is received by the MSP Drivers' Training Center, in writing, at least 24 hours prior to the scheduled hearing.

11.6 Executive Review

If the person requesting the hearing is facing a suspension or revocation and wishes to challenge the findings of the hearing officer, they may submit a request to the Executive Director asking him/her to review the hearing officer's findings. It must also state the reasons for which the driver/company feels the findings should be reversed or vacated. This request must be made in writing and submitted within 10 calendar days from the date of the hearing officer's report, using the appeal forms and collection boxes located outside the MAC POC or the Employee Break Room. The Executive Director shall then review the appeal to determine whether to affirm, reverse, or vacate the hearing officer's report. The Executive Director may also require a new or supplemental hearing to review additional information not available at the time of the first hearing.

The Executive Director's findings are the final action of the Commission. If an Executive Director review is not requested, the hearing officer's findings shall be the final action of the Commission.

More complete information about the appeal process can be found in Section 5.10 of the Ordinance.

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APPENDIX A

MAC Ordinance 127

METROPOLITAN AIRPORTS COMMISSION

ORDINANCE No. 127

AIR OPERATIONS AREA DRIVING ORDINANCE

Adopted by Commission: October 16, 2017

Effective Date: March 1, 2018

METROPOLITAN AIRPORTS COMMISSION

ORDINANCE 127

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 105.

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, 2017, 12 Consecutive Calendar Months will end on January 31, 2018.

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

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

1.4 Aircraft Taxi Operator. Any non-flight crew Person in physical control of a taxiing Aircraft for the purpose of maintenance or re-positioning.

1.5 Air Operations Area (AOA). Any area of the Airport used or intended to be used for landing, taking off or surface maneuvering of Aircraft, and including 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.

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

1.7 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.

1.8 Airport Director. See Director of MSP Operations.

1.9 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.

1.10 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.

1.11 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.

1.12 Baggage Cart. Shall mean 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.

1.13 Beacon. Shall mean a yellow flashing light, which includes LED light bars, rotating lights and/or strobe lights.

1.14 Bicycle. Shall mean every non-motorized device propelled solely by human power upon which any Person may ride. This includes motorized two wheeled Vehicles.

1.15 Brake Rider. A Person with an MSP Drivers' License and appropriate endorsement in the cockpit to operate the 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.

1.16 Commission. The Metropolitan Airports Commission, a public corporation organized and operating pursuant to Chapter 500, Laws of Minnesota 1943 and amendments thereto.

1.17 Company. See Person.

1.18 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**.**

1.19 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.

1.20 Critical Area Incursion. The crossing or entering of any Critical Area that is being protected for Aircraft operations, by a Person or Vehicle without approval from the Airport Traffic Control Tower.

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 Director of MSP Operations. The administrative officer or the officer's designee and, for purposes of the control of Vehicles and enforcement of this Ordinance, the agent of the Metropolitan Airports Commission, in charge of ~~the~~ Airport Operations.

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

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

1.25 Endorsement. Level of driving privilege(s) in the Movement Area granted under this Ordinance.

1.26 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 a Person(s) 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 Person for performance of direct job duties.

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

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

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

1.30 Foreign Object Debris (FOD). Any object that can cause damage by entering the engine or flight control mechanisms or strike 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 Executive Director/CEO's designated representative who shall conduct hearing 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. A program required by the Federal Aviation Administration (FAA), it is also referred to as the Surface Movement Guidance Control System or 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 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 Incursion. 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).

1.39 MSP Driver's License (License). A license issued by the Commission authorizing a Person to operate a Vehicle or be a Pedestrian in the Movement Area.

1.40 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.

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

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

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

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

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

1.46 Pedestrian. Any Person afoot or in wheelchair.

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

1.48 Powerback. A procedure where Aircraft back up under their own power using reverse engine thrust.

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

1.50 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.

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

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

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

1.54 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.

1.55 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.

1.56 SMGCS Plan. Surface Movement Guidance Control System Plan. See Low Visibility Operations Plan.

1.57 Stopping. Any halting even momentarily of a Vehicle, whether occupied or not, except when necessary to avoid conflict with other Traffic or in compliance with the directions of a MAC Representative or 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. Shall mean every non-motorized device, which 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 Drive. Any roadway within the T1-Lindbergh and T2-Humphrey Terminal Buildings designed for use primarily by tugs and Baggage Carts.

1.67 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 a 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.

1.68 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 during the time that they are operating a Vehicle.

b. Display Upon Request. Each Driver shall carry his or her state Driver's License at all times while operating a Vehicle on the AOA and display the state Driver's License upon demand to a MAC Representative.

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.

2.2 Non-Movement Area.

a. Necessary To Operate. This section applies to each Driver that operates a Vehicle in the Non-Movement Area. No Driver shall operate and no Person shall allow a Driver to operate, a Vehicle on the Non-Movement Area without completing training or with suspended or revoked driving privileges.

b. Training. Prior to operating a Vehicle in the Non-Movement Area, the Driver must complete Driver's training to learn the rules for driving on the AOA. Drivers may be trained by their Companies with Commission-approved training objectives and materials. The Airport Director may require a Driver to attend Commission-provided remedial training in appropriate situations if the Airport Director determines performance may be improved. Each Driver must attend Company sponsored Driver's training at least once every three years.

c. Training Records. Companies are required to keep records of training provided to each Driver for a minimum of six years. Training records, at a minimum, shall include: the Driver's name, date training was completed, and description of the training provided.

d. Audit. Upon request of the Drivers' Training Center, a Company must provide copies of all Drivers' training records within 7 calendar days.

2.3 Movement Area.

a. Necessary To Operate. No Driver shall operate, and no Person shall allow a Driver to operate, a Vehicle on the Movement Area without a current, valid MSP Driver's License, or with suspended or revoked MSP driving privileges; or being under Escort by a Person with a valid MSP Driver's Licenses or pursuant to an exception provided in this Ordinance.

b. Display Upon Request. The Driver shall carry his or her MSP Driver's License at all times while operating or Escorting a Vehicle and display the MSP Driver's License upon demand to a MAC Representative.

c. The Driver must have a demonstrated ability to read, speak and understand the English language so the Driver can communicate and be communicated with on the Movement Area.

d. Conditional Movement Area Permits.

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

meet the requirements of Section 2.1, but do not need to meet the requirements of Section 2.4.

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.

2.4 Requirement(s) to Obtaining a 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 maintain these License qualifications throughout the term of their MSP Driver's License.

a. Training. Prior to obtaining an MSP Driver's License, the Driver should complete Driver's training to learn the rules for driving on the Movement Area. Drivers may receive training provided by the Commission or through other Commission-approved training. Each Driver should attend Commission-approved Driver's training at least once every 12 consecutive calendar months.

b. Testing. Prior to operating a Vehicle in the Movement Area, the Driver must complete Driver's testing, unless under escort.

1. Each Driver must successfully pass a test developed by the Drivers' Training Center to demonstrate the Driver's knowledge of the Airport, Traffic and safety rules for the Movement Area, and the requirements of the Ordinance. Each Driver must successfully complete the testing at least once every 12 consecutive calendar months.

2. Drivers pursuing a Runway or Taxiway Endorsement must successfully pass a practical driving test developed by the Drivers' Training Center at least once, or more as required by the Airport Director, prior to being issued an MSP Driver's License.

c. Remedial Training and Testing. The Airport Director may require a Driver to attend remedial training and testing after an accident, incident, incursion or appropriate situations if the Airport Director determines performance may be improved.

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

1. 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.

2. 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.

3. Aircraft Pushback Endorsement. This Endorsement authorizes Drivers to operate a Vehicle when moving an Aircraft from the Gate onto a Taxiway or Taxiway Safety Area and bringing the Vehicle directly back to the Gate at the Airport and to conduct Off-Gate Deicing while in direct performance of their job duties.

4. 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 operate an Aircraft when taxiing on all Runways and Taxiways at the Airport while in direct performance of their job duties and to serve as a 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. MSP Driver's Licenses shall be issued effective from the date of issuance until the end of 12 consecutive calendar months. An expired MSP Driver's License is considered as not having an MSP Driver's License.

h. Current Information.

1. Each Driver must keep the Drivers' Training Center informed of a current address and telephone number. Drivers have 14 calendar days to report a change in address or telephone number.

2. Each Driver and/or Driver's Owner Approved Contact must inform the Drivers' Training Center of any changes in employment or job responsibility.

3. Each Driver and/or Driver's Owner Approved Contact must inform the Drivers' Training Center when a Driver no longer needs access to the Movement Area. This notification must take place prior to the expiration of the Driver's MSP Driver's License.

4. Upon expiration of a Driver's MSP Driver's License, the Driver and/or the Driver's Owner Approved Contact must immediately inform the Drivers' Training Center that the Driver will not operate on the Movement Area while the MSP Driver's License is expired.

SECTION 3. VEHICLE REQUIREMENTS

3.1 Compliance Checks. The Commission may, from time to time, conduct spot checks of Vehicles and Drivers using the AOA for compliance with Vehicle and Driver requirements of this Ordinance.

3.2 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 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's side of each Vehicle. The Logos must be of reflectorized material if Section 3.2 a. is not met. Logos must not be displayed inside a Vehicle window but may be displayed on the exterior side of a Vehicle window. Handwritten logos are not acceptable.

3.3 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. The beacon must be on at all times when operating in the AOA.

b. Emergency Vehicles. Section 3.3(a) is not applicable to Emergency Vehicles when they are responding to an emergency call.

c. Headlights and Taillights. All motorized Vehicles must operate with two working headlights and two or more working red taillights, unless the Vehicle is factory designed with only one headlight or one taillight.

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

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

3.5 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 shall have 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.

3.6 Vehicle Deficiency. When any MAC Representative has reasonable grounds to believe that a Vehicle operating under this Ordinance is not in compliance with Section 3, the MAC Representative may issue an Administrative Citation to the Person operating such Vehicle.

3.7 Vehicle Operation. In the event that the Vehicle deficiency is for one or more of items of (a) through (e) listed below, the Vehicle shall not be operated on the AOA until the deficiency for which the Administrative Citation is issued has been corrected. The Person may be required to present the Vehicle for inspection to a MAC Representative.

a. Nonfunctioning headlight(s).

b. Nonfunctioning taillight(s).

c. Nonfunctioning beacon.

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

e. Other unsafe or dangerous condition.

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

3.9 Vehicle Insurance. Any Vehicle operated on the AOA is required to have a minimum of $5,000,000 insurance, or a greater amount if required by a contract with the Commission.

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, 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. “Under the influence” means the Person’s alcohol concentration at the time, or as measured within two hours of time, of driving operation 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 as found in Minnesota Statutes Section 169A.35 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. Driver's 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 is operating a Vehicle pushing back or towing an Aircraft that is equipped with an operable two-way radio capable of communication with the ATCT and is monitoring the appropriate air traffic control frequency; and,

(c) The Driver or Aircraft 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; or,

(d) The Driver must follow the instructions of the Air Traffic Control Tower.

2. The Driver is Escorted by a Vehicle operated by another Driver that meets Section 4.5(c) (1) a, b, and c above 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:

"S" Taxiway
"W" Taxiway
"T" 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, Movement Area and Critical Area Incursions.

1. No Person may commit a Runway Incursion.

2. No Person may commit a Movement Area Incursion

3. No Person may commit a Critical Area Incursion

h. Unauthorized Areas. No Driver may drive through a closed or unauthorized area without MAC Representative 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 appropriate Right-of-Way to non-Aircraft Vehicles.

3. Each Driver shall give the appropriate Right-of-Way to all Vehicles pushing back or towing aircraft.

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.

2. Section 4.6(b) 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/or 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. No Driver or Pedestrian shall use a cellular phone, AM/FM radio, MP3 player, iPod or other similar electronic device for personal use, while operating on the Movement Area. This does not apply to radios designed to communicate with the Air Traffic Control Tower or Persons.

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 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 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 Commission, 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, upon property owned by the Commission 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.

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 and Two-wheeled Motorized Devices. No Person shall use a Bicycle or any motorized device with two or less wheels on the AOA except in exclusive leasehold premises or as authorized by the Airport Director. Some examples of two or less 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-cockpit 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.

SECTION 5. ENFORCEMENT

5.1 Administrative Citations. MAC Representatives may issue an Administrative Citation(s) for any Violation(s) of this ordinance.

5.2 Violations Data. Violation data may be provided to a Driver's Owner Approved Contact.

5.3 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 impose;

4. Violations of AOA Field Rules; or,

5. Any other action that compromises safety on the AOA as determined by the Airport Director.

5.4 Points.

a. Points and Penalties. Drivers will be assessed the following penalties for Violations when they accumulate the point level(s):

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 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. Driver must complete training at the DTC before the driving privileges will be reinstated.
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 training at the DTC 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 month period according to Section 5.8(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 an assessment, 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 14 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 assessment, 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 5.10(b) to review the violation cited in the Notice.

5.5 Warning Tickets. MAC Representatives may issue warning tickets. If a Person is issued 3 warning tickets for the exact same violation during a 24 month period, the warnings will be treated as a violation. The Person will be assessed points for the 24 month period beginning on the date of the third violation.

5.6 Immediate Suspensions.

a. Conduct. MAC Representatives may immediately suspend a Driver's driving privileges for the following reasons.

1. Failure by a Person to pay in full an outstanding balance for any fees that are at least 30 calendar days past due or fines that are not paid within the time specified by the Ordinance;

2. Operating a Vehicle while having a suspended or revoked state or MSP driving privileges;

3. Operating a Vehicle while under the influence as defined in Section 4.3;

4. Operating a Vehicle as defined in a reckless manner as described in Section 4.2(a);

5. The Driver commits a Runway Incursion as described in Section 4.5(g)(1); or,

6. 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 Paragraph a(1) above, the immediate suspension shall end and the Driver's MSP driving privileges shall be reinstated as soon as practical (but not later than the next business day) upon full payment. Where the immediate suspension is for the reasons stated in Section 5.6(a)(2), 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 5.6(a)(3-6) above, 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 5.6(a)(3-6) is deemed appropriate to exceed 7 calendar days.

5.7 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 for which suspension is specified in Exhibit II.

3. 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. 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 5.10.

5.8 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 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 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. 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 5.10.

c. Duration. After a Driver's driving privileges have been revoked, the Driver shall not be eligible to drive for a period of 24 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 the Vehicle under Escort.

5.9 Administrative Fines. Fines will only be imposed if there is no Driver 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 Person 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 5.10.

5.10 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 5.4(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 14 calendar days after the notice of assessment, suspension or revocation has been issued.

c. Scheduling Hearing. If the Person requests a hearing, the Airport Director shall so advise the Executive Director, who shall appoint a hearing officer to conduct the 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 5 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 5.10(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, sent by U.S. mail to the last address on file with the Commission, or transmitted by fax. "Time of issuance" means when the notice is hand delivered, placed in the mail, or sent by facsimile.

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, II or III (that require Commission action) 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 105 is revoked.

7.7 Effective Date. This Ordinance shall be in full force and effect beginning March 1, 2018

EXHIBIT I

*FINES

Minor Infraction	$100.00
Major Infraction	$200.00
Gross Infraction	$500.00
Severe Infraction	$1,000.00

Late Fee ..... $10.00 or 1% 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 annual review by the Commission according to Section 6.2.

EXHIBIT II

Violations are cumulative by category and all categories are tracked for a 24 month consecutive 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 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 MSP Driver's License	2.3.b
A25	Failure to notify the Drivers' Training Center of a change in address or telephone number	2.4.h.1
A30	Operating a Vehicle without the appropriate amount of reflectorized material	3.2.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	3.2.d
A55	Operating Vehicle without an approved Beacon	3.3.a
A60	Failure to have Beacon turned on while operating a Vehicle	3.3.a
A80	Improper location of Beacon	3.3.a
A90	Operating a Vehicle with nonfunctioning Headlights	3.3.c
A100	Operating a Vehicle with nonfunctioning taillights	3.3.c
A115	Failure to have lights of sufficient brilliance to assure safety in driving	3.3.d
A120	Operating a Vehicle with unsafe tire(s), brake(s) or steering mechanism	3.4
A130	Operating a Vehicle without the proper mirrors	3.5.a

A135	Operating a Vehicle with a cracked or discolored windshield which limits or obstructs proper vision	3.5.b
A150	Operating a Vehicle with unapproved poster, stickers, signs or other objects on the windows	3.5.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

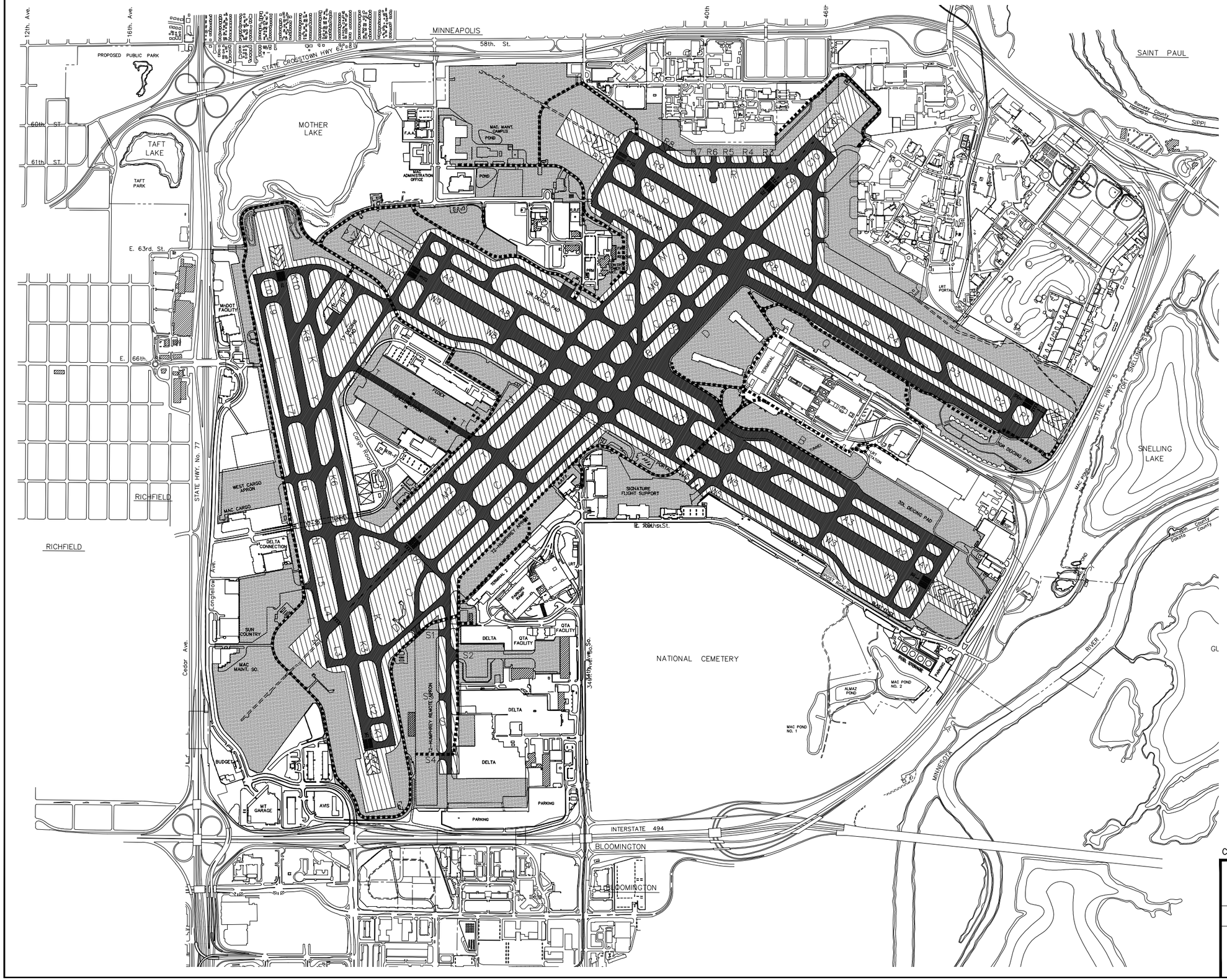
Major Infraction – (3) points		Applicable Section
B10	Failure to report a Vehicle Accident	2.1.e.1
B12	Failure to notify the Drivers' Training Center of any suspension, revocation, or restriction of their State Driver's License	2.1.e.2
B14	Failure to complete Driver's training prior to operating a Vehicle on the Non-Movement Area	2.2.b
B16	Failure to attend Company sponsored Driver's training at least once every three years	2.2.b
B18	Failure to notify the Drivers' Training Center when a Driver no longer needs access to the Movement Area	2.4.h.3
B25	Operating a Vehicle after an Administrative Citation has been issued for deficiencies to that Vehicle and before they have been corrected	3.7
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
B70	Failure to give right of way to non-Aircraft Vehicles	4.6.a.2
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	Operating a Vehicle or as a Pedestrian on Movement Area while using a cellular phone, AM/FM radio, MP3 play, iPOD or other similar electronic device for personal use	4.6.j
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)	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
B170	Other Driver or Vehicle violation that poses a safety threat to property	5.3.a.5

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
C22	Operating a Vehicle on the Non-Movement Area without Company sponsored training	2.2.a
C24	Failure to maintain Drivers' training records	2.2.c
C26	Failure to provide copies of Drivers' training records within 7-calendar days	2.2.d
C28	Failure to allow a MAC Representative accompany and observe any Vehicle or Aircraft taxi or tow operation	2.3.e
C40	Using someone else's MSP Driver's License	2.3.b
C45	Failure to notify MSP Drivers' Training Center prior to expiration of MSP Driver's License	2.4.h.4
C50	Operating a Vehicle 16+ miles per hour over the speed limit	4.1
C60	Careless driving	4.2.b
C63	No Driver shall violate the MN Open Bottle Law	4.4
C66	Failure to follow directions of the Air Traffic Control Tower.	4.5.c.1.d
C70	Movement Area Incursion	4.5.g.2
C75	Critical Area Incursion	4.5.g.3
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.3
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-cockpit 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
C110	Violation of Field Rules	5.3.a.4
C120	Other Driver or Vehicle violation that poses a safety threat to Persons	5.3.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 & 2.3.a
D50	Failure to have a minimum of $5,000,000 insurance or greater amount if required by a contract with the Commission	3.9

Exhibit II is subject to change by Commission action according to Section 6.2



MAC Ordinance No. 127
AOA Operating Ordinance
Effective March 1, 2018

INFORMATION NOT VERIFIED

CURRENT: 2016

AOA Driving Ordinance Exhibit III

MSP INTERNATIONAL AIRPORT

Metropolitan Airports Commission
GENERAL OFFICES
6040-28TH AVENUE SOUTH
MINNEAPOLIS, MINNESOTA 55450