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7. Author(s) Ben R. Guttery and George B. Dresser Texas Transportation Institute Texas A&M University System College Station, TX 77843-3135		8. Performing Organization Report No. 270	
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16. Abstract  This report documents the methodology used to develop the aviation activity forecasts prepared as a part of the update to the Louisiana Airport System Plan and provides Louisiana aviation forecasts for the years 1990 to 2010. In general, the forecasts are based on market share analyses using forecasts of U.S. aviation activity published by the U.S. Department of Transportation, Federal Aviation Administration and Louisiana's historic share of the national market. The forecasts provided include commercial carrier enplanements, active general aviation aircraft, general aviation aircraft hours flown, general aviation aircraft operations, and the number of pilots.			
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# AVIATION ACTIVITY FORECASTS

1990 - 2010

prepared in support of the  
Louisiana Airport System Plan

by  
Ben R. Guttery  
George B. Dresser

Texas Transportation Institute  
The Texas A&M University System  
College Station, Texas

Prepared for  
Louisiana Transportation Research Center  
and the  
Louisiana Department of Transportation and Development

in cooperation with  
U.S. Department of Transportation  
Federal Aviation Administration

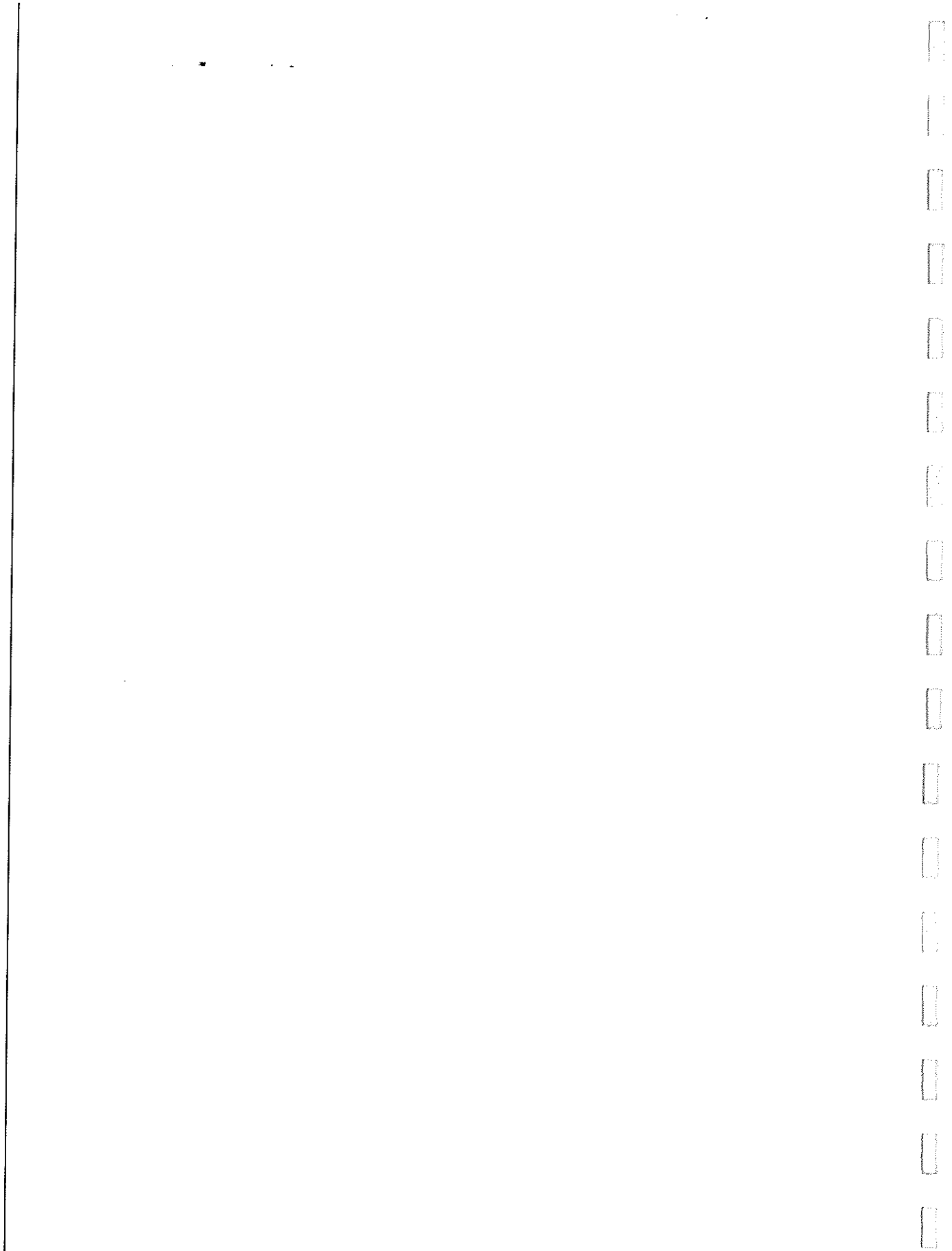
July 1991

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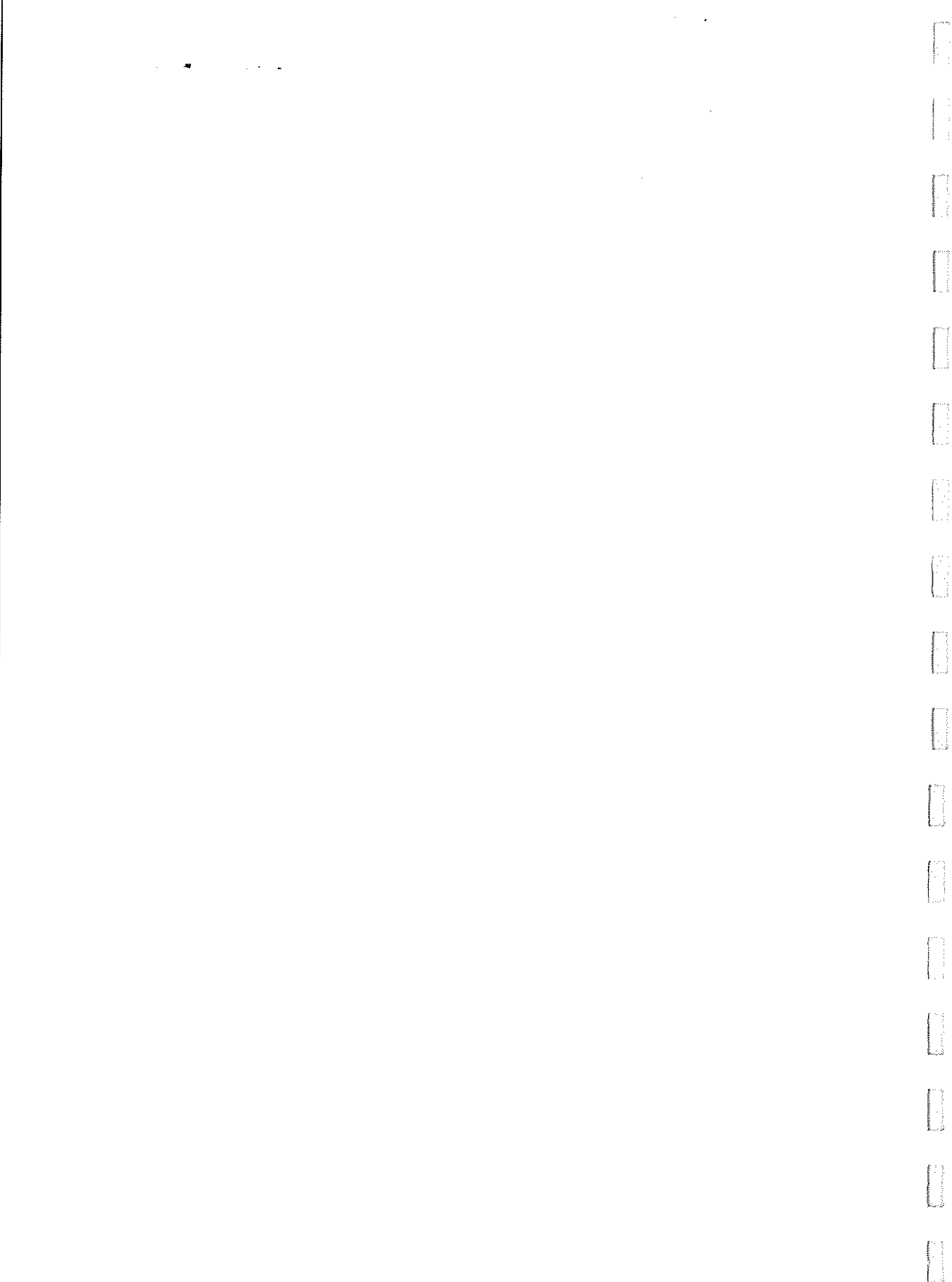
Aviation Activity Forecasts



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Aviation Activity Forecasts



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## INTRODUCTION

Forecasts of aviation activity are an essential part of the Louisiana Airport System Plan (LASP). Planning for changes in aviation demand is a primary objective of the LASP. The amount of activity generated by future aviation users will determine the demand for the airport facilities that make up the state system.

The Louisiana forecasts contained in this document are based on the forecasts of U.S. aviation activity published by the Federal Aviation Administration (FAA) in Aviation Forecasts, Fiscal Years 1991-2002. The FAA is charged by Congress with providing annual estimates of aviation activity for a 12-year period. FAA forecasts are based on historical trends in aviation and economic activity and professional estimates of what future trends will be. The FAA forecasts are made for the national aviation system and are disaggregated by state and region on a limited basis. In general, disaggregations are made based on aviation trends rather than on specific information about non-aviation factors that might affect demand.

The LASP forecasts attempt to add information about the future state population and economic trends to the disaggregating process. The methodology used for this process entailed first estimating Louisiana's forecast share of forecasted national activity and then distributing the activity among the state's airports for which airport activity forecasts were desired. The process used for forecasting each activity measure is explained in the following pages.

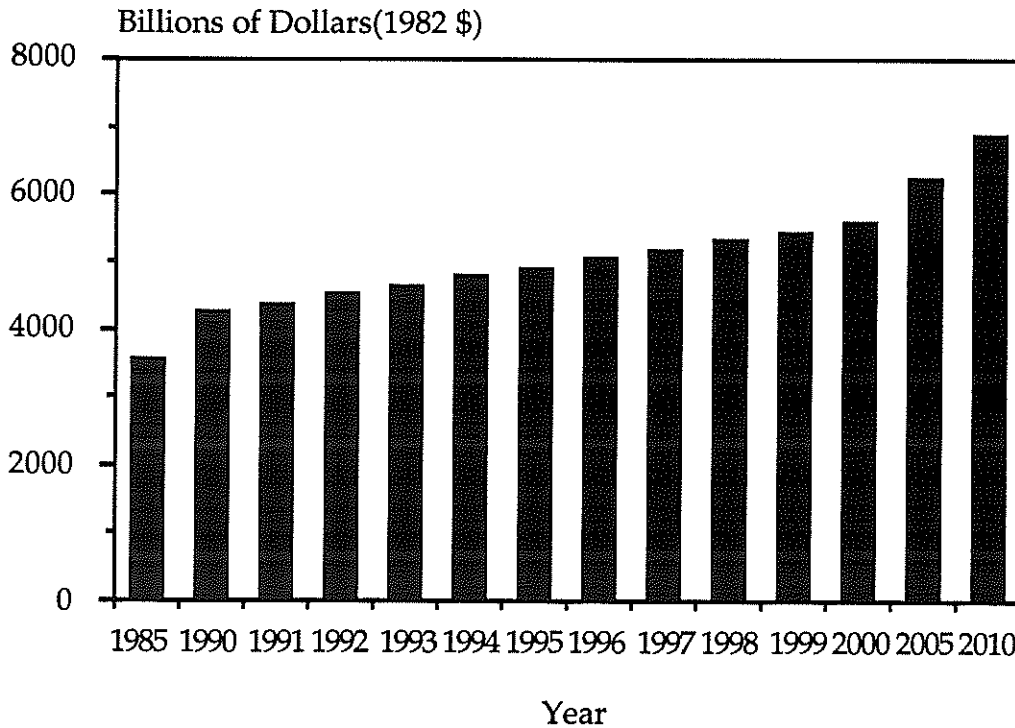


## TRENDS AFFECTING THE FORECASTS

### ECONOMIC OUTLOOK

The growth rate in commercial and general aviation activity is influenced to a great extent by the national and state economies. In the early 1980's while the national economy was stagnant, Louisiana's economy grew due in large part to increased petroleum prices. During the mid-1980's the national economy grew; however, Louisiana's declined. Currently, Louisiana is experiencing steady growth.

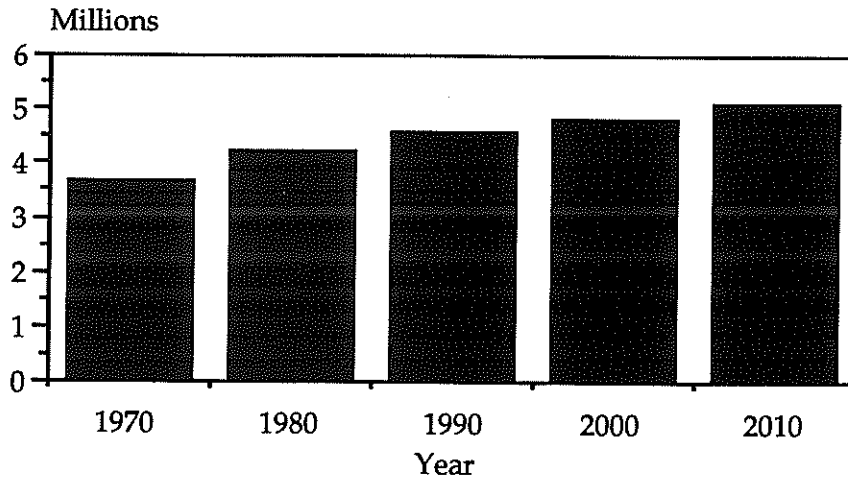
The FAA bases its aviation forecast on an economic forecast of moderate growth (Figure 1). The forecasts for the years 2005 and 2010 have been extrapolated from the FAA forecast. [Note: With the exception of Figure 1, all data in the economic outlook section have been acquired from Woods & Poole Economics, Inc.]



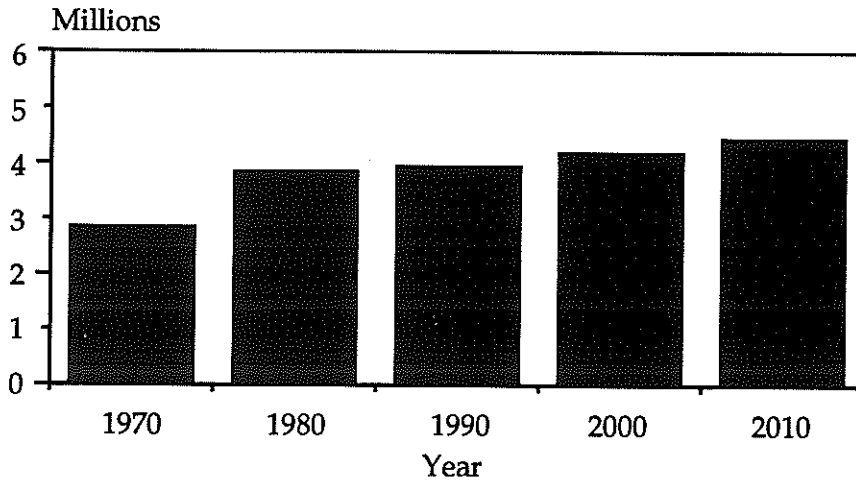
**Figure 1. Gross National Product**

Source: LASP (from FAA Aviation Forecasts, FY 1991-2002)

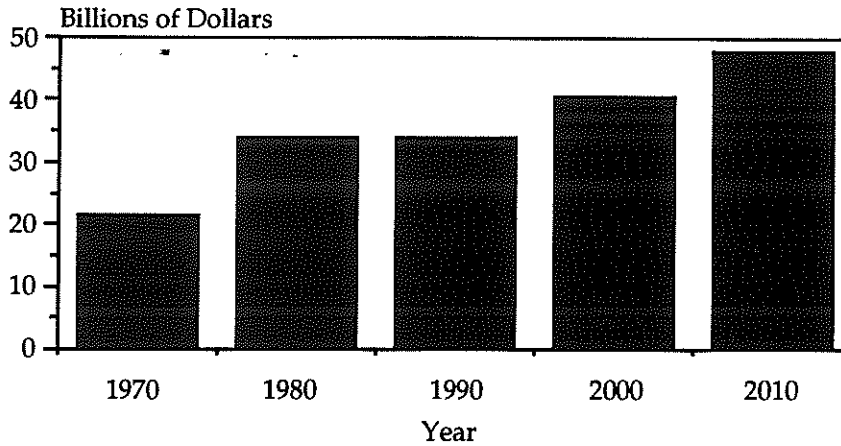
The following figures (Figures 2 through Figure 6) provide a social and economic forecast for the state of Louisiana.



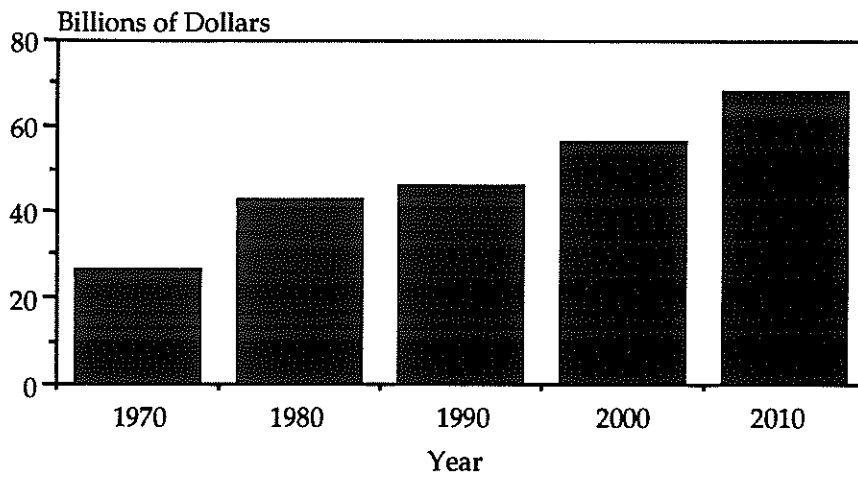
**Figure 2. Louisiana Population**  
 Source: LASP (from Woods & Poole Economics, Inc.)



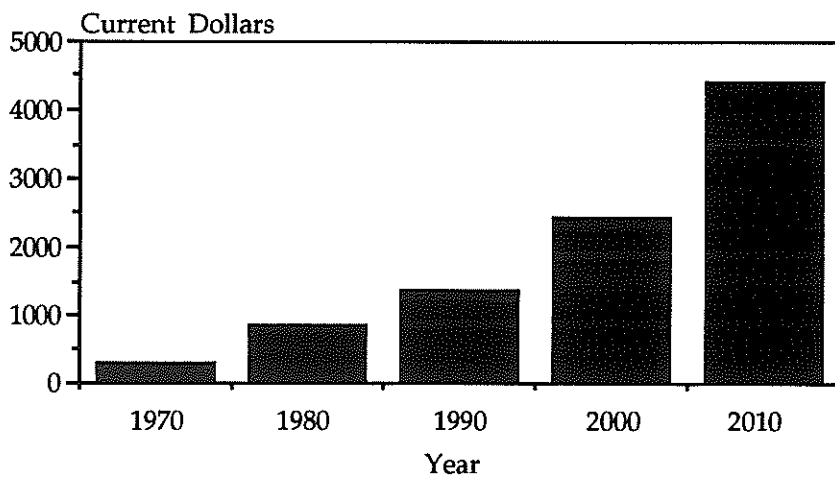
**Figure 3. Louisiana Employment**  
 Source: LASP (from Woods & Poole Economics, Inc.)



**Figure 4. Louisiana Earnings**  
Source: LASP (from Woods & Poole Economics, Inc.)



**Figure 5. Louisiana Personal Income**  
Source: LASP (from Woods & Poole Economics, Inc.)



**Figure 6. Louisiana Per Capita Income**  
Source: LASP (from Woods & Poole Economics, Inc.)

## COMMERCIAL CARRIER ACTIVITY

Deregulation of the airline industry, growth in the national economy, and a decline in fuel prices which helped keep fares unusually low and stimulated demand, contributed to growth in commercial activity. Commercial service activity is represented by passenger enplanements. Nationwide the number of domestic enplanements by large, scheduled airlines increased at an annual average rate of 6.2 percent from 1979 to 1989 (the most recent year for which data are available). During the same period, enplanements by commuter/regional airlines increased steadily at an annual rate of 3.7 percent. The FAA forecasts a continued growth in commercial service enplanements at 4 percent annually for large airlines and 6.5 percent for commuter/regional carriers through 2002.

Commercial service enplanements result in air carrier operations. Between 1991 and 2002 the FAA forecasts operations to increase for large carriers 2.4 percent annually and 3.2 percent annually for commuters and air taxi. The majority of these operations will take place at the large, medium, and small commercial service hub airports, with the medium and small hubs having larger growth rates than the large hubs.

During the decade of the 1980's, questions of airport capacity were raised which precipitated a serious look at the current system of airports nationwide. The ability of the system to accommodate the growth in commercial aviation will depend on additional system capacity in terms of runways, new airports, and improved management of the airways.

## GENERAL AVIATION ACTIVITY

The unprecedented growth in commercial aviation has not been reflected in general aviation activity. Many facets of general aviation in the U.S. have declined steadily throughout the 1980's. Deregulation of the airline industry, high interest rates, loss of tax incentives for aircraft ownership, and the lack of new technology contributed to this decline. Additionally, laws and rulings which have increased the civil liability awards for domestic aircraft suits virtually brought general aviation aircraft construction to a halt and, to some extent, moved the manufacturing industry overseas. These developments along with increased aviation fuel prices have served to further affect an already depressed industry.

As a result of these events, new aircraft shipments declined steadily through the 1980's. In 1979, over 17,000 aircraft were shipped (manufactured) in the U.S.; while in 1989 there were just over 1,500 aircraft shipped. The FAA forecasts the general aviation fleet to grow at 0.4 percent annually through the year 2002. Costs associated with these aircraft rose rapidly. Factory billings divided by the number of aircraft shipped provides a general idea of what an aircraft costs. In 1979, the cost was \$126,994; in 1989, the cost was \$1,175,179.

The number of student pilot certificates processed by the FAA provides an indication of the number of people who begin flight training. New pilot "starts" have decreased from about 140,000 in 1979 to just under 90,000 in 1989. The 1989 figure is an increase over previous years which may be the result of an aggressive learn-to-fly advertising campaign.

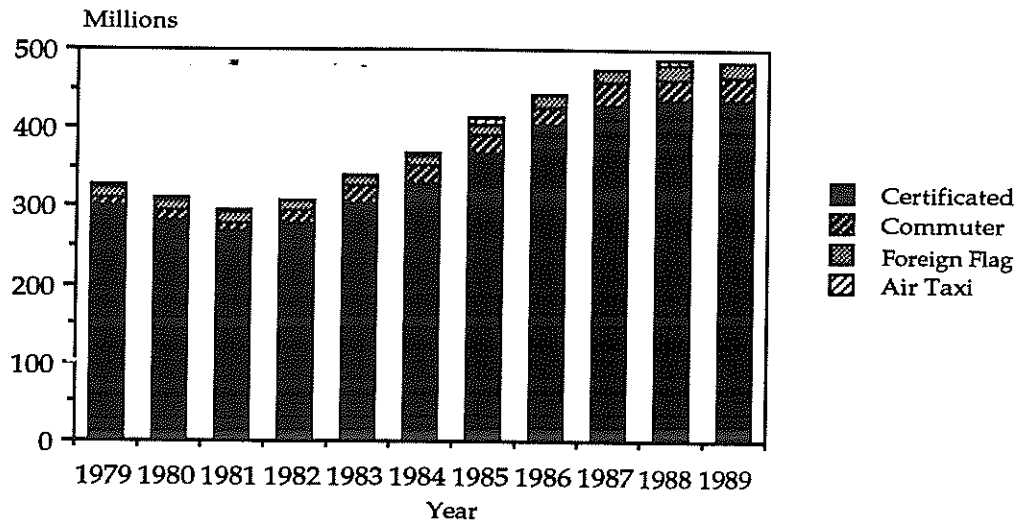
The number of hours flown by general aviation aircraft, while slipping -0.4 percent annually from 1985 through 1990, is forecast by the FAA to increase 1.4 percent annually through the year 2002.

## FORECASTS OF COMMERCIAL SERVICE ACTIVITY

There are seven commercial service airports in the LASP: Alexandria, Baton Rouge, Lafayette, Lake Charles, Monroe, New Orleans, and Shreveport. These airports are classified as primary commercial service airports because they enplane at least 10,000 passengers annually by scheduled carriers.

There are no non-primary commercial service airports in the state. A non-primary commercial airport enplanes between 2,500 and 10,000 passengers annually on scheduled air carriers. New Orleans Lakefront and Houma-Terrebonne Airport have adequate enplanements for this category, but the enplanements are from helicopter traffic moving petroleum workers and not from scheduled carriers.

The historical data used for forecasting enplanements were acquired from the FAA's Air Carrier Activity Information System (ACAIS). The data are reported annually and identify the airports with at least 2,500 enplanements during the preceding year, the number of enplanements at each airport, and air carrier type (large certificated air carriers, commuter and small certificated air carriers, air taxi and commercial operators, and foreign flag carriers). The FAA uses this information to determine eligibility for Airport Improvement Program grants. The FAA forecasts enplanements for large and commuter/small certificated carriers. The last year for which the FAA made a forecast was 2002. Thus, the LASP forecast extrapolated enplanement figures from the FAA's latest estimates to develop estimates for the years 2005 and 2010. The extrapolation was made using the growth rate forecast by the FAA Aviation Forecast, FY 1991-2002. The assumption was made that enplanements by air taxi and foreign flag carriers would increase at an average annual rate of 5 percent through the planning period. Figure 7 shows historical U.S. enplanements from 1979 to 1989. These data are also shown in Table 1. Table 2 shows the forecast enplanements by carrier type from 1991 through 2010.



**Figure 7: U.S. Enplanements, 1979-1989**  
 Source: LASP (from Air Carrier Activity Information System)

**Table 1**  
**U.S. Enplanements, 1979-1989**

Year	Certificated Route Air Carrier	Commuter & Small Cert. Air Carrier	Air Taxi/ Commercial Operator	Foreign Flag Carrier	Total
1979	299,557,950	12,220,039	1,355,196	13,131,367	326,264,552
1980	281,990,207	12,434,935	3,197,219	12,356,768	309,979,129
1981	268,265,546	10,772,625	3,053,620	12,471,370	294,563,161
1982	289,487,754	16,319,422	1,224,261	12,120,684	309,152,121
1983	306,309,225	18,947,212	1,149,775	12,626,980	339,033,192
1984	331,438,637	21,444,976	1,786,808	13,427,174	368,097,595
1985	370,213,067	19,769,731	980,297	14,189,946	405,153,041
1986	404,608,597	21,438,975	1,119,807	15,066,772	442,234,145
1987	430,976,314	26,519,904	1,425,520	16,597,820	475,519,558
1988	435,427,859	28,087,562	789,589	17,645,063	481,950,073
1989	434,681,773	30,038,857	1,040,619	19,382,231	485,143,480

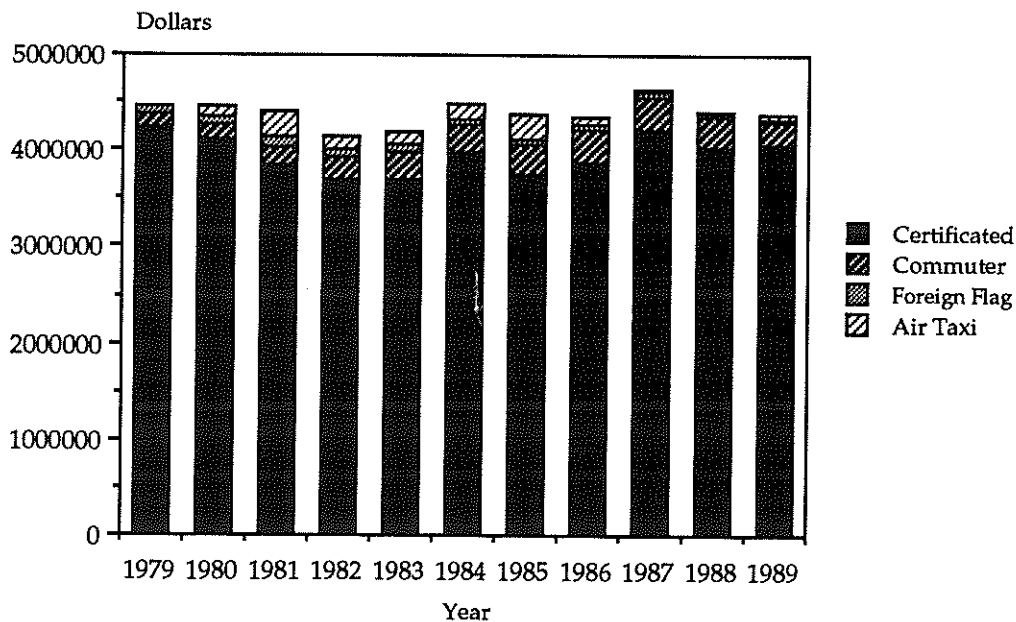
Source: Air Carrier Activity Information System, FAA

**Table 2**  
**U.S. Enplanements, 1991-2010**

Year	Certificated Route Air Carrier	Commuter & Small Cert. Air Carrier	Air Taxi/ Commercial Operator	Foreign Flag Carrier	Total
1991	462,600,000	37,700,000	1,147,000	21,369,000	522,816,000
1992	481,700,000	40,500,000	1,205,000	22,437,000	545,842,000
1993	505,400,000	43,300,000	1,265,000	23,559,000	573,524,000
1994	527,500,000	45,900,000	1,328,000	24,737,000	599,465,000
1995	556,000,000	48,900,000	1,395,000	25,974,000	632,269,000
1996	585,100,000	52,200,000	1,464,000	27,273,000	666,037,000
1997	612,300,000	55,700,000	1,537,000	28,636,000	698,173,000
1998	638,400,000	59,200,000	1,614,000	30,068,000	729,282,000
1999	664,300,000	62,900,000	1,695,000	31,572,000	760,467,000
2000	688,600,000	66,700,000	1,780,000	33,150,000	790,230,000
2005	838,700,000	85,200,000	2,272,000	42,309,000	968,481,000
2010	988,700,000	103,700,000	2,899,000	53,998,000	1,149,297,000

- Notes:
1. Forecasts for Certified Carriers from Table 11, *FAA Aviation Forecasts, FY 1991-2002*.
  2. Forecasts for Commuters from Table 19, *FAA Aviation Forecasts, FY 1991-2002*.
  3. FAA does not forecast Air Taxi or Foreign Flag Carriers; assigned 5% annual growth.
  4. Year 2005 and 2010 extrapolated from FAA forecasts.

Louisiana enplanements from 1979 through 1989 are shown graphically in Figure 8 and in Table 3. During this period, Louisiana enplanements averaged 0.9 percent of U.S. enplanements. The percentage has been declining since 1980. The LASP forecast is based on the assumption that Louisiana's share of national enplanements will remain at approximately 0.9 percent through 2010. The forecast of Louisiana enplanements is shown in Table 4.



**Figure 8. Louisiana Enplanements 1979-1989**  
Source: LASP (from Air Carrier Activity Information System)



**Table 3**  
**Louisiana Enplanements, 1979-1989**

Year	Certificated Route Air Carrier	Commuter & Small Cert. Air Carrier	Air Taxi/ Commercial Operator	Foreign Flag Carrier	Total
1979	4,232,440	149,974	2,972	70,705	4,456,091
1980	4,105,298	151,001	108,337	85,290	4,449,926
1981	3,838,892	196,141	284,013	91,161	4,410,207
1982	3,681,716	227,419	125,225	80,681	4,115,041
1983	3,691,180	300,013	134,812	64,269	4,190,274
1984	3,969,373	294,336	163,322	62,214	4,489,245
1985	3,740,886	322,176	142,929	59,115	4,265,106
1986	3,864,544	357,921	80,113	52,326	4,354,904
1987	4,201,726	345,535	33,213	47,761	4,628,235
1988	4,027,499	305,318	28,578	48,728	4,410,123
1989	4,047,156	252,323	43,340	25,077	4,367,896

Source: Air Carrier Activity Information System, FAA

**Table 4**  
**Louisiana Enplanements, 1991-2010**

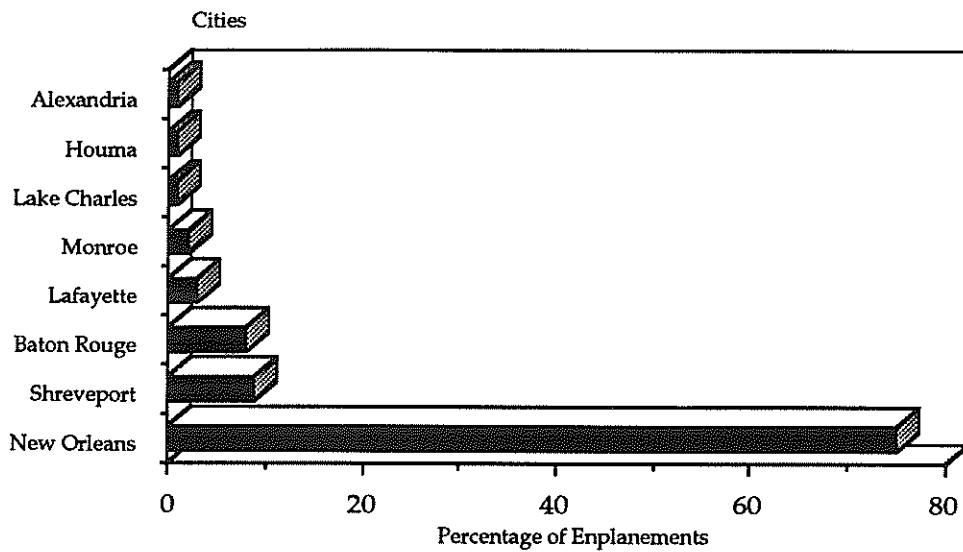
Year	Certificated Route Air Carrier	Commuter & Small Cert. Air Carrier	Air Taxi/ Commercial Operator	Foreign Flag Carrier	Total
1991	4,361,281	271,909	46,702	27,022	4,706,914
1992	4,553,360	283,884	48,759	28,213	4,914,216
1993	4,784,281	298,281	51,232	29,643	5,163,437
1994	5,000,680	311,773	53,549	30,984	5,396,986
1995	5,274,322	328,834	56,479	32,680	5,692,314
1996	5,556,015	346,396	59,496	34,425	5,996,331
1997	5,824,097	363,110	62,366	36,086	6,285,659
1998	6,083,603	379,289	65,145	37,694	6,565,731
1999	6,343,737	395,508	67,931	39,306	6,846,481
2000	6,592,020	410,987	70,589	40,844	7,114,441
2005	8,078,968	503,692	86,512	50,057	8,719,230
2010	9,587,324	597,733	102,664	59,403	10,347,124

Source: LASP

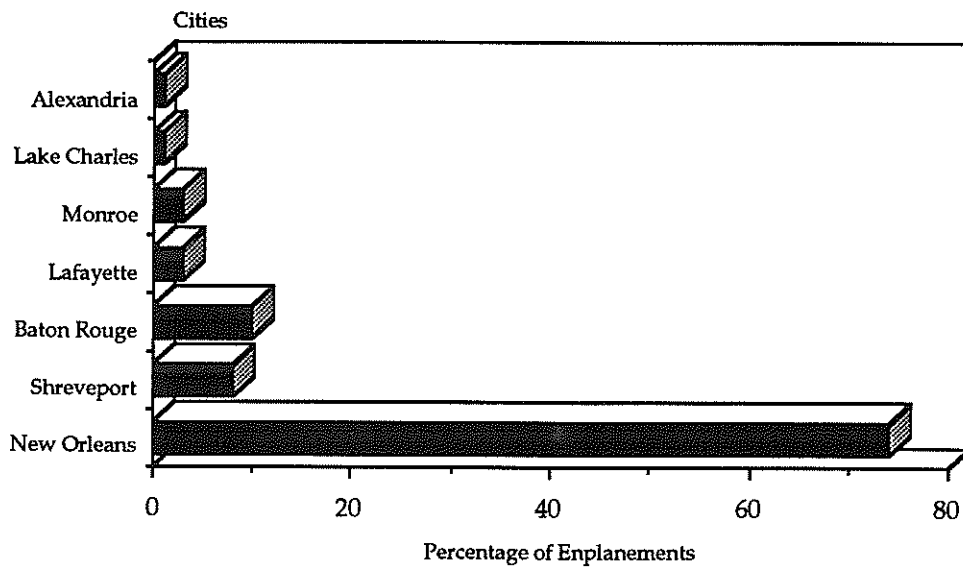
Notes:

- Equation = (LA share of U.S. for 1989 [0.9003] x (U.S. year-end total for forecast year) to get LA year-end total; then broken down by type of carrier (historical share of carrier type from 1979-1989 data).
- In some instances the sum may not equal total due to rounding.

The allocation of Louisiana's enplanements was continued through the top-down process to each commercial service airport and/or city. Each airport's historical share of the state's activity is shown in Figure 9. The latest enplanement report from ACAIS in 1989 indicated no substantial shift in enplanement distribution throughout Louisiana (Figure 10). The only exception was Houma-Terrebonne Airport which had enplanements through the 1979-1987 period but did not have any for 1988 and 1989. No enplanement forecast was made for this airport.

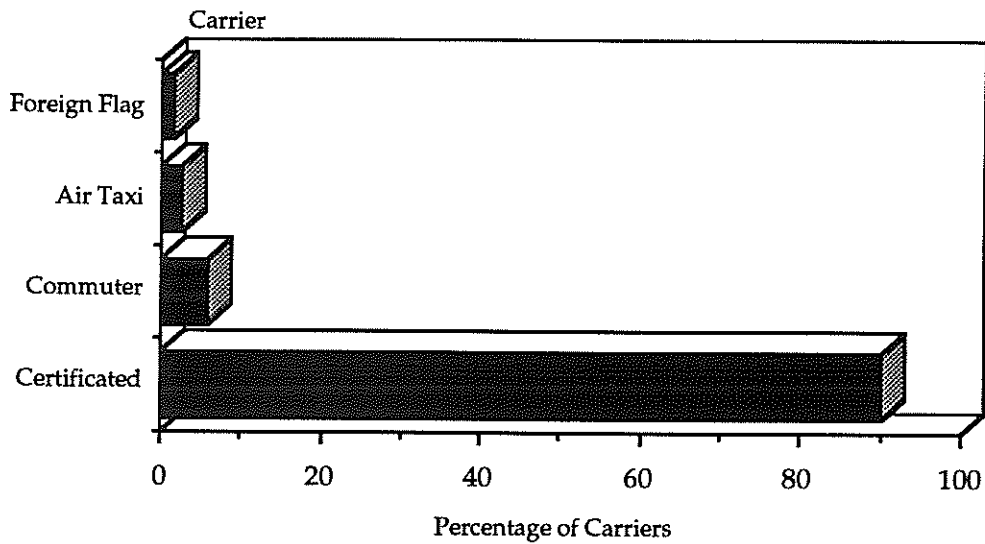


**Figure 9. Louisiana Enplanements by City, 1979-1989**  
 Source: LASP (from Air Carrier Activity Information System)



**Figure 10. Louisiana Enplanements by City, 1989**  
 Source: LASP (from Air Carrier Activity Information System)

After allocating the state enplanement totals for the forecast years to the seven airports, the enplanements were further divided by type of carrier for each airport based on the historical shares at each airport. For example, an airport which received 75 percent of its enplanements from large carriers, 20 percent from commuter, and 5 percent from air taxi was forecast to keep this same distribution through the planning period. A historical distribution of state enplanements by type of carrier is shown in Figure 11.



**Figure 11. Louisiana Enplanements by Type of Carrier, 1979-1989**  
 Source: LASP (from Air Carrier Activity Information System)

Commercial service airport enplanements forecast in five-year increments from 1990 through 2010 are shown in Table 5.

**Table 5**  
**Louisiana's Commercial Service Airport Enplanements, 1991-2010**

Year	Certificated Route Air Carrier	Commuter & Small Cert. Air Carrier	Subtotal Scheduled	Air Taxi/ Commercial Operator	Foreign Flag Carrier	Total
<b>United States</b>						
1991	481,700,000	40,500,000	522,200,000	1,204,646	22,437,356	545,842,002
1995	556,000,000	48,900,000	604,900,000	1,394,528	25,974,044	632,268,572
2000	790,230,004	66,700,000	856,930,004	1,779,811	33,150,193	891,860,008
2005	968,480,521	85,200,000	1,053,680,521	2,271,541	42,308,980	1,098,261,042
2010	1,149,297,297	103,700,000	1,252,997,297	2,899,126	53,998,171	1,309,894,594
<b>Louisiana</b>						
1991	4,361,281	271,909	4,633,190	46,702	27,022	4,706,914
1995	5,274,322	328,834	5,603,155	56,479	32,680	5,692,314
2000	6,592,020	410,987	7,003,007	70,589	40,844	7,114,441
2005	8,078,968	503,692	8,582,661	86,512	50,057	8,719,230
2010	9,587,324	597,733	10,185,058	102,664	59,403	10,347,124
<b>Alexandria</b>						
1991	0	60,031	60,031	1,159	0	61,190
1995	0	72,599	72,599	1,402	0	74,000
2000	0	90,736	90,736	1,752	0	92,488
2005	0	111,203	111,203	2,147	0	113,350
2010	0	131,965	131,965	2,548	0	134,513
<b>Baton Rouge</b>						
1991	456,607	2,242	458,849	2,428	0	461,278
1995	552,199	2,711	554,910	2,937	0	557,847
2000	690,156	3,388	693,544	3,671	0	697,215
2005	845,833	4,152	849,986	4,499	0	854,485
2010	1,003,752	4,928	1,008,680	5,339	0	1,014,018
<b>Lafayette</b>						
1991	62,914	69,064	131,978	2,169	0	134,147
1995	76,085	83,523	159,608	2,623	0	162,231
2000	95,094	104,389	199,483	3,279	0	202,762
2005	116,544	127,936	244,480	4,018	0	248,498
2010	138,303	151,822	290,125	4,768	0	294,893
<b>Lake Charles</b>						
1991	257	59,356	59,613	1,577	0	61,190
1995	311	71,782	72,093	1,907	0	74,000
2000	389	89,715	90,105	2,383	0	92,488
2005	477	109,952	110,429	2,921	0	113,350
2010	566	130,481	131,047	3,466	0	134,513

**Table 5 (continued)**  
**Louisiana's Commercial Service Airport Enplanements, 1991-2010**

Year	Certificated Route Air Carrier	Commuter & Small Cert. Air Carrier	Subtotal Scheduled	Air Taxi/ Commercial Operator	Foreign Flag Carrier	Total
<b>Monroe</b>						
1991	83,665	32,477	116,142	3,885	0	120,026
1995	101,180	39,276	140,456	4,698	0	145,154
2000	126,458	49,088	175,547	5,871	0	181,418
2005	154,983	60,161	215,145	7,196	0	222,340
2010	183,919	71,393	255,312	8,539	0	263,852
<b>New Orleans</b>						
1991	3,445,374	18,510	3,463,885	16,415	27,038	3,492,530
1995	4,166,669	22,386	4,189,054	19,851	32,698	4,223,697
2000	5,207,639	27,978	5,235,617	24,811	40,868	5,278,915
2005	6,382,315	34,289	6,416,605	30,407	50,086	6,469,669
2010	7,573,903	40,691	7,614,594	36,085	59,437	7,677,566
<b>Shreveport</b>						
1991	311,695	51,106	362,801	13,752	0	376,553
1995	376,949	61,805	438,754	16,631	0	455,385
2000	471,124	77,246	548,369	20,786	0	569,155
2005	577,394	94,670	672,064	25,475	0	697,538
2010	685,194	112,345	797,539	30,231	0	827,770

Source: LASP

## Notes:

- Equation for airport year-end total, generally, = (historical state share for airport [similar to Figure 10] x (state total for particular year [Table 4]).
- Equation for cell, generally, (1989 enp. total for cell/1989 enp. total for airport) x (airport year end total).
- In some instances the sum may not equal total due to rounding.
- In the case of a large shift from commuter to air taxi or vice versa, the last two years' shares of carrier type were averaged.
- U.S. total from Table 2.
- LA total from Table 4.

## FORECAST OF GENERAL AVIATION ACTIVITY

The LASP forecast of general aviation activity has also been made using the top-down methodology. A share of the activity forecast by the FAA has been allocated to Louisiana based on Louisiana's historical share of the activity and the LASP planning staff estimate of what the state's share will be in the future.

### GENERAL AVIATION AIRCRAFT

The FAA forecasts only the number of active general aviation aircraft. However, the number of active aircraft in Louisiana is not reported. The number of active general aviation aircraft must be estimated from the number of registered aircraft in the state and the state ratio of active to registered aircraft. The number of registered aircraft by aircraft class is reported annually in the FAA's Census of U.S. Civil Aircraft. The ratio between active and registered aircraft is taken from the FAA's General Aviation Activity and Avionics Survey, Table 2.4. The estimate of active aircraft in Louisiana from 1979 through 1989 is shown in Table 6.

Table 6  
Louisiana Active Aircraft, 1979-1989

Year	Single Engine <4 place	Single Engine >4 place	Multi-Engine	Turbo-Prop	Turbo-Jet	Rotor (Piston)	Rotor (Turbine)	Other	Total
1979	1,243	1,259	377	88	26	63	352	31	3,440
1980	1,289	1,361	443	99	26	63	375	34	3,691
1981	1,322	1,503	498	120	32	67	461	34	4,051
1982	1,320	1,550	511	131	43	76	492	39	4,173
1983	1,342	1,568	502	140	48	78	466	42	4,185
1984	1,397	1,552	485	141	38	85	480	41	4,219
1985	1,387	1,518	470	130	36	86	397	39	4,063
1986	1,349	1,448	421	107	36	83	329	41	3,814
1987	1,333	1,358	388	94	29	81	335	43	3,660
1988	1,287	1,262	336	83	28	78	307	37	3,418
1989	1,269	1,215	303	79	30	63	345	40	3,361

Source: LASP

#### Notes:

- Equation = (Registered aircraft) x (Percent active) = Active aircraft.
- Active aircraft:
  - 1970 - 1980 equals 85.1% of registered aircraft in state
  - 1981 - 1985 equals 88.4% of registered aircraft in state
  - 1986 - date equals 88.8% of registered aircraft in state
- Percentage of active aircraft from the General Aviation Activity and Avionics Survey; various years.
- Registered aircraft from Census of U.S. Civil Aircraft; various years.

Louisiana's share of active aircraft (Table 7) was calculated by using the General Aviation Activity and Avionics Survey, Table 2.4, to find the percent of active aircraft for Louisiana and the U.S. and the Census of U.S. Civil Aircraft to find the total number of registered aircraft for Louisiana and the U.S. The following equation was used to find the state's share of active aircraft:

$$\text{State's Share of Active Aircraft} = \frac{(\text{Louisiana registered aircraft}) \times (\text{percent Louisiana active})}{(\text{U.S. registered aircraft}) \times (\text{percent U.S. active})}$$

**Table 7**  
**Louisiana's Share of Active Aircraft, 1970-1989**  
**(in percentages)**

Year	Single-Engine <4 place	Single-Engine >4 place	Multi-Engine	Turbo-Prop	Turbo-Jet	Rotor (Piston)	Rotor (Turbine)	Other	Total
1970	1.92	1.40	1.85	1.14	1.31	7.48	15.88	0.33	1.76
1971	1.79	1.38	1.75	1.18	1.57	6.05	19.70	0.12	1.70
1972	1.79	1.35	1.72	1.29	1.39	3.10	18.33	0.30	1.67
1973	1.80	1.38	1.76	1.50	1.03	4.15	18.89	0.69	1.71
1974	1.83	1.38	1.87	1.52	0.86	3.62	15.79	0.74	2.37
1975	1.86	1.39	1.81	1.86	1.11	3.28	16.70	0.77	1.75
1976	1.82	1.32	1.92	2.51	1.18	2.60	16.67	0.62	1.72
1977	1.78	1.28	1.78	2.98	1.09	1.71	14.16	0.60	1.66
1978	1.80	1.31	1.70	3.13	0.90	1.44	13.67	0.59	1.67
1979	1.81	1.33	1.67	3.03	1.05	1.44	14.19	0.66	1.69
1980	1.85	1.39	1.88	3.01	1.00	1.40	13.08	0.65	1.76
1981	2.03	1.61	2.21	3.27	1.07	1.58	14.59	0.64	2.02
1982	2.06	1.68	2.30	3.27	1.41	1.85	14.27	0.71	2.10
1983	2.04	1.68	2.23	3.28	1.49	1.84	12.97	0.70	2.06
1984	2.07	1.63	2.13	3.08	1.12	1.98	12.91	0.63	2.03
1985	2.04	1.59	2.07	2.77	0.97	1.97	10.64	0.57	1.94
1986	1.89	1.45	1.79	2.10	0.77	1.84	8.64	0.54	1.73
1987	1.87	1.37	1.69	1.98	0.71	1.78	8.69	0.54	1.68
1988	1.81	1.29	1.51	1.82	0.75	1.72	8.39	0.46	1.58
1989	1.77	1.24	1.39	1.59	0.71	1.35	9.10	0.47	1.54

Source: LASP

Notes:

- Equation :  $\frac{(\text{LA registered a/c})(\% \text{ LA active})}{(\text{U.S. registered a/c})(\% \text{ U.S. active})}$
- Registered aircraft data from Census of U.S. Civil Aircraft; various years.
- Percent aircraft from General Aviation Activity and Avionics Survey; various years.

The forecast of U.S. active general aviation aircraft is also found in the FAA Aviation Forecasts, Fiscal Years 1991-2002, Table 21. The forecast is for five classes of aircraft: piston single-engine, piston multi-engine, turbo-prop, turbo-jet, piston rotorcraft, turbine rotorcraft, and other. For each class of aircraft, the state's share is expected to remain constant. The share of turbine rotorcraft has historically been high due to the use of these aircraft in the oil and gas industry. The state's share of turbine rotorcraft may increase due to the use of helicopters in the oil and gas industry.

**Table 8**  
**Louisiana Active Aircraft, 1991-2010**

Year	Single-Engine	Multi-Engine	Turbo-Prop	Turbo-Jet	Rotor (Piston)	Rotor (Turbine)	Other	Total
1991	2582	362	107	34	43	409	37	3573
1992	2612	360	108	35	43	462	39	3659
1993	2612	358	110	37	42	479	40	3678
1994	2601	358	114	39	40	514	42	3708
1995	2594	360	120	41	40	540	43	3737
1996	2586	362	125	43	40	575	45	3775
1997	2979	363	129	45	40	618	45	3819
1998	2574	365	133	46	38	636	46	3838
1999	2571	366	137	47	37	671	47	3875
2000	2567	368	140	49	37	706	48	3913
2005	2544	389	155	57	37	854	56	4091
2010	2522	397	165	64	33	1028	62	4270

Source: LASP

Note:

Equation = (FAA Forecasted value for U.S. > 0 [from Table 21 FAA Aviation Forecasts, FY 1991-2002]) × (LA share of U.S. fleet, 1986-1987, averaged).

The number of future active general aviation aircraft in Louisiana is estimated by multiplying the figures in Table 21 of the FAA Aviation Forecasts, Fiscal Years 1991-2002 by the respective percentages for each year and category in Table 7. The results by year to 2000 and in five-year increments to 2010 by aircraft class are shown in Table 8. Data for the years 2005 and 2010 were extrapolated from the FAA forecast.



### *REGISTERED AIRCRAFT BY METROPOLITAN AREA*

The Metropolitan Statistical Area or MSA is defined by the U.S. Office of Management and Budget (OMB). The state of Louisiana contains eight MSA's. The forecast number of registered aircraft based in metropolitan regions is an important factor in planning for the capacity of MSA airports. Registered aircraft include those that are registered in a parish, whether they are active or not. Aircraft may also be registered in a parish but based at another location.

Registered aircraft by parish data were taken from the FAA's Census of U.S. Civil Aircraft, Calendar Year 1989. The registered aircraft were totaled for parishes comprising an MSA. The total registered aircraft was divided into the population total for the same MSA and year to get registered aircraft per capita. Registered aircraft per capita were multiplied by the population projections (supplied by Woods & Poole Economics, Inc.) to the year 2010. This yielded the forecast number of registered aircraft attributed to each MSA and is shown in Table 9.

**Table 9  
Registered Aircraft by Metropolitan Area**

Parish	Registered Aircraft	Population				Aircraft per Capita	Registered Aircraft		
		1989	1995	2000	2010		1995	2000	2010
Rapides	116	139,710	140,160	140,160	141,610				
<b>Alexandria</b>	<b>116</b>	<b>139,710</b>	<b>140,160</b>	<b>140,160</b>	<b>141,610</b>	<b>0.00083029</b>	<b>116</b>	<b>116</b>	<b>118</b>
Ascension	35	61,640	65,940	65,940	71,280				
Livingston	29	76,890	84,930	84,930	90,910				
West Baton Rouge	8	21,320	23,480	23,480	30,790				
East Baton Rouge	285	390,160	404,990	404,990	448,170				
<b>Baton Rouge</b>	<b>357</b>	<b>550,010</b>	<b>579,340</b>	<b>579,340</b>	<b>641,150</b>	<b>0.00064908</b>	<b>376</b>	<b>376</b>	<b>416</b>
Lafayette	498	170,720	175,960	175,960	199,160				
St. Martin	16	47,210	51,860	51,860	62,170				
<b>Lafayette</b>	<b>514</b>	<b>217,930</b>	<b>227,820</b>	<b>227,820</b>	<b>261,330</b>	<b>0.00235856</b>	<b>537</b>	<b>537</b>	<b>616</b>
Calcasieu	148	172,260	175,550	175,550	186,530				
<b>Lake Charles</b>	<b>148</b>	<b>172,260</b>	<b>175,550</b>	<b>175,550</b>	<b>186,530</b>	<b>0.00085917</b>	<b>151</b>	<b>151</b>	<b>160</b>
Ouachita	149	147,970	154,140	154,140	169,230				
<b>Monroe</b>	<b>149</b>	<b>147,970</b>	<b>154,140</b>	<b>154,140</b>	<b>169,230</b>	<b>0.00100696</b>	<b>155</b>	<b>155</b>	<b>170</b>
Jefferson	205	478,470	549,960	549,960	661,900				
St. Tammany	164	163,010	201,110	201,110	276,330				
St. John the Baptist	17	44,310	50,370	50,370	60,720				
St. Charles	22	45,370	47,770	47,770	52,060				
Orleans	256	535,940	194,360	494,360	438,940				
St. Bernard	19	69,510	80,540	80,540	99,920				
<b>New Orleans</b>	<b>683</b>	<b>1,336,610</b>	<b>1,424,110</b>	<b>1,424,110</b>	<b>1,589,870</b>	<b>0.00051099</b>	<b>728</b>	<b>728</b>	<b>812</b>
Caddo	235	275,280	285,600	285,600	322,690				
Bossier	114	94,690	101,430	101,430	111,680				
<b>Shreveport</b>	<b>349</b>	<b>369,970</b>	<b>387,030</b>	<b>387,030</b>	<b>434,370</b>	<b>0.00094332</b>	<b>365</b>	<b>365</b>	<b>410</b>
Terrebonne	63	100,060	102,520	102,520	111,350				
Lafourche	45	87,190	88,770	88,770	94,900				
<b>Houma-Thibodaux</b>	<b>108</b>	<b>187,250</b>	<b>191,290</b>	<b>191,290</b>	<b>206,250</b>	<b>0.00057677</b>	<b>110</b>	<b>110</b>	<b>119</b>
Subtotal	2,424	3,121,710	3,279,440	3,279,440	3,630,340	0.00700863	2,539	2,539	2,822
% of State	62.98%	69.13%	69.83%	67.93%	70.93%		61.03%	59.07%	61.27%
Non-MSA	1,425	1,393,890	1,417,140	1,548,220	1,487,810		1,621	1,759	1,784
% of State	37.02%	30.87%	30.17%	32.07%	29.07%		38.97%	40.93%	38.73%
<b>Total</b>	<b>3,849</b>	<b>4,515,600</b>	<b>4,696,580</b>	<b>4,827,660</b>	<b>5,118,150</b>		<b>4,160</b>	<b>4,298</b>	<b>4,606</b>

Source: LASP

Notes:

1. MSA's as noted on U.S. OMB map dated 6-30-91.
2. Registered Aircraft from Census of U.S. Civil Aircraft, CY 1989.
3. Population from Woods & Poole Economics, Inc.

*GENERAL AVIATION HOURS FLOWN*

The annual hours flown by general aviation aircraft in Louisiana have been estimated based on the average number of hours flown by all U.S. aircraft of the same type and the number of each type of aircraft forecast to be active in Louisiana. In other words, it is assumed that Louisiana aircraft will fly the same number of hours as flown on average by all active aircraft of the same type. Annual flight hours by aircraft type are from the FAA Aviation Forecasts, Fiscal Years 1991-2002, Table 23. The annual hours from Table 23 are divided by the number of active aircraft forecast in Table 21 of the same report. This yields annual hours flown per aircraft in the U.S., shown here in Table 10. Table 10 is then multiplied by the forecast of Louisiana active aircraft contained in Table 8 above; the results are Louisiana General Aviation Hours Flown, Table 11. Figure 12 shows the forecast number of hours flown by general aviation aircraft from 1990 to 2010. This was developed from the data in Table 10.

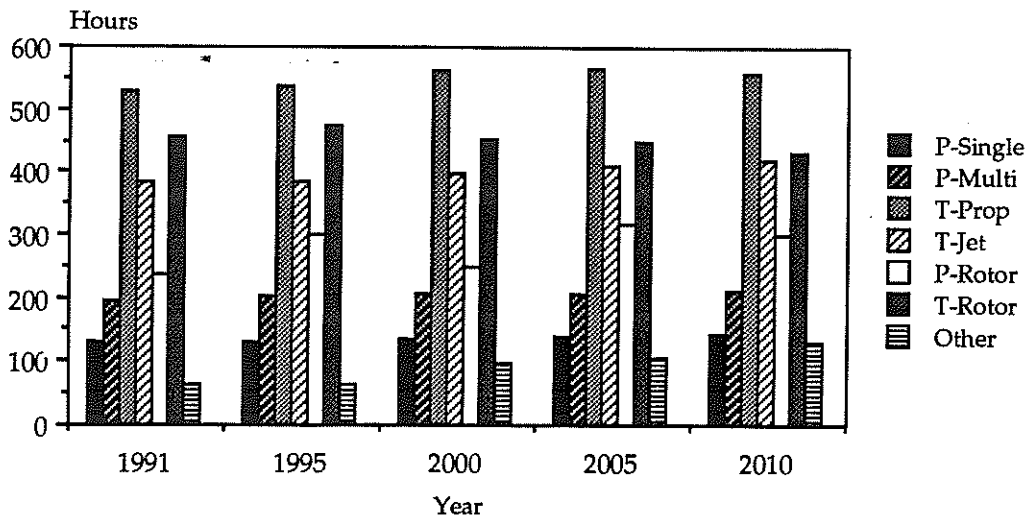
**Table 10**  
**U.S. General Aviation Hours Flown per Aircraft**

Year	Single-Engine	Multi-Engine	Turbo-Prop	Turbo-Jet	Rotor (Piston)	Rotor (Turbine)	Other
1986	135	206	500	386	276	514	63
1987	130	205	367	356	207	400	57
1988	129	188	434	364	214	571	88
1989	135	202	547	405	269	553	72
1991	130	194	530	383	235	457	63
1992	130	196	529	388	242	469	60
1993	130	197	536	392	250	500	58
1994	131	197	529	389	290	464	56
1995	132	202	535	386	300	475	65
1996	133	201	542	383	300	492	84
1997	133	204	547	387	300	500	82
1998	134	203	553	391	241	500	101
1999	135	203	558	394	250	462	99
2000	136	206	564	397	250	451	98
2005	140	206	566	410	318	449	107
2010	144	210	557	420	300	432	130

Source: LASP

Notes:

1. Values found by dividing Table 23 "General Aviation Hours Flown" by Table 21 "Active General Aviation Aircraft," FAA Aviation Forecasts, FY 1991-2002.
2. 2005 and 2010 interpolated from tables.



**Figure 12. U.S. General Aviation Hours Flown per Aircraft**  
 Source: LASP (from FAA Aviation Forecasts, FY 1991-2002)

**Table 11**  
**Louisiana General Aviation Hours Flown**

Year	Single-Engine	Multi-Engine	Turbo-Prop	Turbo-Jet	Rotor (Piston)	Rotor (Turbine)	Other	Total
1986	378,937	86,314	53,500	13,909	22,897	169,200	2,603	727,360
1987	349,297	72,957	34,467	10,311	16,759	134,000	2,457	620,248
1988	327,942	63,179	36,019	10,182	16,714	175,429	3,265	632,729
1989	334,617	61,132	43,226	12,143	16,962	190,658	2,899	661,635
1991	336,003	70,262	56,742	13,021	10,118	186,717	2,313	675,176
1992	326,603	70,468	57,176	13,571	10,424	216,857	2,349	697,450
1993	328,048	70,376	58,986	14,510	10,500	239,500	2,326	724,245
1994	329,377	70,678	60,257	15,167	11,613	238,643	2,360	728,094
1995	329,407	72,618	64,225	15,825	12,000	256,721	2,804	753,600
1996	330,748	72,709	67,708	16,483	12,000	282,937	3,789	786,375
1997	330,778	74,145	70,520	17,419	12,000	309,000	3,673	817,535
1998	332,133	74,237	73,500	17,969	9,172	318,000	4,646	829,658
1999	333,562	74,127	76,506	18,515	9,250	309,692	4,653	826,306
2000	335,051	75,765	78,974	19,456	9,250	318,561	4,706	841,763
2005	342,085	76,337	90,036	22,974	10,500	379,388	5,679	926,999
2010	349,252	78,839	99,114	26,909	9,600	414,051	7,545	985,309

Source: LASP

Note:

Values found by multiplying Table 10 by Table 6 (historical) or Table 8 (forecast).

## GENERAL AVIATION OPERATIONS

General aviation operations are forecast based on the forecast of general aviation hours flown (Table 10) and an estimate of operations per hour. Table 12, general aviation flight distribution, is found by dividing total flight hours by aircraft type from the FAA Aviation Forecasts, Fiscal Years 1991-2002, Table 23, by the total number of general aviation hours flown, shown on the same table. This is averaged by years and shown on Table 13.

**Table 12**  
**U.S. General Aviation Flight Distribution**  
**(in percentages)**

Year	Single-Engine	Multi-Engine	Turbo-Prop	Turbo-Jet	Rotor (Piston)	Rotor (Turbine)	Other	Total
1986	64.35	16.52	7.54	5.22	1.74	4.93	1.16	101.45
1987	66.37	14.58	8.04	5.06	2.38	5.36	1.19	102.98
1988	65.48	14.58	6.55	4.76	1.79	4.76	1.19	99.11
1989	63.98	12.68	6.63	4.61	1.73	5.76	1.73	97.12
1991	62.85	12.85	9.78	5.03	2.23	5.87	1.40	100.00
1992	62.26	12.67	9.92	5.23	2.20	6.34	1.38	100.00
1993	61.52	12.47	10.03	5.42	2.17	7.05	1.36	100.00
1994	61.29	12.37	9.95	5.65	2.42	6.99	1.34	100.00
1995	60.16	12.40	10.03	5.80	2.37	7.65	2.11	100.53
1996	59.33	12.18	10.10	5.96	2.33	8.03	2.07	100.00
1997	58.42	12.24	10.46	6.12	2.30	8.42	2.04	100.00
1998	57.93	12.09	10.58	6.30	1.76	8.82	2.52	100.00
1999	57.61	11.97	10.72	6.48	1.75	8.98	2.49	100.00
2000	57.14	12.07	10.84	6.65	1.72	9.11	2.46	100.00
2005	58.37	12.32	11.58	7.88	1.72	10.84	2.96	105.67
2010	56.41	12.12	11.42	8.62	1.40	11.89	2.80	104.66
Avg	60.84	12.88	9.63	5.93	2.00	7.89	7.55	100.72
Avg 91-10	59.44	12.31	10.45	6.26	2.03	2.08	8.33	100.90

Source: LASP

Notes:

1. Equation = (flight hours by aircraft type) / (total flight hours performed).
2. Data through 2000 from Table 23, FAA Aviation Forecasts, FY 1991-2002.
3. Data for 2005 and 2010 extrapolated from FAA Aviation Forecasts, FY 1991-2002.

**Table 13**  
**U.S. Flight Distribution, Flight Hour Distribution, and**  
**Operations per Flight Hour**

Aircraft	Flight Distribution (%)	Flight Hour Distribution		Operations per Flight Hour	
		Local (%)	Itinerant (%)	Local	Itinerant
Piston Single	59.44				
1-3 place		64.00	36.00	3.23	1.82
+4 place		37.00	63.00	1.61	2.75
Multi	12.31	16.10	83.90	0.54	2.82
Turbine Prop Jet	10.45 6.26	3.70 5.00	96.30 95.00	0.11 0.39	2.98 7.39
Rotor Piston Jet	2.03 8.33	82.10 39.40	17.90 60.60	7.72 1.96	1.68 3.01
Other	2.08				

Source: LASP

Notes:

1. Flight Distribution from General Aviation Pilot and Aircraft Survey, Table 3.6, CY1990.
2. Flight Hour Distribution from General Aviation Pilot and Aircraft Survey, Table 3.3, CY 1990.
3. Operations per Flight Hour found by using General Aviation Pilot and Aircraft Survey, Table 3.3, CY 1990, and Equation = (landings per flight x 2) x (60 / flight time in minutes).

Flight hour distribution is from Table 3.6 General Aviation and Aircraft Activity Survey, Calendar Year 1990. This is a field survey conducted every three years jointly by the Civil Air Patrol and the FAA.

Operations per flight hour are derived through a series of calculations. One source of information is Table 3.3, General Aviation and Aircraft Activity Survey, Calendar Year 1990, which provides landings per flight and flight time in minutes. Because the data for flight time were in minutes and not hours the flight time was divided into 60 to get a multiplier for the number of landings per hour. Landings per hour are multiplied by 2 to get the number of operations per hour. The equation for this process is:

$$\text{Operations per flight hour} = (\text{landings per flight hour} \times 2) \times (60 / \text{flight time in minutes})$$

Louisiana general aviation operations by aircraft type, Table 14 are found by using Table 11, Louisiana General Aviation Hours Flown, and the data found in Table 13. No information was available for aircraft in the "Other" category. The equation used to fill each cell in Table 14 was:

$$\text{Operations by aircraft type} = (\text{hours flown by type} \times \text{itinerant flight hour distribution} \times \text{itinerant operations per hour}) + (\text{hours flown by type} \times \text{local flight hours distribution} \times \text{local operations per hour})$$

**Table 14**  
**Louisiana General Aviation Operations by Aircraft Type**

Year	Single-Engine <4 place	Single-Engine >4 place	Multi-Engine	Turbo-Prop	Turbo-Jet	Rotor (Piston)	Rotor (Turbine)	Other	Total
1991	1,086,897	782,655	172,407	162,985	37,599	67,149	484,801		2,794,493
1992	1,056,490	760,759	172,913	164,232	39,188	69,180	563,058		2,825,819
1993	1,061,164	764,125	172,687	169,431	41,899	69,684	621,850		2,900,840
1994	1,065,463	767,221	173,428	173,081	43,796	77,070	619,625	See	2,919,685
1995	1,065,560	767,291	178,189	184,479	45,696	79,639	666,563	Note	2,987,417
1996	1,069,898	770,414	178,412	194,483	47,596	79,639	734,632		3,075,074
1997	1,069,995	770,484	181,935	202,561	50,299	79,639	802,303		3,157,216
1998	1,074,378	773,640	182,161	211,120	51,887	60,871	825,671		3,179,729
1999	1,079,001	776,969	181,891	219,755	53,464	61,388	804,100		3,176,568
2000	1,083,817	780,437	185,911	226,844	56,181	61,388	827,128		3,221,706
2005	1,106,571	796,822	187,314	258,618	66,340	69,684	985,062		3,470,410
2010	1,129,754	813,516	192,453	284,694	77,702	63,711	1,075,063		3,637,893

Source: LASP

Notes:

1. No data available for "Other" category.
2. Equation = ([Hours Flown] x [Itinerant Flight Hour Distribution] x [Itinerant Operation per Hour]) + ([Hours Flown] x [Local Flight Hour Distribution] x [Local Operations per Hour]).
3. From Tables 11 and 13.

## PILOTS

The number of pilots in the U.S. is forecast in the FAA Aviation Forecasts, Fiscal Years 1991-2002, Table 24, and is shown here as Table 15. Historical data are from the FAA Statistical Handbook of Aviation, various years. Figure 13 compares Louisiana to U.S. pilots by type of certificate. The chart shows that Louisiana is fairly consistent with the national distribution of pilots. The number of Louisiana pilots by type of certificate was found in the FAA Statistical Handbook of Aviation, various years, and is shown in Table 16.

**Table 15**  
**U.S. Pilots by Type of Certificate**

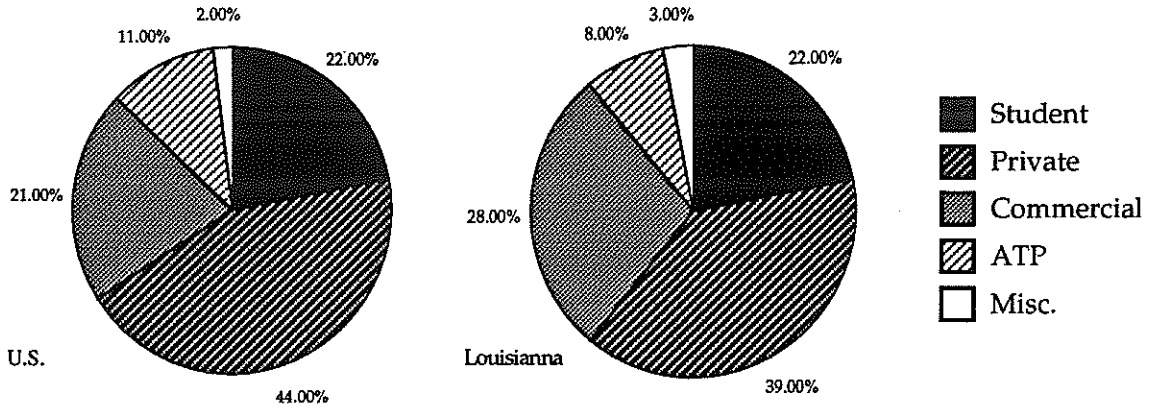
Year	Student	Private	Commercial	Airline Transport	Misc.	Flight Instructor	Total
1979	210,180	343,276	182,097	63,652	15,462	54,398	814,667
1980	199,833	357,479	183,422	69,569	16,748	60,440	827,051
1981	179,912	328,562	168,580	70,311	16,817	57,523	764,182
1982	156,361	322,094	165,093	73,471	16,236	62,492	733,255
1983	147,197	318,643	159,495	75,938	16,731	62,201	718,004
1984	150,081	320,086	155,929	79,192	17,088	61,173	722,376
1985	146,652	311,086	151,632	82,740	17,430	58,940	709,540
1986	150,273	305,736	147,798	87,186	18,125	57,355	709,118
1987	146,016	300,949	143,654	91,287	17,756	60,316	699,653
1988	136,913	299,786	143,030	96,968	17,319	61,798	694,016
1989	142,544	282,540	144,540	102,087	17,660	61,472	689,371
1991	145,400	294,100	146,600	106,900	18,300	58,629	711,300
1992	147,900	296,200	148,400	110,300	18,900	59,637	721,700
1993	150,100	297,100	149,900	113,800	19,100	60,524	730,000
1994	152,000	297,100	151,400	117,400	19,300	61,290	737,200
1995	153,500	298,300	152,900	121,700	19,700	61,895	746,100
1996	154,600	299,300	154,500	126,200	19,700	62,339	754,300
1997	155,300	300,200	156,000	130,800	20,300	62,621	762,600
1998	155,900	301,100	157,600	134,300	20,600	62,863	769,500
1999	156,400	302,000	159,100	137,900	20,900	63,065	776,300
2000	156,400	303,000	160,700	141,600	21,200	63,065	782,900
2005	159,400	307,900	168,700	156,300	22,700	64,274	815,000
2010	171,900	312,000	176,700	171,300	24,200	69,315	856,100

Source: LASP

### Notes:

1. Historical data from FAA Statistical Handbook of Aviation; various years.
2. Forecast data from Table 24, FAA Aviation Forecasts, FY 1991-2002.
3. Years 2005 and 2010 extrapolated from Table 24, FAA Aviation Forecasts, FY 1991-2002.
4. "Misc." category includes helicopter (only), glider (only), and lighter-than-air.
5. Flight Instructor not included in total.
6. Flight Instructor not forecast by FAA - developed from historical ratio of student pilots to instructors.





**Figure 13. U.S. and Louisiana Pilots, Distribution by Type of Certificate**  
 Source: LASP (from FAA Statistical Handbook of Aviation, various years)

**Table 16**  
**Louisiana Pilots by Certificate Type**

Year	Student	Private	Commercial	Airline Transport	Misc.	Flight Instructor	Total
1979	2,988	4,016	3,114	675	293	768	11,086
1980	2,904	4,276	3,189	753	332	871	11,454
1981	2,811	4,072	3,120	818	335	878	11,156
1982	2,447	4,183	3,167	896	360	988	11,053
1983	2,290	4,137	2,971	886	341	975	10,625
1984	2,291	4,155	2,867	882	343	928	10,538
1985	2,079	4,043	2,771	849	358	850	10,100
1986	1,942	3,817	2,605	866	335	804	9,565
1987	1,699	3,501	2,323	876	295	777	8,694
1988	1,490	3,355	2,220	906	296	730	8,267
1989	1,612	3,110	2,182	929	303	741	8,136
1991	1,585	3,294	2,272	994	313	692	8,458
1992	1,612	3,317	2,300	1,026	323	704	8,579
1993	1,636	3,328	2,323	1,058	327	714	8,672
1994	1,657	3,328	2,347	1,092	330	723	8,753
1995	1,673	3,341	2,370	1,132	337	730	8,853
1996	1,685	3,352	2,395	1,174	337	736	8,943
1997	1,693	3,362	2,418	1,216	347	739	9,037
1998	1,699	3,372	2,443	1,249	352	742	9,116
1999	1,705	3,382	2,466	1,282	357	744	9,193
2000	1,705	3,394	2,491	1,317	363	744	9,269
2005	1,737	3,448	2,615	1,454	388	758	9,643
2010	1,874	3,494	2,739	1,593	414	818	10,114

Source: LASP

Notes:

1. Flight Instructor not included in total.
2. Historical data from *FAA Statistical Handbook of Aviation*; various years.
3. Forecast equation = (LA Share, Table 17) x (U.S. Forecast, Table 15).
4. Flight Instructor is forecast by the historical ratio of student pilots to flight instructors (student pilots/flight instructors, 1979-1989, averaged)/(forecast student pilots).
5. "Misc." category includes helicopter (only), glider (only), and lighter-than-air.

The number of pilots in Louisiana was forecast by allocating a share of the FAA's national forecast to the state based on the state's historical share of the national total. The years 2005 and 2010 were extrapolated from the forecast. The state's share of pilot certificates by type of certificate was calculated from the data in these documents and is shown in Table 17.

**Table 17**  
**Louisiana's Share of U.S. Pilot Certificates**

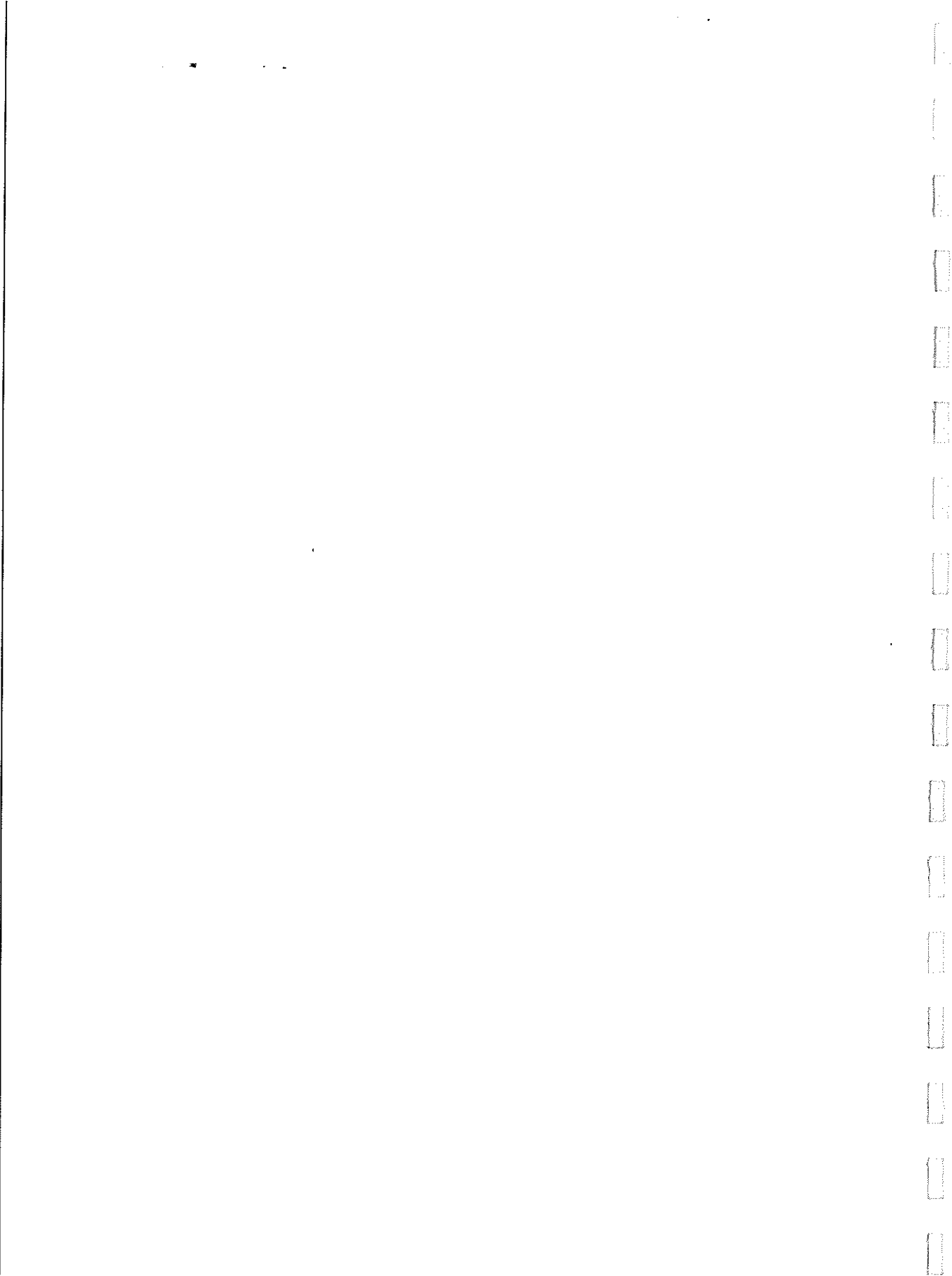
Year	Student	Private	Commercial	Airline Transport	Misc.	Flight Instructor	Total
1979	1.42	1.17	1.71	1.06	1.89	1.41	1.36
1980	1.45	1.20	1.74	1.08	1.98	1.44	1.38
1981	1.56	1.24	1.85	1.16	1.99	1.53	1.46
1982	1.56	1.30	1.92	1.22	2.22	1.58	1.51
1983	1.56	1.30	1.86	1.17	2.04	1.57	1.48
1984	1.53	1.30	1.84	1.11	2.01	1.52	1.46
1985	1.42	1.30	1.83	1.03	2.05	1.44	1.42
1986	1.29	1.25	1.76	0.99	1.85	1.40	1.35
1987	1.16	1.16	1.62	0.96	1.66	1.29	1.24
1988	1.09	1.12	1.55	0.93	1.71	1.18	1.19
1989	1.13	1.10	1.51	0.91	1.72	1.21	1.18
1990-2010	1.09	1.12	1.55	0.93	1.71	1.18	1.19

Source: LASP

Notes:

1. Flight Instructor not included in total.
2. Historical data from FAA Statistical Handbook of Aviation; various years.
3. Equation = (LA total pilots of type) x (U.S. total pilots of type).
4. Calculated from Table 15 and 16.
5. "Misc." category includes helicopter (only), glider (only), and lighter-than-air.

Aviation Activity Forecast



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