Dual Track Airport Planning Process

Long-Term Comprehensive Plan Minneapolis-St. Paul International Airport

Metropolitan Airports Commission

April 1995

TABLE OF CONTENTS

Developing a Long Term Comprehensive Plan for MSP 2

Activity Forecasts 3

Airport Facility Requirements Refined 5

Airport Development Concepts Updated 5

Concepts 1, 2, 5 and 6 6

MSP Long Term Comprehensive Plan Illustration 8

Recommended MSP Long Term Comprehensive Plan 9

Noise Contour Map 11

Appendix 12

Dual Track Airport Planning Process

A Dual Track Airport Planning Process – designed to study the region's long-term aviation needs - was established in 1989 by the Minnesota Legislature's Metropolitan Airport Planning Act. The seven-year planning process is being conducted by the Metropolitan Airports Commission (MAC) and the Metropolitan Council.

One track addresses ways to provide the needed capacity and facilities at Minneapolis-St. Paul International Airport (MSP) to meet the long-term aviation needs of the region. The other track studies the capacity and facilities needed at a new (replacement) airport in Dakota County.

MAC is responsible for new airport site selection in the search area, preparing a comprehensive plan for an airport on the selected site, developing the MSP Long Term Comprehensive Plan, and preparing the state environmental documentation. The Metropolitan Council conducted the search area study and prepared an MSP Airport Reuse Study.

The Airport Planning Act also requires the MAC and Metropolitan Council to make a recommendation to the Legislature in July 1996 on which approach should be taken for future airport development.

DEVELOPING A LONG TERM COMPREHENSIVE PLAN FOR MINNEAPOLIS-ST. PAUL INTERNATIONAL AIRPORT

The Metropolitan Airport Planning Act required the Metropolitan Airports Commission to develop a Long Term Comprehensive Plan (LTCP) for Minneapolis-St. Paul International Airport (MSP) by Jan. 1, 1992. The statute also required that the LTCP be updated prior to its presentation to the Legislature in 1996.

The LTCP for MSP provides a development plan for 2010 and a conceptual plan for the year 2020. The Plan, as directed by the Minnesota Legislature, is based on the assumption that MSP would continue to be the region's major airport.

The LTCP's primary goal is to determine the projected activity and passenger levels for MSP, assess the extent of facilities required to meet this activity, and investigate airfield and terminal alternatives to meet these needs. In addition to functional and operational issues, the LTCP addresses the airport's compatibility with its urban environment.

During the initial LTCP planning process, the three most promising airfield alternatives and two best terminal alternatives were combined to yield six consolidated concepts for detailed evaluation. The concepts included:

- Concept 1 – North parallel runway with additional east terminal.
- Concept 2 – North parallel runway with replacement west terminal.
- Concept 3 – South parallel runway with additional east terminal.
- Concept 4 – South parallel runway with replacement west terminal.
- Concept 5 – North-south runway with additional east terminal.
- Concept 6 – North-south runway with replacement west terminal.

On Nov. 25, 1991, MAC selected Concept 6 for MSP. This concept proposed construction of a new 8,000-foot north-south runway on the west side of the airport, and a replacement passenger terminal on the west side of the airport. The selection was to be used in the continuing dual track planning work, and as the basis for the update.

As required by the Airport Planning Act, the 1990 air service forecasts used in the LTCP were reviewed and revised in 1993. In addition, an independent Federal Aviation Administration (FAA) Capacity Enhancement Plan was developed for MSP in 1993.

The FAA plan identified several actions that would increase capacity and improve operational efficiency, including runway and taxiway construction, as well as additional navigation equipment. The runway plan with the most benefits was a north-south runway, the same runway included in MAC's Concept 6.

The MSP Long Term Comprehensive Plan Update was completed during 1994 and 1995. Components accomplished included:

- Update of existing conditions at MSP.
- Update for forecasts of aviation demand.
- Revision of airport facility requirements.
- Revalidation of airfield and terminal alternatives.
- Update of 2010 Development and 2020 Conceptual Plan.

Using the revised facility requirements, four of the six original development concepts were revised and analyzed: Concepts 1, 2, 5 and 6. Concepts 3 and 4 were eliminated from further consideration during the environmental scoping process because of significant operational and noise concerns.

Also during 1994 and in conjunction with the LTCP Update, an Alternative Environmental Document (AED) was prepared for MSP. The AED addressed the environmental, social, community and economic issues of the four remaining MSP concepts.

At its Feb. 21, 1995 meeting, the MAC determined the AED to be adequate and confirmed the selection of Concept 6 as the preferred Long Term Comprehensive Plan for Minneapolis-St. Paul International Airport.

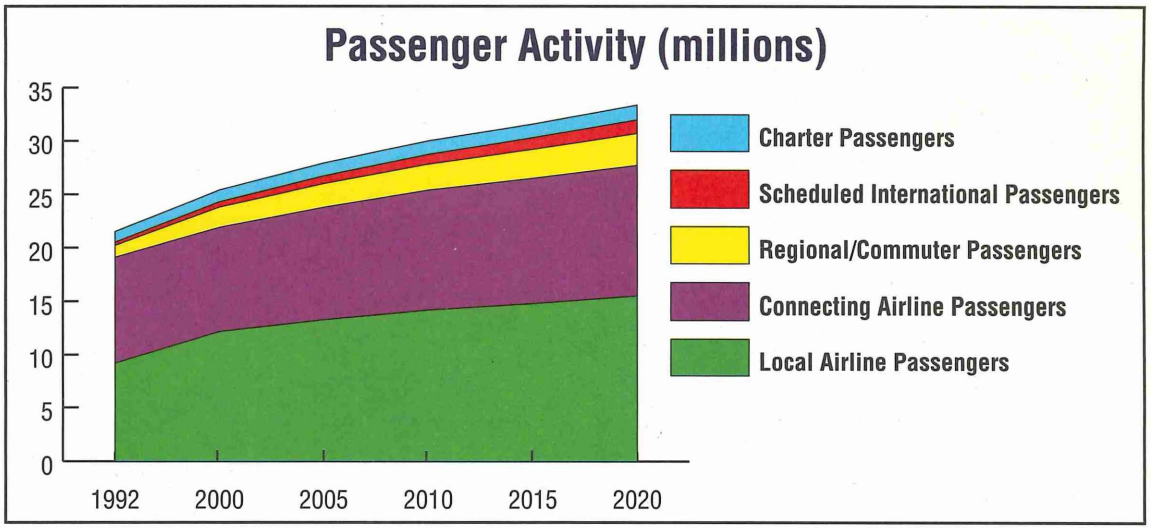
ACTIVITY FORECASTS

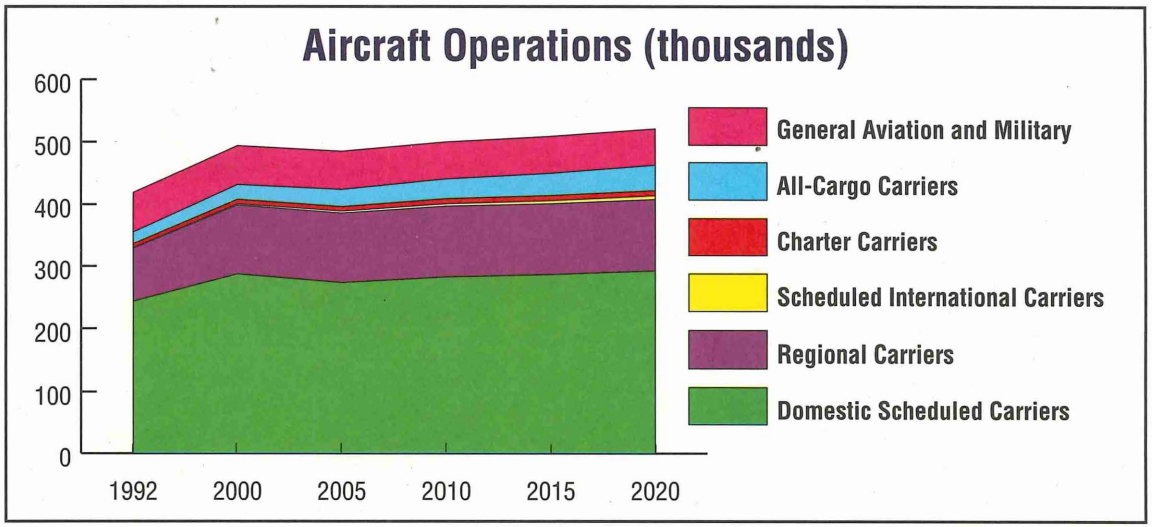
As required by the Airport Planning Act, the 1990 socioeconomic and aviation assumptions used in the original Long Term Comprehensive Plan were reviewed and revised. The review addressed industry changes caused by airline financial issues, aircraft fleet plans, the role of regional (commuter) airlines, and local and national economies.

In order to ensure that the revised forecasts considered all viewpoints, four "expert panel" forecast workshops were convened in 1992 and 1993 by MAC and the Metropolitan Council. The panels consisted of airline representatives, economists, and others experienced in aviation forecasting.

The revised forecast assumptions resulted in more air carrier and regional carrier originating passengers at MSP, while connecting passengers decreased compared to levels previously forecast. The forecast projects total passenger growth from 21 million in 1992 to 33 million in 2020.

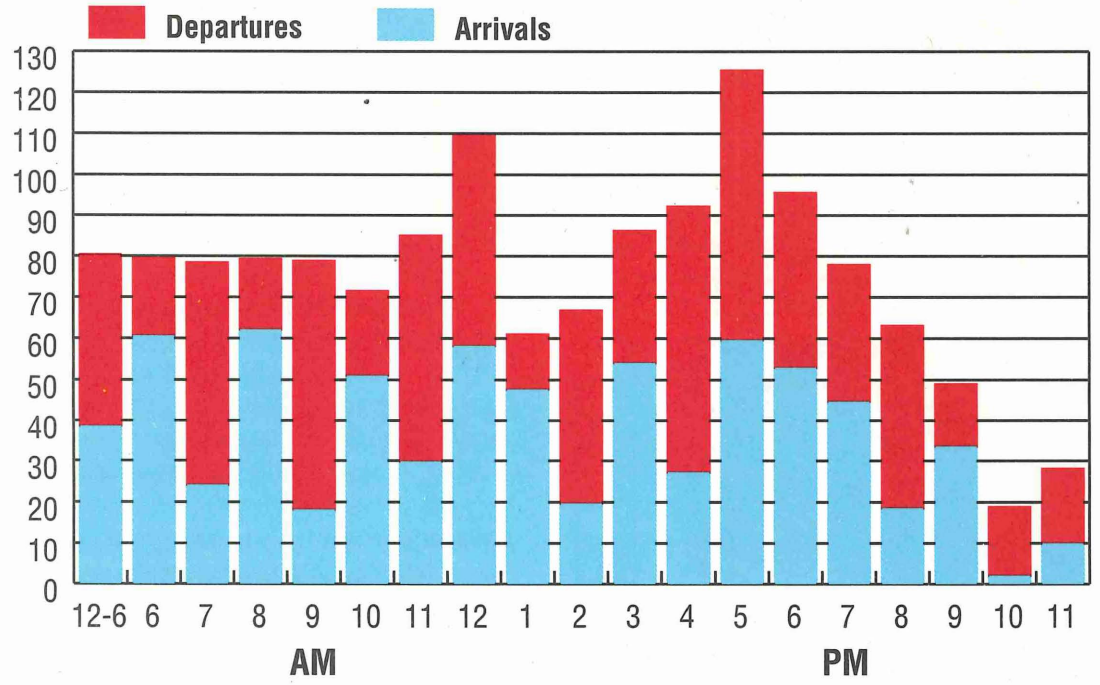
The revised forecast includes increased operations by regional carriers, air freight carriers, and general aviation, but fewer air carrier operations than the previous forecast. Total airport operations are forecast to increase from 418,000 in 1992 to 520,000 in 2020.





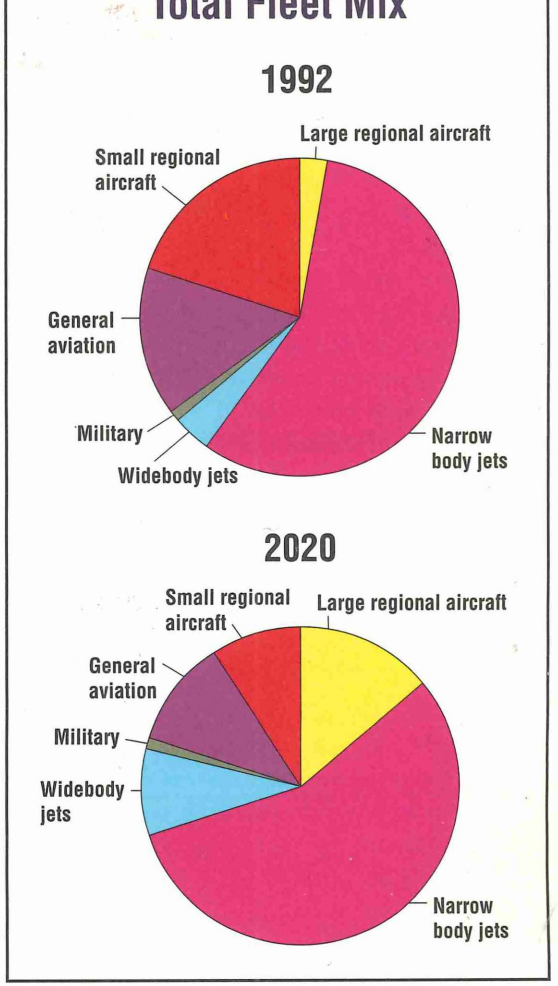
ACTIVITY FORECASTS (continued)

2020 Hourly Distribution of Aircraft Arrivals and Departures



Future increases in aircraft arrivals and departures will occur in all hours of the day, with peak operations occurring in the afternoon. In the future, the total aircraft fleet mix will include an increased percentage of large regional aircraft (30-50 seats) compared to smaller ones, and more widebody jets.

1992 and 2020 Total Fleet Mix



AIRPORT FACILITY REQUIREMENTS REFINED

After the forecasts were updated, the four remaining concepts were refined to accommodate changes in facility requirements.

While there have been no significant changes in airfield planning standards since 1991, consideration was given to the impact that future generation, high capacity aircraft (like those being discussed by Boeing and Airbus) would have on airfield layout.

Key requirements for future MSP facilities include:

- An increase in passenger loading gates from 69 to 83.
- An increase in terminal building space from 1.5 to 2.8 million square feet.
- An increase in total automobile parking spaces from 21,000 to 38,000, with 22,000 public and 16,000 employee.

Other requirements include 74 additional acres of cargo building and apron area, for a total of 135 acres; and 74 additional acres of aircraft maintenance facilities, for a total of 267 acres.

AIRPORT DEVELOPMENT CONCEPTS UPDATED

Following the facility requirements work, the concepts were updated in light of new requirements and other outstanding issues. The original LTCP concepts were refined in these areas:

- Terminal and gate concourse layouts
- Ground access to the west terminal
- Off-airport mitigation and land use
- Functional location of facilities

A study determined the best terminal plan to accommodate the facility requirements within both a new west terminal area and supplemental east side terminal improvements. Several new terminal layouts were evaluated, building upon a 1994 MAC Terminal Facilities Study for MSP.

Analysis of the roadway access to a west terminal was refined to determine the optimum layout to connect the terminal with Highways 77 and 62. The previous plan of two access points for the west terminal was consolidated into a one access point plan to minimize passenger confusion and provide better traffic flows.

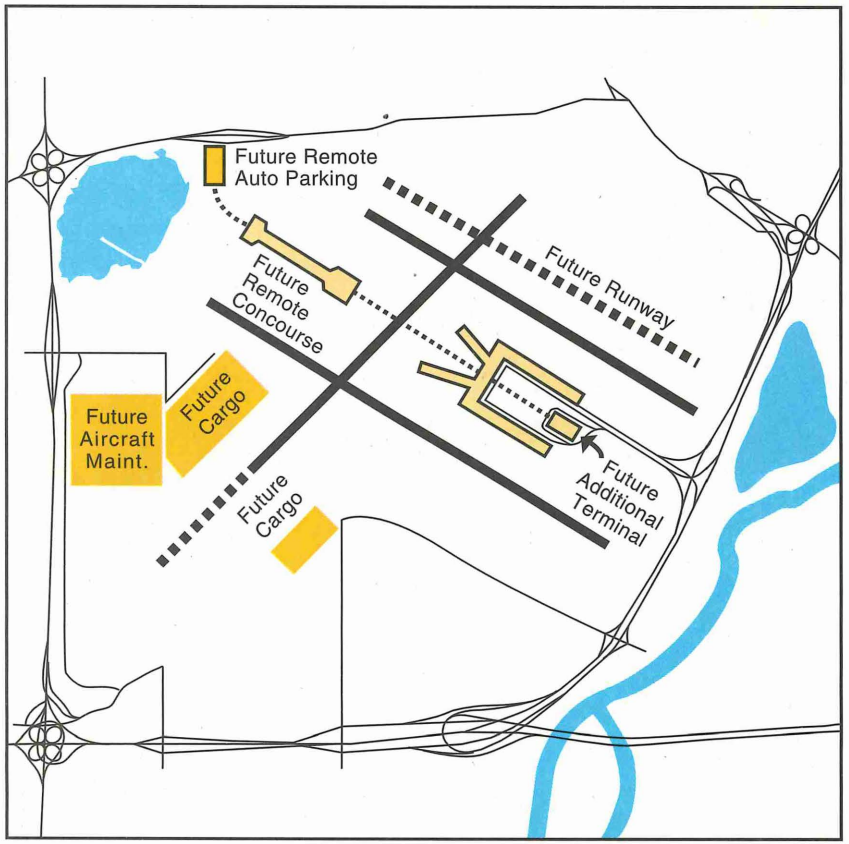
The north-south runway placement was refined for operational efficiency and mitigation of off-airport impacts. Further analysis was conducted to determine the specific impact FAA and state planning criteria would have on hotels and other buildings in Bloomington. Three hotels, one office building, and two other buildings would have to be relocated because of this runway. The aircraft approach path to the new runway would be east of the Mall of America. The final runway alignment is slightly east of the previous one. Additional airfield simulation was also done to refine the runway use.

The functional layouts for the various aviation related facilities in the concepts were revised so that most of the air cargo facilities are located along Highway 77 for convenient access to the airfield and the highway system (Highway 77, I-494, and 34th Avenue).

Aircraft maintenance facilities would be located outside the runway system where building heights will not affect control tower line-of-sight to the runways. The area in Concepts 5 and 6 between the new runway and Runways 4-22 and 11R-29L would be developed with some cargo facilities, MAC facilities, and other related facilities that would not obstruct the view from the control tower to the new runway.

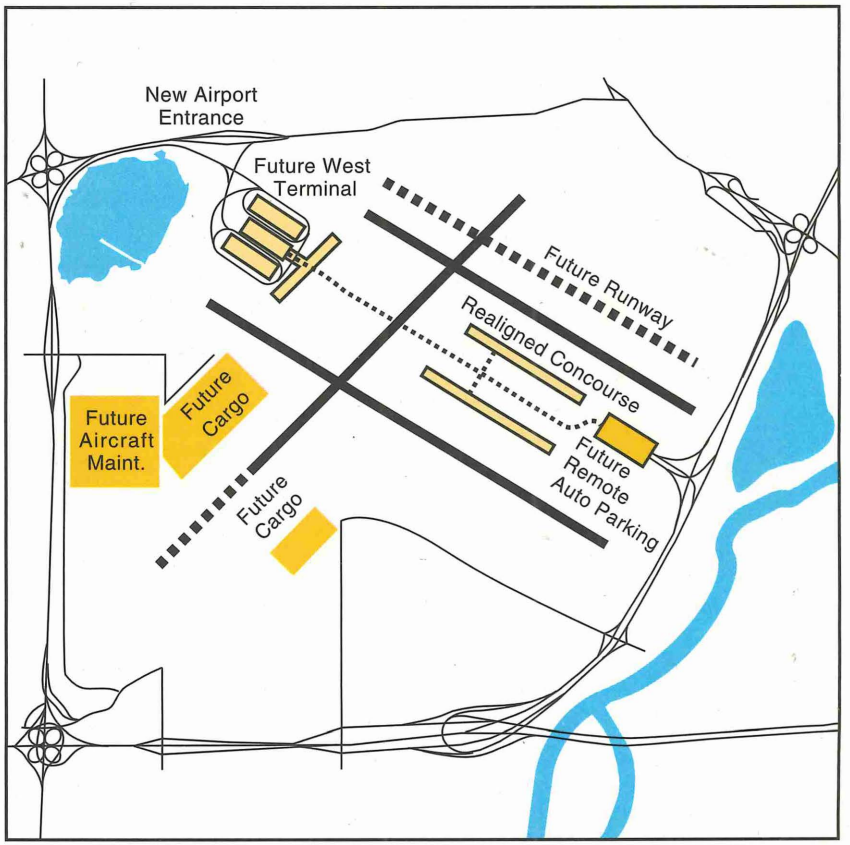
MSP AIRPORT DEVELOPMENT CONCEPTS

Concept 1



- New 7,700-foot north parallel runway
- Additional passenger terminal east of existing terminal
- New satellite concourse on the west side of the airport
- Additional facilities on south and west sides of the airport

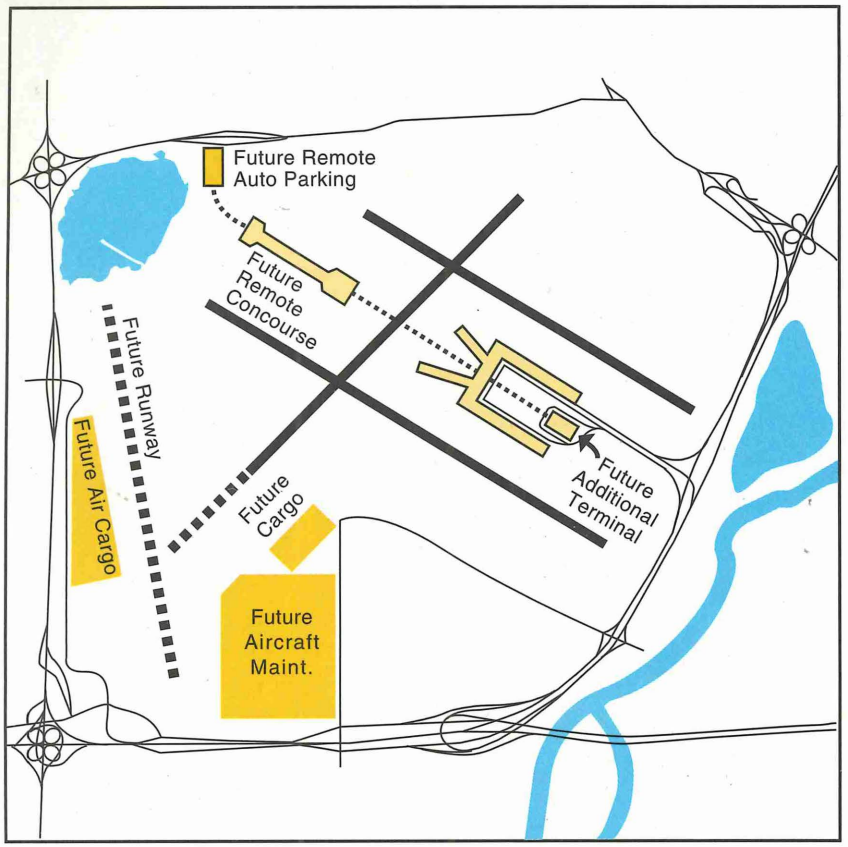
Concept 2



- New 7,700-foot north parallel runway
- Replacement passenger terminal on west side of the airport
- Realigned concourses in the existing terminal area
- Additional facilities on south and west sides of the airport

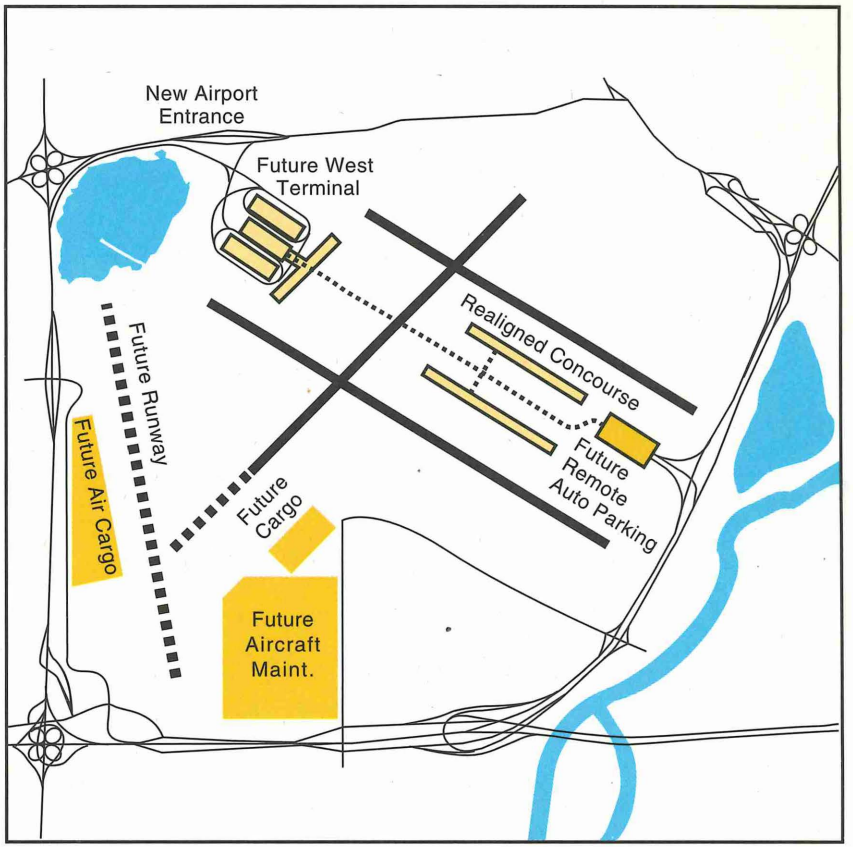
MSP AIRPORT DEVELOPMENT CONCEPTS (continued)

Concept 5

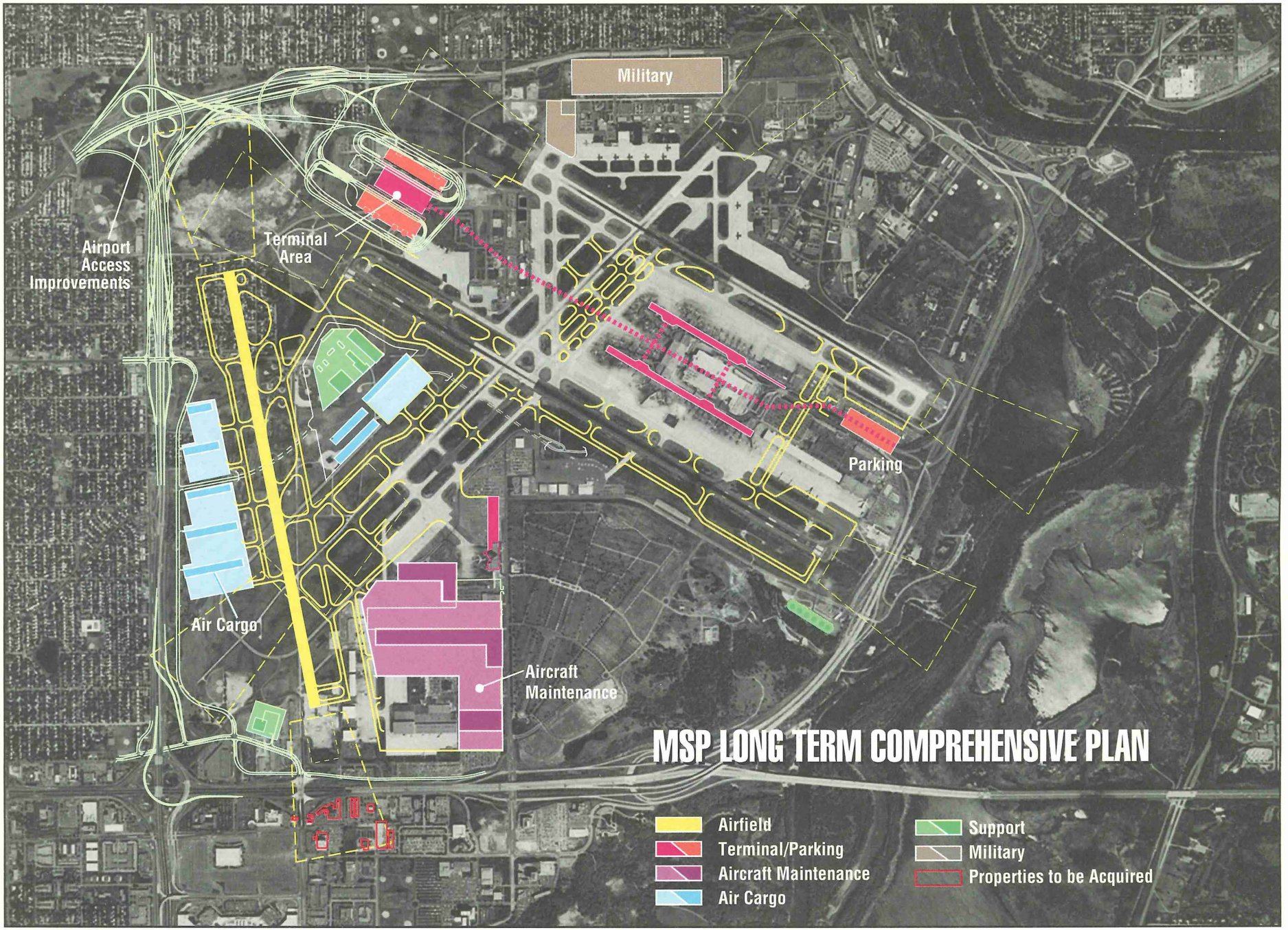


- New 8,000-foot north-south runway
- Additional passenger terminal east of existing terminal
- New satellite concourse on the west side of the airport
- Additional facilities on south and west sides of the airport

Concept 6



- New 8,000-foot north-south runway
- Replacement passenger terminal on west side of the airport
- Realigned concourses in the existing terminal area
- Additional facilities on south and west sides of the airport


Military
Airport Access Improvements
Terminal Area
Parking
Air Cargo
Aircraft Maintenance
MSP LONG TERM COMPREHENSIVE PLAN
Airfield
Terminal/Parking
Aircraft Maintenance
Air Cargo
Support
Military
Properties to be Acquired

RECOMMENDED MSP LONG TERM COMPREHENSIVE PLAN

At their Feb. 21, 1995 meeting, the Metropolitan Airports Commission selected Concept 6 as the preferred alternative for the Long Term Comprehensive Plan (LTCP) for Minneapolis-St. Paul International Airport. The concept was selected because it offers the best balance between operational features (such as airfield capacity and expansion opportunities) and environmental impacts (noise, historic properties, wetlands).

Airfield Features

The new 8,000-foot north-south runway would be used predominantly for departures to the south or arrivals to the north. The runway provides significant capacity enhancement during 90 percent of all weather conditions, and provides the highest capacity of all runway options. Use of the runway to or from the north would severely limit use of the parallel runways and therefore would reduce airport capacity. This use would be limited to periods when it is required due to wind or weather conditions, which is less then 1 percent of the time.

The FAA Capacity Enhancement Plan also indicated that a new north-south runway would provide greater benefit than a new north parallel runway (the airfield improvement in Concepts 1 and 2). According to the FAA analysis, a new north-south runway would provide an additional $4.6 million of delay savings annually compared to a north parallel runway when operations reach 520,000, as forecast in 2020.

With a new west terminal concept, the cross taxiways that could be provided east of the gate concourses would enable circular flow of aircraft around aircraft boarding gates and would greatly enhance ground traffic flows. This was confirmed by computer simulation.

Terminal/Roadway Features

The goal of the terminal development in Concept 6 is to first utilize all the capacity available within the existing terminal area. Then, when required by demand, to transition to a new west terminal that continues to use gates on the airport's east side.

The west terminal will have shorter passenger walking distances for both origination/destination and connecting passengers than other alternatives. An underground people-mover system is required to reach the aircraft loading gates. The west terminal alternative is designed for the best hub airline operations with consolidated domestic, international and regional airline operations, and a single central parking area.

This consolidation of operations would be more convenient for passengers.

Construction of the west terminal would be accomplished more easily than building a second supplementary east terminal. Finally, the west terminal has significant gate and terminal expansion potential.

The LTCP would require a new interchange at Highway 77 and 62 and supporting access roadways. The west terminal would slightly reduce overall ground travel times to the airport for airport users, but does require major new roadway and interchange improvements compared to the east terminal. Access from the east is maintained in the west terminal alternative with a remote parking/drop-off facility. Users could ride the people-mover system from this facility to the gate area or back to the west terminal.

RECOMMENDED MSP LONG TERM COMPREHENSIVE PLAN (continued)

Environmental Issues

The north-south runway will direct many flights to and from the south, over less densely populated areas. This new runway use will provide a significant increase in the capacity of the preferred (noise abatement) runway use system.

The LTCP will have 2,250 fewer persons within the DNL (day-night level) 60+ noise contour than alternatives with the north parallel runway (Concepts 1 and 2). However, use of the new runway will create additional impacts over part of the Minnesota River National Wildlife Refuge.

Construction of the north-south runway will require filling five acres of wetland in Mother Lake for runway safety zones. It will also require acquisition and removal of structures (including three hotels) south of I-494. The interchange and supporting access roadways for the west terminal could adversely impact 12.1 acres of wetlands (Mother Lake) and would displace 62 households.

Development Costs

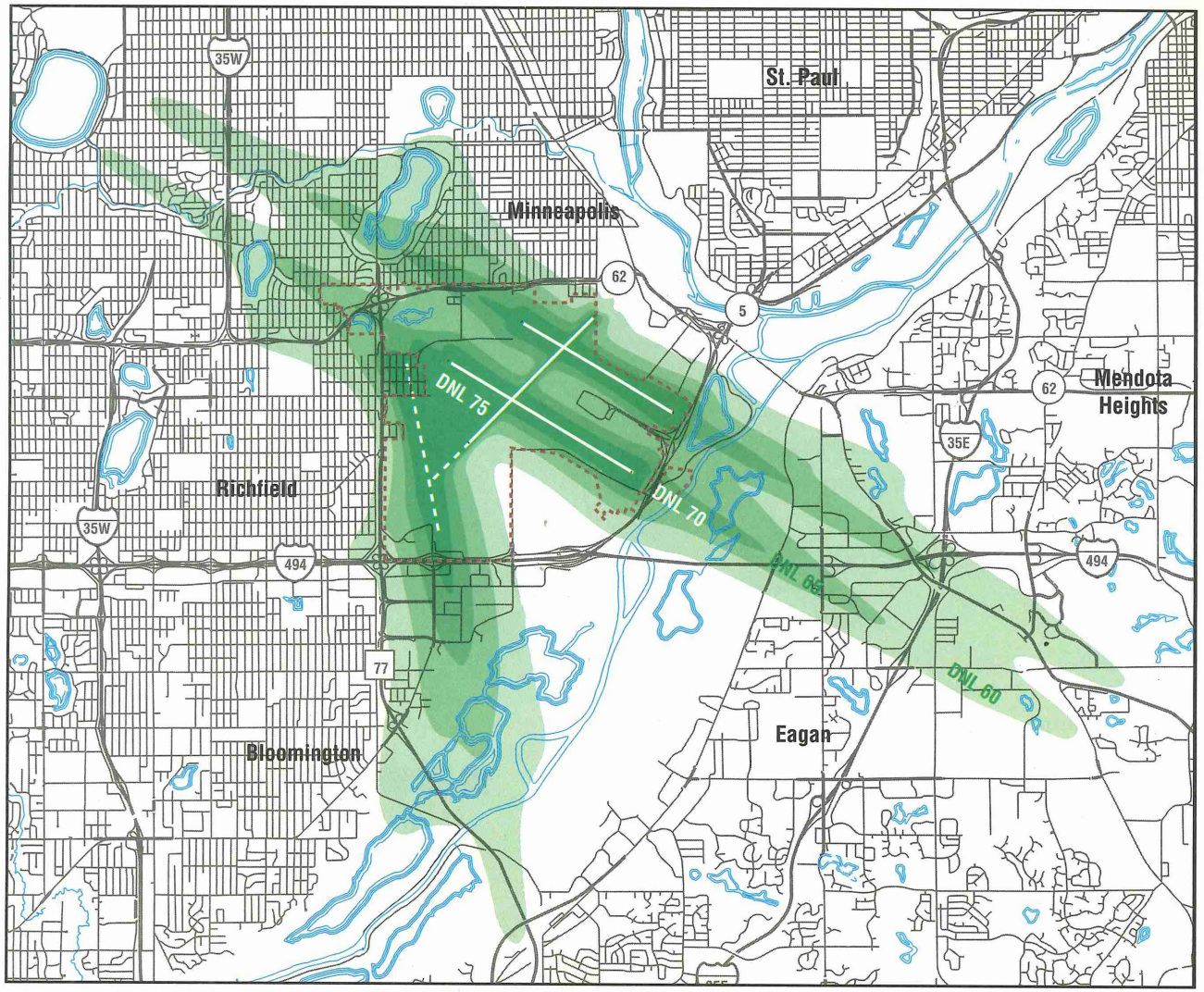
Preliminary costs, in 1994 dollars, were identified for airfield, terminal, roadway and support facilities for each of the four concepts. These cost estimates represent the direct costs of acquisition and construction of major facilities and do not include on-going airfield and terminal maintenance projects.

In addition, costs for noise mitigation options were identified. The estimated development cost for the selected concept, over the 1995-2020 time frame, is $2.3 billion.

Cost Summary (in millions of 1994 dollars)

Airport Facilities	Concept 1	Concept 2	Concept 5	Concept 6
Airfield	$ 223	$ 231	$ 127	$ 135
Teminal	$ 1,012	$ 1,083	$ 1,048	$ 1,119
Roadways	$ 31	$ 101	$ 31	$ 101
Support	$ 468	$ 461	$ 502	$ 494
Design and Contingencies	$ 434	$ 469	$ 427	$ 462
Total Development Costs	$ 2,168	$ 2,345	$ 2,135	$ 2,311
Noise Mitigation				
within DNL 65+	$ 11	$ 11	$ 13	$ 13
within DNL 60+	$ 174	$ 174	$ 167	$ 167

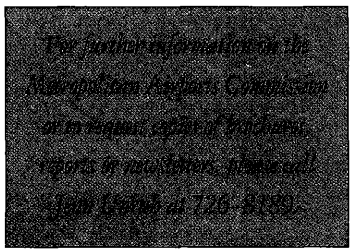
YEAR 2005 LTCP NOISE CONTOUR MAP



APPENDIX

Metropolitan Airports Commission

Pierson "Sandy" Grieve, Chair
Mark Brataas, Vice Chair
Steve Cramer
Laurel Erickson
Edward Fiore
Alton Gasper
John Himle
Darcy Hitesman
Daniel Johnson
Nick Mancini
Tommy Merickel
Louis Miller, Jr.
Patrick O'Neill
Paul Rehkamp
Georgiann Stenerson



Dual Track Task Force

Patrick O'Neill, Chair
Dick Anfang
Gregory Boyle
Alice Clausing
Tom Crowley
Bud Erickson
Paul Farmer
Joseph Finley
Kathy Gaylord
Don Groen
Edward Gutzmann
Joseph Harris
Tim Hoffman
John Kahler
Andrew Lindberg
Myra Peterson
Gloria Pinke
Ray Rought
Mary Hill Smith
Michael Werner
Lyle Wray

MSP Technical Committee

Metropolitan Airports Commission
Aircraft Owners & Pilots Association
Minnesota Air National Guard
U.S. Fish & Wildlife Service
Metropolitan Council
Minnesota Business Aircraft Association
U.S. Air Force Reserves
State Historic Preservation Office
City of Minneapolis
City of Eagan
City of Mendota Heights
City of Bloomington
City of St. Paul
City of Richfield
City of Burnsville
City of Inver Grove Heights
FAA Air Route Traffic Control Center
FAA - Airports District Office
FAA - Air Traffic Control Tower
Environmental Quality Board
Minnesota Pollution Control Agency
Minnesota Department of Transportation:
  Office of Aeronautics
  Metro Division
  Intermodal Policy Section
  Environmental Services
  Office of Transit
  Office of Railroads & Waterways
Northwest Airlines, Inc.
Mesaba Airlines
Air Transport Association
Federal Express
Airline Pilots Association
Dakota County
Minnesota Department of Agriculture
Minnesota Department of Natural Resources
U.S. Environmental Protection Agency
U.S. Army Corps of Engineers

Metropolitan Airports Commission

6040 28th Avenue South

Minneapolis, Minnesota 55450