Aviation Appendices Table of Contents

Appendix H: National and State Airport Classification

The National Plan of Integrated Airports (NPIAS) is constantly updated as state and local airport and system plans are completed and accepted by the FAA. Table H-1 indicates the current mix of airports for the region included in the 2013-2017 national plan and officially eligible for federal airport funding. Current national plan information is summarized below.

Table H-1: Current Mix of Airports Included in National Plan

Airport	Hub Type	Role		Year 5
		Current	Year 5	Based Aircraft
Buffalo		GA	GA	50
Cambridge		GA	GA	47
Faribault		GA	GA	75
Le Sueur		GA	GA	57
Princeton		GA	GA	45
Red Wing		GA	GA	57
Rush City		GA	GA	41
St. Cloud		P	P	109
Winsted		GA	GA	33
Airlake		Reliever	Reliever	165
Anoka Co.-Blaine		Reliever	Reliever	494
Crystal		Reliever	Reliever	288
Flying Cloud		Reliever	Reliever	491
MSP International	Large	P	P	162
Lake Elmo		Reliever	Reliever	249
St. Paul Downtown		Reliever	Reliever	125
So. St. Paul		Reliever	Reliever	218
New Richmond		GA	GA	221
Osceola		GA	GA	69

Other airports, in addition to those in the National Plan of Integrated Airports (NPIAS) shown in Figure H-1, are part of the Minnesota State Airport System Plan (SASP) as depicted in Figure H-2. Several near-by airports in adjacent states are included to indicate where some Minnesota communities may access air service. Some of the ambiguities between the state and metro system designations are based upon state-wide requirements and laws and rules that apply only to the metro area; thus, the metro airport classifications are depicted on the map as a separate group without classification.

The existing Regional Airport System Plan (RASP) for the metropolitan area is depicted in Figure H-3; it identifies key parts of the system involving the hub airport, reliever airports, and special purpose facilities.

Figure H-1: National Plan of Integrated Airports

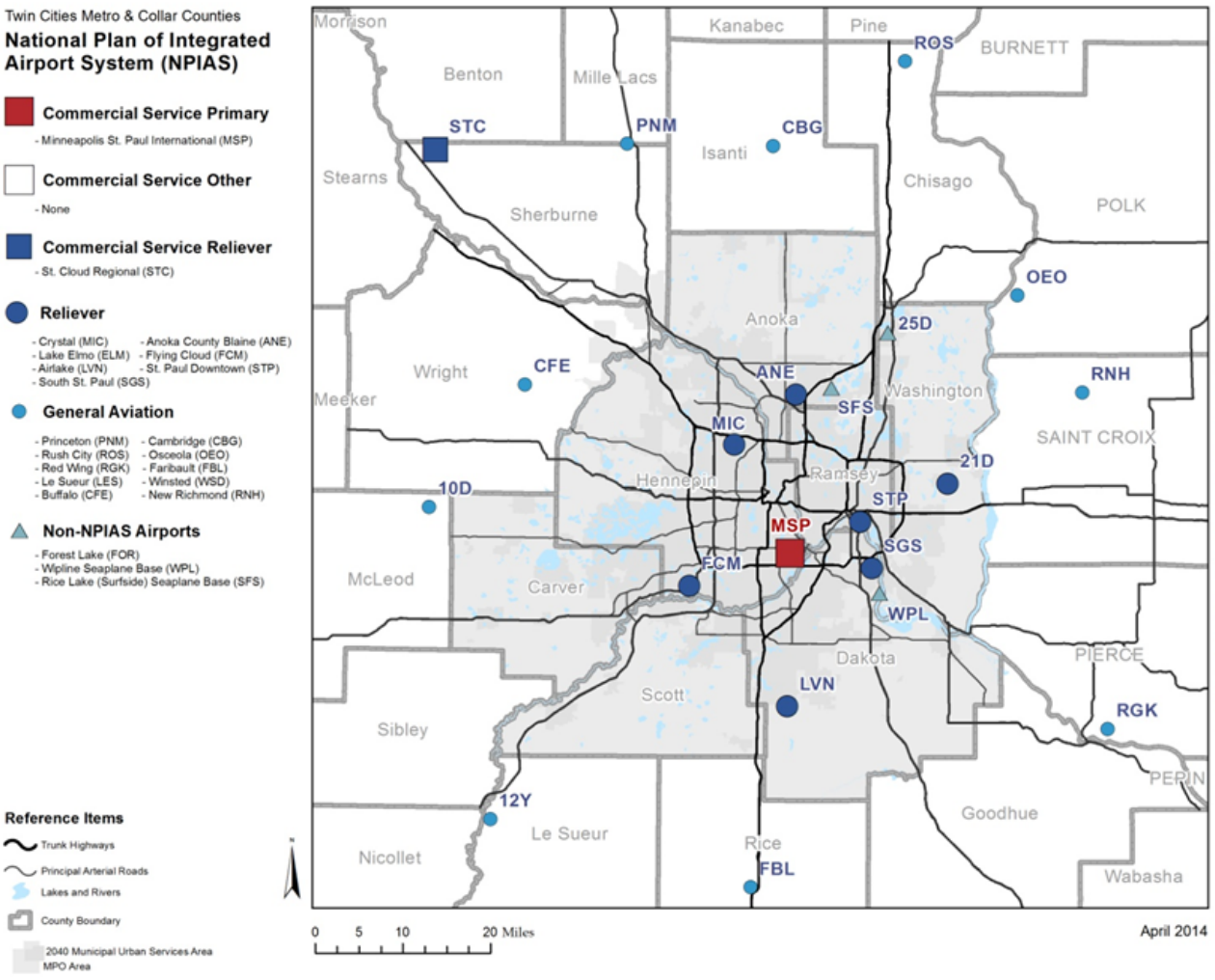


Figure H-2: Minnesota State Airport System Plan

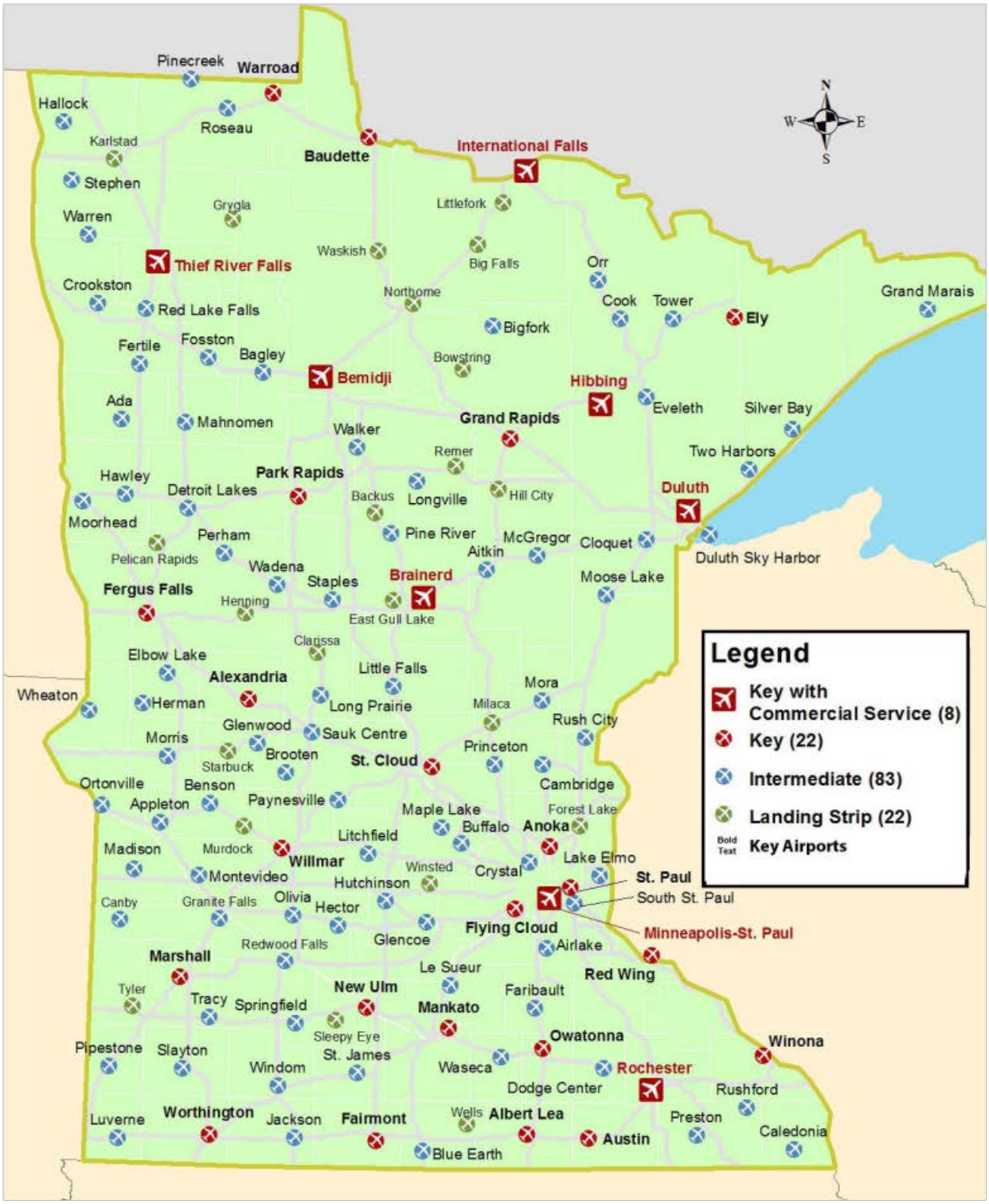
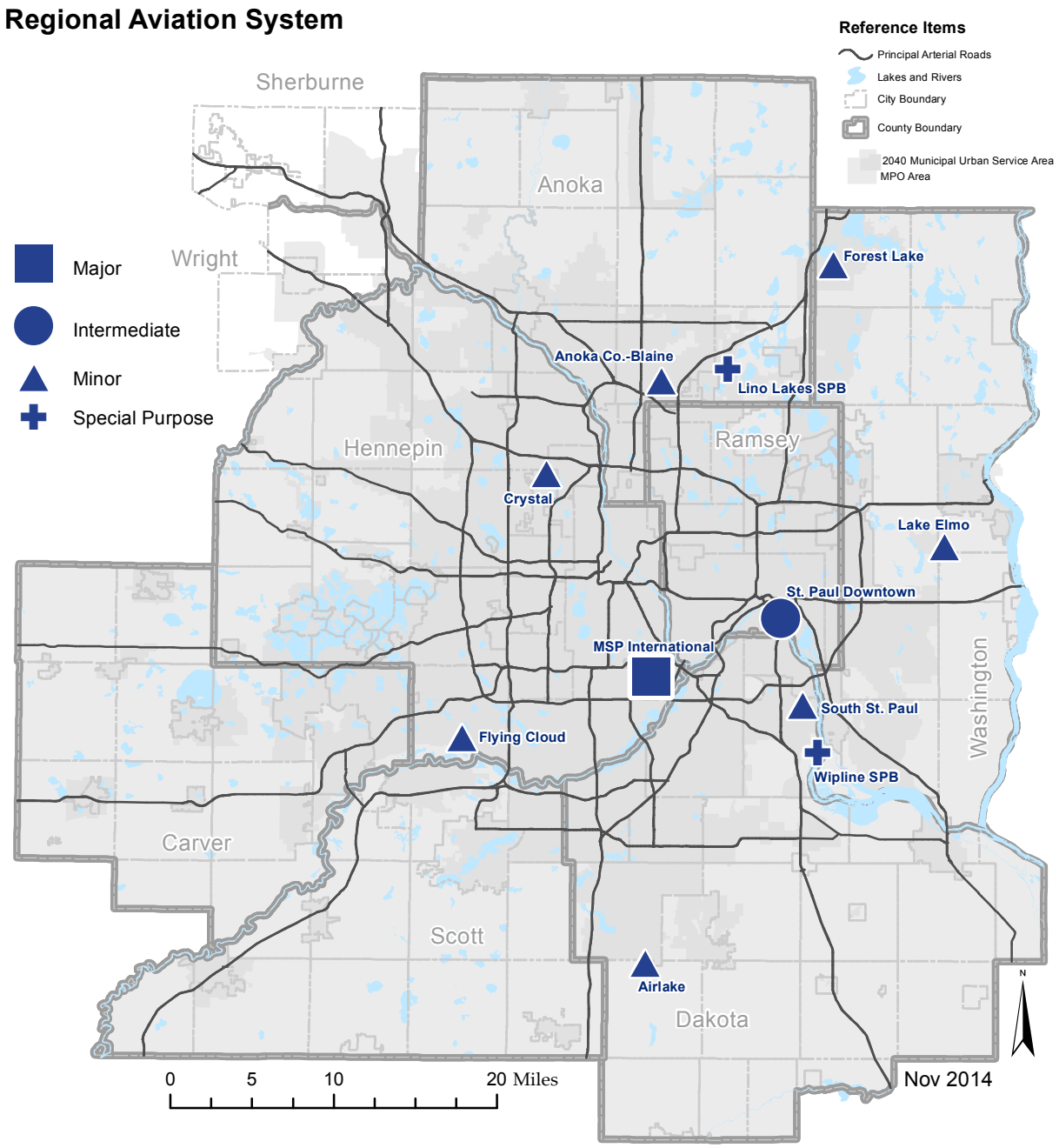


Figure H-3: Existing Regional Airport System



Appendix I: Regional Airspace

All of the open sky covering the United States, from less than an inch off the ground all the way to outer space, is part of America's airspace. This airspace resource is recognized in both the Minnesota state airports system plan and the Minneapolis-St. Paul Metropolitan regional aviation system plan. All of this airspace is divided into several standardized types ranging from A through G, with A being the most restricted and G the least restrictive as depicted in Figure I-2.

Coordination and proper planning are required to make efficient and safe use of the airspace between the different classes of airports and air-transportation users. At lower altitudes this airspace is shared with the nation's communications industry and others that requires airport and airways protection from potential obstructions to air navigation, or activities that disrupt aviation communications and navigation/landing aids. Each type of airspace has its own required level of air traffic control services and its own minimum requirements for pilot qualifications, aircraft equipment, and weather conditions. In addition, there is other airspace reserved for special purposes called special use airspace.

Within the United States, airspace is classified as either controlled or uncontrolled. Controlled airspace will have specific defined dimensions (e.g. altitude ranges or vertical boundaries, and an applicable surface area or horizontal boundaries). Within controlled airspace air traffic control services are provided to all pilots operating under instrument flight rules, because they are flying solely by reference to instrument indicators. The services are also provide to some pilots operating under visual flight rules even though they are using points on the ground to navigate.

Class A airspace covers the entire United States at altitudes between 18,000 and 60,000 feet mean sea level. All jet routes are in this airspace that is used primarily by jets and airliners traveling over long distances between major cities. Air traffic in this airspace operates under IFR rules and must maintain radio contact with en route air traffic control. As aircraft transition from a jetway route to lower altitudes they are handed off to a specific destination airport's air traffic control. In most cases they will be arriving to an airport with an air traffic control tower that is surrounded by a Class B, C, or D airspace.

Figure I-2 depicts all airspace requirements, and Class B airspace extends from the surface to 10,000 feet and out to 30 nautical miles and is structured like an upside-down wedding cake. Class B airspace surrounds the nation's busiest airports, such as Minneapolis-St. Paul International Airport. At the outer limits of the Class B airspace, from the surface to 10,000 feet MSL at MSP, there is a Mode-C Veil. This is an imaginary vertical surface that delineates where an aircraft must have a Mode-C transponder so ATC can track their flight. Visual flight rules transition routes are specific designated flight paths used by air traffic control to route visual flight rules traffic through Class B airspace. Visual flight rules flyways are general flight paths through low altitudes for general aviation to fly from one ground-based radio beacon to another across the U.S. It helps pilots plan flights into, out of, through, or near complex Class B terminal airspace, especially where instrument flight rules routes occur.

Class C airspace extends from the surface to 4,000 feet above ground level for a 20 nautical mile distance from the airport. This airspace surrounds other busy airports that have radar services for

arriving and departing aircraft. No Class C airport airspace is designated in the Twin Cities metro area airspace.

Class D airspace surrounds airports with operating air traffic control towers and weather reporting services. This airspace extends from the surface to 2,500 feet above ground level within 4.3 nautical miles (5 statute miles) of the airport. In the metro area the Anoka County-Blaine, Crystal, Flying Cloud and St. Paul Downtown Airports have a Class D airspace designation. These airports have part-time air traffic control tower and their airspace reverts to Class E airspace areas when the towers are not in operation.

Class E airspace includes all other controlled airspace in the United States that is not designated as class A, B, C, D or G. This airspace extends to 18,000 feet MSL from various altitudes and can be extended to the surface. Class E airspace also surrounds airports with weather reporting services in support of instrument flight rules operations, but no operating control tower. In the Twin Cities area the Airlake Airport is such a facility.

Class F designated airspace is not used in the United States.

Class G airspace is uncontrolled; it includes all airspace in the United States not classified as Class A, B, C, D, or E. No air traffic control services are provided and the only requirement for flight is certain visibility and cloud clearance minimums. Most of the airspace below 1,200 feet above ground level is Class G airspace.

Special Conservation Area includes airspace surrounding national parks and wildlife refuges. In the Twin Cities region the St. Croix National and Scenic Wild River is such an area and pilots are requested to maintain a minimum altitude of 2,000 feet above ground level whenever possible. One objective is to avoid bird strikes and another is to minimize noise intrusion on wildlife and tranquility for user experience in protected natural settings.

Special Use Airspace

Special Use Airspace is where aeronautical activity must be limited, usually because of military use or national security concerns. (Note: None of the following airspace areas occur within the Twin Cities region.) Special Use Airspace includes the following:

- Prohibited areas (e.g. Camp David)
- Restricted areas (military activities including Controlled Firing Areas)
- Warning areas (extends outward from 3 nm off the coast).
- Military operations areas (established for military training activities)
- Alert areas (e.g. established for areas with a high volume of pilot training)

Other Airspace Areas

Other Airspace Areas are designated usually as temporary limitations for specific events and include:

- Airport Advisory Areas
- Military Training Routes
- National Security Area
- Temporary Flight Restrictions

Figure I-1: U.S. Airspace at a glance

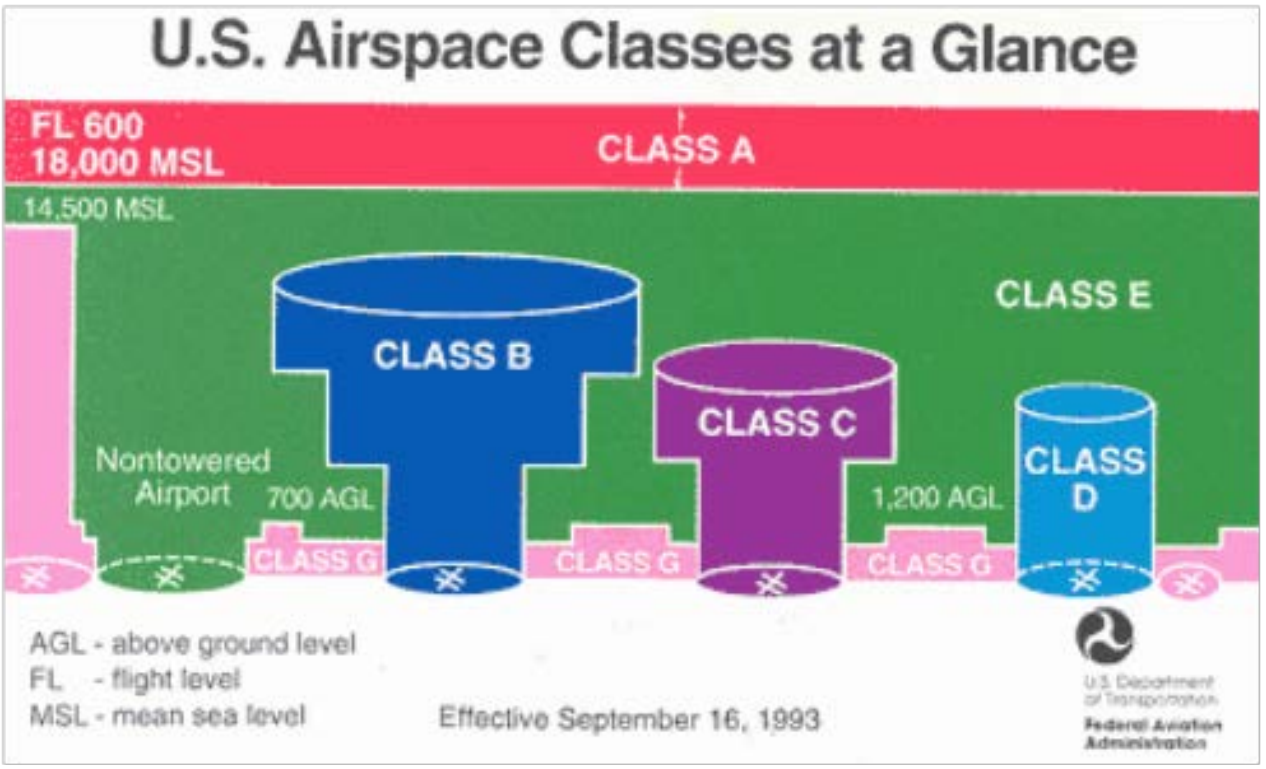
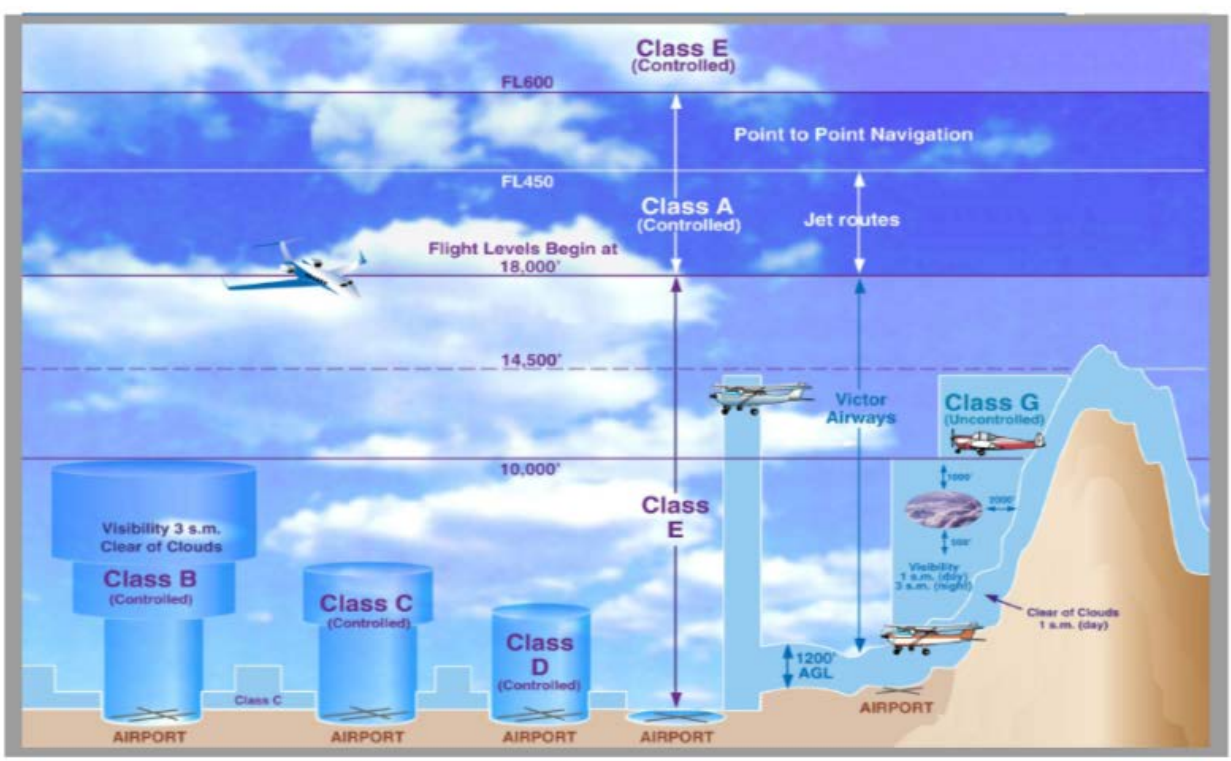


Figure I-2: Class B Airspace



Source: FAA and HNTB Corporation

Appendix J: Metropolitan Airports Commission Capital Investment Review Process

The overall aviation planning process for the Twin Cities metro area is discussed in the planning process section of the TPP Chapter 10. In Figure 10-19 the various local planning elements are depicted by shading, and include the capital improvement plan. Additional detail on the local capital investment agency review process is provided in this appendix.

Authority

As defined under state statutes for the Council and the Metropolitan Airports Commission, the capital investments made at the region's public-use airports are reviewed and commented upon, or under some conditions require approval, by the Metropolitan Council. For municipal or privately-owned, public-use airports the Council coordinates with MnDOT Aeronautics through their 5-year capital improvement program. This program is updated annually and is used in for identifying project eligibility and defining state and federal funding participation levels/schedule in the Statewide Transportation Improvement Program. The Metropolitan Airports Commission prepares a capital improvement program for the metro area airports they own and operate.

The Council reviews annually the Metropolitan Airports Commission capital improvement program under the following key legislative authorizations:

- MS 473.165, Council Review: Independent Commission, Board, Agency

Sd1

The Metropolitan Council shall review all long-term comprehensive plans (LTCP's) of each independent commission [Metropolitan Airports Commission], board, or agency prepared for its operation and development within the metropolitan area but only if such plan is determined by the Council to have an area-wide effect, a multi-community effect, or to have a substantial effect on metropolitan development. Each plan shall be submitted to the council before any action is taken to place the plan or any part thereof, into effect.

- MS 473.171, Council Review: Applications for Federal, and State Aid

Sd1 Federal

The Council shall review all applications of a metropolitan agency, independent commission, board or agency, and local governmental units for grants, loans or loan guarantees from the U.S. or agencies thereof submitted in connection with proposed matters of metropolitan significance, all other applications by metropolitan agencies, independent commission, boards and agencies and local governmental units for grants, loans, or loan guarantees from the United States or any agency thereof if review by a regional agency is required by federal law or the federal agency, and all applications for grants, loans or allocations from funds made available by the United States to the metropolitan area for regional facilities pursuant to a federal revenue sharing or

similar program requiring that the funds be received and granted or allocated or that the grants and allocations be approved by a regional agency.

Sd2 State

The council shall review all applications or requests of a metropolitan agency, independent commission, board or agency, and local governmental units for state funds allocated or granted for purposed matters of metropolitan significance, and all other applications by metropolitan agencies, independent commissions, boards, agencies, and local governmental units for state funds if review by a regional agency is required by state law or the granting state agency.

- MS 473.181, [Additional] Council Review Powers

Sd5 Airports

The Council shall review Metropolitan Airports Commission capital projects pursuant to section 473.621, Sd6. The plans of the Metropolitan Airports Commission and the development of the metropolitan airports system by the commission shall, as provided in sections 473.611, Sd5 and 473.655, be consistent with the development guide of the Council.

- MS 473.621, Powers of [Metropolitan Airports Commission] Corporation

Sd6 Capital projects, review

All Minneapolis-St. Paul International Airport capital projects of the commission requiring expenditure of more than $5 million shall be submitted to the Metropolitan Council for review. All other capital projects of the commission requiring expenditure of more than $2 million shall be submitted to the Metropolitan Council for review. No such project that has a significant effect on the orderly and economic development of the metropolitan area may be commenced without the approval of the Metropolitan Council.

In addition to any other criteria applied by the Metropolitan Council in reviewing a proposed project, the council shall not approve a proposed project unless the council finds that the commission has completed a process intended to provide affected municipalities the opportunity for discussion and public participation in the commission's decision-making process. An "affected municipality" is any municipality that (1) is adjacent to a commission airport, (2) is within the noise zone of a commission airport, as defined in the Metropolitan Development Guide, or (3) has notified the commission's secretary that it considers itself an "affected municipality."

The council must at a minimum determine that the commission:

- provided adequate and timely notice of the proposed project to each affected municipality;
- provided to each affected municipality a complete description of the proposed project;
- provided to each affected municipality notices, agendas, and meeting minutes of all commission meetings, including advisory committee meetings, at which the proposed project was to be discussed or voted on in order to provide the municipalities the opportunity to solicit public comment and participate in the project development on an on-going basis; and, considered the comments of each affected municipality.

Sd7 Capital project

For purposes of this section, capital projects having a significant effect on the orderly and economic development of the metropolitan area shall be deemed to be the following:

- the location of a new airport,
- a new runway at an existing airport,
- a runway extension at an existing airport,
- runway strengthening other than routine maintenance to determine compliance with Federal Air Regulation, Part 36,
- construction or expansion of passenger handling or parking facilities which would permit a 25 percent or greater increase in passenger enplanement levels,
- land acquisition associated with any of the above items or which would cause relocation of residential or business activities.
- MS 473.614, Environmental Review

In addition to overall NEPA and MEPA environmental requirements the Metropolitan Airports Commission has the following state directives concerning preparation of environmental documentation in relation to development and implementation of capital improvements.

Sd1 Capital Plan; environmental assessments

The commission shall prepare an assessment of the environmental effects of projects in the commission's seven-year capital improvement program and plan at each airport owned and operated by the commission. The assessment must examine the cumulative environmental effects at each airport of the projects at that airport, considered collectively. The commission need not prepare an assessment for an airport when the capital improvement program and plan for that airport has not changed from the one adopted the previous year or when the changes in the program and plan will have only trivial environmental effects.

Sd2 Capital Program: Environmental Assessment Worksheets

The commission shall prepare environmental assessment worksheets under chapter 116D, rules issued pursuant thereto, on the environmental effects of projects in the commission's capital improvement program at each airport owned and operated by the commission. The scope of the environmental assessment worksheets required by this section is limited to only those projects in the program for an airport that meet all of the following conditions:

- The project is scheduled in the program for the succeeding calendar period.
- The project is scheduled in the program for the expenditure of $5 million or more at MSP, or $2 million or more at any other airport.
- The project involves (i) the construction of a new or expanded structure for handling passengers, cargo, vehicles, or aircraft; or (ii) the construction of a new or the extension of an existing runway or taxiway.

After adopting its capital program, the commission may amend the program by adding or changing a project without amending or redoing the worksheets required by this subdivision, if the project to be added or the change to be made is one that the commission could not reasonably have foreseen at the time it completed the worksheets.

For the purpose of determining the need for an environmental impact statement (EIS), the commission shall consider the projects included in the scope of a worksheet as a single project and shall assess their environmental effects collectively and cumulatively. The commission's decision on whether an environmental impact statement is needed must be based on the worksheet and comments. The commission may not base a decision that an EIS is not needed on exemptions of projects in state or federal rules. The commission is not required to prepare an EIS on an individual project, or to include a project in the scope of an EIS that the commission determines is needed, if the project is shown in the worksheet to have trivial environmental effects or if an EIS on the project has been determined to be adequate under state law.

The commission may incorporate into worksheets information from the commission's log-term plans, environmental assessments prepared under subdivision 1, or other environmental documents prepared on projects under state or federal law.

Sd2a Environmental Impact Report

Notwithstanding the provisions of subdivision 2, the commission shall prepare a report documenting the environmental effects of projects in the Minneapolis-St. Paul International Airport 2010 LTCP. Environmental effects of and costs associated with, noise impacts, noise mitigation measures, and land use compatibility measures must be evaluated according to alternative assumptions of 600,000, 650,000, 700,000 and 750,000 aircraft operations at the Minneapolis-St. Paul International Airport.

Sd3 Procedure

The environmental assessments required under subdivision 1 and the EAW's required under subdivision 2 must be prepared each year before the commission adopts its capital improvement plan and program.

The commission shall hold a public hearing on each environmental assessments and EAW before adopting the capital improvement plan and program. The commission may consolidate hearings.

The initial environmental assessments and EAW's must be completed before the commission adopts its capital improvement program for calendar years 1989-1995.

Sd4 Other Environmental Review

Nothing in this section limits the responsibility of the commission or any other governmental unit or agency, under any other law or regulation, to conduct environmental review of any project, decision, or recommendation, except that the EAW's prepared under subdivision 2 satisfy the requirements under state law or rule for EAW's on individual projects covered by worksheets prepared under subdivision 2.

Review Materials

The Metropolitan Airports Commission and the Council prepare various materials for their respective policy bodies and to facilitate coordination with standing committees, advisory groups and the public. The Metropolitan Airports Commission process is depicted in schematic form in Figure J-1, indicating the flow of various work /review elements in development of the capital improvement program and relationship of Metropolitan Council and EQB reviews.

Figure J-1: Development of MAC Capital Improvement Program

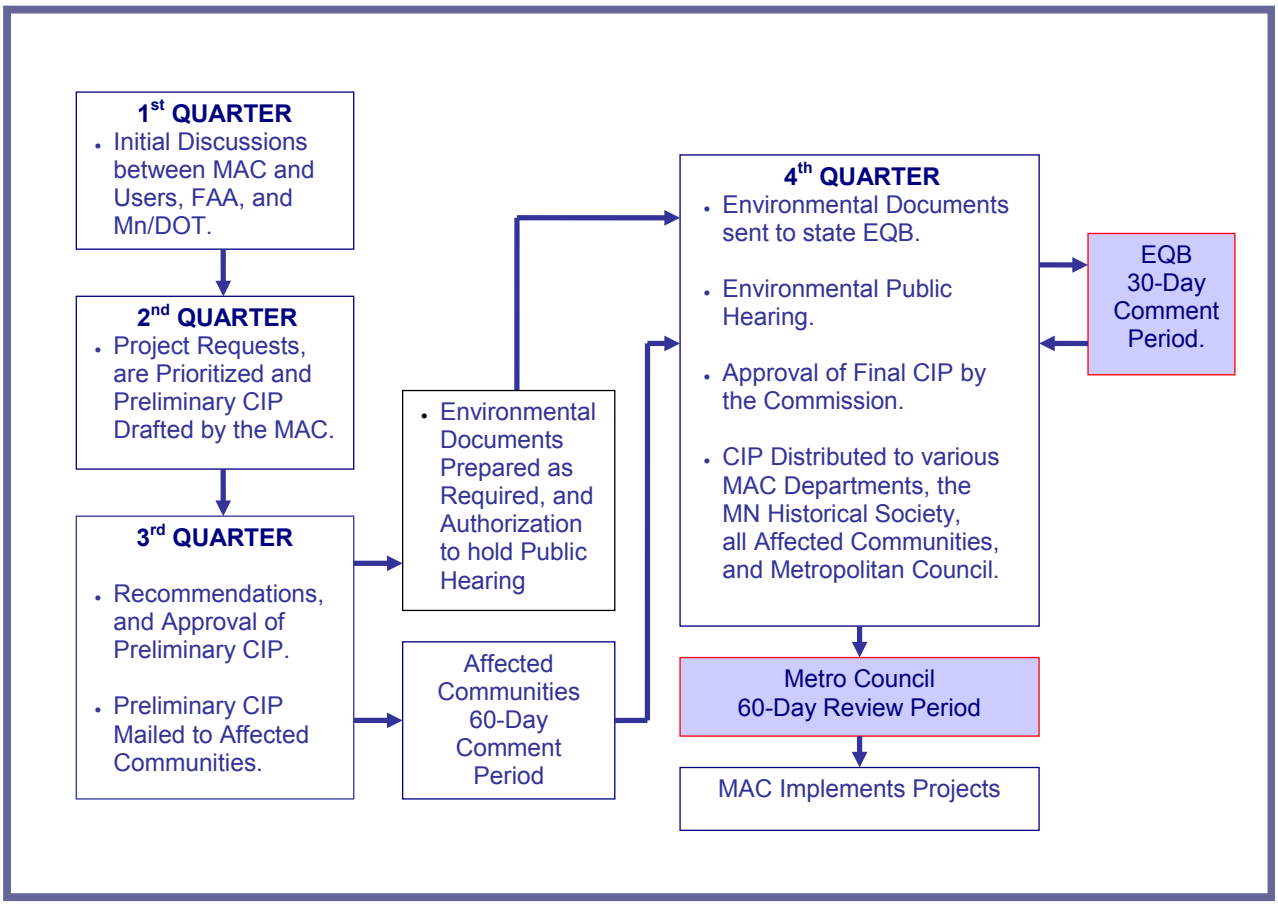


Table J-1 indicates the actual review schedule that has been programmed for calendar year 2014. This same process is repeated annually with some slight change to the dates involved for specific actions. The review dates for the Council's Technical Advisory Committee (TAC) and the Transportation Advisory Board (TAB) are also included. The Metropolitan Airports Commission capital improvement program is reviewed within the capital review process in relation to the current long-term comprehensive airport development plan (LTCP), environmental evaluation or required environmental assessment worksheet or environmental impact statement, and project criteria as defined in the statutes.

Table J-1: Annual Capital Improvement Program Review and Implementation Process

METROPOLITAN AIRPORTS COMMISSION CAPITAL IMPROVEMENT PROGRAM	RESPONSIBILITY	SCHEDULE
PROJECTS DEFINITION		
Initial Capiltal Improvement Program (CIP) Discussions	MAC Airport Development	January
Requests for CIP Projects to Airport Development	MAC Departments	Feb. 1- June 1
Develop Project Scopes/Costs/Prioritization	MAC Departments/ Airport Development/ Consultants	Feb. 1 - July 31
Develop Draft Preliminary CIP	Airport Development	Feb. 1 - July 31

METROPOLITAN AIRPORTS COMMISSION CAPITAL IMPROVEMENT PROGRAM	RESPONSIBILITY	SCHEDULE
PROJECTS ENVIRONMENTAL REVIEW		
Prepare AOEEs and EAWs as required	Environment	July 31- Oct 15
Notice of PD&E Meeting mailed to affected Communities	Airport Development	September
PD&E Recommendation of Prelimnary CIP to MAC for Environment Review/Authorizatoin to hold P.H on AOEE's & EAW's.	Airport Development	September
PD&E Minutes of Sept. Meeting and Notice of Sept. Commission Meeting mailed to Affected Comunities	Airport Development	September
MAC Approval of Preliminary CIP for Environmental Review/Authorization to hold Public Hearings on AOEE's and EAW's	Airport Development	September
Preliminary CIP Mailed to Affected Communities	Airport Development	September
AOEE's and EAW's to Environmental Quality Board (EQB)	Environment	September
Public Hearing notice published in EQB Monitor, starting 30-Day comment period	Environment	October
Minutes of Sept. Commission Meeting mailed to Affected Communities	Airport Development	October
Public Hearing on AOEE's and EAW's at Nov. PD&E Committee Meeting	Environment	October
Thirty-Day Comment Period on AOEE's and EAW's ends	Environment	November
Metropolitan Council - TAC - Aviation Advisory Task Force	Metropolitan Council	November
Final Date for Affected Communities on Preliminary CIP to MAC	Affected Communities	November
Metropolitan Council - Technical Advisory Committee (TAC)	Techical Advisory Committee	December
Notice of December PD&E Meeting mailed to Affected Communities	Airport Development	December
Recommendation by PD&E to Commission on Final CIP	Airport Development	December
Minutes of December PD&E Meeting and Notice of December Commission Meeting mailed to Affected Communities	Airport Development	December
Metropolitan Council - Transportation Advisory Board	TAB - Transportation Advisory Board	December

METROPOLITAN AIRPORTS COMMISSION CAPITAL IMPROVEMENT PROGRAM	RESPONSIBILITY	SCHEDULE
PROJECTS PLANNING and FINANCIAL REVIEW		
Approval of Final CIP by Commission	Airport Development	December
Notification of Commission Action to EQB	Airport Development	December
CIP Distributed to MAC Departments, Met Coucil, State Historical Society and Affected Communities	Airport Development	December
Metropolitan Council - Transportation Committee	Transportation Committee	January/(New Yr)
Metropolitan Council	Metropolitan Council	January/(New Yr)
Minutes of December Commission Meeting mailed to Affected Communities	Airport Development	January/(New Yr)

Note: 1) All dates are tentative and subject to change. 2) Shaded items represent actions/dates which pertain to the Affected Communities as defined in Minnesota Statutes § 473.621, Sd. 6 as amended. 3) FD&E = Metropolitan Airports Commission Finance, Development and Environment Committee. 4) AOEE = Assessment of Environmental Effects. 5) EAW = Environmental Assessment Work Sheet. 6) EQB = Minnesota Environmental Quality Board

The Council does not officially review the Metropolitan Airports Commission annual operating budget or bonding proposals, but may use information from these documents to help clarify capital improvement program proposals and their implementation. Figure J-3 is the form designed by the Council to directly reflect those statutory criteria and is used by the TAC Aviation Advisory Task Force in its initial review of the capital improvement program. This is an initial review in that final comments by affected communities may not have been received or addressed by the Metropolitan Airports Commission prior to mailing to the TAC advisory task force. In most instances the Metropolitan Airports Commission 30-day review comment period is just ending, and proposed capital improvement program funding information is not completed and acted upon by the Commission.

Comments on the AOEEs and EAWs are addressed administratively by staff letter to the Metropolitan Airports Commission during the 30-Day EQB review period. The latest capital improvement program changes to come out of the review process at this time are often addressed verbally at the full TAC if they are different than the initial action item submitted for review. Final action by the Commission's Finance, Development & Environment Committee (FD&E), including any changes different from the information provided to the TAC, are addressed in reviews by the TAB Policy Committee and the full Transportation Advisory Board. Comments/ recommendations made by the TAB are the forwarded for consideration by the Council's Transportation Committee report to the full Council for action.

Table J-2: Criteria for Initial Review of the 2013 Capital Improvement Program

2013 Capital Improvement Program	Prior Reviews/Actions		Capital Review Criteria*							
Project Listings by Airport	LTCP Approved(Yes/No) Current ?	AOEE*** EA-EAW Prepared, EIS- Reviewed, NPDES Approved, Legislative Requirement, Regulatory Requirement	(A) Project meets the dollar threshold at MSP = $5M, Relievers = $2M	(B) Location of a New Airport	(C) New Runway at an Existing Airport	(D) Runway Extension at an Existing Airport	(E) Runway Strengthening Other than Routine Maintenance	(F) New or Expanded Passenger Handling or Parking Facilities for > 25% capacity increase	G Land Acquisition associated with the other criteria, or that would cause relocations of residential or business activities	(H)** Project information made available by the MAC to affected municipalities for their review
Minneapolis-St. Paul International Airport	Y									Y
St. Paul Downtown Airport	Y									Y
Flying Cloud Airport	Y									Y
Crystal Airport	Y									Y
Anoka County-Blaine Airport	Y									Y
Lake Elmo Airport	Y									Y
Airlake Airport	Y									Y

*** Criteria as defined under MS 473**
****Requirements defined under MS 473**
***** See AOEE Summary Environmental Assessment**

If an AOEE or EAW is required for projects in the annual Capital Improvement Program the following form in Table J-3 indicates the types of environmental categories that are examined and whether it has an environmental effect or cumulative effect for a particular airport. The AOEE or EAW, along with the capital improvement program, provide more detailed information that is required if the project has an environmental effect.

Table J-3: Types of Environmental Categories Used in Reviews

*** All required mitigation is being completed as part of the project.**

Project Description	Are the Effects of the Project Addressed in an Approved EAW, EA or EIS?	Environmental Categories Affected by the Project								
		Air Quality	Compatible Land Use	Fish, Wildlife and Plants	Floodplains and Floodways	Hazardous Materials, Pollution Prevention and Solid Waste	Historical, Architectural, Archaeological and Cultural Resources	Light Emissions and Visual Effects	Parks, recreation Areas and trails	Noise
MSP Projects										
Project X	Yes 2010 LTCP FEIS, May 1998	No Effect	No Effect	No Effect	No Effect	No Effect	No Effect	No Effect	No Effect	No Effect
Reliever Airport Projects										
Airport X	Yes Expansion FEIS June 2004	Effect*	Effect*	No Effect	No Effect	No Effect	Effect*	No Effect	No Effect	Effect*
Airport Y										
Airport Z										

con't on next page

Table J-3: Types of Environmental Categories Used in Reviews (con't)

*** All required mitigation is being completed as part of the project.**

Project Description	Environmental Categories Affected by the Project				
	Water Quality (Storm, Waste and Ground Water)	Wetlands	Infrastructure and Public Services	Farmland	Erosion and Sedimentation
MSP Projects					
Project X	No Effect	No Effect	No Effect	No Effect	No Effect
Reliever Airport Projects					
Airport X	Effect*	No Effect	No Effect	No Effect	No Effect
Airport Y					
Airport Z					

Appendix K: Airport Long Term Comprehensive Plans

Plan Context

The 20-year long-term comprehensive airport plan (LTCP) is intended to integrate all information pertinent to planning, developing and operating an airport in a manner that reflects its system role and compatibility with its surrounding environs. The plan content guidelines apply to major, intermediate and minor airports; therefore some flexibility for emphasis or level of detail on certain plan elements will be necessary.

Plans should be reassessed every five years and updated according to the review schedule defined later in this appendix. The reassessment involves reviewing the new forecasts against prior forecasts and actual airport activity, checking the progress of implementation efforts (e.g. individual project planning, environmental evaluations, and capital program), and identifying any other issues or changes that may warrant continued monitoring, interim action or establish a need for a plan update.

The LTCP does not replace any other planning or reporting requirements of another governmental unit. The scope and emphasis of a long-term comprehensive airport plan should reflect the airport's system role and the objectives for each plan content category as described below.

Plan Content

Airport Development

Objective: To portray the type and location of airport physical and operational development in a systematic fashion, reflecting both the historical and forecast levels of unconstrained aviation demand. The plan should include:

Background data including a description of previous planning studies and development efforts; each item described should contain a synopsis of pertinent dates, funding sources, objectives and results.

An overview of historical and forecast aviation activity (number of based aircraft, aircraft mix, number of annual and peak hour aircraft operations) and the demand compared to the existing and proposed facilities.

An airport map showing land use areas, by type, within the airport property boundary or under airport control. Maps showing airport development phasing based upon key demand and capacity levels. A description of facilities staging, by phase, for specific land use areas. A copy of the latest FAA-approved airport layout plan (ALP) with associated data tables as described in FAA AC 150/5070-6.

Airport and Airspace Safety

Objective: To identify planning and operating practices required to ensure the safety of aircraft operations and protect the regional airspace resource. The plan should include:

An airport map depicting the airport zoning district, land use safety zones and a description of the associated airport zoning ordinance as required under MS 360.061-360.074 and defined in MN Rules 8800.2400. This map should contain appropriate topographical reference and depict those areas under aviation easements.

An airport area map showing the FAA FAR Part 77 airspace surfaces, including an approach and clear zone plan as described in FAA AC 150/5070-6.

A map of aircraft flight tracks depicting the local aircraft traffic pattern and general description of operating parameters in relation to the physical construction and operational development phasing of the airport.

Airport and Aircraft Environmental Capability

Aircraft on-ground and over-flight activities described within a historical and forecast context, including seasonal and daily traffic. Maps of aircraft noise impact areas depicted by contours of DNL noise levels for annualized aircraft activity.

Description of adopted Noise Abatement Operations Plan and/or operational abatement measures being implemented.

Description of land use measures and proposed strategy for off-airport land uses affected by aircraft noise as defined in the Land Use Compatibility Guidelines for Aircraft Noise. Description of aircraft, ground vehicle and point-source air pollution emissions within a historical and forecast context, including definition of the seasonal and daily operating environment. Identify existing and potential air-quality problem area(s).

Description and map of existing drainage system including natural drainage-ways and wetlands by type. Provide map and description of proposed surface water management plan for water quantity and quality including proposed facilities, storage volumes, rates and volumes of runoff from the site, and pollutant loadings associated with planned airport site facilities (as identified in SPCC and SWPPP) that could affect surface water quality. Proposed mitigation measures and facilities (during construction and long-term) to avoid off-site flooding and minimize polluting of surface waters. A description of measures to mitigate the potential impact or compensate for the loss or alteration of wetlands.

Description of the types of potential groundwater contaminants present on the site and proposed measures for the safe handling, storage and disposal of these substances to protect ground water, including description of the Metropolitan Airports Commission and private operators roles for managing these materials.

Projection of the annual average volume of wastewater to be generated for the next 20 years by five-year increments from terminals, operators and the proposed facilities (description and map) for handling and treating wastewater including public sewer service, private treatment plants and individual on-site sewage disposal systems. Include a description of proposed management for private facilities and roles of the Metropolitan Airports Commission and private operators in implementation.

Description of recommended air, water and noise control plans, including monitoring programs.

Compatibility with Metropolitan and Local Plans

Objective: To identify demand and capacity relationships between airport and community systems and define a management plan for maintaining compatibility. The plan should include:

Description of historical and forecast ground traffic activities, including average and peak-flow characteristics on a seasonal, daily, and peak hour basis. Map showing location of ground access points, parking areas and associated traffic counts. Definition of potential problem areas and plan for traffic management.

Description of water supply, sanitary and storm sewer and solid waste systems. Definition of historical and forecast use levels and capacities. Depictions of locations where airport systems interface with local or regional systems. Identification of potential problem areas and the plan(s) for waste management.

Description of other airport service needs (for example, police and fire) that may require changes in agreements or types/levels of governmental and/or general public support.

Implementation Strategy

Objective: To establish the type, scope and economic feasibility of airport development and recommended actions to implement a compatible airport and community plan. The plan should include:

- Description of the overall physical and operational development phasing needed over the next 20 years.
- A capital improvement plan to cover a seven-year prospective period. The first three years of the development plan should be project-specific, and the other four years of the plan, including projects of more than four years duration and new projects, may be aggregate projections. Estimates of federal, state and local funding shares should be included for all projects included in the plans.
- Identification of the planning activities needed for implementation of the comprehensive airport plan.

Plan Amendment

The LTCP is to be prepared on a regular basis for each affected airport as defined in the LTCP review schedule. The document should be prepared to meet the plan content information discussed previously. In the event that a change to the plan cannot be accommodated during its scheduled update the LTCP, or parts thereof, should be amended. Proposed amendments are assumed to have required planning and environmental work substantially in progress. An amendment should be prepared and reviewed by the Council prior to project inclusion in that year's capital improvement program. Examples of potential amendments include, but are not limited to the following items:

- Projects meeting the capital review thresholds of $5 million at the Minneapolis-St. Paul International Airport, and $2 million at reliever airports,
- Changes requiring an update to FAA airport layout plan,
- Runway changes
- Projects having potential off-airport effects

Reliever Airport Non-aviation land use changes. This involves land use parcels on-airport that are not being released by the FAA for sale, but remain as part of the airport property and are made available by the airport operator through lease agreements with private parties to enhance revenues to the airport sponsor . The size of parcels and lease period may vary considerably; location and use of potential parcels were not part of individual LTCP reviews. Council review objectives are:

- to monitor such parcel changes for purposes of maintaining its overall land use database
- to know the location and use of the parcels in relation to the approved LTCP
- to appraise airport operators of any recent local or metro system changes they may not be aware of that may need additional review/coordinated
- to establish an administrative review process in coordination with airport sponsors for review of non-aviation land use change proposals

Table K-1: Update Schedule for Airport Long-Term Comprehensive Plans

METRO AREA PUBLIC USE AIRPORTS	PLAN STATUS	5-YEAR UPDATE
Minneapolis-St. Paul Int'l.	2030 LTCP Approved June 2010	2015
St. Paul Downtown	2030 LTCP Approved April 2010	2015
Anoka County-Blaine	2030 LTCP Approved April 2010	2015
Flying Cloud	2030 LTCP Approved April 2010	2015
Airlake	2025 LTCP Approved October 2008	2014
Crystal	2025 LTCP Approved October 2008	2014
Lake Elmo	2025 LTCP Approved October 2008	2014
So. St. Paul Municipal	Community CPU Approved 2009	2018
Forest Lake Municipal	Community CPU Approved 2009	2018
Lino Lakes Seaplane Base	Community CPU Approved 2009	2018
Wipline Seaplane Base	Community CPU Approved 2009	2018

Appendix L: Aviation Land Use Compatibility Guidelines

The regional Land Use Compatibility Guidelines for Aircraft Noise have been prepared to assist communities in preventative and corrective mitigation efforts that focus on compatible land use. The compatibility guidelines are one of several aviation system elements to be addressed in the comprehensive plans and plan amendments of communities affected by aircraft and facility operational impacts. The Metropolitan Land Planning Act, requires all local government units to prepare a comprehensive plan for submittal to the Metropolitan Council for review; updated plans will be due in December 2018. The new plans will reflect the *Thrive MSP 2040* vision, and the 2015 Metro Systems Statements. The following overall process and schedule applies:

- In 2015, after adoption of the new *2040 Transportation Policy Plan*, the Council transmits new Systems Statements to each metro community.
- Within nine months after receipt of the Systems Statements each community reviews in comprehensive plan and determines if a plan amendment is needed to ensure consistency with *Thrive MSP 2040*. If an amendment is needed the community prepares a plan amendment and submits it to the Council for review.
- Each community affected by aircraft noise and airport owner jointly prepare a noise program to reduce, prevent or mitigate aircraft noise impacts on land uses that are incompatible with the guidelines; both operational and land use measures should be evaluated. Communities should assess their noise impact areas and include a noise program in the 2018 comprehensive plan update.
- Owners/Operators of system airports should include their part of the noise program in preparation or update of each airports long-term comprehensive plan. See Table L-1 Noise Impacted Communities for listing of noise-impacted communities.
- Council reviews community plan submittal and approves, or requires a plan modification.
- Airport owner submits long-term comprehensive airport plan or plan update for Council review and approval. A schedule for updates of long-term comprehensive plans is included in Appendix K as Table K-1.

Airport Noise

The airport section of the land use compatibility guidelines assume:

- Federal and Manufactures programs for reduction of noise at its source (engines, airframes),
- Airport operational noise abatement measures plan/in place,
- Community comprehensive plans reflect compatible land use efforts occurring through land acquisition, “preventive” land use measures, or “corrective” land use measures.
- Availability of a Council noise policy area map (from the most recently approved long-term comprehensive plan) for the facility under consideration. The noise policy exposure maps identify where, geographically, the land use compatibility guidelines are to be applied.

Preventive and Corrective Land Use Measures

Airport noise programs, and the application of land use compatibility guidelines for aircraft noise, are developed within the context of both local community and comprehensive plans, and individual airports long-term comprehensive plans. Both the airport and community plans should be structured around an overall scheme of preventive and corrective measures. Table L-2 Current Land Use Measures depicts the current land use measures adopted in conjunction with development of the MSP noise compatibility programs.

The status of noise compatibility programs at other system airports, in relation to the land use measures adopted at Minneapolis-St. Paul International, are also included to indicate the extent of the current noise control effort on a system-wide basis. Other land use measures may also need to be considered at reliever system airports. The level and extent of noise impacts vary widely between the airports and therefore not all land use measures may be appropriate for each specific airport, in addition, the level of noise abatement emphasis may need to be different for neighborhoods with the same community.

The compatibility guidelines indicate that some uses be “discouraged.” Prior to applying the guidelines the comprehensive plan or plan amendment needs to assess what has been or can be done to discourage noise sensitive uses. This should be done when the overall preventive and corrective land use guidelines (contained in Table L-2) are defined and described below. All new land uses are categorized according to whether they are considered new/major redevelopment or new/in-fill/redevelopment.

The land uses are listed in Table L-3 Land Use Compatibility Guidelines for Aircraft Noise as specific categories grouped to reflect similar general noise attenuation properties and what the normally associated indoor and outdoor use activities are. The listing is ranked from most to lease sensitive uses in each category based upon the acoustic properties of typical land uses by the standard land use coding manual. The Council has prepared a builder’s guide to assist in determining acoustic attenuation of proposed new single-family detached housing, which is discouraged, but may be allowed by communities in zone 4 and the buffer zone.

Table L-1: Noise Impacted Communities

Airport	Community
MSP International*	Minneapolis, Bloomington, Richfield, Mendota Heights, Mendota, Eagan, Burnsville
St. Paul Downtown	St. Paul
Anoka County- Blaine	Blaine
Flying Cloud	Eden Prairie
Crystal	Crystal, Brooklyn Park, Brooklyn Center
Airlake	Eureka Twp., Lakeville
South St. Paul	South St Paul, Inver Grove Heights
Lake Elmo	Baytown, West Lakeland, Lake Elmo

* As defined under MS 473.621, Sd 6.

Table L-2: Current Land Use Measures

Preventive Land Use Measures		
	MSP International Airport Communities	Other Regional Airport Communities
Amend local land use plans to bring them into conformance with regional land use compatibility guidelines for aircraft noise.	YES	YES
Apply zoning performance standards.	YES	YES
Establish a public information program	YES	YES
Revise Building code.	YES/MS 473.192	YES/MS 473.192
Fair property disclosure policy.	YES/Usually applied by developer or builder.	YES/Usually applied by developer or builder.
Dedication of aviation easements/releases.	YES	YES
Transfer of development rights.	NO	NO
Land banking (acquisition of undeveloped property)	NO	NO

Corrective Land Use Measures		
	MSP International Airport Communities	Other Regional Airport Communities
Airport Developed property: Within RPZs Within Runway Safety Zones Within DNL 70	 YES YES YES	 YES FCM&STP Airports
Part 150 sound insulation program.	YES	NO
Property purchase guarantee	NO	NO
Creation of sound barriers Walls Berms Ground runup enclosures	 YES YES YES	 YES (Proposed in the FCM and ANE LTCPs)

Table L-3: Land Use Compatibility Guidelines for Aircraft Noise

Land Use Category	Compatibility with Aircraft Noise Levels									
Type of Development	New Development and Major Redevelopment					Infill Development and Reconstruction or Additions to Existing Structures				
Noise Exposure Zones	1 DNL 75+	2 DNL 74-70	3 DNL 69-65	4 DNL 64-60	Buffer Zone	1 DNL 75+	2 DNL 74-70	3 DNL 69-65	4 DNL 64-60	Buffer Zone
Residential										
Single / Multiplex with Individual Entrance	INCO	INCO	INCO	INCO		COND	COND	COND	COND	
Multiplex / Apartment with Shared Entrance	INCO	INCO	COND	PROV		COND	COND	PROV	PROV	
Mobile Home	INCO	INCO	INCO	COND		COND	COND	COND	COND	
Educational, Medical, Schools, Churches, Hospitals, Nursing Homes	INCO	INCO	INCO	COND		COND	COND	COND	PROV	
Cultural / Entertainment/Recreational										
Indoor	COND	COND	COND	PROV		COND	COND	COND	PROV	
Outdoor	COND	COND	COND	COND		COND	COND	COND	COMP	
Office / Commercial/Retail	COND	PROV	PROV	COMP		COND	PROV	PROV	COMP	
Services										
Transportation-Passenger Facilities	COND	PROV	PROV	COMP		COND	PROV	PROV	COMP	
Transient Lodging	INCO	COND	PROV	PROV		COND	COND	PROV	PROV	
Other medical, Health & Educational Services	COND	PROV	PROV	COMP		COND	PROV	PROV	COMP	
Other Services	COND	PROV	PROV	COMP		COND	PROV	PROV	COMP	
Industrial/Communication / Utility	PROV	COMP	COMP	COMP		PROV	COMP	COMP	COMP	
Agriculture Land/Water Areas / Resource Extraction	COMP	COMP	COMP	COMP		COMP	COMP	COMP	COMP	

NOTE: COMP = Compatible; PROV = Provisional; COND = Conditional; INCO = Incompatible.

New Development: Major Redevelopment or Infill/Reconstruction

New Development - means a relatively large, undeveloped tract of land proposed for development. For example, a residential subdivision, industrial park, or shopping center.

Major Redevelopment - means a relatively large parcel of land with old structures proposed for extensive rehabilitation or demolition and different uses. For example, demolition of an entire block of old office or hotel buildings for new housing, office, commercial uses; conversion of warehouse to office and commercial uses

Infill Development - pertains to an undeveloped parcel or parcels of land proposed for development similar to or less noise-sensitive that the developed parcels surrounding it. For example, a new house on a vacant lot in a residential neighborhood, or a new industry on a vacant parcel in an established industrial area.

Reconstruction of Additions to Existing Structures - pertains to replacing a structure destroyed by fire, age, etc. to accommodate the same use that existed before destruction, or expanding a structure to accommodate increased demand for existing use (for example, rebuilding and modernizing an old hotel, or adding a room to a house). Decks, patios and swimming pools are considered allowable uses in all cases.

Definition of Compatible Land Use

The four land use ratings in land use compatibility Table L-3 are explained as follows:

COMP/Compatible - uses are acoustically acceptable for both indoors and outdoors.

PROV/Provisional - uses that should be discourage if at all feasible; if allowed, must meet certain structural performance standards to be acceptable according to MS 473.192 (Metropolitan Area Aircraft Noise Attenuation Act). Structures built after December 1983 shall be acoustically constructed so as to achieve the interior sound levels described in Table L-4. Each local government unit having land within the airport noise zones is responsible for implementing and enforcing the structure performance standards in its jurisdiction.

COND/Conditional - uses that should be strongly discouraged; if allowed, must meet the structural performance standards, and requires a comprehensive plan amendment for review of the project under the factors described in Table L-3.

INCO/Incompatible - Land uses that are not acceptable even if acoustical treatment were incorporated in the structure and outsides uses restricted.

Noise Policy Areas

A noise policy area is defined for each system airport and includes - aircraft noise exposure zones, a (optional) buffer zone; and, the preventative and corrective land use measures that apply to that facility. This section of the land use compatibility guidelines for aircraft noise contains maps depicting the latest noise information being used to define the noise policy areas for each system airport. The noise policy area is established as part of the [latest] LTCP reviewed and approved by the Council.

Figure L-1: 2030 Preferred Alternative Contours, Minneapolis-St. Paul International Airport

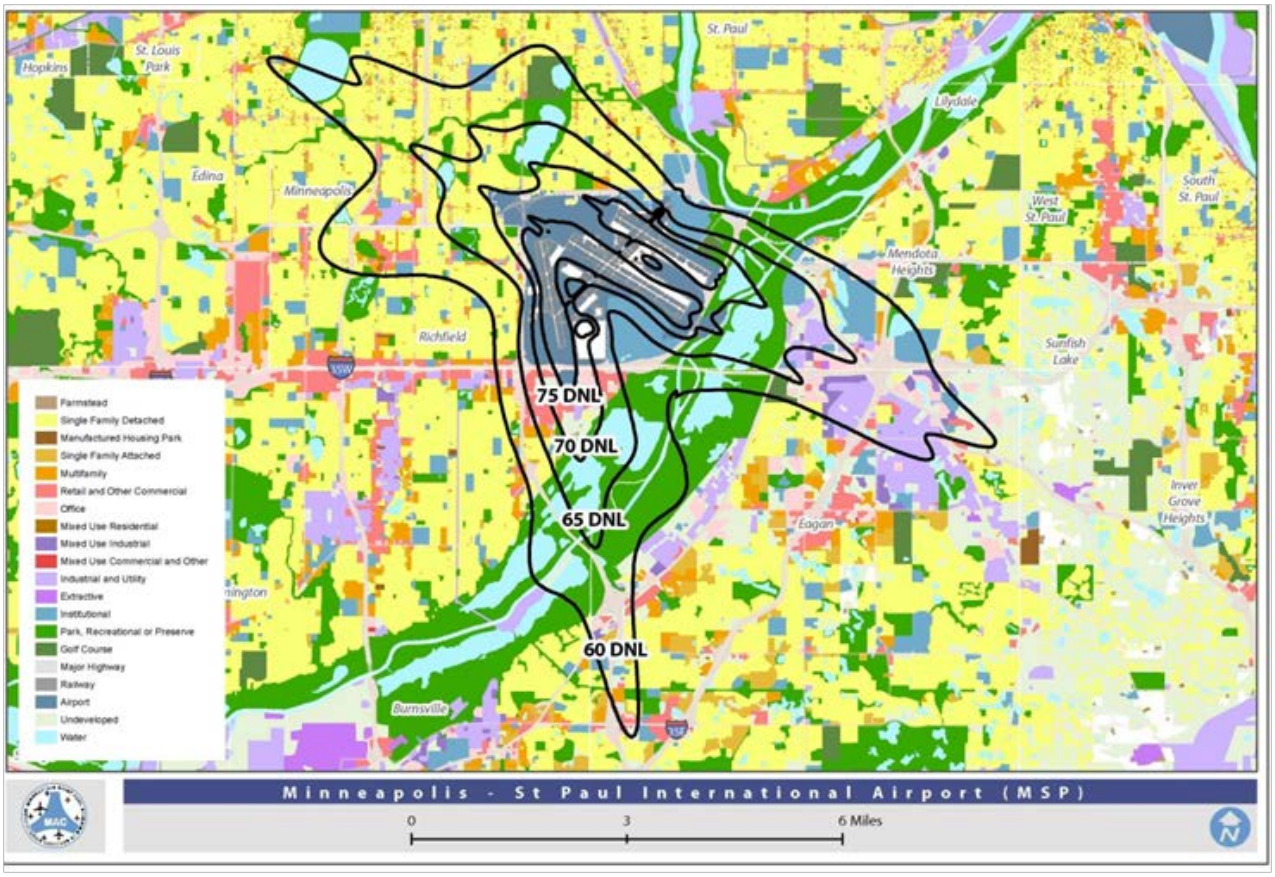


Figure L-2: 2025 Preferred Alternative Contours, St. Paul Downtown Airport

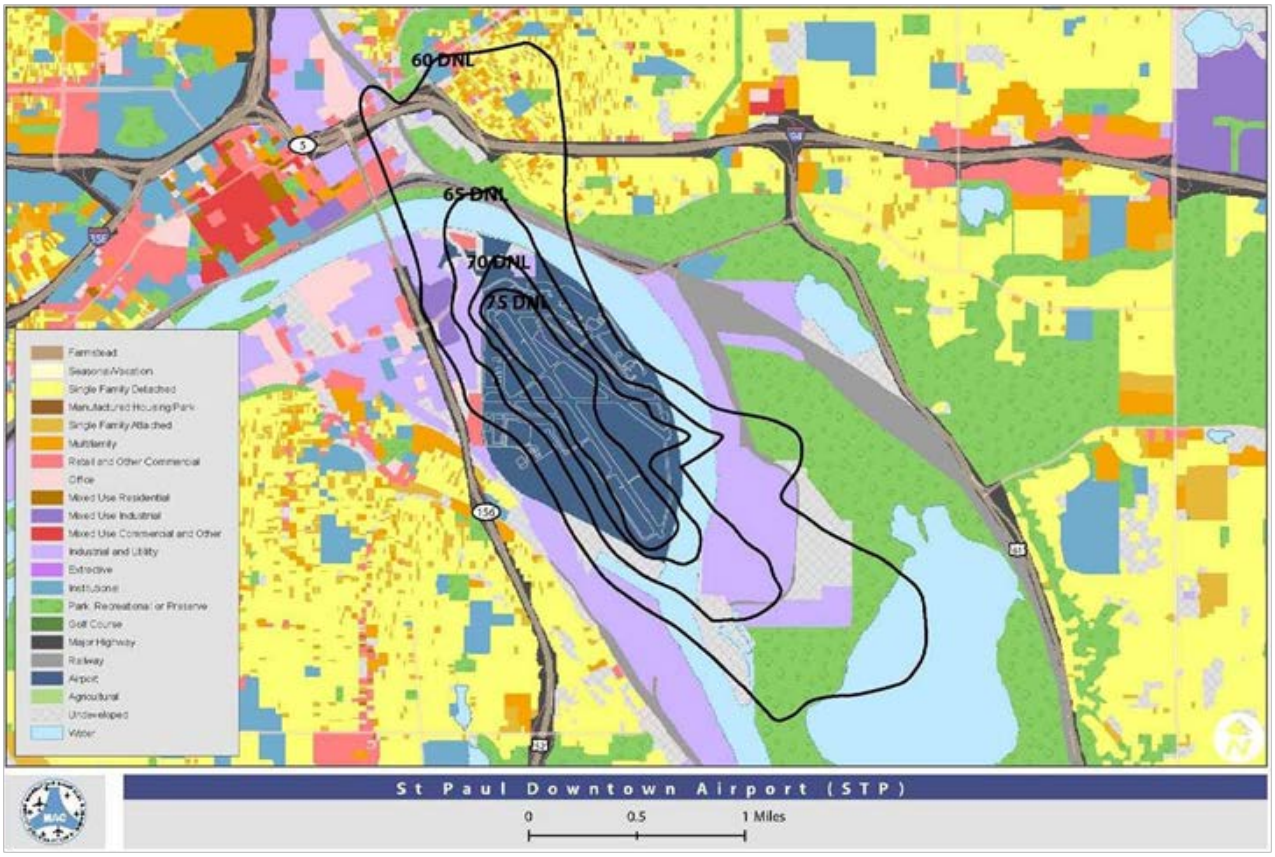


Figure L-3: 2025 Preferred Alternative Contours, Airlake Airport

Figure L-4: 2025 Preferred Alternative Contours, Anoka County – Blaine Airport

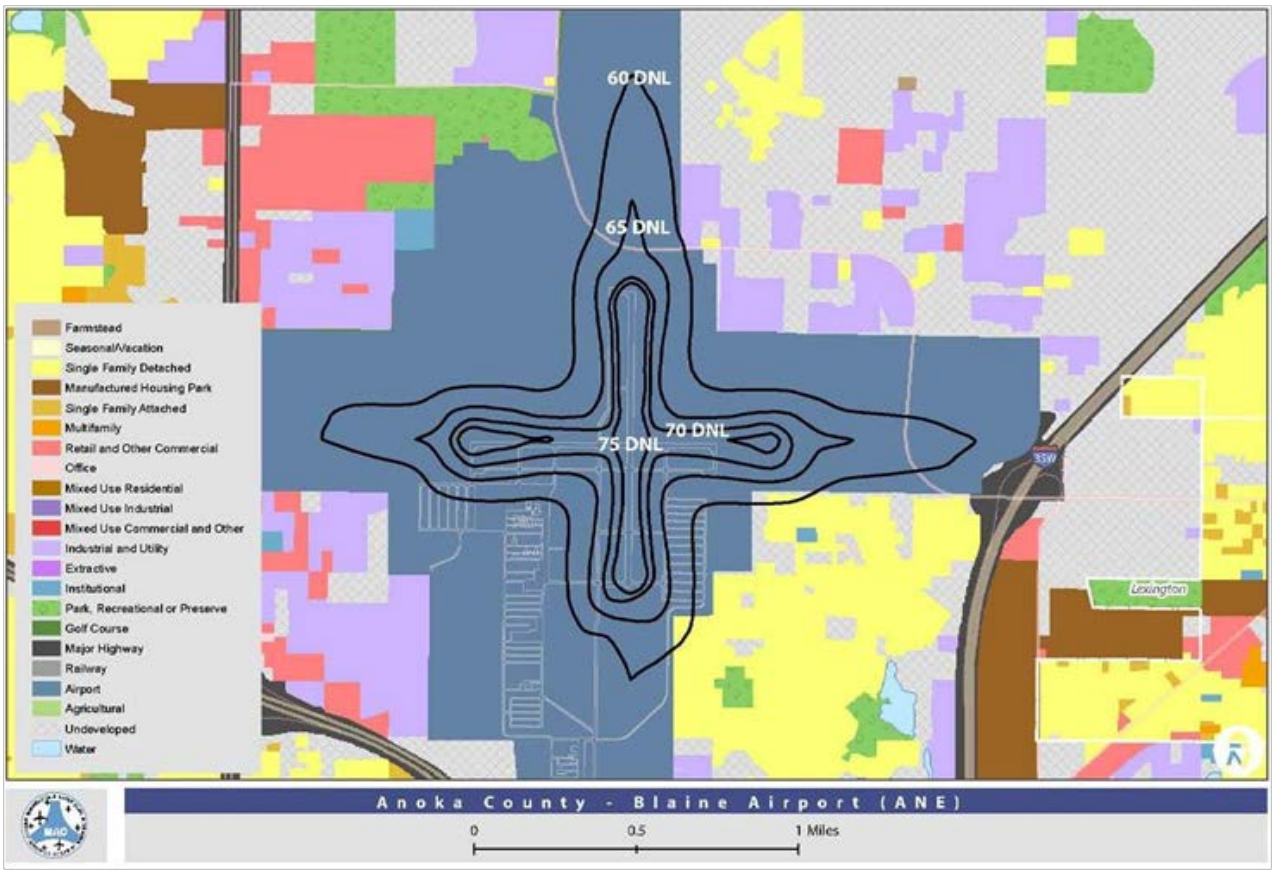


Figure L-5: 2025 Preferred Alternative Contours, Crystal Airport

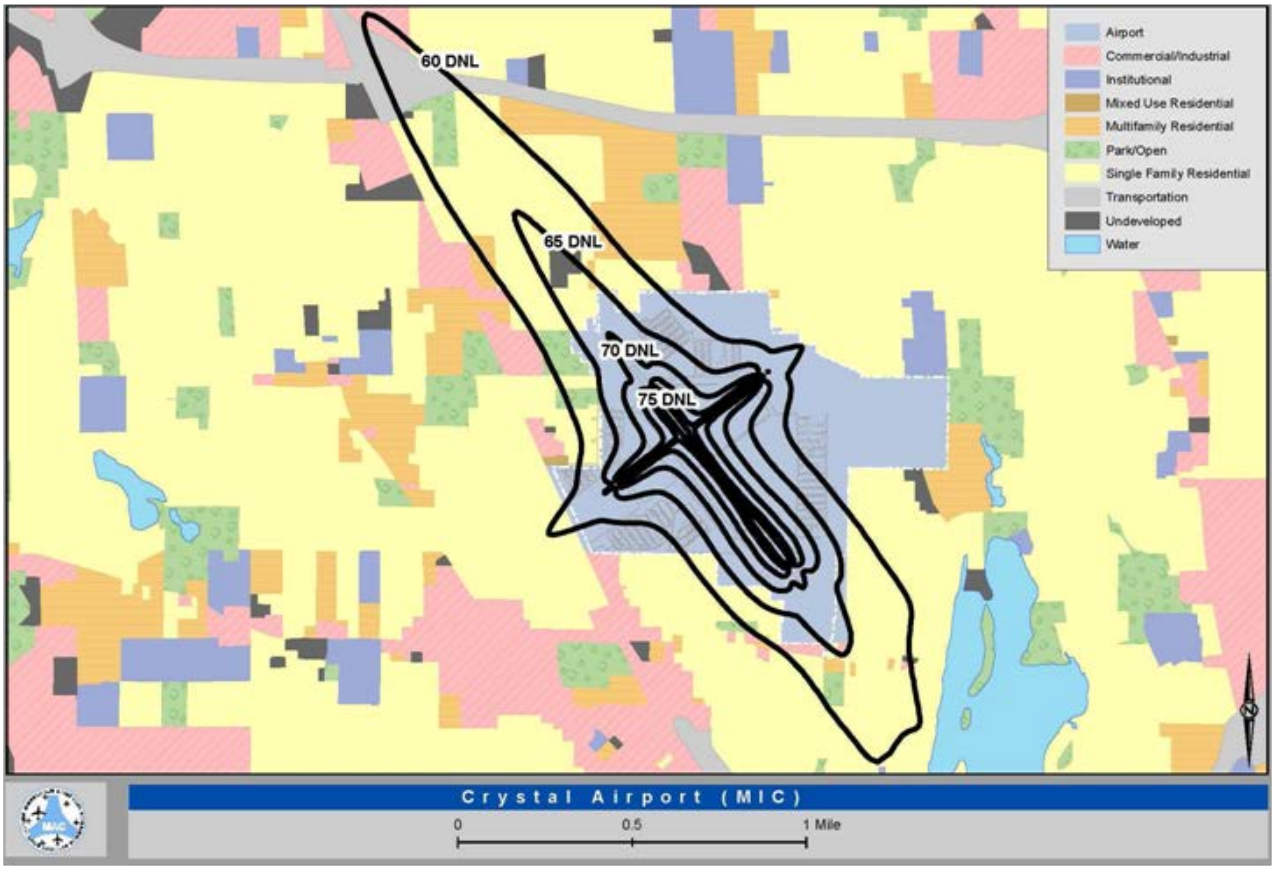


Figure L-6: 2025 Preferred Alternative Contours, Flying Cloud Airport

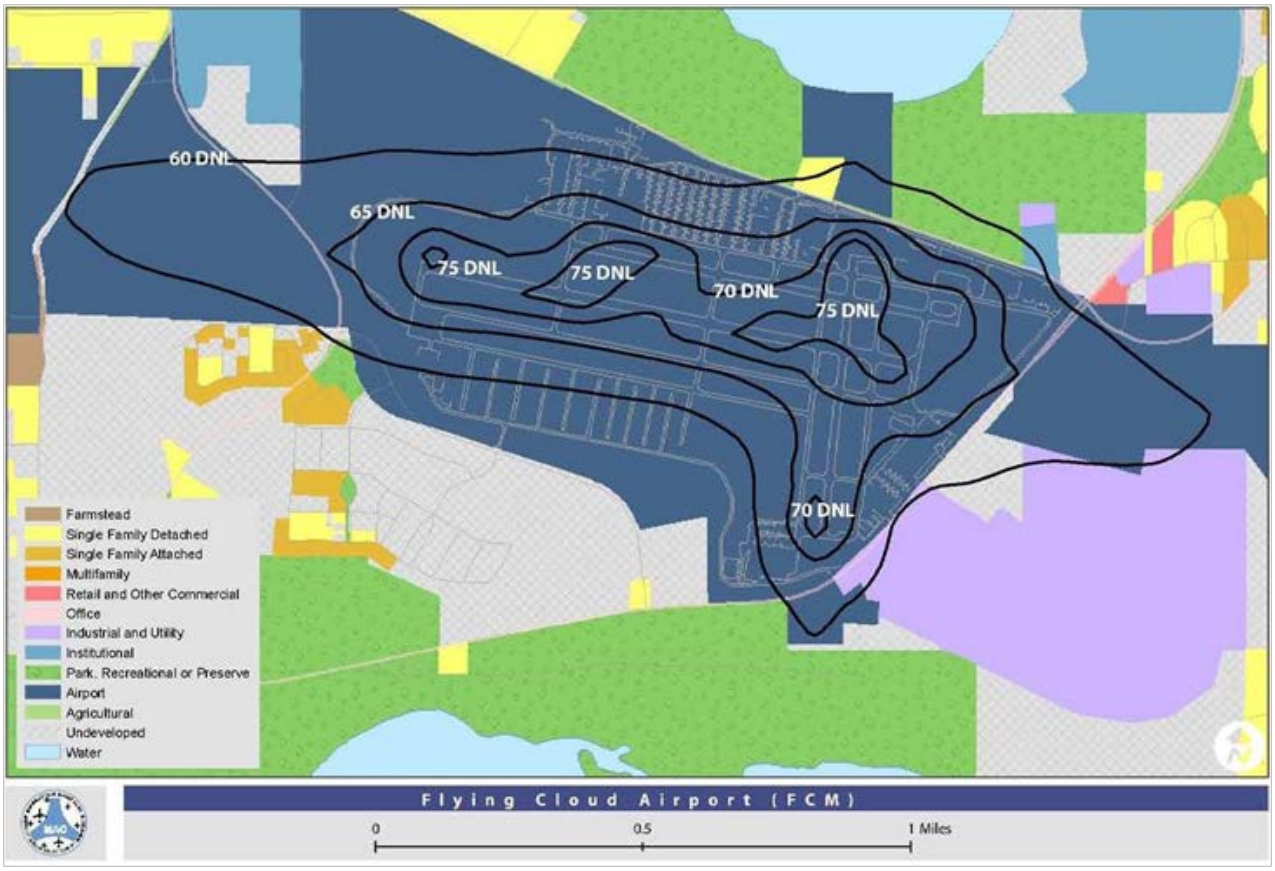
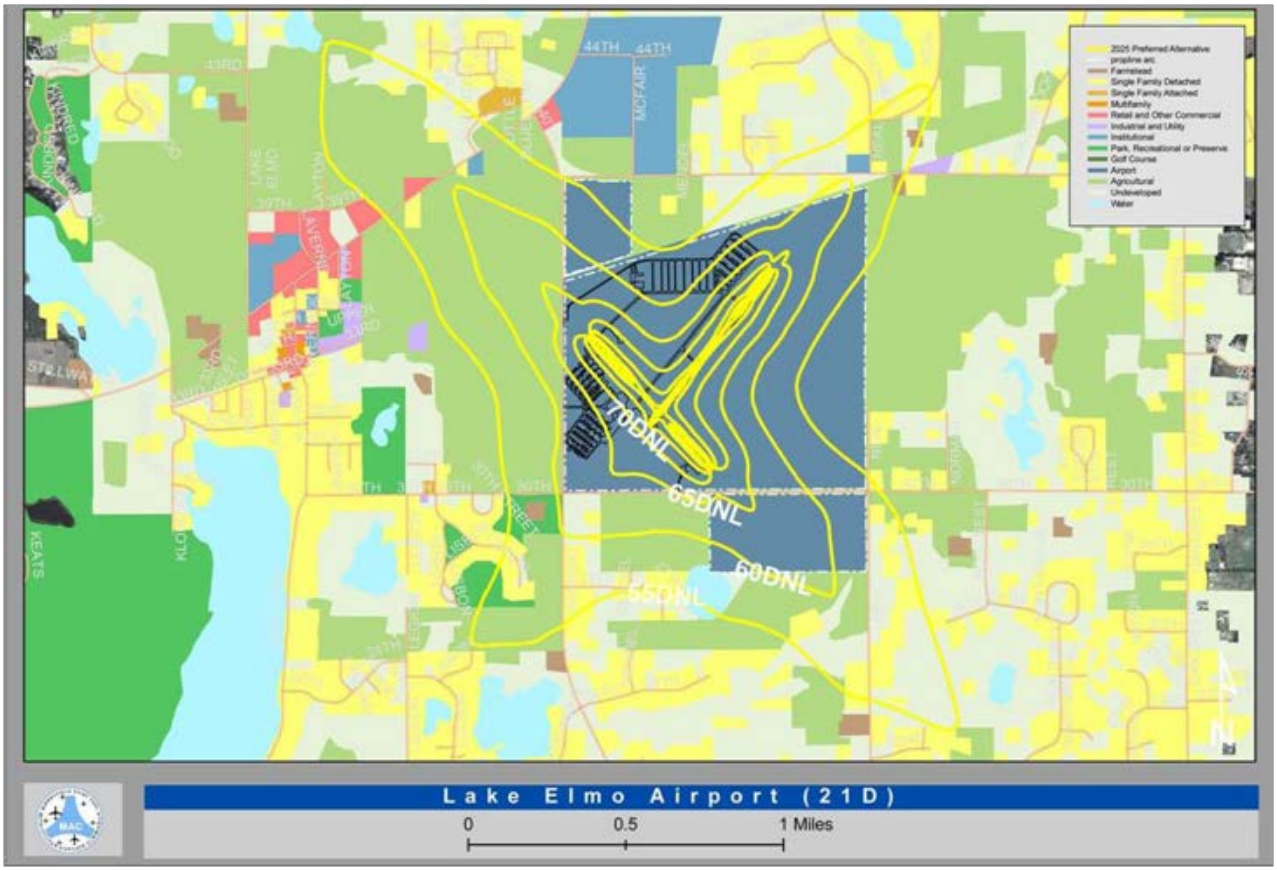


Figure L-7: 2025 Preferred Alternative Contours, Lake Elmo Airport



Noise Exposure Zones:

Zone 1 - Occurs on and immediately adjacent to the airport property. Existing and projected noise intensity in the zone is severe and permanent. It is an area affected by frequent landings and takeoffs and subjected to aircraft noise greater that 75 DNL. Proximity of the airfield operating area, particularly runway thresholds, reduces the probability or relief resulting from changes in the operating characteristics of either the aircraft or the airport. Only, new, non-sensitive, land uses should be considered - in addition to preventing future noise problems the severely noise-impacted areas should be fully evaluated to determine alternative land use strategies including eventual changes in existing land uses.

Zone 2 - Noise impacts are generally sustained, especially close to runway ends. Noise levels are in the 70-74 DNL range. Based upon proximity to the airfield the seriousness of the noise exposure routinely interferes with sleep and speech activity. The noise intensity in this area is generally serious and continuing. New development should be limited to uses that have been constructed to achieve certain exterior to - interior noise attenuation and that discourage certain outdoor uses.

Zone 3 - Noise impacts can be categorized as sustaining. Noise levels are in the 65-69 DNL range. In addition to the intensity of the noise, location of buildings receiving the noise must also be fully considered. Aircraft and runway use operational changes can provide some relief for certain uses in this area. Residential development may be acceptable if it is located outside areas exposed to frequent landings and takeoffs, is constructed to achieve certain exterior-to-interior noise attenuation, and is restrictive as to outdoor use. Certain medical and educational facilities that involve permanent lodging and outdoor use should be discouraged.

Zone 4 - Defined as a transition area where noise exposure might be considered moderate. Noise levels are in the 60-64 DNL range. The area is considered transitional since potential changes in airport and aircraft operating procedures could lower or raise noise levels. Development in this area can benefit from insulation levels above typical new construction standards in Minnesota, but insulation cannot eliminate outdoor noise problems.

Noise Buffer zones - Additional areas that can be protect at option of the affected community; generally, the buffer zone becomes an extension of Noise zone 4. At MSP, a one-mile buffer zone beyond the DNL 60 has been established to address the range of variability in noise impact, by allowing implementation of additional local noise mitigation efforts. A buffer zone, out to DNL 55, is optional at those reliever airport with noise policy areas outside of the MUSA.

Table L-4: Structure Performance Standard*

Land Use	Interior Sound Level**
Residential	45dba
Educational/Medical	45dba
Cultural/Entertainment/Recreational	50dba***
Office/Commercial/Retail	50dba
Services	50dba
Industrial/Communications/Utility	60dba
Agricultural Land/Water Area/Resource Extraction	60dba

* Do not apply to buildings, accessory buildings, or portions of buildings that are not normally occupied by people.

** The federal DNL descriptor is used to delineate all the system airport noise policy zones.

*** Special attention is required for certain noise sensitive uses, for example, concert halls.