Mississippi's Unified Long-Range Transportation Infrastructure Plan

Mississippi Department of Transportation

FINAL REPORT

Appendix J: Aviation Needs Assessment

MAY 2011

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1. OVERVIEW OF AVIATION SYSTEM

This section summarizes the aviation system of Mississippi and the state's role in supporting that system. As is typical throughout the U.S., Mississippi's airport system is owned by entities (public and private) other than the state.

1.1 The role of MDOT's Aeronautics Division

The Mississippi Department of Transportation's (MDOT) Aeronautics Division provides technical and administrative assistance to the public airport owners (cities, counties, and airport authorities) in project formulation and preparation of applications for the Federal Airport Improvement Program (AIP) grants. The Division also approves airport construction plans and specifications, conducts construction inspections, conducts annual airport safety inspections for general aviation airports, and prepares airport layout plans (ALP) and disadvantaged business enterprise (DBE) plans for general aviation airports.

1.2 Aviation System Planning Study of 1998

Mississippi's most recent statewide aviation system planning study was completed in 1998. This study served to catalog the state's current aviation system, categorize the role of each airport in the State, identify infrastructure and development needs at each airport, and quantitatively measure aviation's contribution to the state's economy.

Four categories of airports were developed in the plan, based upon the types of aircraft using the airport, the current and planned facilities, the public services available, and the airport's role in the aviation system. The four types of general aviation airports are:

- Type I – General Purpose Airports. These airports provide communities with access to the national air transportation system and support various aviation functions such as recreational flying, agricultural spraying, and business development.
- Type II – Business Airports of Local Impact. These airports can support the operations of smaller types of business aircraft.
- Type III – Business Airports of Regional Impact. These are the airports that provide economic benefits beyond their immediate locale. Nearly all business aircraft, including most corporate jets, can operate safely and efficiently from these airfields in all but the worst weather conditions.
- Type III-Enhanced – Business Airports of State Impact. These airports include those that provide the highest level of general aviation service, and the seven commercial service airports in the State. The economic impact from these airports accounts for most of the aviation-related employment and spending in Mississippi.

In addition to these four role categories, there is also a Commercial Service category. Mississippi currently has eight airports with commercial airline service.

1.3 Current Airport Roles

While the state system plan has not been updated since 1998, the airport role categories have continued to be utilized in examining system needs. Since the completion of the previous plan, MDOT has updated some of the airport roles based on changing conditions and activities. The current airport roles utilized by MDOT are depicted in **Figure 2-1.**

For each of the airport roles, specific facility and service standards were established to serve as a guideline for how each airport should be developed to serve the types of activity the airport was anticipated to play in the system to fulfill its role. These facility and service objectives were utilized in the LRTP to assist in the identification of updated system needs.

2. AVIATION TRENDS

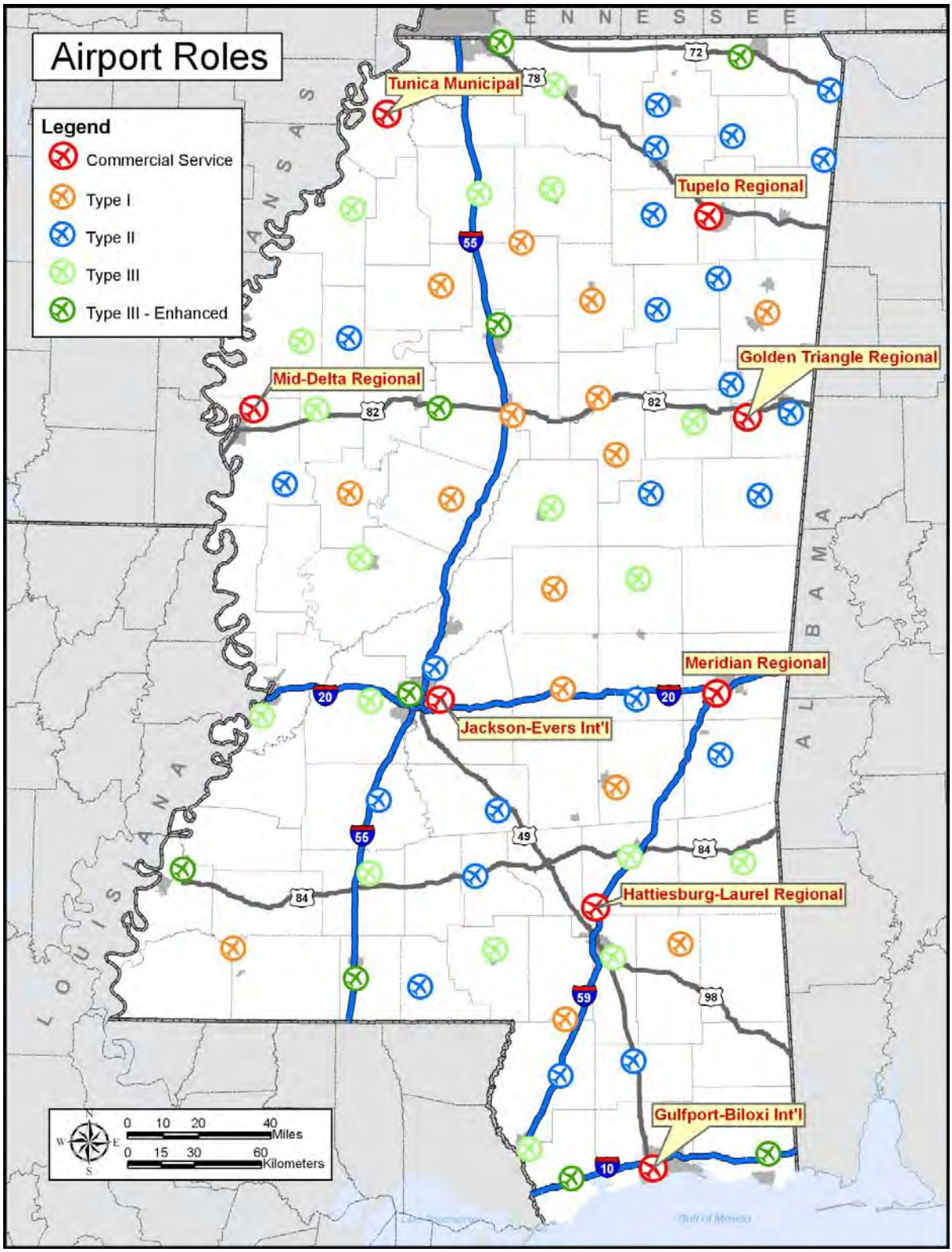
Mississippi has 73 airports included in the federal National Plan of Integrated Airport Systems (NPIAS). Of these airports, eight serve both commercial service and general aviation activities and 65 accommodate only general aviation activities. Tunica's commercial service was initiated in mid-2010. The eight Mississippi commercial service airports accommodated more than 1.0 million enplanements in 2009. **Table 2-1** identifies the commercial service airports and the airlines that serve them.

Table 2-1: Airline Service at Mississippi Commercial Service Airports

Jackson-Evers International	Gulfport-Biloxi International	Golden Triangle Regional (Columbus)
American Eagle	AirTran Airways	Atlantic Southeast Airlines (Delta Connection)
Express Jet Airlines (Continental Express)	American Eagle	Mesaba Airlines (Delta Connection)
Delta Air Lines	Express Jet Airlines (Continental Airlines)	**Meridian Regional**
Atlantic Southeast Airlines (Delta Connection)	Delta Air Lines	Atlantic Southeast Airlines (Delta Connection)
Comair (Delta Connection)	Atlantic Southeast Airlines (Delta Connection)	**Tunica Municipal**
Mesaba Airlines (Delta Connection)	Pinnacle Airlines (Delta Connection)	AirTran Airways
Pinnacle Airlines (Delta Connection)	Shuttle America (Delta Airlines)	**Tupelo Regional**
Shuttle America (Delta Airlines)	PSA Airlines (US Airways Express)	Mesaba Airlines (Delta Connection)
Southwest Airlines	Vision Airlines	**Mid-Delta Regional**
PSA Airlines (US Airways Express)		Mesaba Airlines (Delta Connection)
		Hattiesburg-Laurel Regional
		Mesaba Airlines (Delta Connection)

Source: Wilbur Smith Associates

Figure 2-1: Mississippi Airport Roles



Source: Wilbur Smith Associates

2.1 Commercial Airline Trends

Airline activity is expected to continue to grow, but at differing rates for different types of carriers. There are typically two types of carriers: mainline and regional. Mainline air carriers are the traditional large airlines who provide service on the largest aircraft, while regional air carriers are those that provide service from smaller airports typically to airline hubs where connections are made to mainline or other regional air carriers.

The Federal Aviation Administration (FAA) in its annual forecast, projects that total mainline air carrier and regional enplanements will increase from 704.0 million in 2009 to 1.21 billion in 2030, an average annual growth rate of 2.6 percent. Domestic enplanements are projected to increase 0.4 percent in 2010 and then grow an average of 2.5 percent per year during the remaining 20-year forecast period. International enplanements are forecast to increase 0.9 percent in 2010 and then grow an average of 4.1 percent per year for the rest of the forecast period. Total system enplanements are expected to reach one billion in 2023.

Regional carrier enplanements are forecast by the FAA to increase 4.6 percent to 163.4 million in 2010, and grow 2.9 percent a year thereafter, reaching 289.3 million in 2030.

2.2 General Aviation Trends

Similar to Mississippi, there are many more general aviation airports than commercial service. General aviation serves many of the smaller communities and has an important role in the overall transportation system.

According to FAA forecasts, the general aviation fleet is expected to increase from 229,149 aircraft in 2009 to 278,723 in 2030, growing an average of 0.9 percent a year. Of these, fixed-wing turbine aircraft are projected to grow the fastest at a rate of 3.1 percent per year, with fixed-wing piston aircraft projected to grow at a rate of 0.1 percent per year, and rotorcraft at a rate of 2.8 percent per year

For general aviation activity, hours flown are also an important indicator. Hours flown are forecasted by the FAA to increase from 23.3 million in 2009 to 38.9 million in 2030, an average annual growth rate of 2.5 percent a year. Similar to the fleet size, fixed-wing turbine aircraft hours flown are projected to grow at a rate of 4.6 percent per year, fixed-wing piston aircraft hours flown are projected to grow at a rate of 1.0 percent per year, and rotorcraft hours flown are projected to grow at a rate of 3.0 percent per year.

General aviation is an important transportation resource in the United States and the demand for business jet aircraft and services has grown in recent years. Safety and security concerns for corporate executive staff and flight delays at some U.S. airports have made on demand, corporate, and fractional ownership charter flights more prudent than traveling on scheduled air carriers for a certain segment of the population.

While business aviation continues to grow, the smaller/recreational use activities have been negatively affected by the recent economic recession. Over the past 10 years, bankruptcies and high fuel prices have resulted in 2009 being one of the more difficult years since the previous economic downturns of 1991 and 2001. These factors have also contributed to the lack of any significant growth in the personal/recreational aviation activities at many airports.

3. AVIATION FINANCING

When considering the future needs of Mississippi's airport system, funding for airport improvement projects is a key consideration. To meet the needs of the communities and aviation users they support, airports typically rely on funding sources in addition to their own revenues to fund infrastructure and facility development. The ability to identify funding sources for specific airport projects and to obtain the funding levels required directly impacts the implementation of projects.

In general, funding for infrastructure development projects at system airports can be obtained from four major sources: federal, state, local, and/or airport funds.

3.1 Federal Funding Sources

The FAA, through the Airport Improvement Program (AIP), distributes federal funds to the nation's public airport system from the Aviation Trust Fund. The Aviation Trust Fund was originally established in 1970 and has since been amended on numerous occasions. The fund is supplied by money collected only from the users of the nation's airport system and is used to fund airport improvements. Only airports included in the National Plan of Integrated Airport Systems (NPIAS) are eligible to apply for FAA funding.

Commercial service airports receive entitlement funds based on the number of passengers enplaned during the prior calendar year. The minimum passenger entitlement funding for Primary Airports (those airports enplaning at least 10,000 passengers per year) is $1 million. Commercial service airports may also receive cargo entitlement funding based on the landed weight of cargo aircraft. General aviation airports included in the NPIAS are eligible for state apportionment funds and non-primary entitlement funds. State apportionment funds are allocated to states based on a formula using the size and population of the state. Those funds are distributed to airports based on FAA prioritization of projects. General aviation airports are currently eligible for up to $150,000 in non-primary entitlement funds. To obtain these funds, airports must have a 5-Year Capital Improvement Plan (CIP) with eligible projects that meet AIP justification guidelines.

One source of airport funds for commercial service airports is the passenger facility charge (PFC). Since Mississippi airports first started collecting PFCs in 1992, they have been approved to collect more than $98 million. Mississippi airports have invested more than $28 million of PFC revenue in approved projects since that time. Currently, PFC fees of up to $4.50 can be

collected for every enplaned passenger at commercial airports controlled by public agencies. Airports use these fees to fund FAA-approved projects that enhance safety/security/capacity, reduce noise, or increase air carrier competition.

General aviation and commercial service airports also compete for federal discretionary funds. These funds are awarded based on priority ratings given to each potential project by the FAA. The prioritization process makes certain that the most important and beneficial projects (as viewed by the FAA) are the first to be completed, given the availability of adequate discretionary funds. Federal funding is limited to development that is justified to meet aviation demand according to FAA guidelines.

As of the writing of this document, the AIP program is due for reauthorization and will likely see changes. The future of the AIP program may include changes to federal share amounts, non-primary entitlements, set-asides, and/or PFCs.

3.2 State funding sources

For State funding, Mississippi relies on funding from fuel taxes on aviation fuel and gasoline used in aircraft, as well as a sales tax on automobile parking garages and lots at airports. Mississippi uses its state funding to match FAA grants (FAA funding is currently 95 percent, MDOT funds 2.5 percent, and airports are responsible for 2.5 percent on eligible projects), as well as some state/local grants. For state/local grants up to $125,000, the State pays 75 percent while airport sponsors pay 25 percent. However, since the FAA changed its funding process in 2004 to provide most airport sponsors with an annual entitlement for eligible projects, the state/local program has not been utilized.

In addition to these aviation funds, the Multimodal Transportation Improvement Fund has provided airports with another opportunity for project grant funding, many of which have not been eligible for federal funding.

Enacted by the 2002 Mississippi Legislature, the Multi-modal Transportation Improvement Fund (MMTIF) statute established the requirements for distribution and administration of any funds allocated for the non-highway modes of transportation pursuant to this program. Airports receive 34% of any funds provided for the program.

Funds allocated to this program are to be used for high priority projects for which funds are not otherwise available, and that will have a significant economic impact on the continued development and improvement of the airports in the state. Recognizing the need for such funds, MDOT has provided the funds for the program. Airports received the following amounts since 2005:

2005-2006	$1,700,000
2007	$3,400,000

Recognizing that the state airports suffered a loss of revenue and reduced income after the tragedy of September 11, 2001, the 2002 Legislature directed MDOT to provide the Aeronautics Division with an additional $1,250,000 in fiscal years 2003 and 2004 for airport improvement projects. With these additional funds, the MDOT was able to fund the entire local share of all of the federally funded improvement projects. This greatly assisted the airports in recovering from their loss of revenue and insured that federal funding of improvement projects was not jeopardized because of the lack of matching funds from the state or local level. It also accounts for the rapid growth rate of state funding during those years.

The annual amounts of federal and state funding from 1997 to 2009 are shown in **Table 3-1**.

Table 3-1: Federal and State Grant Funding for Airport Projects in Mississippi

Year	State	Federal
1997	$826,500	$10,495,480
1998	$1,494,194	$12,701,432
1999	$1,523,275	$17,212,343
2000	$947,833	$20,617,444
2001	$999,250	$30,801,189
2002	$1,314,483	$29,186,993
2003	$2,064,684	$40,381,136
2004	$4,100,799	$43,346,497
2005	$3,297,820	$41,668,767
2006	$4,563,310	$41,826,899
2007	$5,357,640	$37,667,883
2008	$4,946,295	$40,822,019
2009	$5,152,831	$57,976,863
Average Annual Growth Rate	16.5%	15.3%

Source: Mississippi Department of Transportation

3.3 Local Funding

Local airport sponsors are responsible for costs associated with airport development projects that remain after federal and state shares have been applied. Local government funding of airport development projects is derived from the following sources:

- General Fund Revenues
- Bond Issues
- Airport-Generated Revenues
- Private Funding

Of these, general fund revenues and general obligation bonds are by far the most common funding sources. Revenue bonds supported by airport generated revenues are seldom used because most general aviation airports do not generate enough money to pay operating expenses and the debt service of capital funding requirements.

3.4 Private Funds

Items such as storage and maintenance hangars, fuel systems, and pay parking lots are not typically eligible for federal or state grant funding at public airports because they generate income for the airport. Communities sometimes work with FBOs or other local businesses to fund these types of improvements.

4. AVIATION FINANCIAL NEEDS

To determine the aviation needs in Mississippi through 2035, an extensive process was undertaken. This process included utilizing information from the following sources:

- FAA's 2011-2015 NPIAS for near term project costs
- CIP for commercial service airports
- Facility and service standards from the 1998 System Plan
- Current unit costs for projects in Mississippi
- Historical data on projects as maintained by MDOT
- Current ALP for each general aviation airport
- FAA Form 5010 for each general aviation airport

Each airport was examined to determine how the airport was meeting the facility and service standards from the 1998 plan. For those airports that did not meet the standards, projects were identified to ensure fulfillment with the standards. Additional airport capital development needs were identified from major projects identified on airport ALPs, in CIPs available through MDOT, and discussions with MDOT regarding other significant known capital projects. A major consideration in developing aviation needs was pavement and facility preservation. Each airport's records regarding pavement and major facility projects were reviewed to determine the need for projects to preserve the airports.

To fully fund all identified projects for Mississippi's airports, an estimated $1.9 billion in federal, state, and local funds (2010 dollars) would be needed over the next 25 years. **Table 4-1** reflects these costs. Costs provided in this section have not been developed to the level of detail that would result from analyses conducted as part of master planning, financial feasibility, or engineering studies. The financial needs discussed in this section do provide MDOT with an understanding of the general cost range that could be associated with implementing preservation, modernization, and expansion projects at Mississippi's airports for use in comparison to and understanding all modal needs.

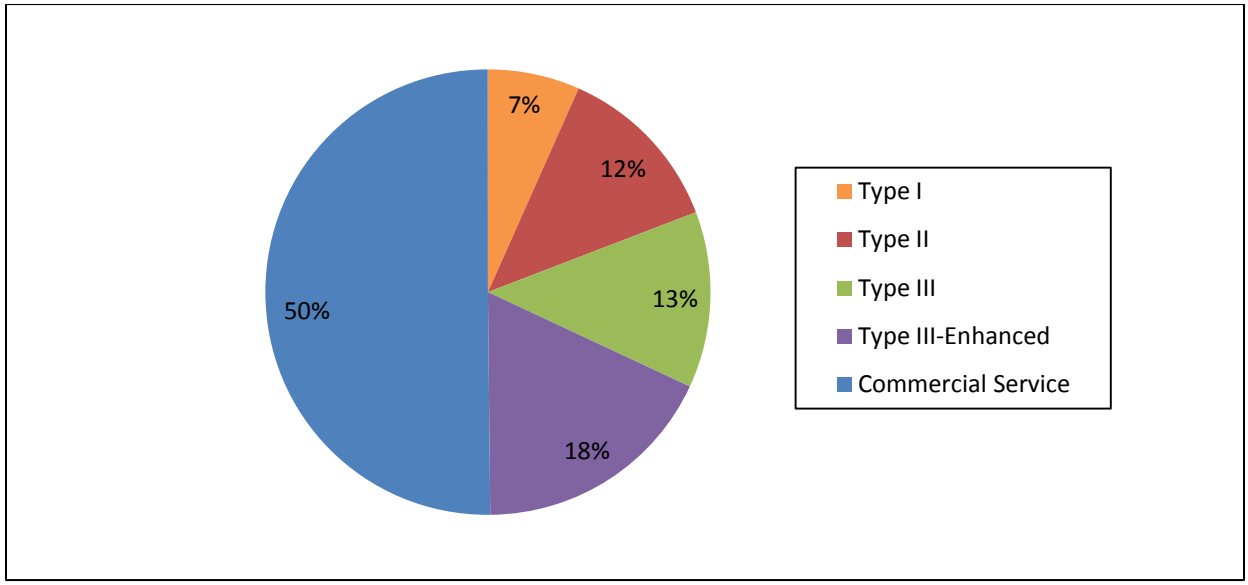
Table 4-1: Mississippi Airport Facility 2035 Cost Estimates by Airport Type

Airport Type	2035 Cost
Type I	$130,520,000
Type II	$244,470,000
Type III	$250,600,000
Type III-Enhanced	$349,940,000
Commercial Service	$982,470,000
TOTAL	**$1,958,000,000**

Source: Wilbur Smith Associates, FAA 2011-2015 NPIAS, Jackson-Evers International Airport

This cost summary is inclusive of all 73 existing airports and the projects that will be needed in Mississippi through 2035. As shown in **Figure 4-1** Commercial Service airports account for 50 percent of the $1.9 billion estimated airport facility costs, while Type III-Enhanced and Type III airports account for 18 percent and 13 percent, respectively. Analysis evaluated projects that are needed to fulfill the 1998 System Plan facility and service standards as well as projects from recent CIPs. Additionally, as noted previously projects from the near term 2011-2015 NPIAS were included. It should be noted that the costs of the projects included are likely to experience fluctuations due to several potential factors such as fuel prices and construction cost changes. Both of these items have fluctuated, both increases and decreases, in recent years due to economic conditions in the U.S. and worldwide.

Figure 4-1: Mississippi Airport Facility 2035 Cost Estimates by Airport Type



Source: Wilbur Smith Associates, FAA 2011-2015 NPIAS, Jackson-Evers International Airport

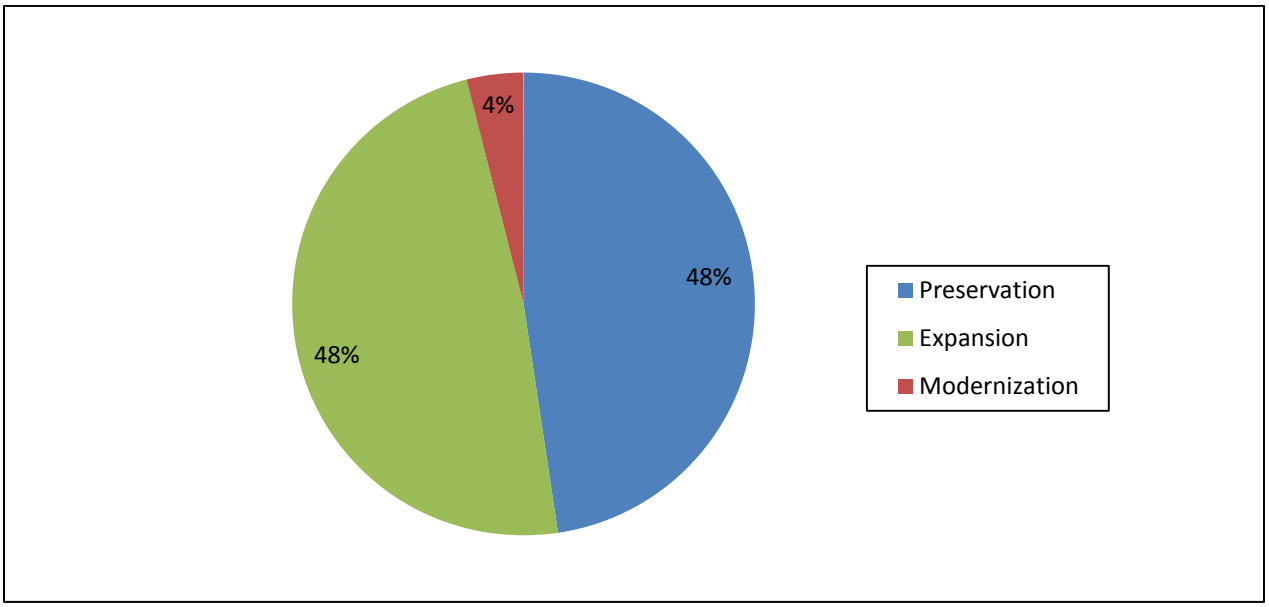
Table 4-2 identifies estimated costs by project type (preservation, modernization, and expansion) over the planning period, and whether those costs arise at commercial service airports or general aviation airports. It is also worth noting that the costs shown in Table 4-2 will continually change over the 25-year planning period, due to inflation, changes in labor and materials costs, and general economic conditions. As indicated in **Figure 4-2**, preservation and expansion cost estimates account for 96 percent (48 percent each) of all projects. It is interesting to note that when comparing data from Table 4-2 and Figure 4-2 that Commercial Service airports are more focused on expansion related projects and General Aviation airports are more focused preservation related projects.

Table 4-2: Mississippi Airport Facility 2035 Cost Estimates by Project Category

Project Category	Commercial Service Airports 2035 Costs	General Aviation Airports 2035 Costs	Total 2035 Costs
Preservation	$351,460,000	$581,050,000	$932,510,000
Modernization	$51,220,000	$26,080,000	$77,300,000
Expansion	$579,780,000	$368,380,000	$948,160,000
TOTAL	**$982,460,000**	**$975,510,000**	**$1,958,000,000**

Source: Wilbur Smith Associates, FAA 2011-2015 NPIAS, Jackson-Evers International Airport

Figure 4-2: Mississippi Airport Facility 2035 Cost Estimates by Project Category



Source: Wilbur Smith Associates, FAA 2011-2015 NPIAS, Jackson-Evers International Airport

2035

MULTIPLAN

THE FUTURE IN MOTION