2005 ANNUAL REPORT TO THE LEGISLATURE

METROPOLITAN AIRPORTS COMMISSION

March 2006

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Metropolitan Airports Commission

INTRODUCTION

In 1989, the Minnesota Legislature adopted the Metropolitan Airport Planning Act. This legislation required the Metropolitan Airports Commission (MAC) and the Metropolitan Council (MC) to complete a comprehensive and coordinated program to plan for major airport development in the Twin Cities. The planning activities were designed to compare the option of future expansion of Minneapolis-Saint Paul International Airport (MSP) with the option of building a new airport.

The analysis was completed in 1996, and the MAC and MC formally submitted their recommendations to the Legislature on March 18, 1996. On April 2, 1996, legislation was passed by both the House and Senate, and subsequently signed by Governor Carlson, stopping further study of a new airport and directing the MAC to implement the MSP 2010 Long Term Comprehensive Plan.

The 1996 legislation requires the MAC to prepare an annual report to the Legislature by February 15th of each year that describes recent airport activity, current and anticipated capacity and delay for the airfield and terminal, and technological developments that could improve airport efficiency. Activity trends are compared to the 1993 MAC forecasts. The report also compares MSP trends with Detroit Metropolitan Wayne County Airport (DTW) trends.

The 2005 Annual Report to the Legislature is divided into five sections:

- Description of MSP and DTW facilities.
- Comparison of MSP and DTW activity.
- Comparison of 1993 MAC forecasts with actual activity.
- Current airfield capacity and average length of delay statistics.
- Technological developments affecting aviation and their effect on airport operations and capacity.

DESCRIPTION OF AIRPORT FACILITIES

This section compares the facilities of MSP and DTW. **Table 1** summarizes the major airport components and identifies when new facilities are expected to be in place.

Minneapolis-St. Paul International Airport

Figure 1 shows the general airport layout for MSP. The airfield consists of two parallel runways, one north-south runway and one crosswind runway-that intersect both parallel runways. Runway 4-22 is 11,006 feet long; Runway 12R-30L is 10,000 feet long; Runway 12L-30R is 8,200 feet long; Runway 17-35 is 8000 feet long. A deicing pad was constructed at Runway 12L in 1998 with the capacity to accommodate six jets and two regional aircraft. During the reconstruction of the southeastern portion of Runway 12R-30L, a new parallel taxiway was constructed south of the runway, and a deicing pad capable of handling six jet aircraft was constructed at Runway 30L in 1999. A deicing pad for Runway 30R was constructed in 2001 and can accommodate 3 narrowbody and 2 regional aircraft. In addition, an Engineered Materials Arresting System (EMAS) was installed on the approach end of Runway 30L to enhance safety. In 2003 a deicing pad was added to Runway 12R and can accommodate 3 widebody, 3 narrowbody and 2 regional aircraft. Construction of Runway 17-35 began on March 15, 1999. In 2003, the north end of the runway was paved and the remaining southern portion was paved in 2005. The north-south Runway was commissioned and open for operation on October 27th 2005. Two cargo aprons (50 acres of concrete) were constructed in 2000. FedEx opened their cargo sort facility in 2002, and UPS completed construction of their facility in 2003. MAC constructed a multi-tenant cargo facility in 2004. An airline maintenance apron was constructed in 2001 and Mesaba Airlines completed construction of their facility in 2003. Sun Country Airlines and Champion Air constructed their maintenance hangars in 2004. A new public roadway system was opened in 2003, providing access to the west side of the airport for relocated and future airport tenants. The Light Rail Transit station directly east of the Humphrey terminal was completed in 2003 and another station at the Lindbergh terminal was completed in 2004, with passenger service initiated on December 4, 2004, providing direct access to downtown Minneapolis and the Mall of America. In addition, a new and larger Aircraft Rescue and Fire Fighting (ARFF) facility started construction in 2004, along with the Runway 17 deicing pad. The ARFF facility as well as Runway 17 deicing pad were completed in October 2005. Also completed in 2005 were the MAC south field maintenance facility, rental car service site paving and Runway 30R safety modifications. The Runway 30R threshold has been temporarily displaced and declared distances have been implemented. This modification may become permanent if the impact on aircraft operations is confirmed to be minimal. Construction of the tunnel under Runway 4-22 also began in 2004, providing additional secured access to the midfield area. Work on the tunnel is scheduled to be complete by the end of 2006.

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Minneapolis-St. Paul International Airport Layout — Figure 1

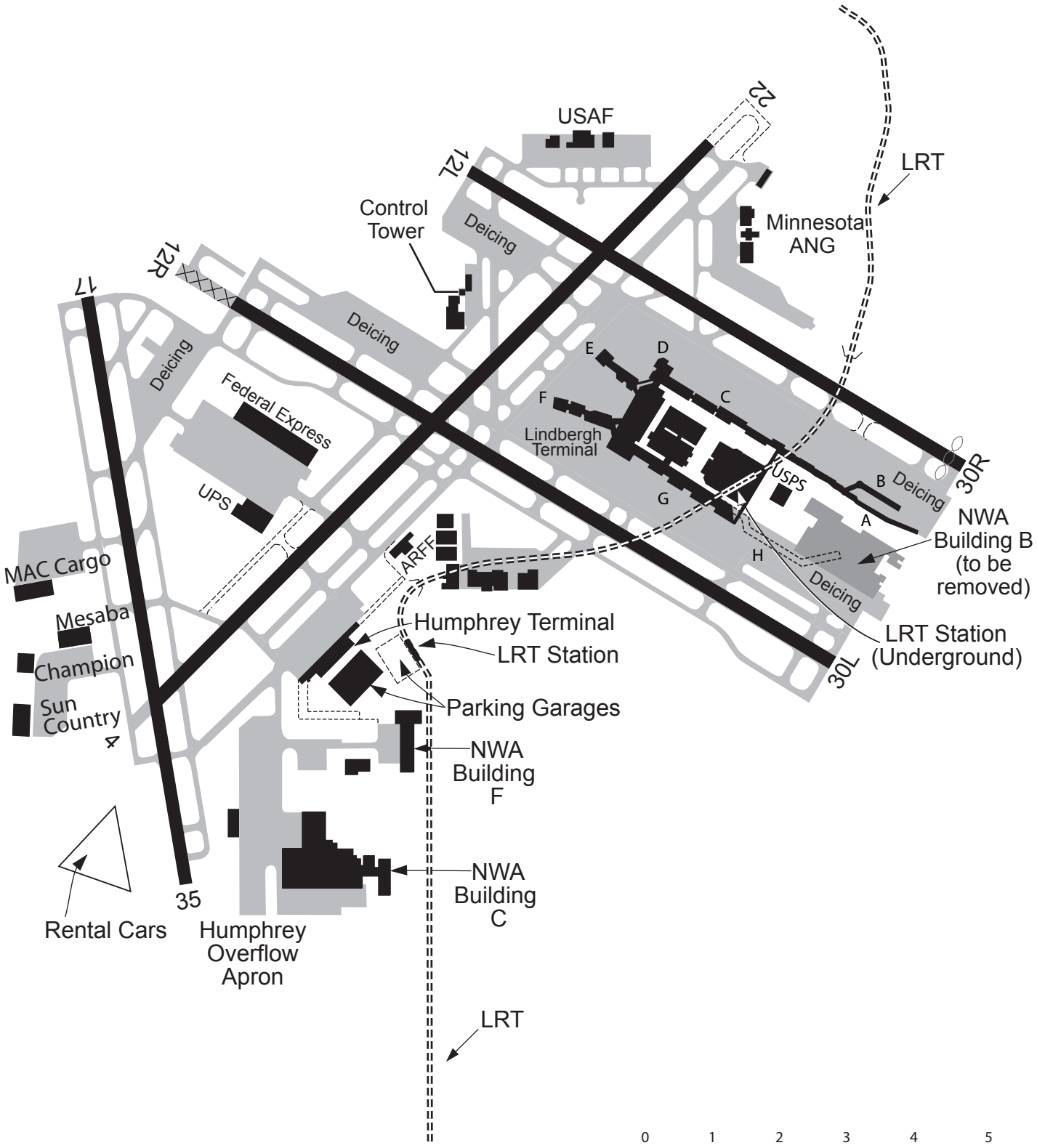


Table 1

2005 REPORT TO THE LEGISLATURE

Comparison of Existing Airport Facilities

Airport Component	MSP		DTW	
Runways				
Main	2 Parallel		4 Parallel	
Crosswind	2 [1]		2 Parallel	
Total	4		6	
Longest (ft.)	11,006 [2]		12,001	
Terminal Facilities				
Square Feet (millions)	3.1		3.0	
Total Gates	127		145	
Lindbergh	117	McNamara	109	[4]
Humphrey	10	Smith & Berry	36	[5]
Northwest Gates	101		102	[6]
Regional Gates	41		28	
Auto Parking Spaces	17,205 [3]		20,000	

Notes:

[1] New North/South runway opened on October 27, 2005.

[2] Runway 4-22 has environmental approval to be extended to 12,000 feet.

[3] The Humphrey garage provides 3,906 public parking spaces, a second facility will add another 4,526 public and employee spaces in the future.

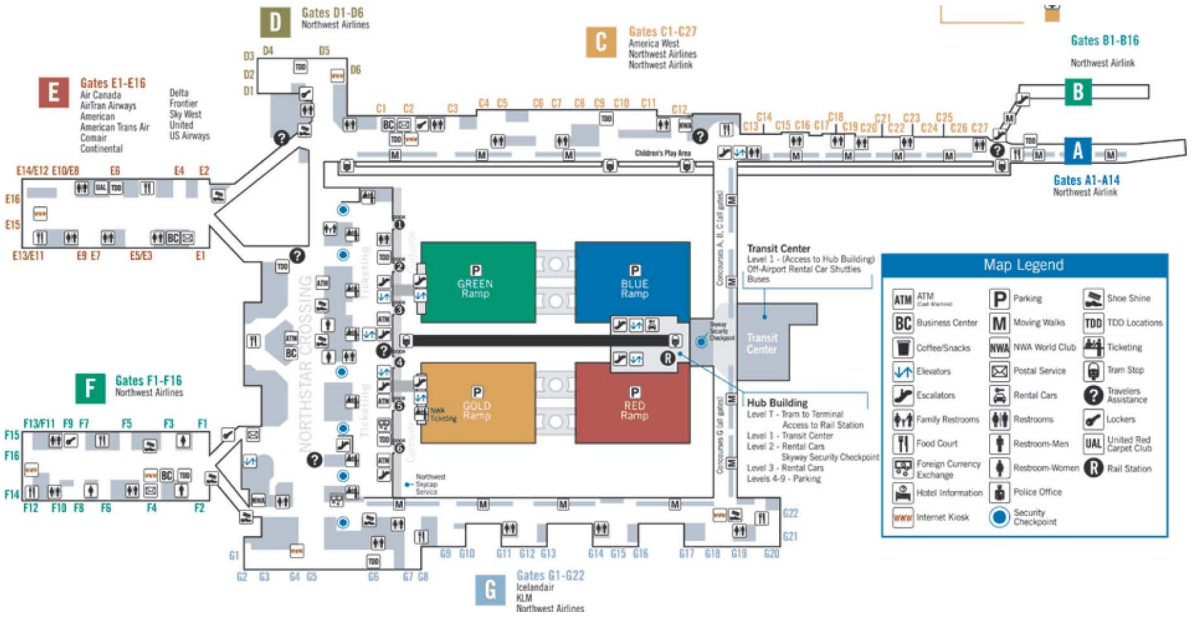
[4] In April 2006, 3 gates will be opened in Concourse C as well as 10 more in the summer of 2006. (total 122).

[5] The new replacement North Terminal will provide 26 gates as early as 2008 for non-Sky Team airlines.

[6] Northwest has 102 gates at the mid-field terminal, including 28 regional gates.

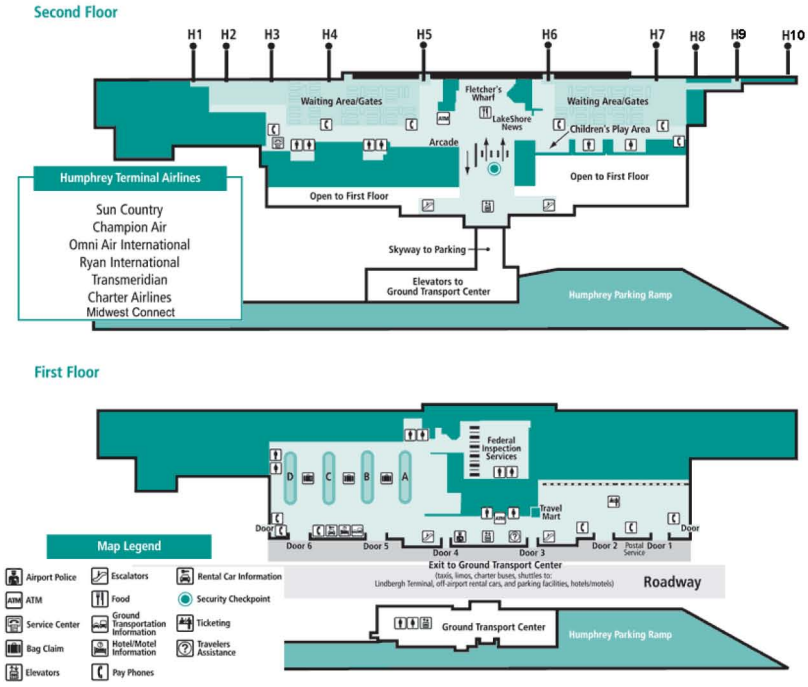
Source: HNTB analysis.

Lindbergh Terminal



The Lindbergh Terminal is located between the two parallel runways, east of the crosswind runway. The terminal is laid out with single-loaded and double-loaded concourses that provided 117 gate positions in 2005. A concourse tram along Concourse C began operation on May 5th 2004. Two NWA maintenance bays at Building B near Concourse G were demolished in 2004 to make room for future concourse expansion.

Humphrey Terminal



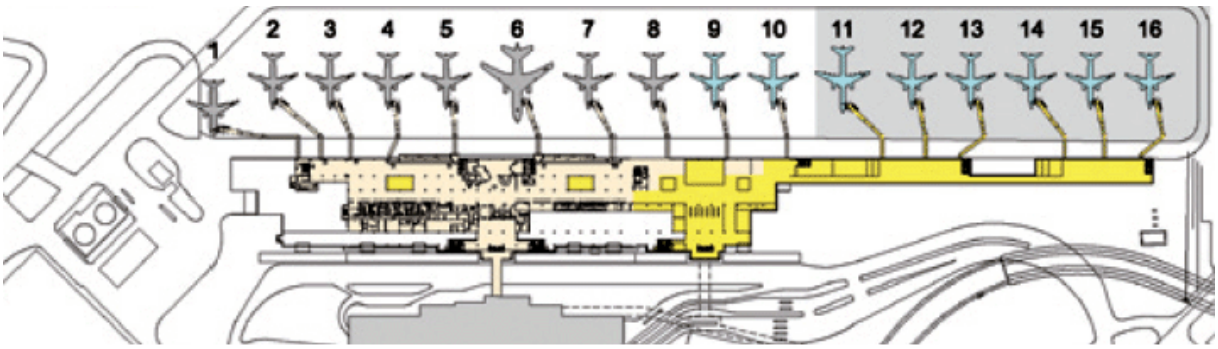
The Humphrey Terminal, opened in 2001 as part of the MSP 2010 Airport Expansion Plan, provides 10 gates used by Sun County and Midwest airlines as well as several Charter airlines. As part of the first phase of the 2020 plan the Humphrey terminal will be expanded. Those plans are currently on hold. The Humphrey parking garage has a total of 3,906 spaces provided to employees and the public. This is the first phase of an 8,400-space parking facility for both employees and the public. Construction of the second garage (4,526 spaces) would occur in the future as demand warrants.

MSP 2020 Vision

On September 21, 2004, an $862 million expansion for MSP called 2020 Vision was proposed. Improvements to the Humphrey and Lindbergh Terminals are described below.

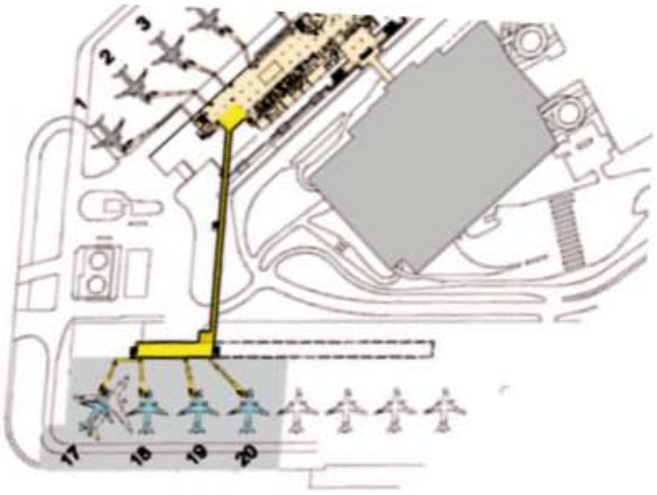
The Phase I and II expansion plans of the Humphrey Terminal are outlined as follows:

- All non-Sky Team member airlines would be moved from the Lindbergh Terminal to the Humphrey Terminal
- Currently, there are ten gates serving Sun Country, Midwest and several charter airlines. The addition of 6 more gates in phase I will allow the Humphrey Terminal to accommodate all non-sky team airlines.
- Eighty-eight check-in counters (from the current total of Thirty-four), an in-line Explosive Detection System (EDS) and two baggage claims (to bring the total to six) would be added to accommodate the increased traffic.
- If demand warrants, the terminal parking garage could be expanded to accommodate an additional 1,500 vehicles. Space is also available for another parking garage or surface lot to the north of the current parking structure that could add about 4,500 spaces.



Humphrey Terminal, Phase I (2008)

- If demand warrants, additional space to the south of the current terminal could accommodate the construction of an additional four to eight gates in phase II.



Humphrey Terminal, Phase II (2010)

The following figures show the Phase I, II and III expansion plans of the Lindbergh Terminal. The construction of a 400-room hotel with a 25,000 square-foot conference center facility has been proposed and would be built when economically justified with funding to be provided by a potential developer.

The phases for Lindbergh Terminal development are as follows:

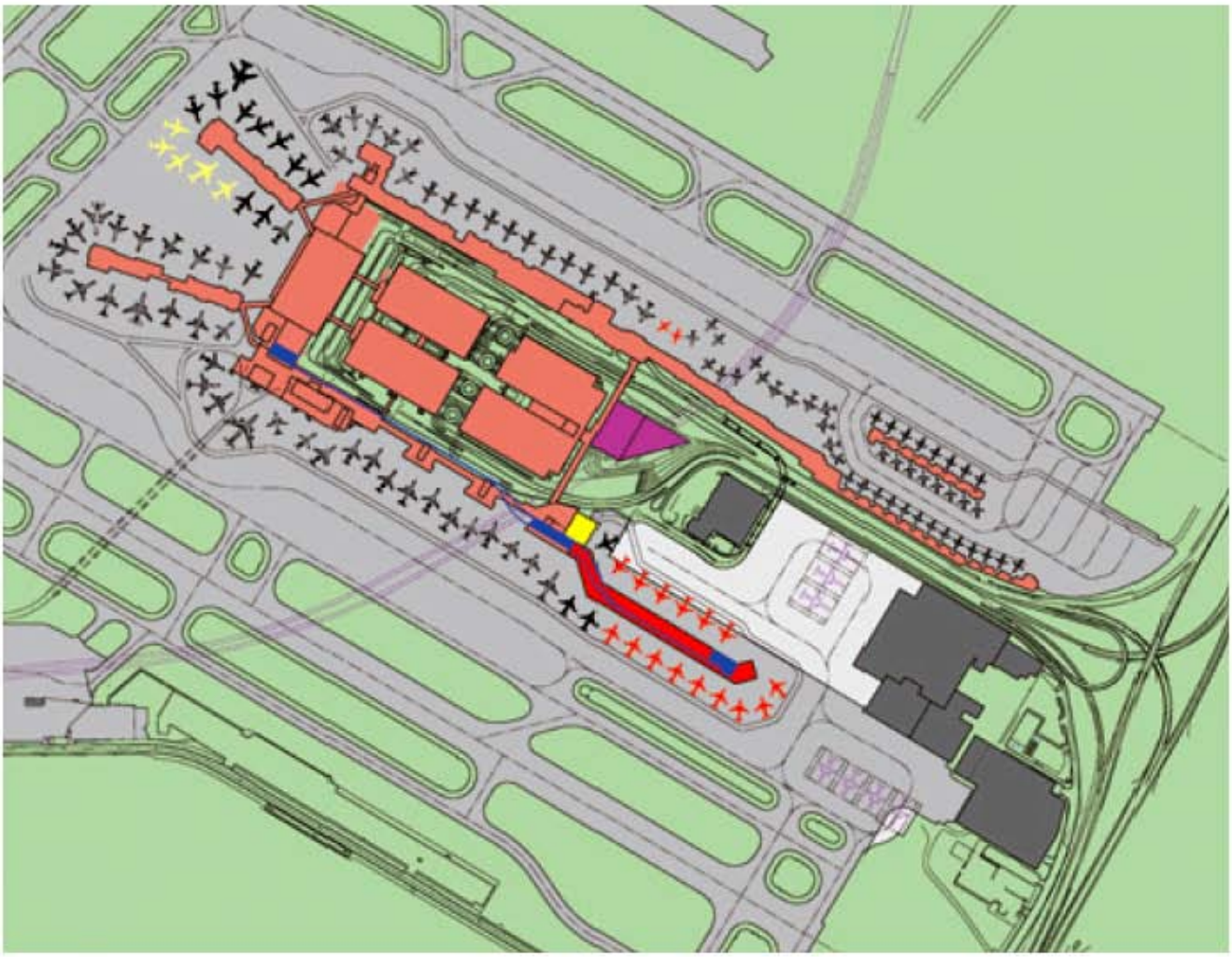
Phase I

- The shift of non-Sky Team members to the Humphrey Terminal would free-up an additional eleven gates at the Lindbergh Terminal.
- Extra ticketing counters, more screening lanes and in-line EDS would be added to the terminal area.
- Due to the rise in popularity of the e-Park and pre-payment options available to passengers using the airport's parking facilities, fewer cashier checkout lanes would be required, making additional space for a second curbside passenger drop-off area and ticketing facility available behind the Blue and Red parking ramps. Land freed-up by the removal of checkout lanes will also be where the new hotel will be sited.

Lindbergh Terminal, Phase I (2008)

Phase II

- Around 2010, a fifteen-gate extension Concourse H, capable of handling the largest narrow-body aircraft, would be added to the end of Concourse G along with a new NWA World Club at the intersection of Concourses G and H. The new concourse will be built on land previously occupied by Building B, which once served as NWA headquarters and, along with seven attached hangars, a maintenance base.
- A new people mover (the airport's third) would be built along the roof of Concourse G and H with stops at both ends and one in the middle at the beginning of Concourse H.
- Two narrow-body gates in Concourse C would be converted to accommodate up to four regional jets. The total number of regional airline positions would then total forty-six (thirteen at Concourse A, sixteen at Concourse B and seventeen at Concourse C).

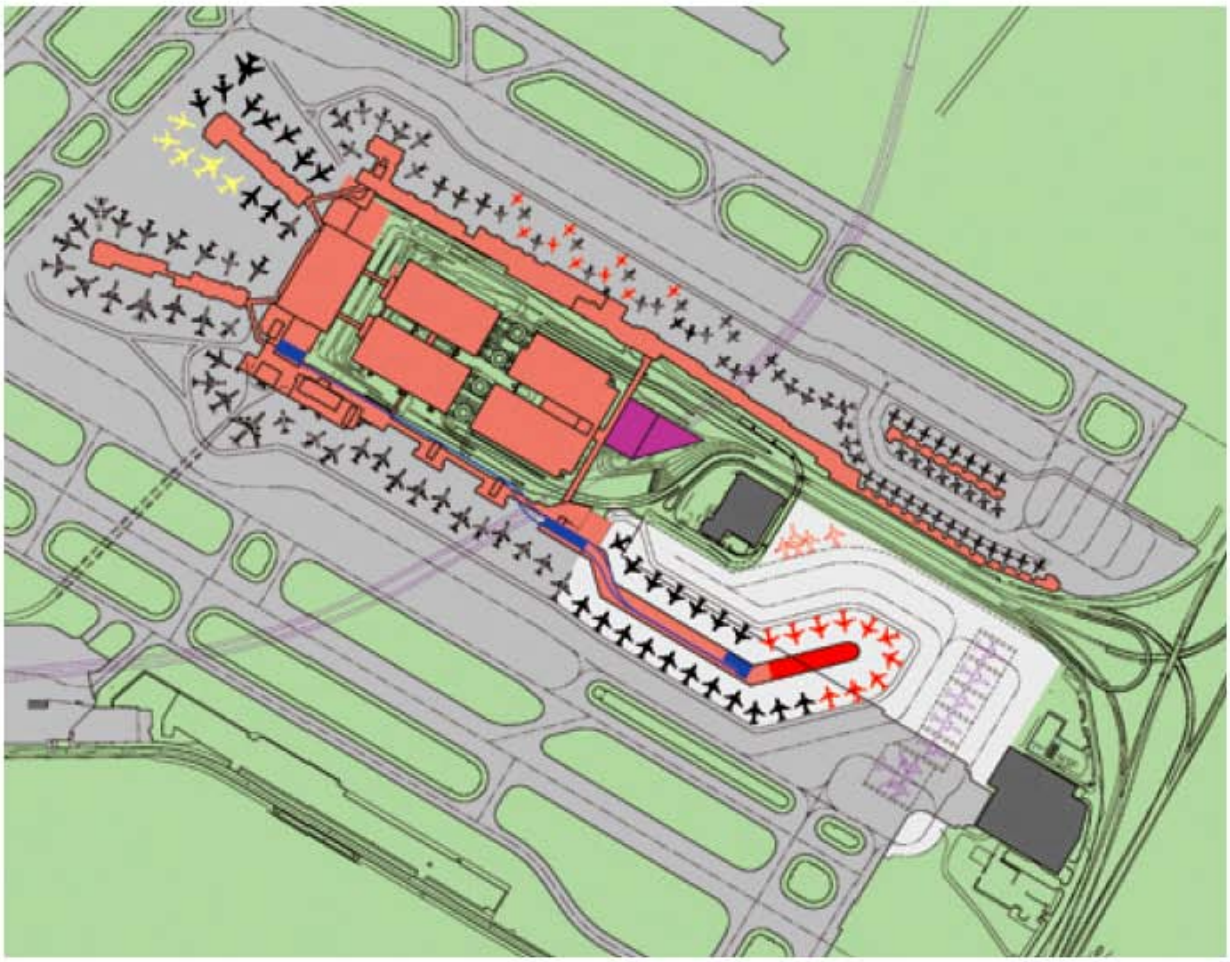


Lindbergh Terminal, Phase II (2010)

Phase III

- As passenger numbers continue to increase, a ten-gate extension could be added to Concourse H, bringing the total number of gates in this concourse to twenty-five.
- The demolition of NWA Building B would be completed with the current de-icing pad for runway 30L being relocated at the southeastern tip of Concourse H. The only remaining structure of NWA Building B complex would be the employee parking lot at the extreme southeastern border of the airport.
- Nine additional gates in Concourse C would be converted for use by regional jets, creating a total of eighteen new positions and bringing the total number of plane stands for regional jet use to fifty-five.

MAC review of Phase I substantively modified the proposal (i.e. 12 new gates at the Humphrey Terminal), however as previously indicated, the expansion proposal is currently on hold.



Lindbergh Terminal, Phase III (Post 2010)

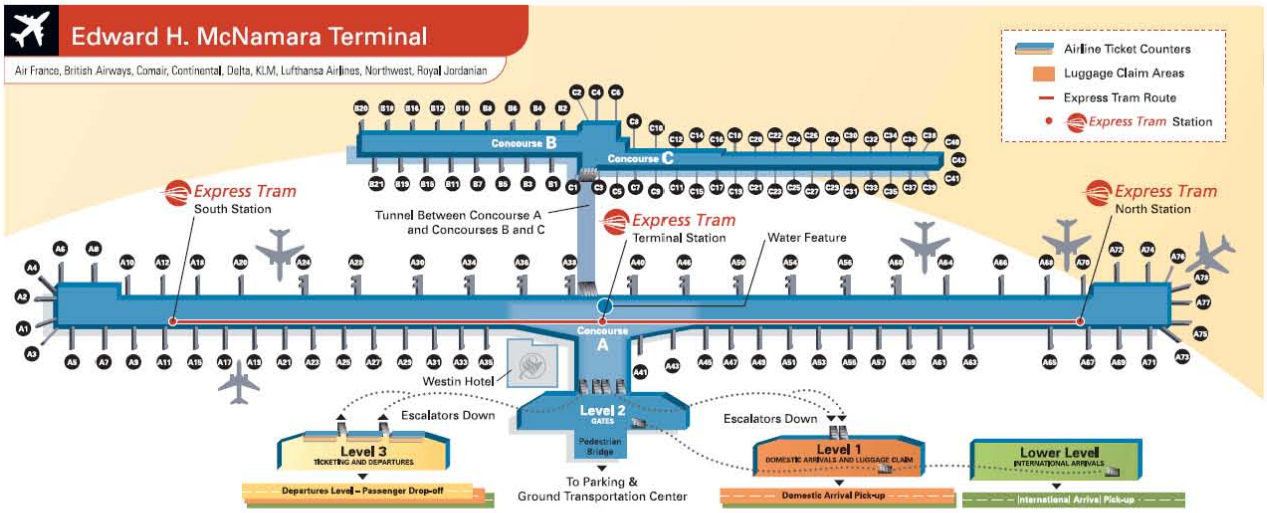
General Aviation (GA) services are provided south of Runway 12R-30L. In 2001, Signature Aviation opened two maintenance hangars to replace facilities that were removed to allow for construction of the Runway 12L deicing pad. The second hangar is operated by Gulfstream Aviation. Signature also opened a new FBO Terminal in 2002. Cargo operations and airline maintenance are located on the southwest side of the airport. U.S. Air Force Reserve and Minnesota Air National Guard facilities are located on the north side of the airfield.

Detroit Metropolitan Wayne County Airport

Figure 2 shows the general airport layout for DTW. The airport has six runways: four main parallel runways oriented on a northeast-southwest heading and two crosswind runways oriented on an east-west heading. Runway 4R-22L is 12,003 feet long; Runway 4L-22R is 10,000 feet long; Runway 3L-21R is 8,501 feet long; Runway 3R-21L is 10,001 feet long; Runway 9L-27R is 8,708 feet long; and Runway 9R-27L is 8,500 feet long. Runway 4L-22R is the newest runway and was commissioned on December 11, 2001.

There are three passenger terminals. Two located north of Runway 9L-27R, between Runways 4R-22L and 3L-21R: the L. C. Smith Terminal and the M. Berry Terminal. The L. C. Smith Terminal provides 38 gates for non-Sky Team airlines. The M. Berry International Terminal provides an additional four gates for charter airlines. South of Runway 9L-27R the McNamara Terminal consists of two double-load concourses that provide 94 gates. General Aviation services are provided on the east side of the airport.

McNamara Terminal



In February 2002, Northwest Airlines and Wayne County completed the $1.2 billion McNamara Terminal Project which features overhead trams to transport passengers between gate connections, moving walkways for added passenger convenience, 94 airline gates, and an 11,500-space parking deck. The new terminal opened on February 24, 2002, and currently houses Air France, Northwest, Delta, Comair, KLM, Continental, British Airways, Lufthansa and Royal Jordanian. British Airways and Lufthansa will relocate to the new North Terminal in 2008. Also in February 2002 John Dingell Drive was opened providing a second main entrance to the airport with a six lane, four mile long road connecting I-275 traffic to the new McNamara terminal via the Eureka Road exit.

The McNamara Terminal Project, approximately 2 million square feet in size, is comprised of a passenger terminal and three concourses. Concourse A with 64 jet aircraft gates is connected to concourses B and C, for regional and other domestic

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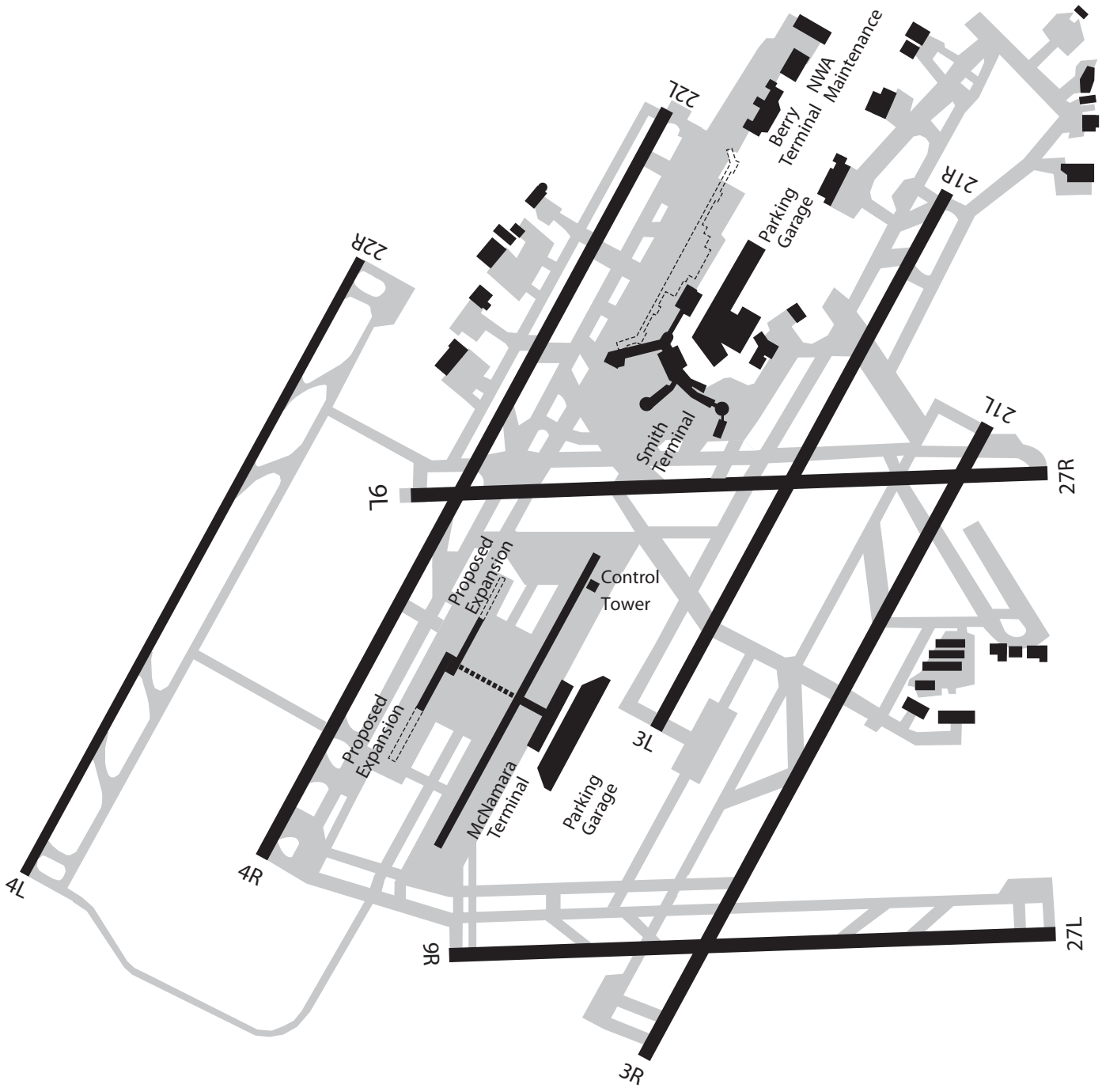
Detroit Metropolitan Wayne County Airport Layout — Figure 2



0 1 2 3 4 5

SCALE IN THOUSANDS OF FEET

aircraft, by means of an underground tunnel equipped with a moving walkway. Concourse B has 17 jet gates. Concourse C has 28 regional gates. The terminal project also included an energy plant, a three-level roadway system, and 180 acres of apron, taxiways, and support facilities. A Westin Hotel attached to the Midfield Terminal opened in December 2002 and provides over 400 guest rooms.

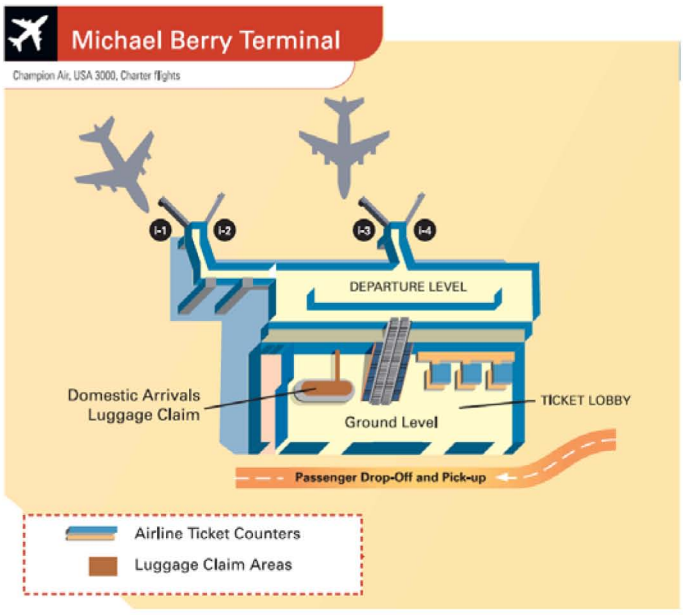
Westin Hotel

Towards the end of 2002, a $175 million plan to expand the B and C concourses at the McNamara Terminal was placed on hold, due to unfavorable economic conditions and the slowdown in air travel. The project to expand the concourse by 25 gates – nine jet and sixteen regional – was reinstated in 2003. In 2004 work began to replace the temporary facility at Concourse C with a permanent one. On November 6, 2005 the renovated Concourse C was opened to the public. In April of 2006, 3 more gates will open on Concourse C as well as 10 more gates in the Summer of 2006.

Smith Terminal

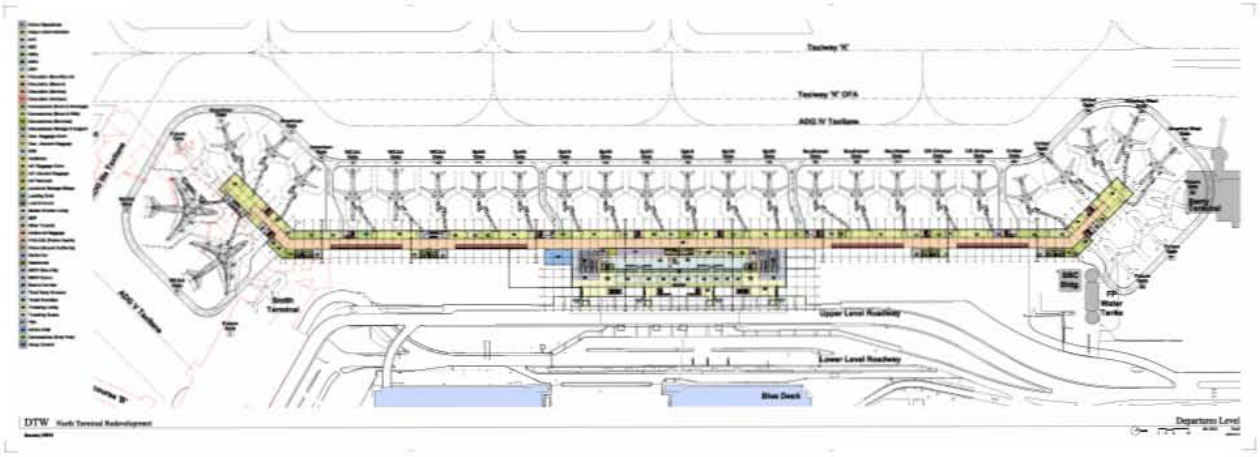
In 2002, NWA demolished Concourses D, E, F, and G along with half of Concourse C at the Smith Terminal. In 2003, Northwest Airlines completed construction on a $31 million hangar, the last piece of Detroit's six-year, $1.6 billion expansion program. The 128,100 square-foot hangar is located north of the Berry Terminal, and is designed to simultaneously accommodate one 757-200 and two 747-400s.

Berry Terminal



In April of 2005, the Wayne County Airport Authority approved a construction budget of $298 million for the new north terminal project. In October of 2005 the Davey Terminal was demolished. The New North Terminal, a planned 26 gate facility, will be approximately 685,000 square feet in size and occupy the site of the Davey terminal as well as the former site of Concourses C-F. Eventually Wayne County plans to demolish the rest of the Smith Terminal Concourses A, B and C. The New North Terminal is expected to open as early as 2008 at a total cost of $418 million. This terminal will house all non-Sky Team airlines.

Future North Terminal



AIRPORT ACTIVITY AND SERVICE TRENDS

This section presents an overview of passenger and aircraft activity at MSP and DTW, and compares air service at the two airports. It should be noted that the Northwest Airlines (NWA) Pilots Strike, during August and September 1998, affected activity levels during 1998. If the strike had not occurred, the activity levels for 1998 would likely have exceeded 500,000 aircraft operations at MSP. NWA's schedule returned to pre-strike levels around October 1998.

Sun Country Airlines, which is based at MSP, initiated scheduled passenger service on June 1, 1999. By the end of 2000, Sun Country had flown 1,437,496 total passengers, or 4.3 percent of MSP's passenger traffic, to or from the Airport. Due to severe financial pressures, the airline ceased operations December 7, 2001. Sun Country resumed charter operations to several destinations in mid-2002 with new investors and reinstated scheduled service on February 27th, 2002 to Orlando and Pensacola. Sun Country added more destinations in March of 2002, and as of December, 2005 serve 31 destinations.

The events of September 11, 2001 had significant financial and operational impacts on MSP. Decreased numbers of air travelers reduced both year-end revenues and passenger facility charges by $10 to $12 million in 2001. In 2002, these revenues increased only marginally. Due to reduced demand and the loss of parking spaces near the terminal, as mandated by the FAA's 300-foot rule, revenue from parking declined by 65 percent in 2001 and early 2002. However, all general and short term parking areas (1,626 spaces) at the Lindbergh Terminal that were off limits under the 300-foot rule were re-opened in April 2002. In May, the 480-space valet garage at the Lindbergh Terminal was also re-opened.

Funding for construction in 2002 was reduced by $295 million, from $371 million to $76 million. Again in 2003 the construction budget was reduced, down to $86.9 million. Projects previously scheduled for 2003 at MSP that were deferred include: the new fire and rescue station; expansion of the Lindbergh Terminal for concessions; a second parking deck structure at the Humphrey Terminal; miscellaneous projects related to Runway 17-35 land acquisition, noise mitigation and landside rehabilitations. Runway 17-35 was original scheduled to open in 2003.

Passenger traffic numbers started to rebound slightly in 2003 and by 2004 had surpassed 2001 levels by 11 percent. In addition, a major terminal expansion plan was proposed to accommodate future passenger volumes. This ambitious plan, known as 2020 Vision, lays the foundation for consolidating all non SkyTeam airlines in an expanded Humphrey Terminal and all SkyTeam airlines at the Lindbergh Terminal.

September 11th impacts on DTW included the addition of four new passenger screening lanes in the new mid-field McNamara Terminal, raising the total number to sixteen. Parking at the new mid-field terminal was also affected. Level 10 of the garage was closed and full inspection at each entry point was instituted. The $175 million plan to

demolish and expand Concourse B and C at the new Midfield Terminal was deferred. In 2003, the concourse project was reinstated and will be constructed in 2005/2006.

In 2005, Northwest Airlines dealt with the strike of The Aircraft Mechanics Fraternal Association (AMFA) as well as the impact of filing for bankruptcy. The AMFA strike caused Northwest to prematurely modifiy their summer schedule to a fall schedule. This reduced their scheduled operations. Another factor contributing to a reduction in operations was the September 14 filing for bankruptcy protection. In an effort to regain profitability Northwest cut aircraft leases as part of their restructuring resulting in fewer aircraft and fewer operations. Fuel prices also continued to rise in 2005 causing Northwest to increase ticket prices which resulted in a reduction in demand for travel services.

Domestic Originations/Destinations

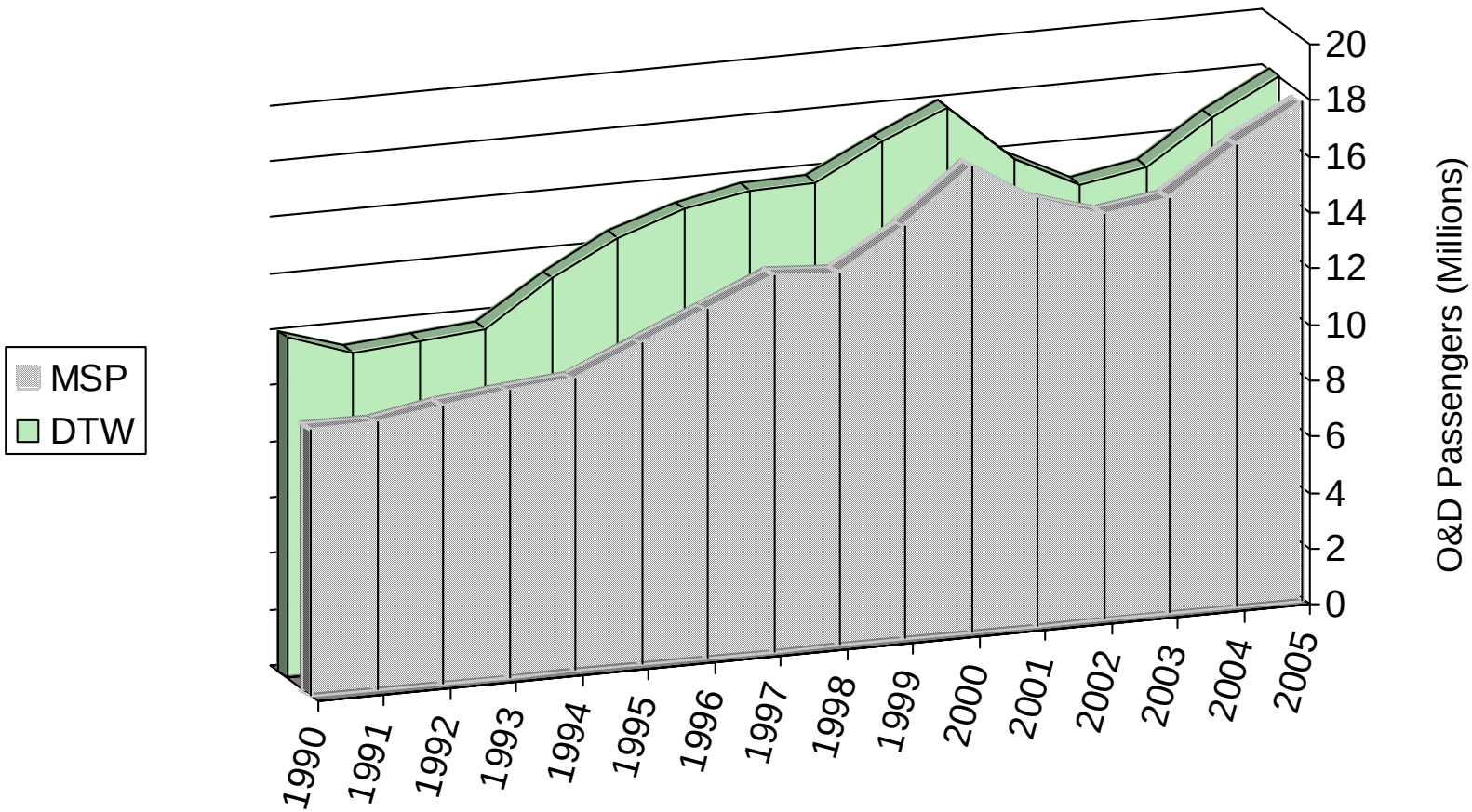
Figure 3 compares historical domestic passenger originations/destinations (O&D) at MSP and DTW. O&D passengers are those who begin or end their trip at the airport (versus passengers who are connecting at the airport en route to another destination). O&D passenger demand is primarily driven by local socioeconomic factors. Following is a summary of recent O&D activity at MSP and DTW. DTW's Domestic O&D data for 2005 are estimated based on passenger activity in the first three quarters of 2005.

- Between 1990 and 2005, domestic O&D passengers at MSP rose from 9.5 million to 17.7 million, an increase of 86.6 percent. This increase represents an annual compounded growth rate of 4.2 percent.

- At DTW, between 1990 and 2005, domestic O&D passengers rose from 12.1 million to 18.0 million, an increase of 48.7 percent. This increase represents an annual compounded growth rate of 2.7 percent.

- The number of domestic O&D passengers increased 6.7 percent at MSP, from 16.5 million in 2004 to 17.7 million in 2005, and 6.5 percent at DTW, from 16.8 million in 2004 to 18.0 million in 2005.

Figure 3
Annual Passenger Originations/Destinations* Totals
1990-2005



*2005 O&D passengers estimated from first three quarters of 2005.
Sources: U.S. DOT; HNTB analysis.

Domestic Connections

- Between 1990 and 2005, the total estimated number of domestic connecting passengers at MSP, as a percentage of total passengers, increased from 48.0 percent to 53.4 percent with a total of 20.1 million connecting passengers. Data for 2005 include both air carrier and regional carrier passengers.

- During the same period, the percentage of domestic connecting passengers at DTW increased from 43.0 percent to 50.9 percent with a total of 18.5 million connecting passengers. Like MSP, the 2005 data for DTW includes both air carrier and regional carrier passengers.

- Connecting passengers at MSP and DTW in 2005 are both estimated from the first three quarters of 2005.

Total Annual Passengers

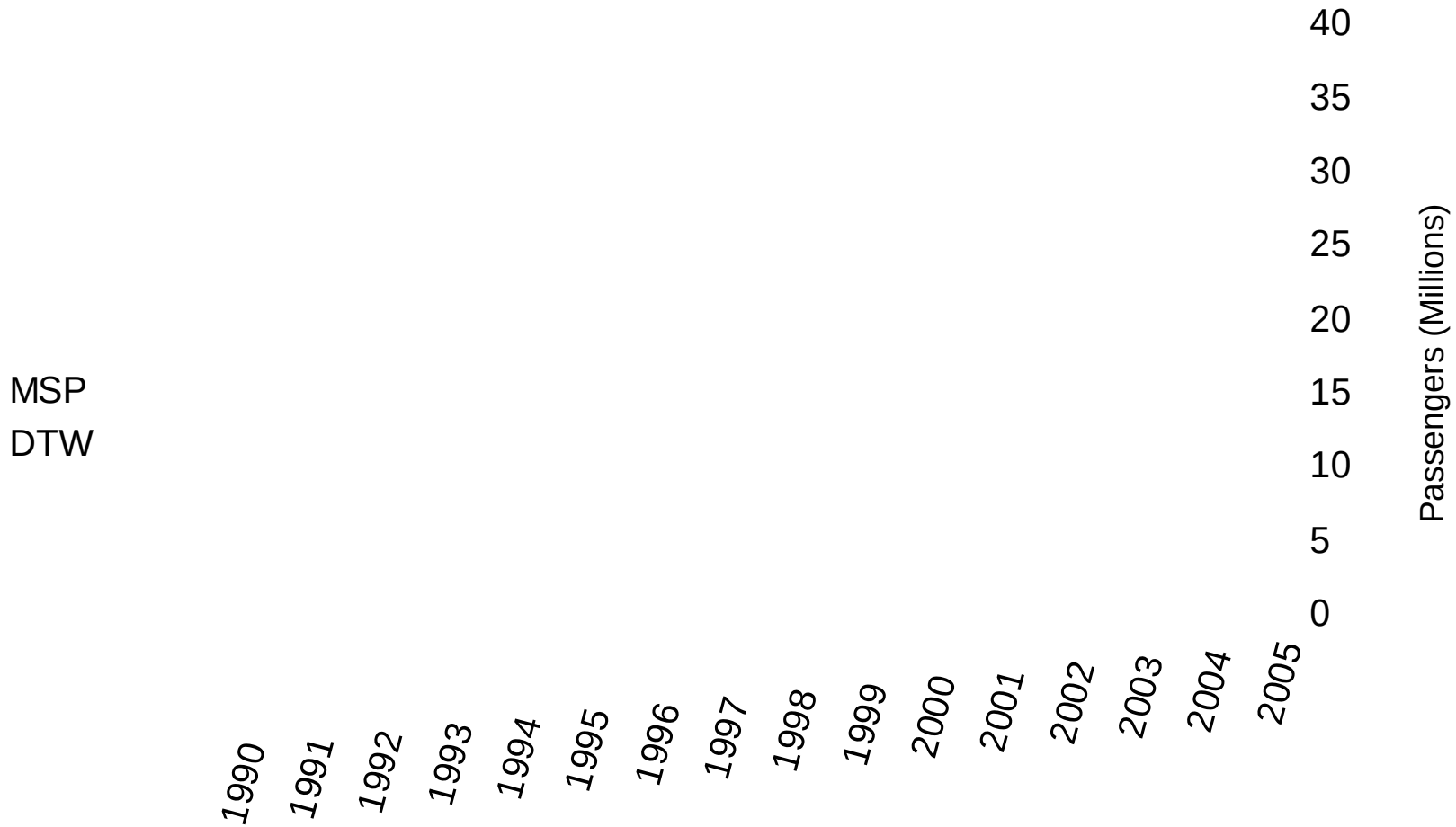
Total annual passengers are shown in **Figure 4**. Total passengers include O&D and connecting passengers.

- Between 1990 and 2005, total annual passengers grew by more than 17.5 million passengers at MSP and approximately 14.6 million passengers at DTW, with MSP reaching 36.7 million total revenue passengers and DTW reaching 36.4 million total passengers in 2005. This represents an annual compounded growth rate of 4.4 percent for MSP and 3.5 percent for DTW.

- A decline in total annual passenger numbers occurred in 2001 at MSP and DTW, due to the events of September 11th. MSP numbers dropped 8.3 percent from levels reported for the year 2000, while Detroit's overall passenger count decreased 9.2 percent compared to 2000 levels.

- In 2005, both MSP and DTW experienced increases in total annual revenue passengers. MSP numbers increased from 35.8 million in 2004 to 36.7 million passengers, an increase of 2.5 percent. Total passengers at DTW increased from 35.2 million in 2004 to 36.4 million, an increase of 3.4 percent.

Figure 4
Total Annual Revenue Passengers
1990-2005



Sources: Metropolitan Airports Commission, Wayne County, Airports Council International; HNTB analysis.

Aircraft Operations

Annual aircraft operations are presented in **Figure 5**.

- In the early 1990s, MSP and DTW had similar levels of operations (approximately 390,000 annually); by the mid-1990s, operations at DTW had increased more rapidly than at MSP.

- Total annual operations in 2000 at MSP and DTW were up 36 percent and 43 percent since 1990, respectively.

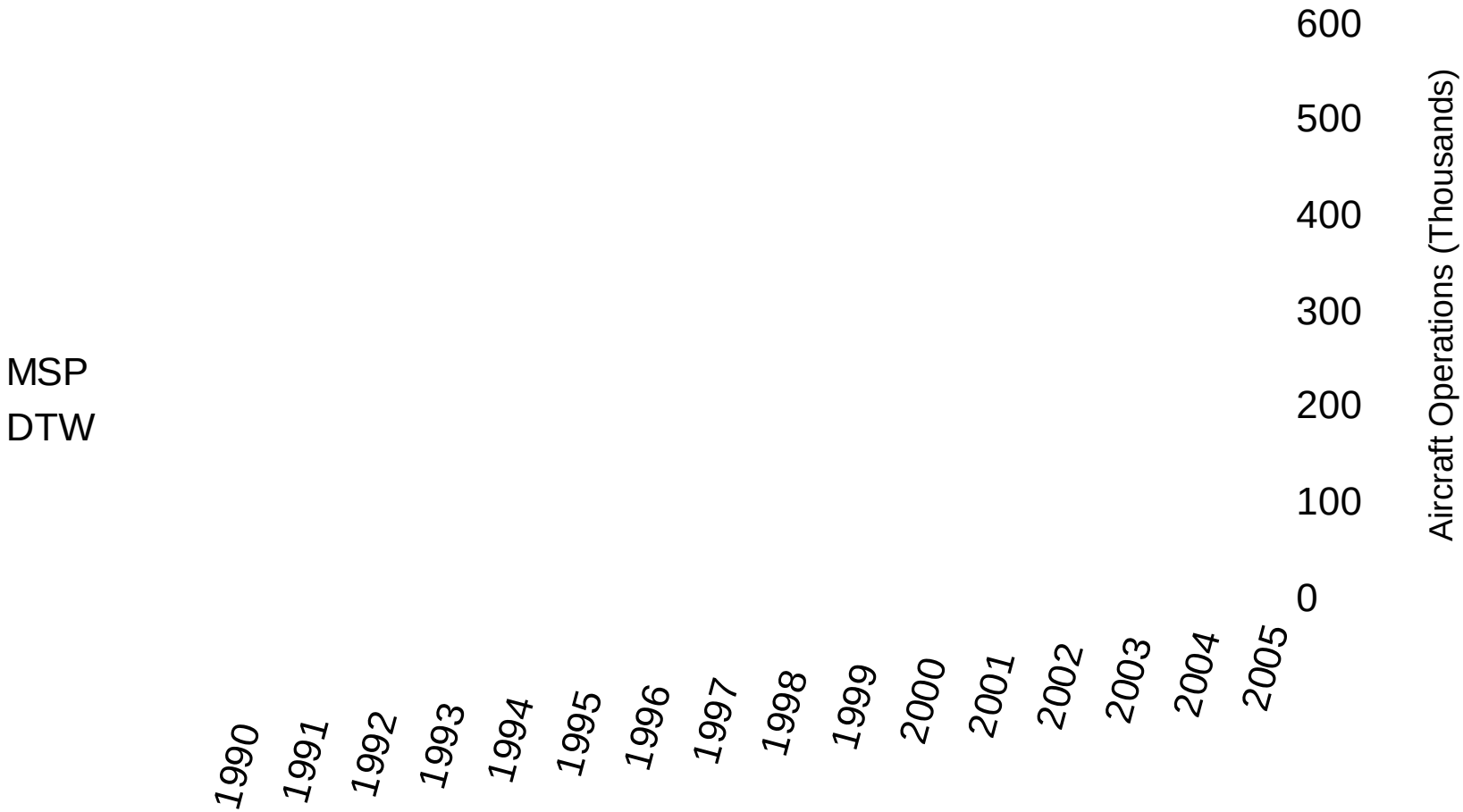
- Total annual operations at MSP and DTW declined during 2001 after the events of September 11th. At the end of 2001, total operations at MSP were 501,522 (3.9 percent decline) and at DTW 522,132 (5.9 percent decline).

- At MSP, 2005 operations decreased over 2004 by 1.6 percent to 532,239. At DTW, in 2005 total annual operations decreased over 2004 operations by 2.0 percent to 521,900 operations. This decrease is associated largely with the financial problems experienced by Northwest Airlines.

- Due to the effects of September 11th, Northwest scheduled air carrier operations decreased at both MSP and DTW in 2001. At MSP, operations experienced a 3.6 percent decrease; while at DTW they decreased by 4.5 percent. During 2002, the lingering effects of September 11th coupled with the economic downturn also affected Northwest scheduled air carrier operations at both MSP and DTW. In 2002, at MSP, Northwest operations increased, by 1.5 percent, and at DTW, Northwest operations decreased by 2.7 percent.

- In 2005, Northwest domestic air carrier operations decreased by 6.6 percent at MSP.

Figure 5
Annual Aircraft Operations
1990-2005



Sources: Metropolitan Airports Commission, Wayne County, Airports Council International; HNTB analysis.

Nonstop Markets

Figure 6 shows the number of nonstop domestic and international (including Canada) markets served by MSP and DTW in 2005. The domestic markets include those receiving an annual average of at least five weekly nonstop flights. The international markets include those receiving an annual average of at least one weekly nonstop flight. Some of these markets are served only seasonally.

- MSP offered 137 nonstop markets – 122 domestic and 15 international (nine of these international markets were in Canada). This is an increase of 6 percent from the number of markets MSP offered in 2004.

- DTW offered 142 nonstop markets – 118 domestic and 24 international (ten of these international markets were in Canada). This is an increase of 9.2 percent from the number of markets DTW offered in 2004.

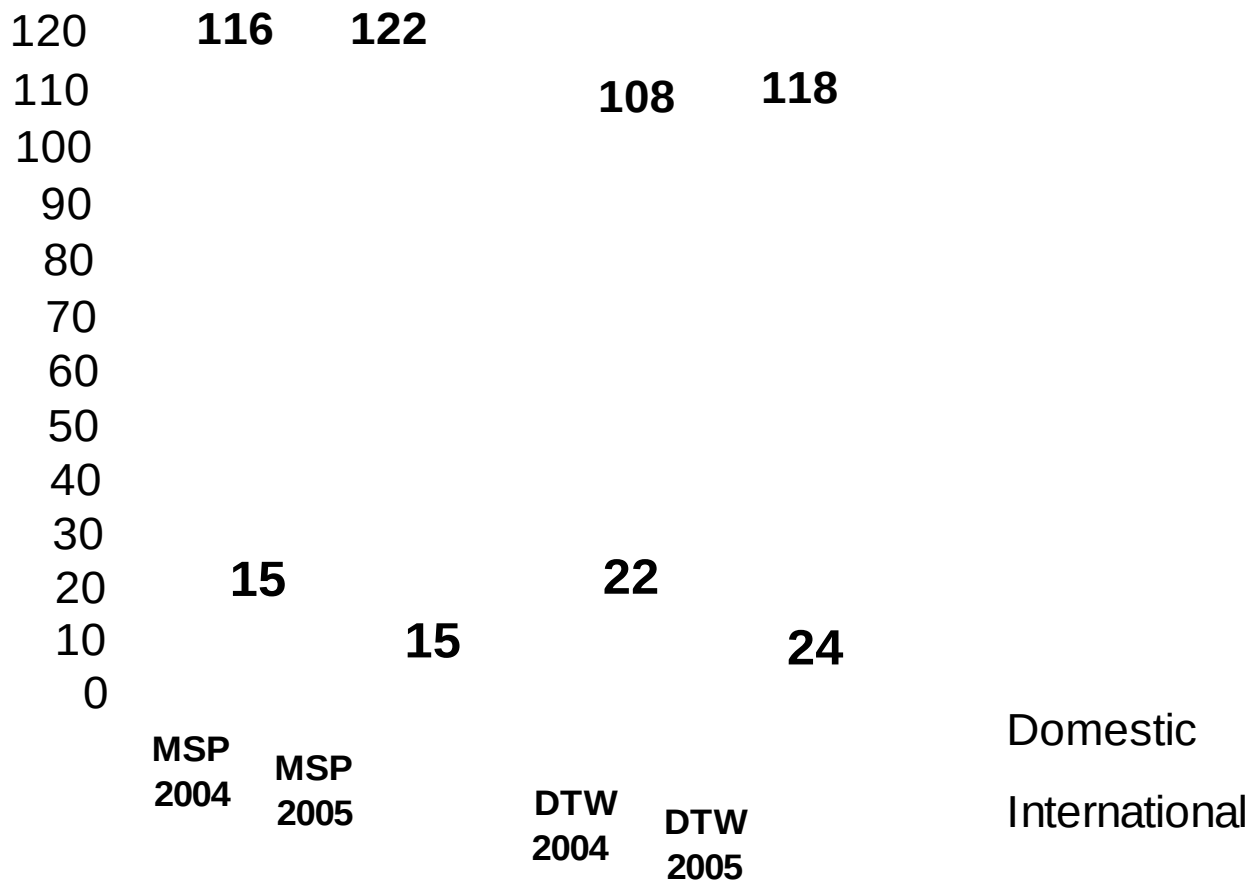
Figure 7 shows how these flights are served, either by air carrier service (jet aircraft), regional service (regional jet or turboprop aircraft), or a combination of air carrier and regional carrier service. For the purposes of this report, a "regional jet aircraft" is defined as a jet aircraft with 85 or fewer seats (i.e., Avro Regional Jet, Canadair Regional Jet, and Embraer Regional Jet).

- 26.3 percent of MSP markets are served exclusively by air carrier jets. Regional carrier service accounts for 27.0 percent of MSP markets, with 20.4 percent being served by regional jets and 6.6 percent being served by turboprop aircraft. 46.7 percent of MSP markets are served by a combination of air carrier and regional service.

- 26.2 percent of DTW markets are served exclusively by air carrier jets. Regional carrier service accounts for 34.8 percent of DTW markets, with 26.2 percent being served by regional jets and 8.5 percent being served by turboprop aircraft. 39.0 percent of DTW markets are served by a combination of air carrier and regional service.

Figure 8 and **Table 2** compare MSP to other major metropolitan areas in terms of the number of nonstop markets served by each airport per population of the Metropolitan Statistical Area. As shown, few metropolitan areas of any size have more cities served by nonstop flights than MSP.

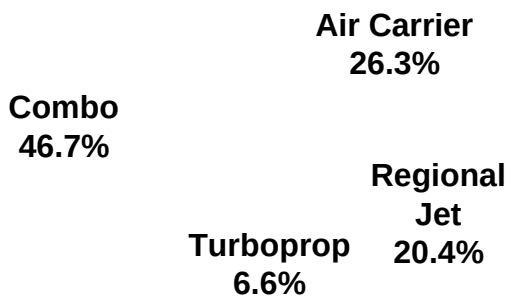
Figure 6
Number of Nonstop Markets
2004 and 2005



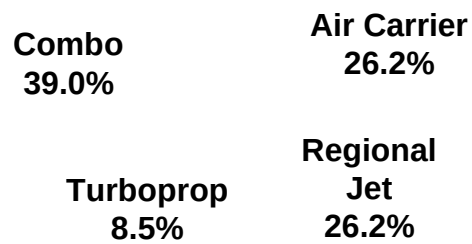
Sources: Official Airline Guide via BACK Aviation Solutions, 2005; HNTB analysis.

Figure 7
2005 Nonstop Markets by Type of Service

Air Carrier Service = Jet Aircraft
Regional Carrier Service -
Regional Jet = Regional Jet Aircraft
Turboprop = Turboprop Aircraft
Combo = Combination of Air Carrier & Regional Carrier Service



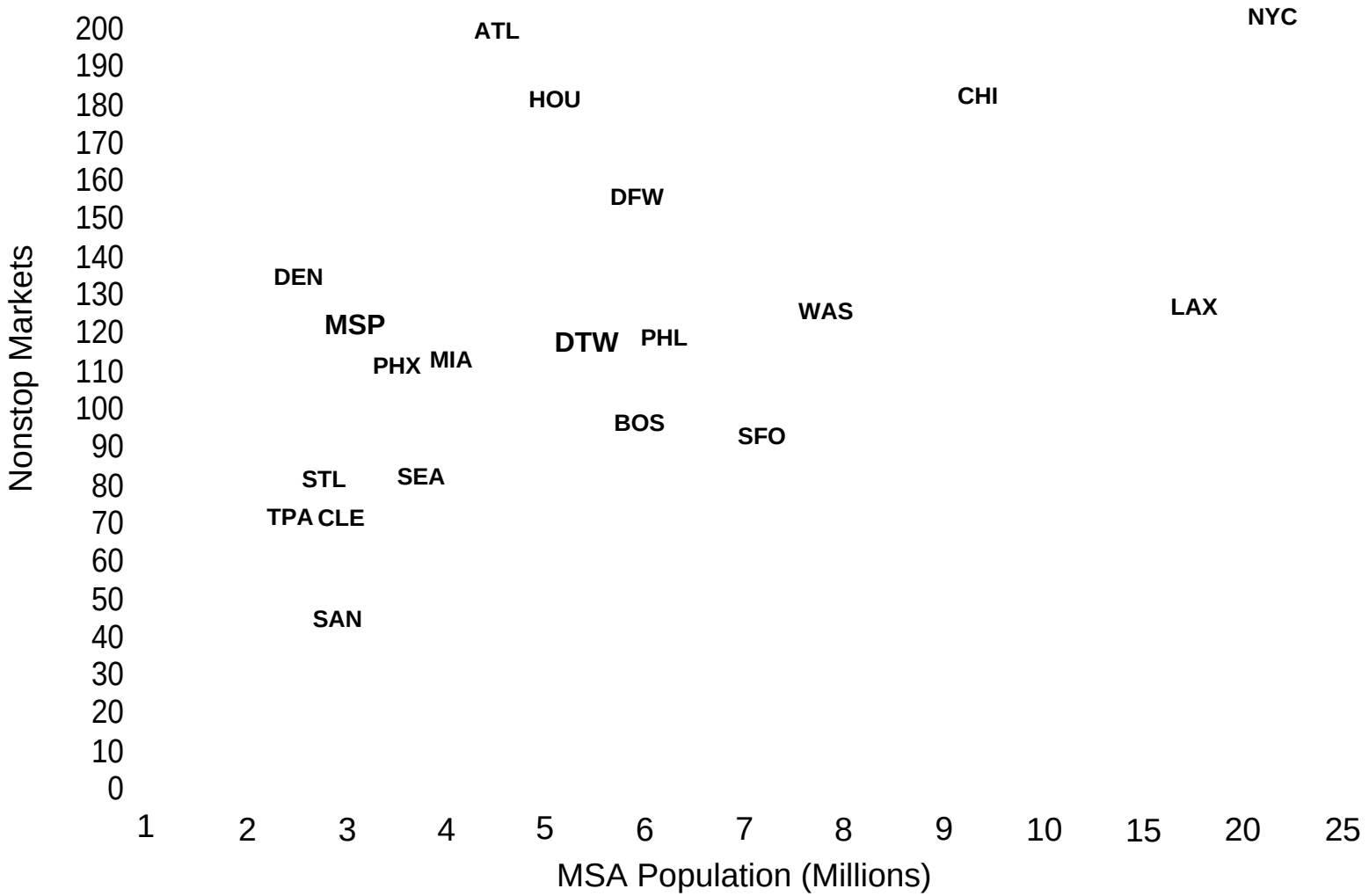
M S P
131 Nonstop Markets



D T W
130 Nonstop Markets

Sources: Official Airline Guide via BACK Aviation Solutions, 2005; HNTB analysis.
Note: Regional jets are defined as a jet aircraft having 85 or fewer seats.

Figure 8
Population vs. Nonstop Service
2005



Sources: Bureau of Economic Analysis 2002, Data Published for May 2005; Official Airline Guide via BACK Aviation Solutions, 2005; HNTB analysis.

Table 2

2005 REPORT TO THE LEGISLATURE

Nonstop Markets by Metropolitan Area

Metropolitan Area	Population [1] (Millions)	Nonstop Markets [2] [3]	Markets/Pop. (Million) Ratio
New York	21.8	205	9.4
Los Angeles	17.3	128	7.4
Chicago	9.5	183	19.2
Washington-Baltimore	7.9	127	16.0
San Francisco-Oakland	7.2	86	12.0
Philadelphia	5.9	118	19.9
Boston	5.8	97	16.7
Dallas-Fort Worth	5.8	156	26.8
Detroit	**5.4**	**142**	**26.2**
Houston	5.2	181	35.0
Atlanta	4.6	200	43.4
Miami-Fort Lauderdale	4.1	114	28.0
Seattle-Tacoma	3.7	82	22.0
Phoenix	3.6	111	30.9
Minneapolis-St. Paul	**3.1**	**137**	**44.4**
Cleveland	2.9	73	24.8
San Diego	2.9	42	14.4
St. Louis	2.8	81	29.4
Denver	2.6	134	52.0
Tampa-St. Petersburg	2.5	73	28.8

Notes:

[1] Bureau of Economic Analysis, MSA CA1-3-Population for 2003, Data published for May 2005. Complete table can be found at: http://bea.gov/bea/regional/reis/drill.cfm

[2] Metro. areas served by more than one airport are counted once.

[3] Markets include those receiving an average of at least five weekly nonstop domestic flights or one weekly nonstop international flight during the period from January through December 2005.

Sources: Bureau Economic Analysis, 2005 Official Airline Guide via Back Aviation Solutions

COMPARISON OF 1993 MAC FORECAST WITH ACTUAL ACTIVITY

As required by the Metropolitan Planning Act of 1989, the Dual Track forecasts were revised in 1993, using 1992 as a base year. To ensure that the revised forecasts were optimal from both predictive and planning standpoints, forecast workshops were convened in 1992 and 1993 by the MAC and the MC. The Expert Panel Session on Forecast Methodologies, held on October 29, 1992, focused on the most appropriate forecasting techniques given recent aviation trends and the character of aviation demand at MSP. The Expert Panel Session on Aviation Assumptions was held on November 18, 1992, and addressed ongoing trends in the aviation industry with regard to fares, aircraft equipment, and airline service practices. The Socioeconomics Expert Panel Session was convened on November 19, 1992, to assess the most likely trends in area population, employment, and income that ultimately drive demand for aviation services. The final Expert Panel Session was held on May 27, 1993, to review the work accomplished to date and to develop a consensus on the final assumptions, methodologies, and scenarios to be used in the updated forecasts. Align

The forecasts were developed with the understanding that the assumptions used were likely to vary over the forecast period, and that the variation could be material. The likely range of possibilities resulting from these variations was tested by constructing alternative scenarios in conjunction with the expert panels. These scenarios were developed separately and in combination. In this manner, a range of possible variations from the base case forecasts was developed.

The scenarios took into account factors affecting economic growth, including fuel prices, low-cost carriers, airfares, airline hubbing ratio, regional carrier penetration into air carrier markets, and changes in the structure of air travel demand. The highest scenario was defined by the following assumptions:

- Higher than projected economic growth.
- A continuation of the high level of connecting activity at MSP by Northwest.
- High international travel demand resulting from an increasingly globalized economy.

The most conservative scenario was defined by the following assumptions:

- Lower than projected economic growth.
- A reduction in connecting activity by Northwest airlines to the minimum level allowed by the hub covenant contained in the Northwest loan agreement.
- A greater transfer of routes from air carriers to regional carriers.

A comparison of the enplanement, passenger origination, and aircraft operations forecasts with actual 1993-2005 activity follows. It should be noted that there are often substantial year-to-year fluctuations in activity levels around a long-term average. It is important to distinguish between these short-term fluctuations and long-term trends when evaluating a forecast.

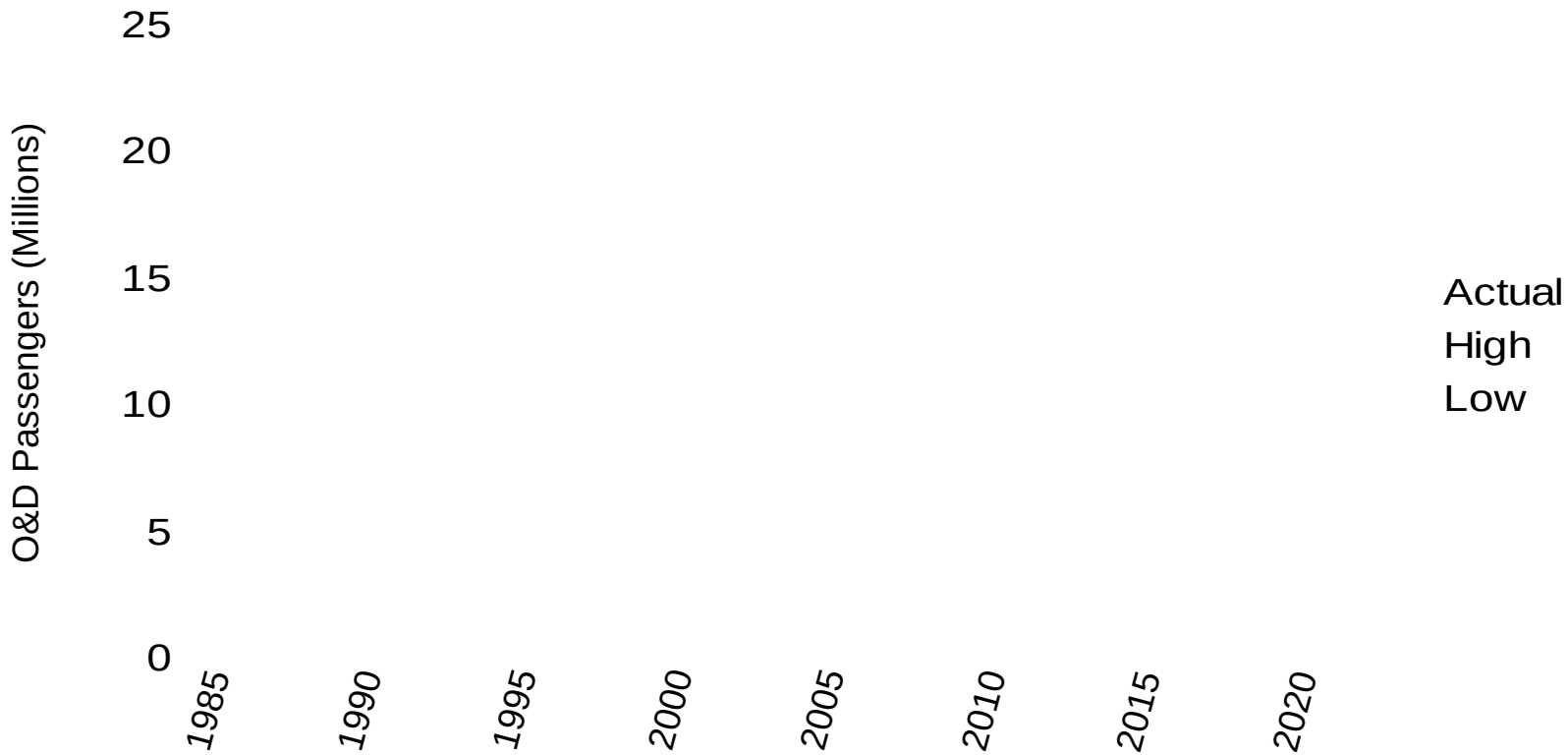
Figures 9-11 show O&D, total passengers, and annual aircraft operations, respectively.

- Actual passenger originations were slightly below the high forecast level in 1993 and 1994, but increased to above the high forecast level through 2000 (Figure 9). The growth in 1996 was due, in large part, to the passenger ticket tax lapse that stimulated passenger demand by lowering effective ticket prices. Northwest continued to reduce real fares during 1997. This, combined with a strong economy, caused originations to grow. Passenger originations and destinations in 1998 were reduced because of the loss of service resulting from the Northwest strike in August and September. O&D totals were also down in 1999 due to the strike, but rebounded midway through the year to pre-strike levels. At the end of 2001, O&D numbers decreased 8.4 percent from a high of 16.6 million after passengers abstained from air travel in response to the events of September 11th. In 2002, due to the lingering effects of September 11, 2001 and the economic downturn, O&D passenger numbers continued their decline. By the end of the year, they were down 5.3 percent from 2001, to 14.4 million. As predicted by the FAA the 2005 O&D passengers rebounded to pre-September 11, 2001 levels. In 2005 the O&D passenger levels are up 6.7 percent over 2004 to 17.5 million. The 2005 O&D level is 0.8 percent below the high forecast.

- As shown in Figure 10, MSP total passenger activity closely paralleled the base case forecast in 1993, but enplanement growth accelerated between 1994 and 1995 and approached the high forecast in 1996. In 1999 and 2000, total passengers exceeded the high forecast. Much of the passenger growth at MSP during the last six years was the result of one-time factors. These include Northwest's airline hub consolidation that involved reducing operations at other airports to concentrate connections at the two major hubs (MSP and DTW in 1992 and 1993), the liberalization of Canadian markets which opened up MSP as a hub for cross-border traffic beginning in 1995, and the lapse of the passenger ticket tax during most of 1996, which reduced effective fares to travelers and thereby increased demand. Also, airlines have developed much more sophisticated reservation systems in recent years, allowing them to generate more revenue by filling otherwise empty seats with passengers flying on discount fares. The passenger growth rate in 1998 decreased from that of previous years because of the loss of service resulting from the Northwest strike in August and September. Discount fares helped Northwest regain lost passengers volumes in 1999. A decline in the number of total revenue passengers occurred after September 11, 2001, with MSP experiencing an 8.3 percent decrease from 2000 levels. In 2002, MSP experienced another decline in total revenue passengers, due to the aftereffects of September 11th coupled with the sluggish economy. Passenger levels decreased 2.2 percent from 2001. In 2005 passenger levels increased 2.5 percent over 2004. 2005 also showed an increase in passenger levels to 36.7 million. The passenger levels only made a slight gain on the forecast high, to 2.4 percent below the forecast high.

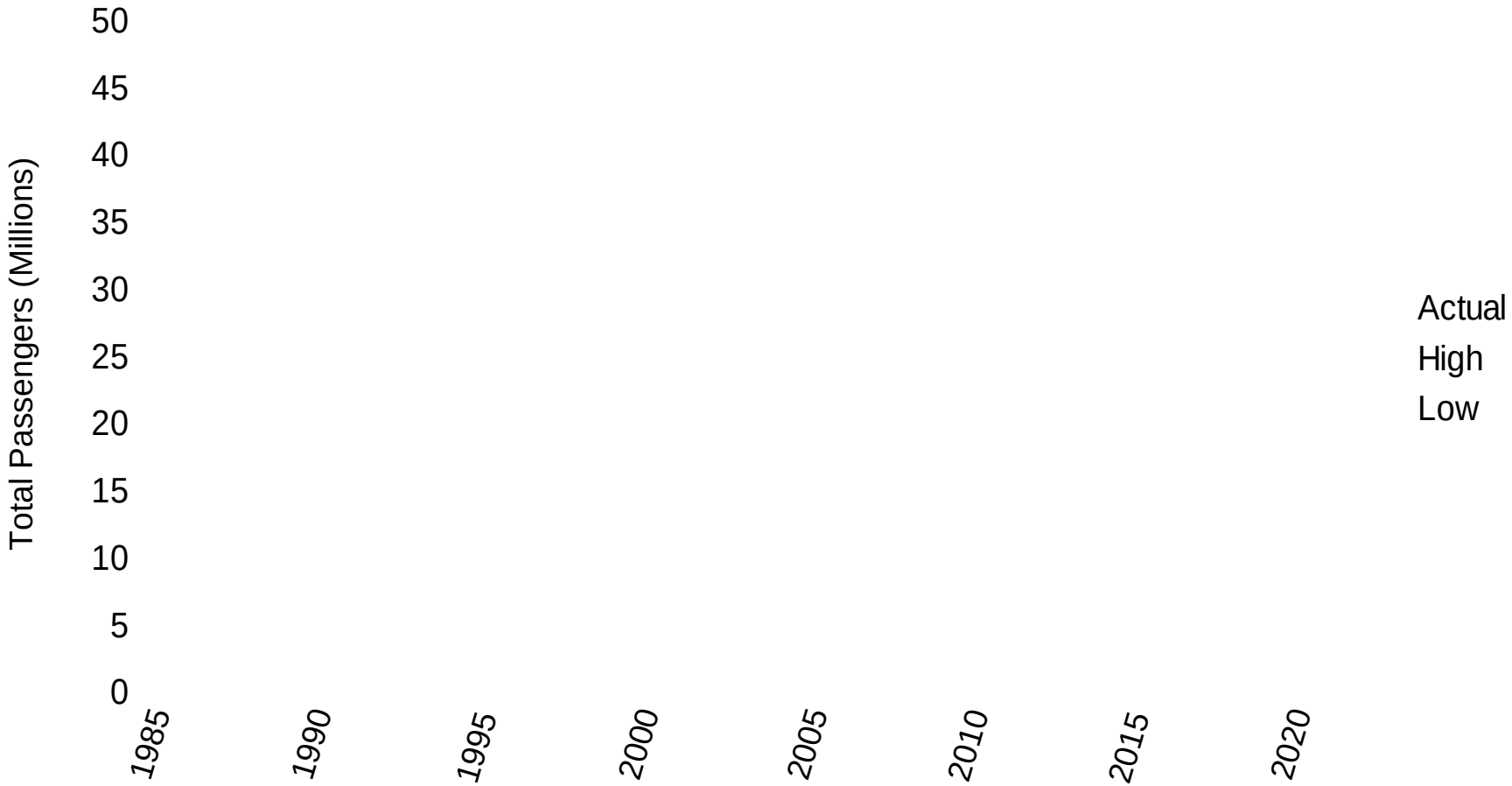
- Figure 11 compares total aircraft operations (as counted by the MSP Air Traffic Control Tower) with the base case, high, and low forecasts. There was an initial burst of aircraft operations in 1993 and 1994 as a result of significant build-up of regional carrier flights by Northwest Airlink. Since that time, the factors that have

Figure 9
Minneapolis-St. Paul International Airport
Forecast vs. Actual 2005 Passenger Originations/Destinations



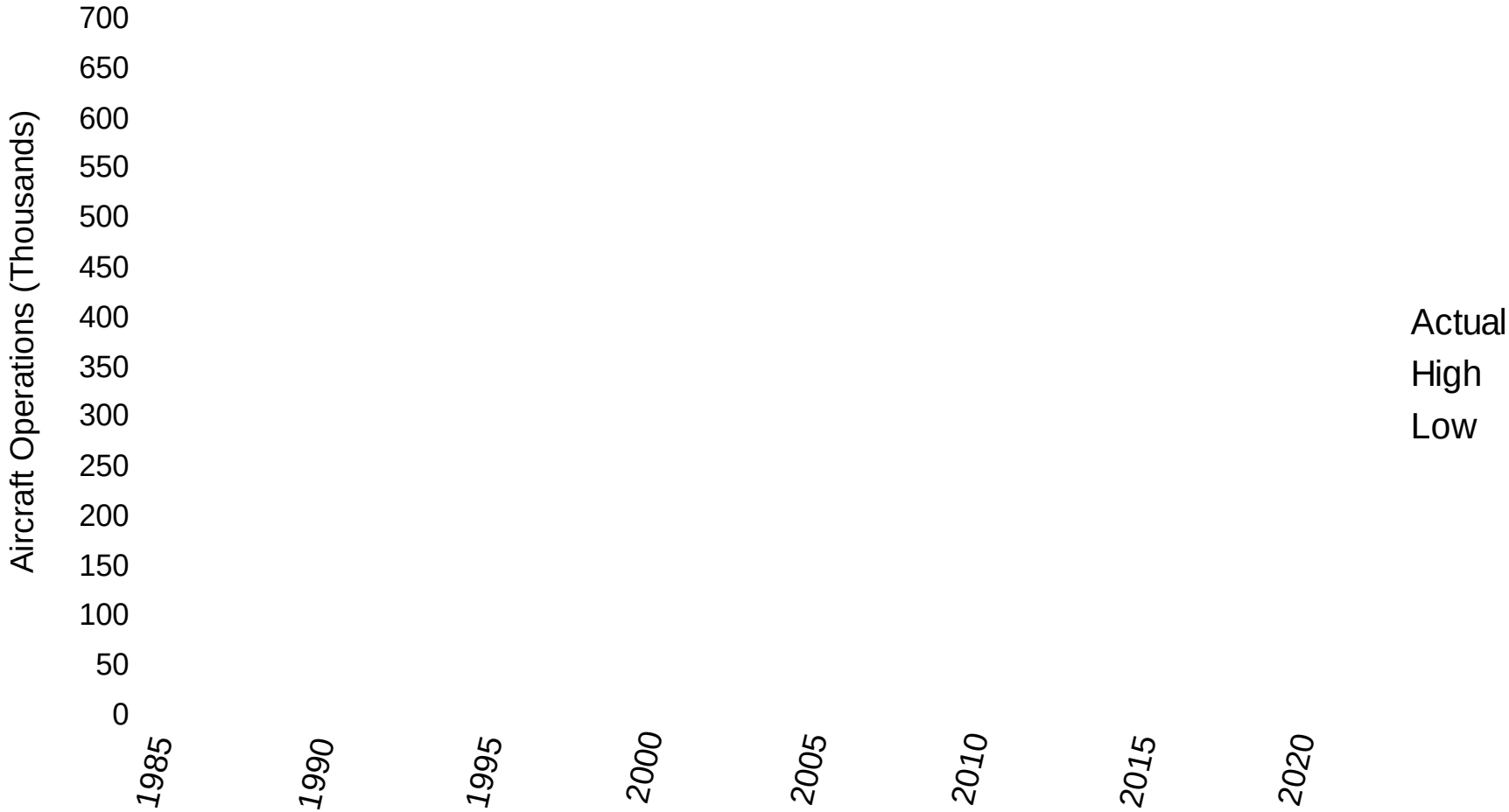
Sources: MSP Base and Combination 2 Forecasts; U.S. DOT; HNTB analysis.
Note: O&D Passenger estimates are based on the first three quarters of 2005.

Figure 10
Minneapolis-St. Paul International Airport
Forecast vs. Actual 2005 Total Revenue Passengers



Sources: MSP Base and Combination 2 Forecasts; Metropolitan Airports Commission; Airports Council International; HNTB analysis.

Figure 11
Minneapolis-St. Paul International Airport
Forecast vs. Actual 2005 Total Aircraft Operations



Sources: MSP Base and Combination 2 Forecasts; Metropolitan Airports Commission, FAA; HNTB analysis.

stimulated passenger traffic, such as the strong economy, Northwest's hub consolidation, the liberalization of Canadian markets, and the lapse of the passenger ticket tax, have served to maintain a high number of aircraft operations. Numbers of total aircraft operations decreased in 1998 due to the Northwest strike in August and September. As stated previously, the Northwest schedule rebounded to pre-strike levels in October 1998. After September 11, 2001, air carriers reduced aircraft operations at MSP nearly 20 percent in response to low passenger demand. As a result, MSP aircraft operations in 2001 decreased by 3.9 percent from 2000 levels. The economic downturn and lingering effects of September 11th have also affected the growth rate of total aircraft operations at MSP in 2002. Operations in 2002 actually increased by 1.2 percent over the total number of aircraft operations in 2001. In 2004 operations increased by 5.8 percent over 2003. The operation in 2005 decreased from that of 2004 by 1.6 percent (total operations 532,239). This puts the 2005 number of operations at 7.4 percent below the forecast high.

AIRPORT CAPACITY AND DELAY

This section describes the airfield capacity of MSP and DTW. Aircraft delay analysis is also summarized.

Airfield Capacity

Airfield capacity is typically described in terms of annual capacity and hourly capacity under good weather and poor weather conditions. **Table 3** compares existing and future capacity for MSP and DTW.

Table 3

2005 REPORT TO THE LEGISLATURE

Comparison of Capacity and Delay

	MSP		DTW	
Airfield Capacity	**Existing**	**2013**	**Existing**	**2013**
Airfield Capacity				
Hourly[1]				
Good Weather	160	167	184-189	189
Poor Weather	125	137	136-145	145
Annual	580,000[2]	640,000[2]	700,000[3]	700,000[3]

Notes:

(1) FAA Benchmark Report, 2004.

(2) 1993 MSP Capacity Enhancement Plan (FAA). This plan assumes technology advancement will increase capacity.

(3) Annual capacity level derived from the addition of the new fourth runway in December 2001, Runway 4L-22R. Estimated based on FAA AC150/5060-5 and professional judgment.

MSP

- As shown in Table 3, existing hourly capacity at MSP is about 160 operations in good weather and 125 operations in poor weather. Specific conditions that define poor weather include the airport's most commonly used instrument configuration, where operations are conducted below visual approach minima (i.e. instrument approaches).

- By 2013 Minneapolis-St. Paul's hourly capacity will increase by a total of 4.4 percent to 167 operations in good weather and by a total of 9.6 percent to 137 operations in adverse weather. Improvements in technology and procedures will support higher capacity levels.

- According to the FAA's 1993 Capacity Enhancement Plan for MSP, with the north-south runway in place and the use of the Precision Runway Monitor, annual capacity would be 580,000 operations assuming a 4-minute average delay level. At slightly higher levels of delay, capacity could reach 640,000 operations, as indicated in the Dual Track Airport Planning Process, Report to the Legislature.

- Flight delays of more than 15 minutes constitute less than 1 percent of Minneapolis' total operations.

DTW

- The addition of Runway 4L-22R in 2001 has raised the existing hourly capacity at DTW to 184-189 operations in good weather and 136-145 operations in poor weather.

- Annual capacity at DTW is now about 700,000 operations. The new runway significantly increased annual capacity.

- Detroit's capacity over the next decade (2005-2015) will keep pace with the airport's demand, which is expected to grow by 26.3 percent. Arrival and departure demand levels remain similar such that the current capacity adequately meets the demand.

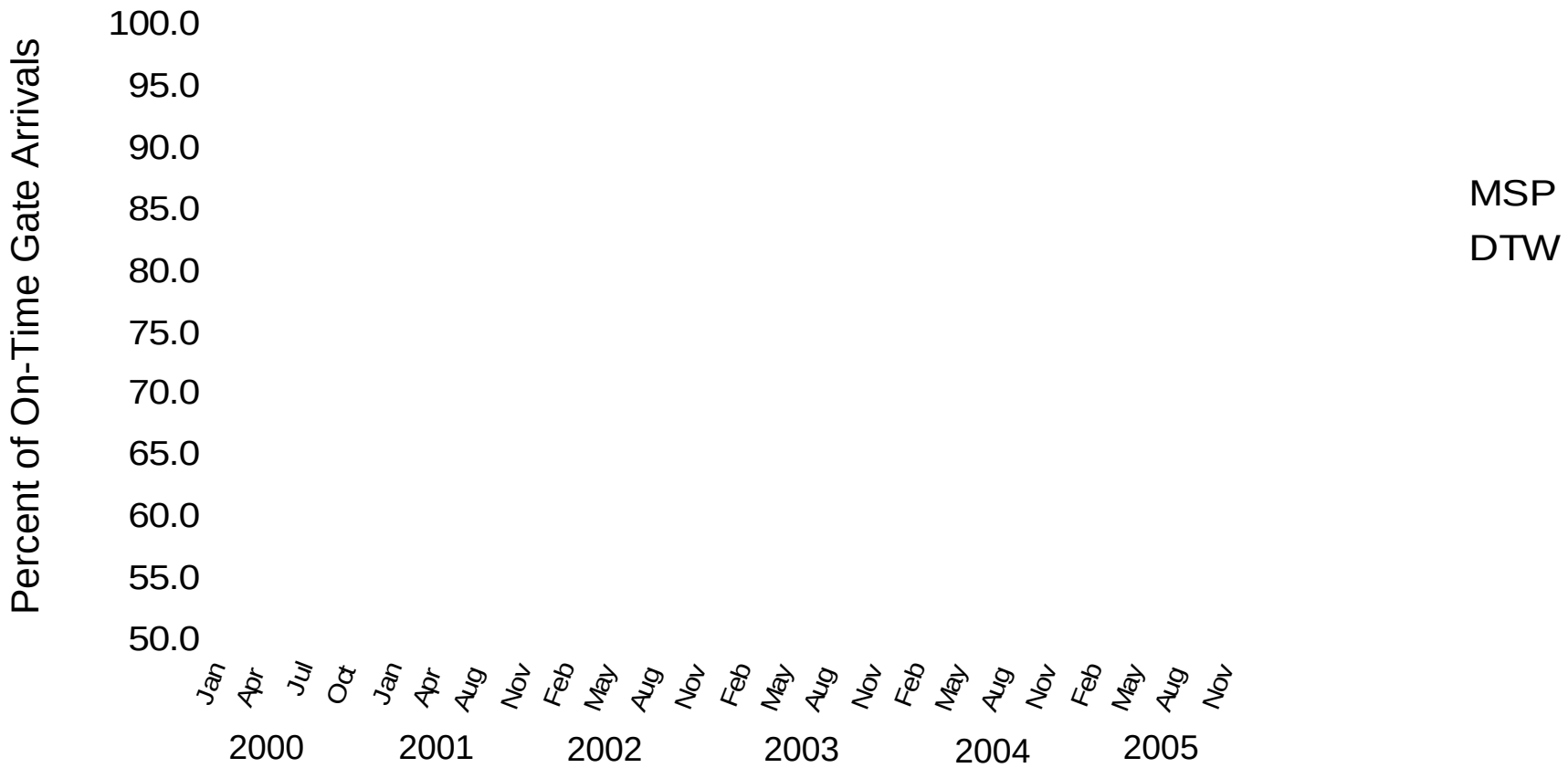
- Flight delays of more than 15 minutes constitute less than 1 percent of Detroit's total operations.

Airfield Delay

Delay can be measured in several ways. The FAA (OPSNET database) counts flights that were delayed by more than 15 minutes. In CY 2005, the FAA identified 3841 flights at MSP which were delayed at least 15 minutes, a decrease of 40.4 percent from 2004 (6445 delayed flights). At DTW, 4043 delayed flights were identified, a decrease of 38.2 percent from 2004, in which 6548 flights were delayed. As with FAA-reported statistics, delays can be caused by numerous factors and are not limited to capacity constraints. These delays can be caused by numerous factors, including weather, volume, equipment, runway, and other.

Figure 12 shows the on-time gate arrival performance for domestic air carrier flights at MSP and DTW, based on the delay data extracted from the Federal Aviation Administration's Aviation System Performance Metrics (ASPM) database. The data series includes only those flights which were delayed 15 minutes or more from their scheduled times. Within this data set, aircraft must be airborne in order for them to be considered "delayed," therefore, cancelled and/or diverted flights are not considered "late" in this system. Scheduled times typically include some "cushion" for delay. A

Figure 12
On-Time Gate Arrivals
2000-2005



Sources: Aviation System Performance Metrics (ASPM) database, FAA-APO, HNTB analysis.

delayed flight can be attributed to any of these causes: mechanical problems, lack of crew, and weather below minimums, and are not limited to capacity constraints.

MSP's average monthly on-time gate arrival percentage fluctuated greatly between 1998 and 2005. It decreased from 83 percent in December 1998 to a period low of nearly 73 percent in January 1999. A noticeable decline in performance occurred again in November 2000 when on-time percentages dropped from 80 percent to 70 percent. In November 1999, the performance experienced a high of 91 percent. In 2005 monthly on-time gate arrival percentages fluctuated from a low of 71 percent to a high of 88 percent, averaging 82 percent for the year. During the same period from 1998 to 2005, Detroit's monthly on-time gate arrival percentage followed much the same pattern as MSP, with a few exceptions. In terms of the average yearly on-time percentage, DTW increased from 79 percent in 1998 to 86 percent in 2001. In 2005, monthly on-time gate arrival percentages for DTW fluctuated from a low of 74 percent to a high of 90 percent, for a yearly average of 83 percent.

For previous editions of this report, delay was estimated by using the Consolidated Operations and Delay Analysis System (CODAS) and the DOT Airline Service Quality Performance (ASQP) database to compare optimal versus actual taxi and flight times, and calculate the average airport delay for MSP and DTW. Airport-attributable delay can be estimated by comparing actual air and taxi times of flights with unconstrained times. The Federal Aviation Administration's Aviation System Performance Metrics (ASPM) database was used for this report. The ASPM uses ASQP database information and compares optimal versus actual taxi and flight times. The FAA has replaced CODAS with this new program providing delay information to industry professionals and government agencies. Creation of the ASPM database provides a more comprehensive analysis of airport delay and capacity. The FAA also uses the results to create performance benchmarks for airports, based on facility enhancements that occur each year.

Each of the current delay reporting systems used by the various agencies and groups was designed for a specific and different purpose, based on an independent data source or methodology and reports delay differently. As a result, the measures of delay are difficult to compare with each other. No existing delay measurement system provides a comprehensive measure of the performance of the air traffic control (ATC) system. The ASPM has been designed to remedy this deficiency.

The Aviation System Performance Metrics program was created by the FAA's Office of Aviation Policy and Plans (APO) to provide estimates of aircraft delay by airport. APO's main objective was to develop a clear and well-supported methodology to calculate aircraft delays that will be accepted by both government and industry as valid, accurate and reliable. Because the acceptance of the ASPM delay estimates is the key to its usefulness, APO coordinated the development of ASPM with other FAA organizations and major air carriers and continues to do so.

The ASPM information shows that, for 2005, average delay was calculated to be approximately 7.14 minutes per operation at MSP, and 6.23 minutes per operation at

DTW. By comparison, MSP averaged 6.72 minutes of delay and DTW averaged 5.97 minutes of delay in 2004. ASPM also provides airport rankings by average delay. As shown in **Table 4**, MSP ranked fifth in the nation in 2005, in terms of highest average delay versus DTW's 2005 ranking of twelfth. The benefits of the new runway (opened on October 27, 2005) at MSP should be evident in 2006.

Table 4
Top Fifteen Large Hub Airports with Highest Average Total Delay per Operation [1]

Rank	Airport	2005 Total Operations [2]	2005 Total Minutes Per Operation	2004 Total Minutes Per Operation	2004 Rank	Change from 2004 to 2005
1	EWR	440953	10.58	10.43	1	0.15
2	JFK	362680	10.23	7.76	7	2.47
3	LGA	405513	9.24	8.98	3	0.26
4	PHL	536536	9.23	9.95	2	-0.72
5	**MSP**	**532239**	**7.14**	**6.72**	**10**	**0.42**
6	ATL	980386	7.11	8.27	5	-1.17
7	ORD	972246	6.82	7.97	6	-1.15
8	IAH	564219	6.59	8.38	4	-1.79
9	CLT	523270	6.40	4.95	18	1.45
10	DFW	718207	6.40	6.84	8	-0.45
11	BOS	421506	6.32	6.09	11	0.23
12	**DTW**	**521900**	**6.23**	**5.97**	**12**	**0.26**
13	IAD	553021	5.97	6.81	9	-0.85
14	DCA	278134	5.60	4.56	24	1.04
15	PHX	563536	5.52	5.18	16	0.34

Notes: [1] Taxi-in, Taxi-out and Airborne delay included
[2] 2005 total operation data based on FAA ATADS data (except MSP and DTW)

Source: Aviation System Performance Metrics (ASPM) – Office of Aviation Policy and Plans, FAA 2005

TECHNOLOGICAL / CAPACITY ENHANCEMENTS

The FAA continuously investigates potential capacity-enhancing development/ technology in an effort to increase airport efficiency and reduce delay. When an advancement is identified, efforts are made to implement the technology at the busiest airports. This section describes these efforts as they apply to MSP and DTW.

MSP

- In 1993, the FAA published the *Minneapolis-Saint Paul International Airport Capacity Enhancement Plan*. The purpose of the plan was to identify potential cost-effective projects which would appreciably increase airport capacity. The plan was followed by the 1996 *Airport Capacity Enhancement Terminal Airspace Study*, which identified potential methods of improving airspace capacity.

- Airport Surface Detection Equipment (ASDE-3) was installed at MSP in 1996. It allows controllers to "see" aircraft movements on the ground during poor visibility, which increases safety and efficiency.

- Capacity improvements at Minneapolis-St. Paul will be aided by the use of Flight Management System/Area Navigation Routes (FMS/RNAV). The equipment will provide a more consistent flow of aircraft to the departure runway.

- A Precision Runway Monitor (PRM) was installed in 1997 and has been commissioned. The PRM permits simultaneous landings on the parallel runways in poor weather down to CAT I minimums. Due to airline and air traffic control coordination issues, the PRM was removed from service in mid-2002. It was returned to service in 2003 and helped reduced delays, as indicated in Table 4.

- MAC installed a differential Global Positioning System (GPS) unit at MSP. It has been certified as a Special CAT I installation. The GPS approach allows flight management approaches that reduce fuel consumption and controller workload. Ultimately, curved approaches and precision missed approach may be provided to reduce noise impacts and to lower landing minimums. This will result in a small increase in airport capacity.

- In an effort to increase the operational efficiency and capacity of MSP during inclement weather, MAC has implemented additional CAT II and CAT III capabilities at the airport.

- Future increases in MSP capacity levels will depend on the introduction of new aircraft avionics. An enhanced tool called Automatic Dependent Surveillance-Broadcast/Cockpit Display of Traffic Information (ADS-B/CDTI), with a Local Area Augmentation System (LAAS) identifies the location of other aircraft and displays their position in the cockpit. This technology allows pilots to maintain the desired

separation more precisely; however, it requires aircraft to be properly equipped to use this device.

- Alternative airspace improvements were studied in the *Airport Capacity Enhancement Terminal Airspace Study*. The report found that the existing airspace around MSP can be reconfigured to accommodate the proposed north-south runway. In addition, airspace efficiency can be improved either by adding a new jet arrival fix or a new parallel jet arrival stream.

- Within the next decade air traffic controllers will begin using the Passive Final Approach Spacing Tool (pFAST). It assists controllers with sequencing aircraft and creates a better flow of traffic into the terminal area.

- The new north-south runway opened on October 27, 2005, and provides MSP 25 percent more additional airfield capacity.

- 2020 Vision, introduced in September 2004, outlines the growth of MSP over the next fifteen years. The plan proposes that Non-Sky Team member airlines will be moved to an expanded Humphrey Terminal while Sky Team Airlines will be consolidated in the Lindbergh Terminal. By 2020, if the demand is warranted, the Humphrey Terminal could be expanded to 18 to 22 gates. A new concourse, Concourse H, will be added to the southeast end of Concourse G at the Lindbergh Terminal and, at final build-out, will have a total of 25 gates. Additionally, several other gate areas throughout the terminal will be converted to regional jet gates. The project has been delayed due to the financial troubles of the airline industry.

DTW

- The 94-gate mid-field complex for Northwest and international flights was completed in February 2002. It is being expanded by 25 additional gates – nine jet gates and sixteen regional gates and the entire project to be completed by mid-2006. The terminal is designed with ten gates designated for jumbo aircraft. These gates will have two jet bridges apiece in order to take advantage of the multiple doors of larger aircraft. Currently, the Smith Terminal has 32 gates for airline use. When the new North Terminal opens in 2008 for non-Sky Team Airlines it will provide 26 gates and will replace the Smith Terminal.

- A fourth parallel runway commissioned as Runway 4L-22R opened on December 11, 2001. The addition of this runway made simultaneous arrivals and departures possible.

- Use of Automatic Dependent Surveillance-Broadcast (ADS-B) and Cockpit Display of Traffic Information (CDTI) with Local Area Augmentation Systems (LAAS) will help increase Detroit's future capacity levels. These instruments allow pilots to maintain a more precise taxiing separation as cockpit displays indicate the location of other aircraft. Integration of the new technology will require aircraft to be properly equipped to use these devices. Capacity improvements will be brought about with the implementation of Flight Management Systems (FMS) and Area Navigation

(RNAV) routes. This new technology will provide a more consistent flow of aircraft to the runway.

Comparison of Precision Instrument Approaches

In addition to how an airport's runways are separated and configured, airfield capacity can be greatly affected by how the runways are equipped for inclement weather. A comparison of the number and type of precision instrument approaches at MSP and DTW is summarized in **Table 5**.

A feasibility study was conducted in the early 2000's and determined which runways at MSP would be likely candidates for CAT II/III landings and low-visibility departures based on existing ground equipment, dimensional criteria, aircraft equipment, and operational procedures. The analysis determined that the most feasible runways at MSP for this capability are Runway 12R, Runway 12L, and Runway 35. The implementation of these upgrades was completed in 2005 with the new runway:

Runway	Approach	Year Commissioned
12L	CAT IIIb	2003
12R	CAT IIIb	2003
35	CAT IIIb	2005

Table 5

2005 REPORT TO LEGISLATURE

Comparison of Precision Instrument Approaches

MSP	CAT I	CAT II	CAT III
Runways:	30R	30L	12R
	4		12L
			35

DTW	CAT I	CAT II	CAT III
Runways:	21L		4R
	22L		4L
	22R		3R
	27L		
	27R		

Notes: The term *decision height* is defined as the height at which a decision must be made during a precision approach to either continue the landing maneuver or execute a missed approach.

Precision approaches are categorized based on decision height and the horizontal visibility that a pilot has along the runway. Visibility values are expressed in statute miles, or in terms of *runway visual range (RVR)*, if RVR measuring equipment is installed at an airport.

The different classes of precision instrument approaches are:

i. Category I (CAT I) – provides approaches to a decision height down to 200 feet and a basic visibility of ¾ statute miles or as low as 1,800 feet RVR.

ii. Category II (CAT II) – provides approaches to a decision height down to 100 feet and an RVR down to 1,200 feet.

iii. Category IIIA (CAT IIIA) – provides approaches without a decision height (down to the ground) and an RVR down to 700 feet.

iv. Category IIIB (CAT IIIB) – provides approaches without a decision height and an RVR down to 150 feet.

v. Category IIIC (CAT IIIC) – provides approaches without a decision height and RVR. This will permit landings in "0/0 conditions," that is, weather conditions with no ceiling and visibility as during periods of heavy fog.

Source: December 2005 U.S. Terminal Procedures, NOAA.