Washington-Baltimore Regional Air Passenger Origin/Destination Forecast Update

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Metropolitan Washington Council of Governments

ABSTRACT FORM

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The metropolitan Washington Council of Governments is the regional organization of the Washington area's major local governments and their governing officials. COG works toward solutions to such regional problems as growth, transportation, inadequate housing, air pollution, water supply, water quality, economic development and noise, and serves as the regional planning organization for metropolitan Washington.

ABSTRACT:

This report presents regional air passenger origin and destination forecast for the three commercial airports in the Washington Baltimore region. The air passenger enplanements are based on data from FAA and regional airport authority forecasts. The report documents the techniques used to forecast and distribute total air passengers origins by AAZ and jurisdiction for the Base year 2005 and forecast years through 2030 to the three commercial airports in the Washington/Baltimore region.

SUBJECT:

Regional Air Passenger Origin/Destination Forecast Update

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1. Introduction

The Washington-Baltimore metropolitan area is one of the few places in the country where air passengers have a choice of multiple airports. These are the Washington Dulles International (IAD), Ronald Reagan Washington National (DCA) and Baltimore Washington International Thurgood Marshall (BWI), airports.

Forecasts of key aviation activity measures for the Washington-Baltimore region are published periodically by the Federal Aviation Administration. While these forecasts are produced to predict air passenger enplanements at the three major commercial airports, no origin/destination forecasts are produced. Origin/destination information is essential for use in airport-related transportation studies, and for determining airport master plan landside facility needs.

This report documents the procedures used to develop forecasts of local originating air passenger trips from each aviation analysis zone to each of the three major commercial airports in the Washington/Baltimore region. The air passenger forecasts were developed as part of the National Capital Region Transportation Planning Board's (TPB) Continuous Airport System Planning (CASP) program.

The MWCOG/TPB Models Development program identifies the improvement of the representation of special traffic generators as an important component of the traffic forecasting process. COG/TPB has performed several special generator surveys in recent years, relating to military facilities, universities, tourist locations, and major shopping centers. As these data become available, the review of special generator data for the purpose of refining the regional travel model is envisioned to be an ongoing work activity. The principal purpose of the origin/destination forecast is to provide annual air passenger control totals to be used as an input to the travel forecasting process.

This model does not forecast enplanements from each aviation analysis zones, rather it is to use the official enplanements forecast made by FAA (Federal Aviation Administration), MWAA (Metropolitan Washington Airport Authority), and MAA

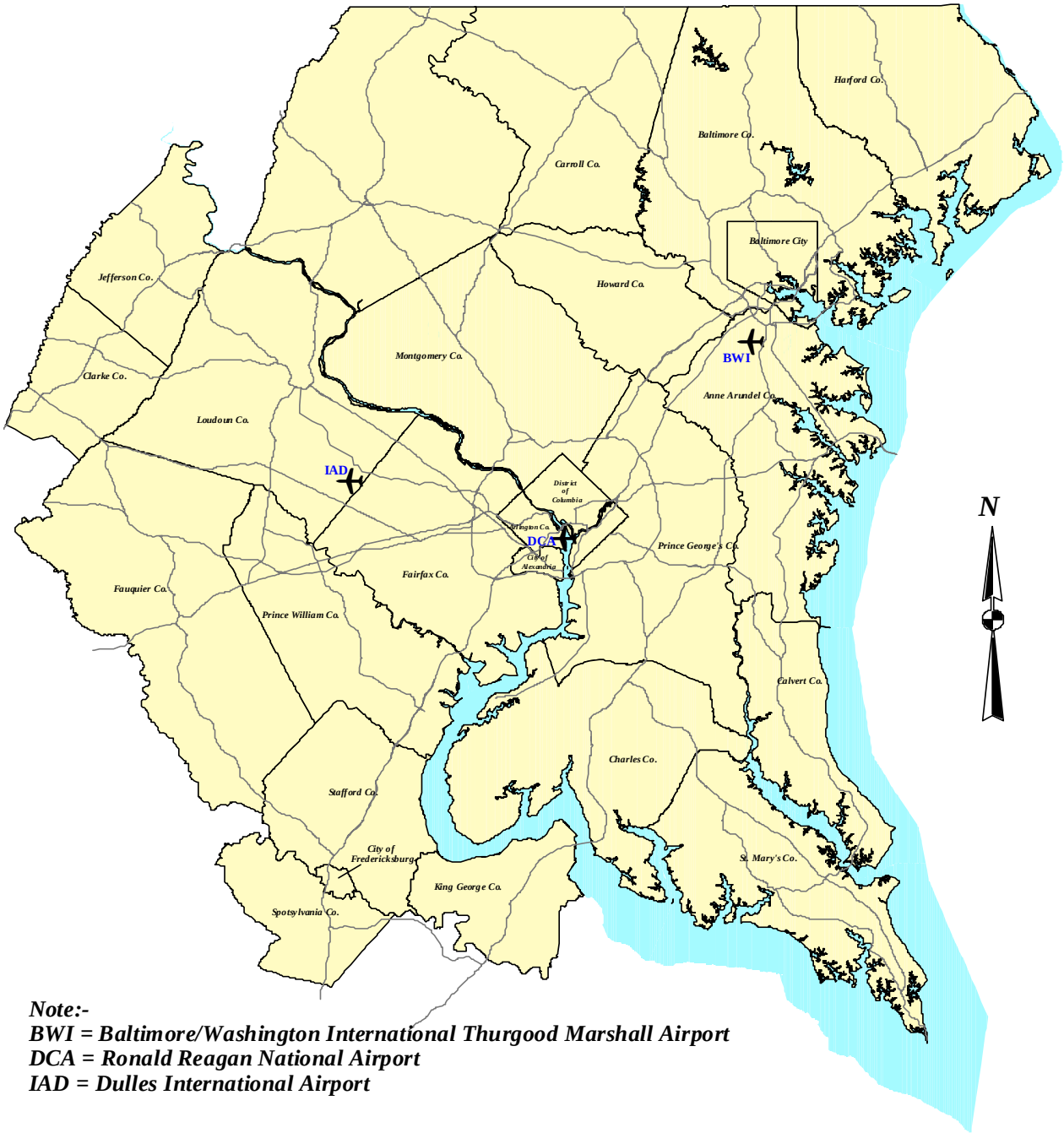
(Maryland Aviation Administration) as a base to distribute originating trips within the study area. The factors and rates developed in this report are based on the 2005 Washington/Baltimore Regional Air Passenger Survey data and land-use data, and are assumed to remain constant for the forecasted years. This model is not an airport choice model and did not take into consideration variables such as travel time to the airports, ticket price, travel mode to the airports, flight frequency, and others. The output of the regional air passenger origin/destination model report presents a set of forecasted air passenger originating trips from aviation analysis zones to each of the three major airports in the Washington-Baltimore region.

2. The Study Area

The Washington/Baltimore air service area market is larger than the combined areas that are normally within the Metropolitan Washington Council of Governments and Baltimore Metropolitan Council's purview. This combined area stretches from Harford County, Maryland, on the Susquehanna River to the north to Spotsylvania County, Virginia, in the south, and from the Chesapeake Bay in the east to the foothills of the Appalachian Mountains in the west. Figure 1 represents the jurisdictions that combine to make up this region, and locates the three airports. The region consists of 25 jurisdictions, 161 Aviation Analysis Zones (AAZ) and 2,671 Transportation Analysis Zones (TAZ). Despite the expanse of this area, in 2005 approximately 8 percent of the air travelers using the Washington/Baltimore region airports [Baltimore/Washington International Thurgood Marshall Airport (BWI), Ronald Reagan Washington National Airport (DCA), and Washington Dulles International Airport (IAD)] came from areas beyond these boundaries.

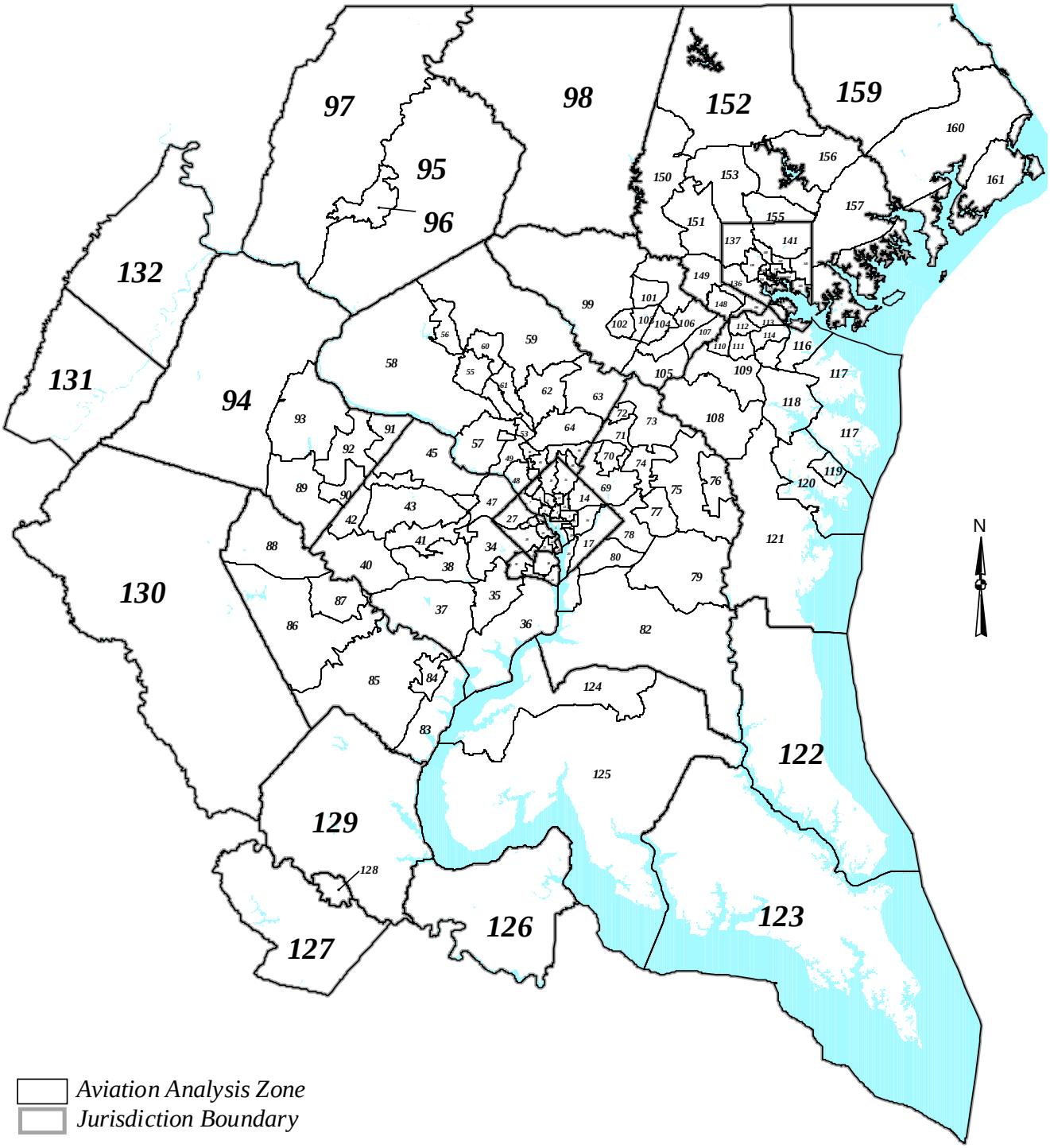
The Washington/Baltimore regional airports are not only an entry point for local originating passengers, but also a destination for the majority of their air passengers. Based on the 2005 Air Passenger survey data, almost 50 percent of the airports' passengers do not reside within the study area. This proportion is similar for all types of trips, such as business, personal, vacation, school, etc, indicating that these airports provide an important link to governments (local and federal), firms, and individuals for regions outside the Washington/Baltimore region.

Figure 1
Washington / Baltimore
Air System Planning Region



Note:-
BWI = Baltimore/Washington International Thurgood Marshall Airport
DCA = Ronald Reagan National Airport
IAD = Dulles International Airport

Figure 2
Washington/Baltimore Air System Planning Region
Aviation Analysis Zone System



Note:- See list of Aviation Analists Zones on Appendix A, Table A-9

3. Demographic Background

In 2005, the Washington/Baltimore region was home to approximately, 7.9 million people. Table 1 shows that 6.2 million people or about 79 percent of the regions population reside in the MWCOG planning area. Of the 25 jurisdictions which comprise the Washington/Baltimore Air System Planning region, Fairfax County was the most populous in 2005 with a million people, followed by Montgomery County, Prince George's, and Baltimore County respectively. By 2030, the region will have 10 million people residing, an increase of 27 percent over 2005.

The distribution of households also reflects the same pattern of population distribution. As shown in Table 2, there were over 3 million households in the Washington/Baltimore Air System Planning region in 2005. The table also shows that approximately 78 percent of the households reside in the MWCOG planning area. In terms of individual jurisdictions, Fairfax County ranked first with 390,000 households in 2005, followed by Montgomery County (345,800) and Baltimore County (319,100). Regional households are estimated to increase by almost 30 percent between 2005 and 2030.

Table 3 shows the employment distribution for the Washington/Baltimore region. In 2005, there were almost 4.8 million jobs in the region. Of the total employment, over 78 percent of them are located within the MWCOG planning area. The District of Columbia, Montgomery County and Fairfax county, combined accounted for over half of the total employment within the MWCOG region. Within the BMC planning area, the City of Baltimore and Baltimore County have almost an equal share of employment. The combined Washington/Baltimore Air System Planning regional employment is expected to increase by 33 percent between 20050 and 2030.

Table 1
Washington / Baltimore Air System Planning Region
Population by Jurisdiction

Jurisdiction	Population					
	2005	2010	2015	2020	2025	2030
District of Columbia	577,834	601,086	626,571	665,172	703,711	714,057
Montgomery County	930,953	982,586	1,027,666	1,067,749	1,104,766	1,137,590
Prince George's County	859,930	908,249	944,183	968,856	987,066	1,000,281
Arlington County	199,255	217,228	226,879	235,846	239,656	242,493
City of Alexandria	135,854	142,588	149,778	156,188	163,658	171,086
Fairfax County	1,076,408	1,171,296	1,253,285	1,319,111	1,347,216	1,375,912
Loudoun County	247,342	301,129	354,110	409,908	449,015	468,544
Prince William County	399,867	469,340	519,361	548,788	581,590	613,682
Frederick County	220,876	243,221	265,566	287,913	310,367	339,696
Howard County	271,986	288,734	304,379	316,638	321,474	324,992
Ann Arundel County	513,700	532,529	544,952	554,967	563,785	571,678
Charles County	138,002	147,400	162,294	177,181	193,101	204,202
Carroll County	169,231	183,537	194,988	206,055	216,561	226,738
Calvert County	82,791	91,000	93,508	96,000	98,291	101,394
St. Mary's County	93,505	100,800	107,800	114,800	121,200	127,601
King George County	20,637	23,536	25,802	28,068	29,175	32,763
City of Fredericksburg	20,732	22,148	23,496	24,844	25,500	26,000
Stafford County	117,784	135,307	155,132	174,956	193,600	210,850
Spotsylvania County	92,260	105,818	121,638	137,458	152,751	166,372
Fauquier County	64,713	74,463	85,775	98,821	113,865	131,211
Clarke County	14,056	15,421	16,174	16,913	17,868	18,804
Jefferson County	46,812	51,428	57,061	62,690	69,557	76,422
Baltimore City	648,707	659,228	669,405	675,840	681,921	685,882
Baltimore County	793,845	821,723	834,074	842,339	846,613	849,691
Harford County	237,166	256,996	274,264	276,977	279,038	282,057
Total	**7,974,246**	**8,546,791**	**9,038,141**	**9,464,078**	**9,811,345**	**10,099,998**

Source:- MWCOG Round 7.1 Cooperative Forecast and BMC 7 Landuse Data

Table 2
Washington / Baltimore Air System Planning Region
Household by Jurisdiction

Jurisdiction	Households					
	2005	2010	2015	2020	2025	2030
District of Columbia	253,615	265,791	283,117	301,984	319,664	325,748
Montgomery County	347,777	370,778	390,782	408,687	425,591	442,091
Prince George's County	306,540	327,861	345,199	358,589	369,068	377,023
Arlington County	92,226	103,038	108,822	114,261	116,090	117,807
City of Alexandria	66,337	70,319	74,471	78,306	82,854	86,950
Fairfax County	390,686	426,019	458,760	479,218	489,591	500,121
Loudoun County	87,479	106,301	125,913	146,031	159,121	165,872
Prince William County	138,978	159,345	177,521	188,641	200,669	212,864
Frederick County	79,493	87,708	95,923	104,139	112,481	123,125
Howard County	100,254	109,994	119,417	126,622	131,251	133,012
Ann Arundel County	192,450	202,359	210,516	217,530	223,679	229,054
Charles County	48,217	52,228	57,893	63,654	72,281	76,880
Carroll County	59,401	64,934	69,857	74,795	79,718	84,647
Calvert County	28,253	31,045	32,696	34,331	35,128	36,212
St. Mary's County	33,542	36,441	39,522	42,604	45,500	48,399
King George County	7,585	8,817	9,803	10,725	11,155	12,498
City of Fredericksburg	8,560	9,378	10,148	10,846	11,166	11,363
Stafford County	37,182	43,549	50,687	57,525	63,758	69,239
Spotsylvania County	31,523	36,786	42,864	48,679	54,119	58,726
Fauquier County	23,303	26,872	30,986	35,729	41,199	47,506
Clarke County	5,542	6,142	6,502	6,860	7,316	7,770
Jefferson County	18,295	20,427	23,192	25,957	29,518	33,075
Baltimore City	257,090	266,121	274,259	278,696	282,297	284,683
Baltimore County	319,145	330,833	336,112	339,612	341,596	343,073
Harford County	88,459	97,005	105,563	107,931	110,316	112,683
Total	**3,021,932**	**3,260,091**	**3,480,525**	**3,661,952**	**3,815,126**	**3,940,421**

Source:- MWCOG Round 7.1 Cooperative Forecast and BMC 7 Landuse Data

Table 3
Washington / Baltimore Air System Planning Region
Employment by Jurisdiction

Jurisdiction	Employment					
	2005	2010	2015	2020	2025	2030
District of Columbia	745,300	783,710	818,795	844,345	869,020	881,420
Montgomery County	497,621	542,602	578,333	613,253	643,162	668,059
Prince George's County	350,264	367,791	390,806	422,134	463,719	520,329
Arlington County	194,875	215,443	217,645	241,856	251,816	258,449
City of Alexandria	105,741	107,800	119,261	124,526	134,721	141,496
Fairfax County	642,706	726,660	789,946	835,258	876,540	907,211
Loudoun County	130,308	166,865	203,788	241,324	270,350	290,749
Prince William County	137,879	157,719	174,493	190,161	204,889	217,764
Frederick County	122,162	142,412	151,456	158,278	163,464	167,257
Howard County	176,800	196,382	214,854	231,167	247,358	260,244
Ann Arundel County	318,435	341,250	370,113	398,807	420,132	439,019
Charles County	56,451	62,888	64,767	66,797	67,947	69,100
Carroll County	76,308	84,255	86,767	88,267	89,280	90,301
Calvert County	29,397	32,897	33,698	34,498	35,053	35,599
St. Mary's County	55,753	61,906	63,505	65,096	66,153	67,199
King George County	12,300	13,040	14,200	15,370	16,530	17,690
City of Fredericksburg	25,300	28,090	31,070	34,040	37,000	39,940
Stafford County	38,300	44,110	52,410	57,120	62,260	67,920
Spotsylvania County	34,026	39,141	43,297	47,411	51,553	55,675
Fauquier County	19,722	22,314	24,908	29,203	32,158	35,413
Clarke County	4,722	5,055	5,386	5,718	6,032	6,364
Jefferson County	14,769	16,787	18,803	20,819	22,639	24,452
Baltimore City	441,079	451,390	461,919	471,211	479,888	481,596
Baltimore County	489,909	509,672	520,618	523,719	525,943	527,705
Harford County	112,400	129,702	142,049	147,301	159,497	163,501
Total	**4,832,527**	**5,249,881**	**5,592,887**	**5,907,679**	**6,197,104**	**6,434,452**

Source:- MWCOG Round 7.1 Cooperative Forecast and BMC 7 Landuse Data

4. Development of the Air Passenger Origin/ Destination Forecasts

The process of developing the air passenger origin/destination forecasts involved many steps. Generally these included, 1) obtaining MWAA and MAA enplanements statistics and forecasts for Washington Dulles International, Ronald Reagan National and Baltimore/Washington International Thurgood Marshall Airport through 2025 and 2030 respectively, 2) reviewing the 2005 Air Passenger Survey data files, 3) reviewing land-use data files, 4) development of Washington/Baltimore Air System Planning area AAZ (Aviation Analysis Zone) system, 5) developing trip rates, and 6) distributing the air passenger forecasts of local originating trips from each AAZ to each of the three commercial airports.

4.1 Air Passenger Enplanements Forecasts

The Federal Aviation Administration (FAA) Office of Aviation Policy and Plans (APO), produces the Terminal Area Forecast (TAF). The TAF is the official forecast of aviation activity of FAA facilities. The TAF is produced each year for all airports in the National Plan of Integrated Airport Systems (NPIAS). The forecast is made at the individual airport level and assumes an unconstrained demand for aviation services. Data in the TAF are presented on a U.S. government fiscal year basis (October through September), and generally cover 10 years of history and 15 or more years of forecast. However, the TAF data does not include local origins of air passengers within the region. This Terminal Area Forecast contains historical and forecast data for enplanements, airport operations and instrument operations.

Tables 4, 5, 6, and Figure 3 present historical and forecasts of air passenger enplanements for the three airports in the Washington/Baltimore region. Observed air passenger enplanements between 2000 and 2006 were obtained from observed monthly statistical data from MWAA for Ronald Reagan Washington National and Dulles International Airports, and from MAA for Baltimore/Washington International Thurgood Marshall Airport.

Air passenger enplanements for the Baltimore/Washington International Thurgood Marshall airport, are presented in Table 4. Three scenarios were used for forecasting enplanements at BWI. Low growth rate assumes a declining share of BWI regional traffic, a high growth rate assumes that BWI will increase its existing share of regional demand as regional transportation access is improved, and a base case scenario. Using the base case scenarios, domestic originating enplanements at BWI are forecast to reach 14.6 million by 2030, an average annual increase of 2.4 percent. Domestic O&D passengers are 81 percent of the total passenger volume and are assumed to remain at a constant throughout the forecast period. However, international enplanements market share is expected to decline from 15.3 percent in 2005 to 14 percent by 2030. International enplanement at BWI, comprise just over three percent of the total and is forecasted to 4.4 percent by 2030. Connecting passengers are forecasted to almost double by 2030 from 1.6 million in 2005 to almost 3 million, an average annual growth rate of 2.6 percent. Total enplaned passengers at BWI are forecast to grow from 9.8 million in 2005 to over 18.3 million by 2030, an 86 percent increase or an average of 2.5 percent annual growth rate.

Enplanements at Dulles International Airport are projected to reach more than 26 million by 2025, over 90% increase when compared with 2005 volume. Table 5 shows observed, and MWAA (Metropolitan Washington Airport Authority) enplanements forecast for Dulles International Airport. Two scenarios were considered to address the range of possible airline services outcomes for the airport. The Base Case scenario which assumed that both United Airlines and Independent Airlines continue to operate at IAD, with Independent Air's high frequency and low fare business plan. The second scenario known as Big United assumes Independent Air is not in service after 2005 and United Airline grows aggressively. Since Independent Air is no longer in business and United Airlines is taking over most if not all slots left by Independent Air, forecasts made using the Base Case scenario was considered in this study.

Domestic outbound enplanements at IAD are projected to reach 20 million by 2025, a 125% increase when compared with 2005. Connecting passengers at IAD are projected

to grow more rapidly than originations, by 2025 connecting passengers will account for almost half of total domestic enplanements at IAD. Forecast of enplanements for international destinations were made using a top-down approach. Existing and new non-stop or direct service markets were assumed to increase at rates calculated for each region. Hence China is expected to grow most rapidly, followed by Africa and South America. More mature markets, such as Europe and Mexico, are expected to grow slowly. Therefore, international enplanements at IAD are projected to increase from 2.4 million in 2005 to 6.5 million in 2025. Total forecasts for the period 2026 through 2030 at IAD were estimated using regression analysis method based on 2020-2025 forecast, with an estimated average annual growth rate of 2.4 percent, (see Table 5). Enplanements at Dulles International will reach over 30 million by 2030.

At Ronald Reagan Washington National airport, enplanements are projected to reach 10.7 million by 2025, an increase of 30 percent over 2005. The forecasting methodology for DCA is supply-driven rather than demand-driven, because passenger activity is determined more by airline service strategies within the context of the slot system, than by overall regional demand. Therefore no increase in gate size, runway length or aircraft capacity, no relaxation of the slot allocation, and airlines will serve markets within the 1,250-mile perimeter rule.

Domestic enplanements at DCA are forecast to reach 10.3 million by 2025, from 8.1 million in 2005, an increase of 48 percent. International service at DCA, unless the perimeter rule changes, is limited to Eastern Canada, Bermuda, the Bahamas, and part of the Turks and Caicos Island. Hence there is little or no opportunity to increase international air passenger traffic. Total international enplanements at DCA are forecasted to increase from 162,000 in 2005 to 350,000 in 2025. Forecasts for the period 2026 through 2030 were estimated using regression analysis method, with an estimated average annual growth rate of 1.2 percent, (see Table 6). By 2030, enplanements at Ronald Reagan National, are forecasted to reach more than 11.2 million

.

Table 4
Annual Air Passenger Enplanement Forecasts
Baltimore/Washington International Thurgood Marshall Airport

Year	Enplanements	Change	Average Annual Compound Growth	
2000	9,784,850 [1]	-		-
2005	9,865,928 [1]	81,078	2000 - 2005	3.2%
2010	12,350,100 [1]	2,484,172	2005 - 2010	4.6%
2015	13,772,200 [1]	1,422,100	2010 - 2015	2.2%
2020	15,255,400 [1]	1,483,200	2015 - 2020	2.1%
2025	16,752,400 [1]	1,497,000	2020 - 2025	1.9%
2030	18,304,500 [1]	1,552,100	2025 - 2030	1.8%

[1] Baltimore/Washington International Airport Aviation Activity Forecasts, February 2004, P. A

Table 5
Annual Air Passenger Enplanement Forecasts
Washington Dulles International Airport

Year	Enplanements	Change	Average Annual Growth	
2000	9,971,832 [1]	-		-
2005	13,795,311 [1]	3,823,479	2000 - 2005	8.1%
2010	14,884,017 [2]	1,088,706	2005 - 2010	1.5%
2015	18,659,504 [1]	3,775,487	2010 - 2015	4.6%
2020	22,627,000 [1]	3,967,496	2015 - 2020	3.9%
2025	26,515,000 [1]	3,888,000	2020 - 2025	3.2%
2030	30,386,492 [3]	3,871,492	2025 - 2030	2.8%

[1] Washington Dulles International Airport, Strategic Plan: Forecast Trechnical Report, MWAA, DRAFT February 2008, Page 22

[2] Washington Dulles International Airport, Strategic Plan: Forecast Trechnical Report, MWAA, DRAFT February 2008, Page 22, average growth rate 2008-2011

[3] Growth based on regression analysis 2010-2025 forecast

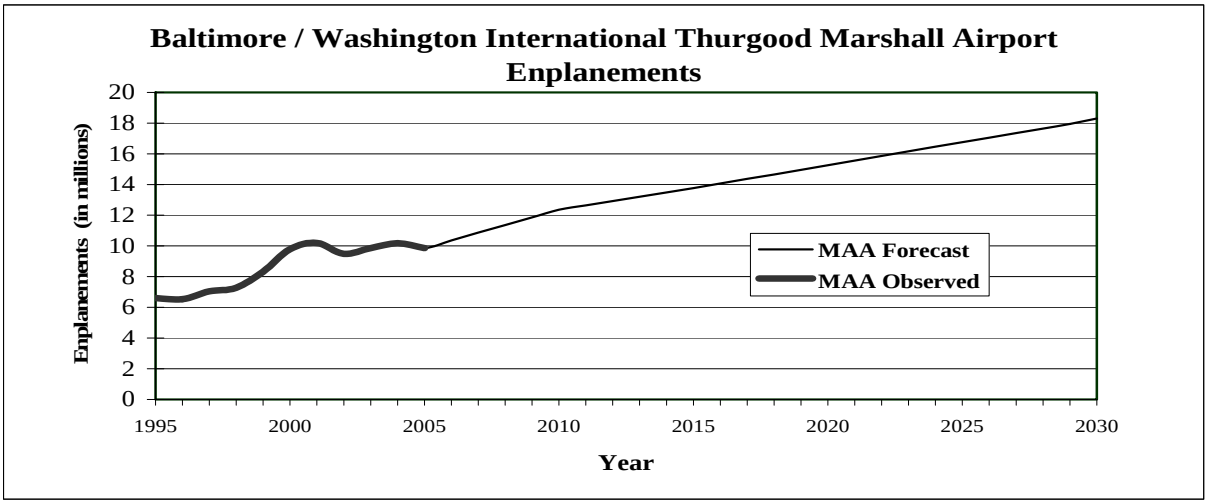
Table 6
Annual Air Passenger Enplanement Forecasts
Ronald Reagan Washington National Airport

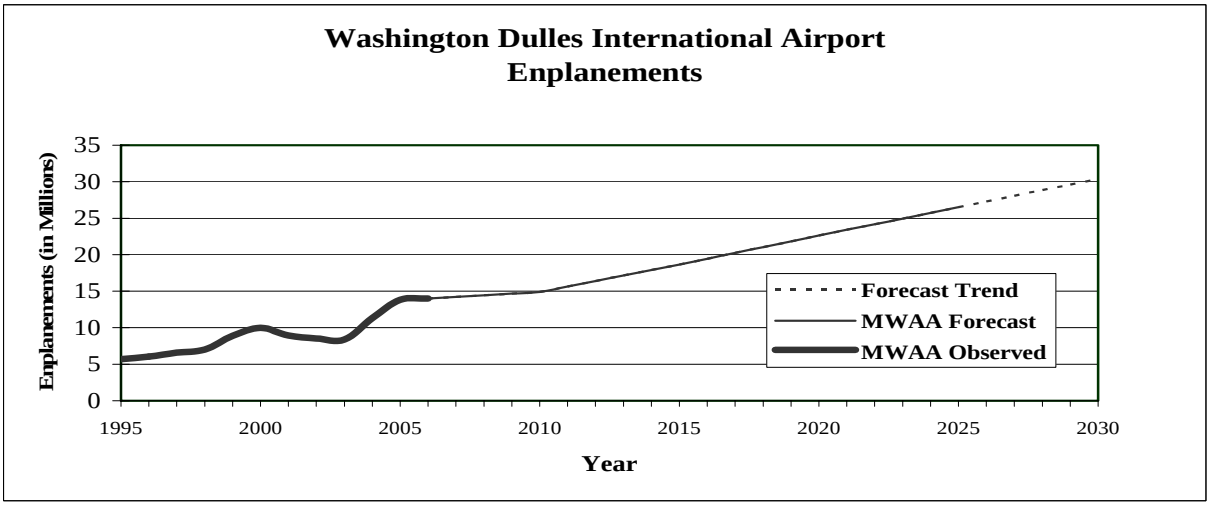
Year	Enplanements	Change	Average Annual Growth	
2000	7,855,323 [1]	-		-
2005	8,227,000 [1]	371,677	2000 - 2005	1.5%
2010	8,854,300 [1]	627,300	2005 - 2010	1.5%
2015	9,485,300 [1]	631,000	2010 - 2015	1.4%
2020	10,123,800 [1]	638,500	2015 - 2020	1.3%
2025	10,695,800 [1]	572,000	2020 - 2025	1.1%
2030	11,201,300 [2]	505,500	2025 - 2030	0.9%

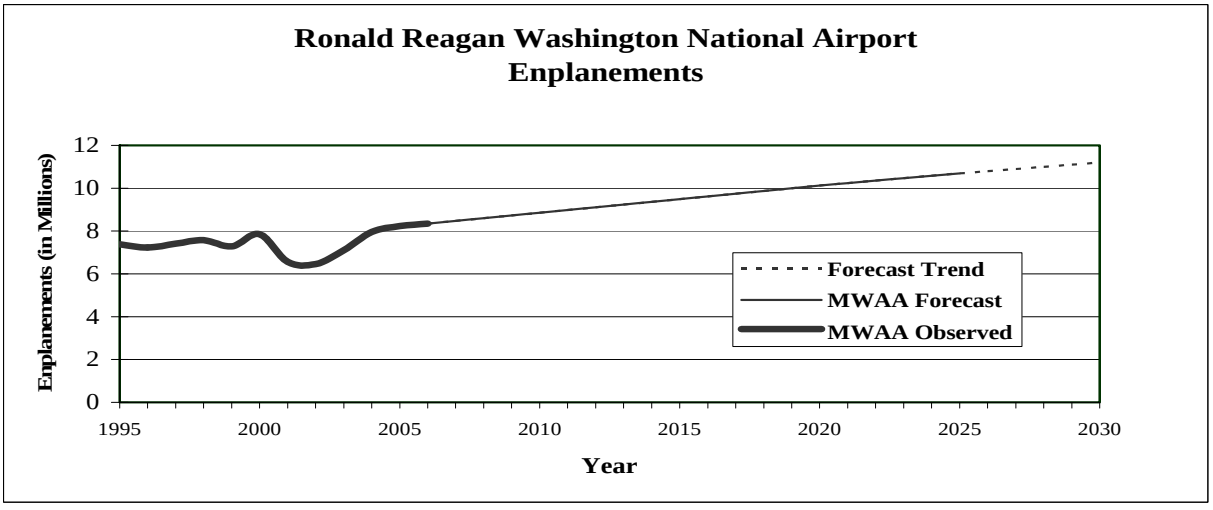
[1] Ronald Reagan Washington National Airport, Strategic Plan:Forecast Trechnical Report MWAA, July 2005, Page 9-2

[2] Growth based on regression analysis 2015-2025 growth

Figure 3


Baltimore / Washington International Thurgood Marshall Airport
Enplanements
Enplanements (in millions)
20
18
16
14
12
10
8
6
4
2
0
1995
2000
2005
2010
2015
2020
2025
2030
Year
MAA Forecast
MAA Observed


Washington Dulles International Airport
Enplanements
Enplanements (in Millions)
35
30
25
20
15
10
5
0
1995
2000
2005
2010
2015
2020
2025
2030
Year
Forecast Trend
MWAA Forecast
MWAA Observed


Ronald Reagan Washington National Airport
Enplanements
Enplanements (in Millions)
12
10
8
6
4
2
0
1995
2000
2005
2010
2015
2020
2025
2030
Year
Forecast Trend
MWAA Forecast
MWAA Observed

5. Review of 2005 Air Passenger Survey Data

The 2005 Air Passenger Survey data file was reviewed, to produce AAZ (Aviation Analysis Zone) output calibration data files. The development of the calibration file was based on those trips that were made to the three airports by ground transportation, and therefore, the analysis does not include passengers who made connecting trips. The 2005 survey data file initially had 16,258 records, and with the exclusion of the connecting passengers the number of records used for the calibration process was 12,188 records.

The Washington/Baltimore region is divided into 167 Aviation Analysis Zones, including the outlying areas of Delaware, Maryland, New Jersey, Pennsylvania, Virginia, West Virginia, and the rest of the United States. The zone number system is listed on Table 7 and are shown on Figure 2. The 2005 air passenger survey data file is geo-coded to include the AAZ numbers.

The 2005 air passenger survey data file was geo-coded to include trip origin TAZs and AAZs. As a part of this study, the MWCOG and BMC TAZ zone systems were merged to create one combined Air System Planning region. Therefore, TAZ's in the BMC region of Baltimore City, Baltimore County and Harford County were added with the MWCOG's model TAZ system. The combined MWCOG and BMC regional TAZ system has 2,671 zones.

Table 7
Washington / Baltimore Air System Planning Region
Aviation Analysis Zone System

No.	Jurisdiction	No. of AAZ's	AAZ's Range	No. of TAZ's
1	District of Columbia	20	1 - 20	319
2	Arlington County	9	21 - 29	82
3	City of Alexandria	4	30 - 33	60
4	Fairfax County	14	34 - 47	356
5	Montgomery County	21	48 - 68	309
6	Prince George's County	14	69 - 82	380
7	Prince William County	6	83 - 88	142
8	Loudoun County	5	89 -94	126
9	Frederick County	3	95 - 97	24
10	Carroll County	1	98	14
11	Howard County	9	99 - 107	20
12	Anne Arundel County	14	108 - 121	33
13	Calvert County	1	122	14
14	St. Mary's County	1	123	21
15	Charles County	2	124 - 125	24
16	King George County	1	126	5
17	Spotsylvania County	1	127	6
18	City of Fredericksburg	1	128	2
19	Stafford County	1	129	14
20	Fauquier County	1	130	11
21	Clarke County	1	131	3
22	Jefferson County	1	132	7
23	Baltimore City	13	133 - 145	217
24	Baltimore County	13	146 - 158	342
25	Harford County	3	159 - 161	140
	Total Washington/Baltimore Air System Planning Area	**160**		**2,671**
26	External Maryland	1	162	NA
27	External Virginia	1	163	NA
28	External West Virginia	1	164	NA
29	Pennsylvania	1	165	NA
30	Delaware	1	166	NA
31	New Jersey	1	167	NA
32	Other	1	999	NA
	Total Externals	**7**		
	Grand Total	**167**		

5.1 Market Segmentation

The first step in the update of airport origin/destination trips was calculating local originating trips from the 2005 Washington/Baltimore Regional Air Passenger Survey. This was accomplished by (1) slightly adjusting the annual passenger survey weights to exactly match the year 2005 observed enplanements at the three commercial airports, (2) selecting only the survey records for local originating air passengers, and (3) summarizing local originating trips to home and non-home based originations for area within the Washington/Baltimore air system planning region. Table 8, shows annual enplanements type and Table 9 shows home and non-home trip originations to the three commercial airports respectively.

Table 8
2005 Washington / Baltimore Regional Air Passenger Survey
Trip Originations by Airport

Enplanement Type		BWI	Dulles	National	Total
Local origination	*Number*	8,561,530	7,644,048	7,412,114	**23,617,692**
- *(Came by ground transportation)*	*Percent*	87%	55%	90%	**74%**
Connected from another Flight	*Number*	1,304,398	6,151,263	814,886	**8,270,547**
- *(Local and/or International)*	*Percent*	13%	45%	10%	**26%**
Total Enplanements	*Number*	**9,865,928**	**13,795,311**	**8,227,000**	**31,888,239**
	Percent	**100%**	**100%**	**100%**	**100%**

Source:- 2005 Washington-Baltimore Regional Air Passenger Survey

Table 9
2005 Washington / Baltimore Regional Air Passenger Survey
Trip Originations by Airport
For Washington/Baltimore Air System Planning Region

Enplanement Type		BWI	Dulles	National	Total
Within Air System Planning Region - *(Internals)*	*Number*	7,350,101	7,047,500	7,262,445	**21,660,046**
	Percent	86%	92%	98%	**92%**
Outside Air System Planning Region - *(Externals)*	*Number*	1,211,429	596,548	149,669	**1,957,646**
	Percent	14%	8%	2%	**8%**
Total Enplanements	*Number*	**8,561,530**	**7,644,048**	**7,412,114**	**23,617,692**
	Percent	**100%**	**100%**	**100%**	**100%**

Source:- 2005 Washington-Baltimore Regional Air Passenger Survey

Table 10
2005 Washington / Baltimore Regional Air Passenger Survey
Local Originating Trips by Trip Origins by Airport
For Washington/Baltimore Air System Planning Region

Trip Origin		BWI	Dulles	National	Total
Home	*Number*	4,677,051	4,756,831	3,335,759	12,769,641
	Percent	64%	67%	46%	59%
Non-Home	*Number*	2,673,049	2,290,669	3,926,685	8,890,403
	Percent	36%	33%	54%	41%
Total Enplanements	***Number***	**7,350,100**	**7,047,500**	**7,262,444**	**21,660,044**
	Percent	**100%**	**100%**	**100%**	**100%**

Source:- 2005 Washington-Baltimore Regional Air Passenger Survey

Table 11
Washington / Baltimore Regional Airports
Annual Local and Internal AAZ Originating Trips

	Local Originating Trips				Internal AAZ Originating Trips			
Year	**BWI**	**DCA**	**IAD**	**Total**	**BWI**	**DCA**	**IAD**	**Total**
2005	8,561,530	7,412,114	7,644,048	**23,617,692**	7,350,101	7,262,445	7,047,500	**21,660,045**
2010	10,717,264	7,977,280	8,247,305	**26,941,849**	9,200,805	7,816,199	7,603,678	**24,620,682**
2015	11,951,344	8,545,779	10,339,321	**30,836,444**	10,260,267	8,373,219	9,532,431	**28,165,916**
2020	13,238,447	9,121,036	12,537,729	**34,897,212**	11,365,249	8,936,859	11,559,274	**31,861,381**
2025	14,537,525	9,636,379	14,692,089	**38,865,993**	12,480,511	9,441,796	13,545,505	**35,467,813**
2030	15,884,418	10,091,809	16,837,301	**42,813,528**	13,636,823	9,888,030	15,523,303	**39,048,156**

Note:-
- Local originating trips are departing passengers who's trip starts from one of the region's three airports.
- Internal AAZ originating trips are local originating trips within the Washington/Baltimore Air System Planning Area.
- Local originating trips are calculated based on the 2005 Air Passenger Survey data to be 86% for BWI, 90% for DCA and 55% for IAD, of the total enplanements, shown on Tables 3, 4 and 5, respectively.
- Internal originating trips are calculated based on the 2005 Air Passenger Survey data to be 86% for BWI, 98% for DCA, and 92% for IAD, of the total local originating trips, that are within the 161 internal AAZ's.
- These data does not inlude external zones for PA, DE, WV, NJ or external VA and MD

The next step in the process was to (1) calculate trips originating at each of the three airports out of the total enplanements, and (2) calculate trips originating within the Washington/Baltimore air system planning region. This was obtained using percent local originations (shown on Table 8) from total enplanements by airport (shown on Table 4, 5, and 6). Air passenger enplanements type within the Washington-Baltimore Air System Planning region are shown on Table 9 and Table 10 illustrates local originating air passenger trips. Total enplanements for local originating trips and enplanements within the Washington/Baltimore air system planning region for base and forecast years are shown on Table 11.

5.2 Estimation of Rates

Base year household and employment land activity data for 2005 and household and employment forecasts for 2010, 2015, 2020, 2025, and 2030 by small area TAZ's (Transportation Analysis Zone) were obtained from MWCOG and BMC. The MWCOG data were the Round 7.1 Cooperative Forecast and BMC data were Round 7 land activity forecast. These TAZ-level data were aggregated to internal AAZs shown in Figure 2.

Home and non-home local originating trips were also aggregated to internal AAZs within the Washington/Baltimore air system planning region by airport.

Once originating trips and land activity data had been summarized, trip generation rates were calculated for each Airport/AAZ/trip origin using the following formulae:

A. Home Based Trip Origin Rate

$$\textbf{for Airport}_{(A)}\,\textbf{AAZ}_{(X)} = \frac{AAZ_X \text{ Origin Home Trips }_{(2005)}}{AAZ_X \text{ Number of Household }_{(2005)}}$$

B. Non-Home Based Trip Origin Rate

$$\textbf{for Airport}_{(A)}\,\textbf{AAZ}_{(X)} = \frac{AAZ_X \text{ Origin Non-Home Trips }_{(2005)}}{AAZ_X \text{ Number of Employments }_{(2005)}}$$

The average trip rate for household and employment for each of the airports is as follows:-

Airport	Average Annualized Trip Rate	
	Household	Employment
BWI	1.55	0.55
DCA	1.10	0.81
IAD	1.57	0.47

6. Calculate Enplanements for 2005 Base Year and Forecast Years

Once the trip rates were developed, the next step was to use these rates to distribute total forecasted enplanements by AAZ, for 2005 base year and forecast years 2010, 2015, 2020, 2025, and 2030. This was obtained by multiplying base year and forecast year household and employment data by the appropriate trip rate factors for each AAZ and adjusting the resultant product to be consistent with local air passenger originations estimated for each airport shown on Table 10. For each airport-AAZ combination (1) home based air passenger originating trips were calculated by multiplying AAZ

households by AAZ home-based trip rate for each airport , and (2) non-home based air passenger originating trips were calculated by multiplying AAZ employment by AAZ non-home based trip rate for each airport.

Home and non-home originating trips were calculated for each Airport/AAZ/trip origin using the following formulae:

A. Home Based Trips for Airport$_{(A)}$ AAZ$_{(X)}$ =
Home Based Trip Origin Rate for Airport$_{(A)}$ AAZ$_{(X)}$ *Household AAZ$_{(X)}$ Year$_{(Y)}$

B. Non-Home Based Trips for Airport$_{(A)}$ AAZ$_{(X)}$ =
Non-Home Based Trip Origin Rate for Airport$_{(A)}$ AAZ$_{(X)}$ *Employment AAZ$_{(X)}$ Year$_{(Y)}$

Table 12, shows total originating air passenger trips by AAZ for the base year 2005, and for forecast years of 2010, 2015, 2020, 2025, and 2030, originating air passenger trips are presented in Appendix A.

Table 12
Annual Air Passenger Originating Trips to Airports by AAZ
2005

AAZ	BWI	DCA	IAD	Total
1	1,805	3,762	1,791	7,358
2	25,193	133,307	60,699	219,199
3	129,126	734,180	209,765	1,073,071
4	165,513	691,741	382,861	1,240,114
5	18,842	112,750	76,617	208,208
6	53,823	389,151	65,252	508,227
7	12,121	20,060	11,392	43,573
8	28,498	41,347	27,101	96,945
9	11,788	76,594	60,952	149,333
10	21,703	82,912	27,981	132,596
11	17,186	49,629	23,188	90,002
12	20,857	53,280	6,613	80,750
13	13,954	30,566	18,520	63,040
14	26,621	80,376	10,206	117,203
15	10,844	55,766	9,679	76,289
16	22,666	124,268	54,033	200,967
17	29,464	17,677	90,901	138,042
18	25,062	173,518	33,111	231,691
19	10,752	51,120	827	62,699
20	19,520	6,529	2,946	28,995
21	1,070	7,147	3,247	11,464
22	21,029	432,722	60,140	513,891
23	15,835	75,119	35,825	126,779
24	301	52,345	10,265	62,911
25	8,124	208,684	44,468	261,276
26	20,789	172,289	29,589	222,667
27	4,292	85,121	115,751	205,165
28	14,329	99,639	141,929	255,897
29	8,478	19,792	6,032	34,302
30	6,061	100,857	28,961	135,878
31	37,925	235,109	59,853	332,887
32	1,805	41,385	5,826	49,015
33	13,539	139,022	42,547	195,108
34	22,051	95,802	146,876	264,729
35	32,463	159,551	78,239	270,252
36	20,008	174,747	118,888	313,644
37	17,527	67,571	124,600	209,698
38	28,182	81,209	176,993	286,385
39	3,102	28,692	53,605	85,399
40	11,230	36,977	187,785	235,991
41	31,311	72,632	163,872	267,814
42	2,112	18,017	221,506	241,635
43	26,898	64,806	404,046	495,750
44	7,676	13,746	312,553	333,976
45	2,180	51,491	298,557	352,227
46	12,322	93,781	240,733	346,835
47	10,546	65,092	139,877	215,515
48	25,148	57,582	33,958	116,688
49	19,533	17,708	29,610	66,851
50	38,368	28,745	17,584	84,698
51	14,828	60,656	8,755	84,240
52	16,168	39,813	59,340	115,321
53	39,960	57,171	38,802	135,933
54	46,246	49,632	32,222	128,099
55	70,470	65,430	71,001	206,901
56	23,202	13,892	7,195	44,290
57	26,207	65,647	63,843	155,697
58	38,013	37,472	57,580	133,065
59	86,178	48,043	30,296	164,517
60	31,453	20,505	30,703	82,661
61	11,687	18,441	8,359	38,487
62	30,676	22,175	28,842	81,692
63	83,808	32,577	28,199	144,584
64	92,803	64,141	92,462	249,406
65	15,211	58,218	27,737	101,165
66	17,049	13,625	12,759	43,434
67	22,841	33,184	21,092	77,117
68	18,266	24,826	13,518	56,609
69	58,981	11,552	22,385	92,918
70	73,357	15,099	21,309	109,764
71	49,006	11,408	6,505	66,918
72	856	0	0	856
73	70,732	43,430	361	114,524
74	70,585	11,818	21,000	103,402
75	51,227	8,911	5,781	65,920
76	48,896	19,238	361	68,496
77	36,678	8,096	5,640	50,413
78	6,540	28,849	10,832	46,221
79	30,643	19,565	6,056	56,263
80	22,338	15,800	10,286	48,423
81	15,299	5,548	19,727	40,574
82	53,818	58,624	12,419	124,862

Table 12
Annual Air Passenger Originating Trips to Airports by AAZ
2005

Cont.

AAZ	BWI	DCA	IAD	Total
83	15,231	39,962	33,137	88,330
84	11,146	33,336	59,568	104,050
85	20,236	47,944	99,763	167,943
86	3,638	16,203	63,888	83,729
87	4,360	18,438	112,770	135,568
88	3,638	0	22,164	25,801
89	0	5,405	52,252	57,656
90	0	2,732	12,677	15,410
91	976	916	119,490	121,382
92	6,059	7,385	229,773	243,216
93	20,020	27,217	265,689	312,927
94	3,665	7,488	137,899	149,052
95	73,991	2,289	36,615	112,896
96	69,050	8,995	45,642	123,687
97	54,061	11,850	31,872	97,783
98	200,321	0	10,228	210,549
99	57,101	1,300	0	58,401
100	79,450	0	2,947	82,397
101	30,896	0	1,740	32,636
102	40,183	2,960	13,409	56,552
103	54,748	11,665	3,962	70,375
104	83,273	1,794	4,755	89,822
105	133,294	13,047	0	146,341
106	71,729	0	1,110	72,839
107	37,350	0	0	37,350
108	134,793	5,126	1,896	141,815
109	89,353	0	0	89,353
110	47,820	1,052	4,499	53,371
111	30,933	3,352	0	34,285
112	321,004	5,940	6,789	333,734
113	35,297	9,106	2,150	46,553
114	22,681	0	0	22,681
115	23,686	0	0	23,686
116	12,744	0	0	12,744
117	88,518	2,641	3,084	94,243
118	105,440	1,269	2,636	109,345
119	200,227	8,713	2,589	211,528
120	126,978	6,838	7,518	141,333
121	44,010	1,702	0	45,711
122	115,169	26,805	13,398	155,371
123	46,789	35,159	33,086	115,034
124	44,520	43,894	5,593	94,008
125	15,847	19,543	9,130	44,520
126	20,969	2,846	3,687	27,501
127	7,280	32,804	11,621	51,705
128	1,297	5,188	19,750	26,235
129	9,107	40,622	48,642	98,371
130	8,104	5,786	48,255	62,146
131	540	0	28,104	28,644
132	21,791	4,584	37,117	63,492
133	354,767	2,795	13,411	370,972
134	18,361	0	0	18,361
135	11,227	0	0	11,227
136	13,258	0	999	14,258
137	60,403	711	14,985	76,100
138	13,915	0	0	13,915
139	58,600	0	3,074	61,674
140	115,868	0	1,977	117,844
141	240,860	2,569	9,747	253,176
142	12,196	0	4,565	16,760
143	22,958	3,785	0	26,743
144	114,551	0	3,754	118,306
145	13,160	0	2,800	15,960
146	1,779	0	0	1,779
147	7,033	0	0	7,033
148	41,143	0	878	42,021
149	77,153	6,476	4,479	88,109
150	76,617	1,578	3,312	81,507
151	158,473	6,307	17,537	182,317
152	101,976	0	793	102,769
153	65,957	681	13,364	80,003
154	107,337	0	2,101	109,439
155	155,869	1,892	396	158,157
156	12,123	0	0	12,123
157	128,203	0	0	128,203
158	78,934	0	0	78,934
159	74,377	1,557	4,195	80,129
160	95,660	907	8,841	105,408
161	64,431	0	1,883	66,314
Total	**7,350,101**	**7,262,445**	**7,047,500**	**21,660,045**

7. Conclusion

This report documents the procedures used for forecasting enplanements at the three major airport in the Washington/Baltimore air system planning region. The purpose of the enplanements forecast are to provide control totals to be used as a base for distributing air passengers origin/destinations for future years.

The air passenger origin/destination updates develops a technique to distribute air passenger characteristics based on trip origin. Characteristics such as arrival mode to the airports, travel time to the airports by trip origin, and airport choice and others were not analyzed. However, these characteristics in combination with resident status and trip purpose can also be tested.

The results documented in this report are based on the 2005 air passenger survey data, and the Round 7.1 Cooperative land-use data for the MWCOG region and BMC 7 land use data.

Air passenger originations within the study area increased from 21.6 million trips in 2005, doubling to 39 million in 2030. It should be noted that, trip rates for both households and employment were kept at a constant using the 2005 value. Total air passenger originating trips by AAZ for the forecast years 2010 through 2030 are documented in Appendix A, Tables A-1 to A-5.

Though the increase in household and employment between 2005 and 2030 is evident in all the jurisdictions, a significant increase is observed in the outer suburban counties, such as Loudoun, Prince William, Spotsylvania, King George, Stafford, Fauquier, Frederick and Jefferson counties. These increases in household and employment result in the more than doubling of originating air passenger trips. Table A-6, Appendix A, shows originating air passenger trips summary by jurisdiction to the three commercial airports.

The combined inner jurisdictions of the District of Columbia, Montgomery, Prince Georges, Fairfax, Arlington counties and the City of Alexandria accounted almost 67% of the total originating trips in 2005, and almost 34% of them come from the District of Columbia. Though the outer suburban counties show a higher increase in originating air passenger trips between

2005 and 2030, the inner jurisdictions will continue to represent the majority of the region's air passenger trips, 60% by 2030.

Analysis by trip origin, (home or non-home), of air passengers indicates that almost 60% of the total resident air passenger trips originate from home based originations and 62% of these are from the inner jurisdictions. A similar pattern is also true for non-home air passenger originations, in 2005. By 2030 home base originations from the inner jurisdictions will only account a little over half of total, while non-home based originations will remain the same.

This report outlined the techniques used to forecast and distribute air passenger originating trips using the 2005 Washington/Baltimore Regional Air Passenger survey data and land-use forecast. Household and employment trip rates were made to remain constant at the 2005 level for this study. However, changing the trip rates for both household and employment for each forecast year may result a much similar pattern.

Appendix A

Table A-1
Annual Air Passenger Originating Trips to Airports by AAZ
2010

AAZ	BWI	DCA	IAD	Total
1	2,105	3,753	1,740	7,598
2	29,382	132,984	58,960	221,326
3	171,162	826,947	230,689	1,228,798
4	196,734	703,583	382,697	1,283,014
5	22,859	117,374	77,259	217,493
6	62,776	388,224	63,388	514,389
7	14,141	20,017	11,068	45,226
8	34,059	42,399	27,101	103,559
9	13,808	76,651	59,453	149,912
10	25,316	82,727	27,184	135,227
11	20,165	49,831	22,648	92,644
12	25,898	57,496	6,898	90,292
13	16,936	31,706	18,896	67,538
14	31,554	81,542	10,100	123,197
15	13,456	60,097	10,363	83,916
16	29,112	136,793	58,122	224,027
17	35,987	18,475	93,973	148,436
18	30,998	179,936	33,960	244,895
19	13,707	54,387	797	68,891
20	22,766	6,513	2,862	32,140
21	1,247	7,130	3,154	11,532
22	30,383	509,566	72,018	611,966
23	18,568	75,619	35,029	129,216
24	352	52,347	9,971	62,669
25	10,458	230,226	47,795	288,479
26	28,535	201,709	33,839	264,083
27	5,092	86,336	114,344	205,772
28	18,054	108,322	149,720	276,096
29	11,255	21,922	6,471	39,648
30	7,357	103,557	29,238	140,152
31	48,044	248,249	63,395	359,688
32	2,267	48,634	6,094	56,996
33	16,270	142,200	42,464	200,934
34	26,772	98,798	147,717	273,287
35	41,020	170,384	82,392	293,796
36	26,185	195,684	130,112	351,981
37	23,251	76,905	137,640	237,795
38	33,428	82,886	175,543	291,857
39	3,950	35,525	60,672	100,147
40	14,708	41,497	204,881	261,087
41	42,043	82,391	181,617	306,051

AAZ	BWI	DCA	IAD	Total
42	2,784	19,728	253,871	276,382
43	32,985	68,185	413,371	514,541
44	10,825	16,583	366,391	393,799
45	2,669	53,973	305,104	361,746
46	16,892	109,966	274,753	401,611
47	12,735	67,240	140,685	220,660
48	29,639	58,061	33,334	121,033
49	23,147	17,933	29,159	70,238
50	45,430	29,525	17,413	92,368
51	18,779	65,367	9,251	93,397
52	21,278	41,616	63,924	126,818
53	53,130	62,357	42,094	157,581
54	65,989	60,833	38,758	165,580
55	89,213	71,155	75,581	235,949
56	33,006	17,302	8,779	59,087
57	31,941	68,465	64,810	165,216
58	46,416	39,094	58,524	144,035
59	106,694	50,961	31,413	189,068
60	37,524	20,951	30,507	88,982
61	14,110	19,006	8,421	41,537
62	36,362	22,513	28,512	87,386
63	99,505	33,080	27,896	160,480
64	111,639	69,648	92,550	273,837
65	18,129	59,485	27,449	105,062
66	20,197	13,829	12,596	46,622
67	33,709	43,026	24,969	101,703
68	21,450	24,860	13,183	59,493
69	71,453	11,976	22,461	105,890
70	109,212	19,829	27,236	156,277
71	58,556	11,591	6,498	76,645
72	1,143	0	0	1,143
73	85,174	44,443	364	129,981
74	84,063	11,996	20,885	116,943
75	66,174	9,874	6,087	82,135
76	58,715	19,478	356	78,549
77	46,593	8,726	6,040	61,358
78	8,042	29,909	11,093	49,044
79	40,010	22,398	6,750	69,158
80	26,845	16,237	10,301	53,383
81	21,901	9,219	23,636	54,756
82	66,944	62,298	12,805	142,047

Table A-1
Annual Air Passenger Originating Trips to Airports by AAZ
2010

Cont.

AAZ	BWI	DCA	IAD	Total
83	20,920	45,203	37,906	104,029
84	15,201	38,970	67,697	121,868
85	25,480	51,483	104,286	181,249
86	5,725	21,810	82,994	110,528
87	5,509	19,990	119,969	145,469
88	5,161	0	27,674	32,835
89	0	9,284	88,281	97,565
90	0	2,991	13,512	16,503
91	1,161	932	120,354	122,447
92	8,755	9,085	278,278	296,119
93	28,212	33,583	315,786	377,581
94	5,680	9,146	165,002	179,828
95	96,179	2,545	39,898	138,622
96	90,544	9,985	49,396	149,924
97	68,798	12,906	33,682	115,386
98	255,845	0	10,860	266,706
99	79,215	1,542	0	80,758
100	104,226	0	2,959	107,185
101	37,142	0	1,743	38,885
102	47,972	3,035	13,385	64,392
103	66,309	12,117	3,994	82,420
104	97,451	1,801	4,649	103,901
105	181,207	14,702	0	195,910
106	91,215	0	1,187	92,403
107	54,344	0	0	54,344
108	173,759	5,647	2,033	181,439
109	115,713	0	0	115,713
110	57,804	1,049	4,557	63,410
111	42,142	4,030	0	46,172
112	385,708	6,106	6,796	398,610
113	42,702	9,209	2,117	54,028
114	27,070	0	0	27,070
115	28,276	0	0	28,276
116	16,446	0	0	16,446
117	105,598	2,691	3,060	111,348
118	126,220	1,298	2,627	130,145
119	242,555	9,021	2,614	254,191
120	155,456	7,140	7,625	170,221
121	52,290	1,729	0	54,019
122	148,510	29,407	14,339	192,255
123	59,762	38,383	34,955	133,099
124	56,156	47,299	5,882	109,337
125	20,123	21,666	9,655	51,444
126	28,427	3,236	4,163	35,826
127	9,852	38,136	13,173	61,160
128	1,658	5,670	21,153	28,481
129	12,347	47,391	55,070	114,808
130	10,769	6,656	53,908	71,334
131	698	0	30,254	30,952
132	28,645	5,106	40,447	74,198
133	497,364	2,858	24,179	524,401
134	22,237	0	0	22,237
135	13,417	0	0	13,417
136	15,759	0	991	16,750
137	71,884	726	14,897	87,506
138	16,311	0	0	16,311
139	72,231	0	3,385	75,616
140	136,175	0	1,945	138,120
141	284,200	2,595	9,588	296,383
142	13,215	0	4,120	17,335
143	28,008	3,901	0	31,909
144	145,200	0	3,959	149,159
145	15,931	0	2,928	18,859
146	2,245	0	0	2,245
147	8,205	0	0	8,205
148	48,364	0	862	49,225
149	91,207	6,542	4,400	102,150
150	94,230	1,694	3,384	99,307
151	193,598	6,560	17,895	218,053
152	123,674	0	797	124,472
153	83,072	693	14,019	97,783
154	125,929	0	2,050	127,979
155	186,388	1,939	395	188,722
156	14,624	0	0	14,624
157	160,475	0	0	160,475
158	95,139	0	0	95,139
159	93,779	1,666	4,371	99,816
160	124,975	1,008	9,567	135,549
161	78,872	0	1,958	80,830
Total	**9,200,805**	**7,816,199**	**7,603,678**	**24,620,682**

Table A-2
Annual Air Passenger Originating Trips to Airports by AAZ
2015

AAZ	BWI	DCA	IAD	Total
1	2,220	3,815	1,994	8,030
2	30,990	135,181	67,595	233,766
3	200,165	925,856	292,108	1,418,129
4	209,037	720,614	443,554	1,373,206
5	24,514	121,631	89,905	236,050
6	66,264	394,868	72,766	533,898
7	15,055	20,540	12,844	48,440
8	37,543	45,858	33,351	116,752
9	14,563	77,918	68,161	160,642
10	26,876	84,337	31,409	142,623
11	21,206	49,548	26,566	97,320
12	28,295	61,778	8,284	98,357
13	19,812	35,699	24,366	79,876
14	37,010	91,363	12,437	140,811
15	15,112	65,017	12,637	92,766
16	35,252	159,339	76,094	270,685
17	39,267	19,441	114,418	173,127
18	34,448	194,633	41,110	270,192
19	16,989	64,499	1,042	82,529
20	24,011	6,620	3,281	33,913
21	1,316	7,248	3,616	12,180
22	32,386	502,017	83,109	617,511
23	19,592	76,891	40,174	136,657
24	345	49,975	10,628	60,948
25	11,298	240,617	56,398	308,312
26	31,381	213,403	40,463	285,246
27	5,376	87,897	131,254	224,528
28	20,290	118,168	183,685	322,143
29	12,034	22,693	7,562	42,289
30	8,221	110,288	35,464	153,973
31	54,423	266,901	78,233	399,558
32	2,869	56,672	8,384	67,925
33	17,887	155,505	51,682	225,074
34	29,979	106,461	179,584	316,024
35	48,226	188,450	105,422	342,097
36	30,027	216,119	160,934	407,080
37	25,080	79,848	161,398	266,327
38	36,370	87,235	208,115	331,720
39	4,430	40,313	75,892	120,636
40	16,451	44,916	249,182	310,549
41	48,381	90,664	225,886	364,930

AAZ	BWI	DCA	IAD	Total
42	3,916	28,339	355,046	387,301
43	35,760	71,282	487,268	594,309
44	13,518	19,993	483,828	517,339
45	3,011	58,601	372,902	434,513
46	19,784	123,701	377,001	520,486
47	14,375	72,537	171,820	258,732
48	31,261	58,236	38,216	127,712
49	24,714	18,433	33,752	76,898
50	49,201	32,685	20,866	102,751
51	21,511	71,016	11,586	104,113
52	26,928	44,817	85,589	157,334
53	66,220	70,595	55,434	192,249
54	77,866	69,574	50,514	197,953
55	100,276	76,956	92,007	269,239
56	40,765	20,051	11,394	72,210
57	34,349	70,782	75,730	180,861
58	50,714	41,136	69,478	161,328
59	116,471	53,649	37,348	207,468
60	39,732	21,453	35,112	96,297
61	16,502	21,323	10,754	48,578
62	39,008	23,251	33,211	95,470
63	106,715	34,198	32,500	173,412
64	119,709	74,166	107,812	301,687
65	19,398	61,495	31,814	112,707
66	21,357	13,925	14,423	49,705
67	40,838	50,919	32,235	123,992
68	22,791	25,375	15,180	63,346
69	78,480	12,684	26,609	117,773
70	129,627	22,852	35,396	187,875
71	63,806	12,084	7,732	83,623
72	1,466	0	0	1,466
73	91,662	46,483	423	138,568
74	89,808	12,514	24,015	126,336
75	74,662	10,757	7,358	92,778
76	65,197	20,680	427	86,304
77	51,664	9,342	7,260	68,266
78	8,624	30,964	12,931	52,520
79	46,581	24,801	8,430	79,812
80	29,261	17,056	12,208	58,525
81	28,914	13,121	33,994	76,030
82	75,341	67,515	15,612	158,468

Table A-2
Annual Air Passenger Originating Trips to Airports by AAZ
2015

Cont.

AAZ	BWI	DCA	IAD	Total
83	24,865	50,595	48,972	124,432
84	19,937	48,198	95,988	164,122
85	28,194	54,829	125,247	208,270
86	7,303	26,815	115,891	150,010
87	6,093	21,331	144,753	172,178
88	6,510	0	39,793	46,303
89	0	14,068	151,924	165,992
90	0	3,200	16,306	19,507
91	1,246	964	141,602	143,812
92	10,715	10,626	374,215	395,557
93	35,264	41,267	433,712	510,242
94	7,466	10,882	222,496	240,844
95	112,337	2,864	50,727	165,928
96	103,376	11,035	61,539	175,950
97	78,281	14,167	41,426	133,874
98	288,097	0	13,395	301,491
99	99,287	1,863	0	101,150
100	116,259	0	3,442	119,701
101	41,351	0	2,113	43,464
102	51,288	3,128	15,558	69,974
103	73,140	12,833	4,793	90,766
104	103,138	1,843	5,364	110,345
105	221,068	16,392	0	237,459
106	102,038	0	1,452	103,490
107	73,100	0	0	73,100
108	198,223	6,113	2,482	206,819
109	133,960	0	0	133,960
110	63,295	1,067	5,456	69,817
111	48,659	4,543	0	53,202
112	432,963	6,619	8,308	447,890
113	45,976	9,480	2,458	57,913
114	29,309	0	0	29,309
115	30,566	0	0	30,566
116	19,159	0	0	19,159
117	114,682	2,812	3,606	121,100
118	137,040	1,360	3,103	141,503
119	258,861	9,213	3,055	271,128
120	169,196	7,475	8,989	185,660
121	56,378	1,797	0	58,175
122	163,425	31,442	17,242	212,109
123	66,992	41,546	43,341	151,879
124	64,983	52,997	7,370	125,350
125	23,734	23,704	12,378	59,816
126	33,336	3,642	5,306	42,284
127	11,863	44,953	17,597	74,414
128	1,892	6,236	26,524	34,653
129	15,298	56,175	73,925	145,398
130	12,834	7,802	70,951	91,588
131	780	0	36,718	37,498
132	34,058	5,892	52,457	92,407
133	569,665	2,950	34,082	606,698
134	24,057	0	0	24,057
135	14,440	0	0	14,440
136	16,912	0	1,156	18,069
137	76,054	741	17,136	93,931
138	17,802	0	0	17,802
139	81,466	0	4,449	85,915
140	144,776	0	2,257	147,032
141	301,445	2,653	11,056	315,154
142	13,972	0	4,735	18,707
143	30,738	4,076	0	34,814
144	164,512	0	4,871	169,383
145	17,928	0	3,559	21,487
146	2,375	0	0	2,375
147	8,707	0	0	8,707
148	51,435	0	994	52,430
149	97,118	6,717	5,098	108,933
150	101,723	1,733	3,979	107,435
151	207,015	6,728	20,863	234,607
152	132,817	0	932	133,750
153	88,423	707	16,219	105,349
154	134,508	0	2,387	136,895
155	201,982	2,031	467	204,479
156	15,699	0	0	15,699
157	175,600	0	0	175,600
158	101,861	0	0	101,861
159	105,570	1,806	5,343	112,720
160	145,256	1,131	12,101	158,488
161	91,818	0	2,571	94,389
Total	**10,260,267**	**8,373,219**	**9,532,431**	**28,165,916**

Table A-3
Annual Air Passenger Originating Trips to Airports by AAZ
2020

AAZ	BWI	DCA	IAD	Total
1	2,359	3,859	2,257	8,475
2	34,130	138,299	78,082	250,511
3	227,888	978,994	349,193	1,556,074
4	223,333	733,027	506,692	1,463,052
5	27,623	131,467	107,376	266,466
6	70,804	401,081	83,108	554,993
7	16,334	21,214	14,819	52,368
8	42,589	49,663	40,465	132,717
9	15,734	80,025	78,415	174,174
10	28,968	86,640	36,043	151,651
11	23,209	51,618	30,973	105,800
12	30,608	63,749	9,555	103,912
13	22,220	38,083	29,363	89,666
14	41,696	97,653	14,724	154,073
15	16,460	67,227	14,566	98,253
16	41,183	177,178	94,646	313,007
17	45,184	21,308	143,356	209,848
18	36,879	198,456	46,881	282,216
19	20,074	73,538	1,386	94,998
20	25,514	6,697	3,713	35,923
21	1,398	7,331	4,093	12,822
22	40,551	604,944	110,952	756,447
23	21,356	79,898	46,664	147,918
24	366	50,573	12,029	62,968
25	13,413	271,258	71,086	355,757
26	36,155	234,207	49,648	320,010
27	5,758	90,071	149,945	245,774
28	22,609	127,121	219,865	369,594
29	13,087	23,314	8,678	45,078
30	9,183	118,662	42,256	170,101
31	59,901	276,336	91,870	428,107
32	3,419	61,454	10,640	75,512
33	19,967	165,191	61,435	246,593
34	32,957	110,980	209,638	353,575
35	54,558	204,468	126,977	386,003
36	33,140	227,096	189,478	449,714
37	27,003	81,669	185,106	293,779
38	39,070	89,476	238,593	367,140
39	4,887	45,871	93,161	143,919
40	18,119	47,550	292,582	358,251
41	53,991	96,479	268,817	419,288

AAZ	BWI	DCA	IAD	Total
42	4,427	30,262	432,843	467,531
43	38,564	73,250	559,992	671,806
44	15,882	22,370	600,555	638,807
45	3,280	60,803	433,242	497,325
46	23,284	138,304	492,607	654,195
47	15,616	74,897	198,637	289,150
48	33,233	59,543	43,271	136,047
49	26,966	19,176	39,368	85,510
50	52,937	34,592	24,157	111,686
51	23,014	73,712	13,112	109,838
52	31,454	47,233	105,336	184,023
53	72,187	74,513	64,882	211,582
54	84,701	71,928	58,257	214,885
55	115,554	83,923	111,444	310,922
56	51,753	23,186	14,564	89,504
57	37,396	73,214	87,792	198,402
58	55,562	42,876	81,047	179,485
59	130,935	57,476	44,879	233,290
60	42,867	22,135	40,348	105,349
61	19,846	24,096	13,946	57,887
62	42,215	23,929	38,241	104,384
63	114,954	35,055	37,334	187,344
64	132,100	77,937	126,715	336,752
65	20,935	63,351	36,435	120,721
66	23,298	14,428	16,746	54,472
67	47,490	56,766	39,504	143,760
68	24,392	25,740	17,235	67,367
69	86,513	13,323	30,803	130,639
70	148,008	24,715	42,834	215,556
71	71,403	12,727	9,282	93,412
72	1,978	0	0	1,978
73	99,451	48,713	484	148,648
74	98,553	13,148	27,945	139,646
75	82,729	11,345	8,692	102,766
76	74,765	22,407	517	97,689
77	57,194	9,958	8,415	75,567
78	9,306	32,140	14,861	56,307
79	54,339	27,059	10,290	91,688
80	31,695	17,597	14,066	63,357
81	35,424	14,838	44,331	94,593
82	84,075	71,697	18,530	174,302

Table A-3 Cont.
Annual Air Passenger Originating Trips to Airports by AAZ
2020

AAZ	BWI	DCA	IAD	Total
83	29,230	56,486	61,317	147,034
84	25,173	56,638	128,373	210,183
85	30,836	56,958	145,547	233,341
86	8,551	29,890	145,907	184,348
87	6,573	21,971	168,028	196,573
88	7,417	0	46,129	53,546
89	0	17,533	214,150	231,683
90	0	3,452	19,678	23,130
91	1,347	992	163,203	165,543
92	13,964	13,546	501,030	528,539
93	43,174	48,856	570,460	662,490
94	9,681	13,119	300,705	323,505
95	129,047	3,132	62,054	194,234
96	120,229	12,319	76,783	209,330
97	89,234	15,385	50,092	154,711
98	324,956	0	16,231	341,187
99	113,851	2,034	0	115,885
100	130,291	0	4,151	134,442
101	46,192	0	2,515	48,707
102	55,038	3,164	17,607	75,809
103	82,973	14,235	5,748	102,956
104	110,385	1,864	6,071	118,320
105	256,211	18,316	0	274,527
106	112,586	0	1,715	114,301
107	92,070	0	0	92,070
108	221,260	6,375	2,896	230,531
109	155,423	0	0	155,423
110	74,015	1,079	6,892	81,985
111	56,442	5,080	0	61,521
112	474,505	6,905	9,698	491,109
113	49,477	9,656	2,801	61,935
114	31,987	0	0	31,987
115	33,407	0	0	33,407
116	21,721	0	0	21,721
117	125,323	2,928	4,201	132,451
118	149,585	1,417	3,616	154,617
119	276,097	9,357	3,469	288,923
120	184,113	7,756	10,449	202,318
121	61,332	1,861	0	63,193
122	180,805	33,357	20,414	234,576
123	75,389	44,582	52,749	172,720

AAZ	BWI	DCA	IAD	Total
124	75,105	58,532	9,044	142,681
125	28,040	25,819	15,576	69,435
126	38,753	4,022	6,570	49,344
127	14,117	51,472	22,617	88,207
128	2,149	6,742	32,477	41,368
129	18,118	64,253	93,848	176,219
130	15,889	9,100	92,798	117,787
131	874	0	43,843	44,717
132	40,274	6,671	66,255	113,201
133	618,337	3,014	40,147	661,499
134	25,906	0	0	25,906
135	16,448	0	0	16,448
136	18,214	0	1,326	19,541
137	80,900	750	19,415	101,065
138	19,407	0	0	19,407
139	92,790	0	5,648	98,438
140	154,139	0	2,572	156,711
141	320,575	2,686	12,522	335,782
142	14,826	0	5,351	20,176
143	33,549	4,165	0	37,714
144	185,420	0	5,836	191,256
145	19,870	0	4,260	24,130
146	2,528	0	0	2,528
147	9,294	0	0	9,294
148	54,998	0	1,130	56,127
149	103,912	6,848	5,823	116,583
150	109,277	1,762	4,556	115,596
151	222,252	6,865	23,883	253,000
152	142,914	0	1,070	143,984
153	94,606	718	18,483	113,807
154	144,324	0	2,735	147,059
155	217,020	2,081	535	219,636
156	16,846	0	0	16,846
157	188,358	0	0	188,358
158	109,205	0	0	109,205
159	113,855	1,857	6,146	121,857
160	158,189	1,174	14,056	173,419
161	110,128	0	3,415	113,543
Total	**11,365,249**	**8,936,859**	**11,559,274**	**31,861,381**

Table A-4
Annual Air Passenger Originating Trips to Airports by AAZ
2025

AAZ	BWI	DCA	IAD	Total
1	2,491	3,920	2,519	8,931
2	37,298	141,962	88,855	268,116
3	252,978	1,019,548	403,833	1,676,359
4	237,143	748,832	570,716	1,556,690
5	30,764	141,746	125,857	298,367
6	74,951	408,160	93,112	576,223
7	17,612	22,002	16,858	56,472
8	47,892	53,880	48,301	150,073
9	16,886	82,509	88,919	188,314
10	31,020	89,347	40,772	161,139
11	25,528	55,000	35,666	116,194
12	32,896	66,039	10,865	109,801
13	24,680	40,656	34,765	100,101
14	46,696	105,137	17,386	169,219
15	17,632	69,176	16,438	103,245
16	46,562	192,908	113,444	352,914
17	51,574	23,404	175,560	250,537
18	39,224	203,211	52,705	295,140
19	23,289	83,006	1,777	108,072
20	26,945	6,803	4,144	37,892
21	1,476	7,448	4,568	13,492
22	45,505	664,737	131,803	842,045
23	22,563	81,189	52,100	155,853
24	387	51,398	13,425	65,210
25	14,996	292,072	84,121	391,189
26	39,286	245,316	56,994	341,596
27	6,099	91,968	167,958	266,025
28	24,250	131,071	249,124	404,445
29	14,059	24,274	9,943	48,276
30	10,056	127,378	49,018	186,451
31	68,676	305,412	111,278	485,367
32	3,611	69,776	11,875	85,262
33	22,115	177,348	72,232	271,696
34	35,513	114,591	238,022	388,125
35	59,151	213,164	145,493	417,809
36	36,015	237,352	217,161	490,528
37	28,744	83,461	208,256	320,460
38	41,464	91,698	268,292	401,454
39	5,404	50,699	111,233	167,335
40	19,533	50,070	333,815	403,418
41	58,348	101,118	308,844	468,310

AAZ	BWI	DCA	IAD	Total
42	4,947	32,240	518,620	555,807
43	41,071	75,108	630,591	746,770
44	17,758	24,061	709,177	750,996
45	3,505	62,556	490,242	556,304
46	26,294	150,199	590,861	767,354
47	16,628	76,730	223,553	316,911
48	35,132	60,607	48,342	144,081
49	28,510	19,492	43,938	91,940
50	56,119	35,207	27,048	118,374
51	25,009	77,824	15,004	117,837
52	36,784	50,245	128,783	215,812
53	79,001	78,900	75,249	233,150
54	92,932	75,837	67,361	236,131
55	132,813	92,079	133,057	357,949
56	61,799	25,851	17,687	105,337
57	39,623	74,560	98,296	212,479
58	59,090	43,928	91,162	194,180
59	144,759	61,151	52,514	258,424
60	45,701	22,803	45,459	113,963
61	23,179	26,854	17,343	67,376
62	45,330	24,701	43,371	113,402
63	122,480	35,881	42,216	200,578
64	145,619	82,546	147,622	375,787
65	22,681	66,137	41,611	130,428
66	24,980	14,933	18,996	58,909
67	54,232	62,674	47,305	164,210
68	26,618	27,176	19,982	73,776
69	94,530	14,019	35,000	143,549
70	163,860	26,158	49,812	239,830
71	79,915	13,527	11,065	104,507
72	2,509	0	0	2,509
73	107,610	52,056	543	160,210
74	106,732	13,659	32,051	152,443
75	89,985	11,848	10,138	111,971
76	82,436	23,406	593	106,435
77	63,166	10,747	9,584	83,497
78	9,927	33,586	16,753	60,265
79	62,499	29,329	12,254	104,083
80	34,198	18,276	16,011	68,484
81	42,822	17,082	56,622	116,525
82	93,267	76,524	21,744	191,535

Table A-4
Annual Air Passenger Originating Trips to Airports by AAZ
2025

Cont.

AAZ	BWI	DCA	IAD	Total
83	34,157	63,322	75,723	173,201
84	27,956	60,742	150,809	239,507
85	33,705	59,755	167,731	261,191
86	9,937	33,412	179,460	222,810
87	7,305	23,474	196,976	227,755
88	8,535	0	54,873	63,408
89	0	20,572	278,504	299,077
90	0	3,727	23,342	27,069
91	1,480	1,049	189,211	191,741
92	15,872	14,673	609,532	640,077
93	48,544	53,649	683,572	785,764
94	11,888	15,196	383,291	410,375
95	148,548	3,469	75,249	227,267
96	138,779	13,789	94,334	246,902
97	99,485	16,507	58,862	174,853
98	362,707	0	19,308	382,015
99	127,737	2,195	0	129,932
100	138,121	0	4,950	143,071
101	48,914	0	2,814	51,728
102	58,505	3,214	19,652	81,371
103	92,023	15,449	6,704	114,177
104	117,827	1,894	6,775	126,496
105	297,887	20,517	0	318,405
106	121,510	0	1,992	123,503
107	107,828	0	0	107,828
108	241,381	6,629	3,309	251,319
109	172,263	0	0	172,263
110	85,498	1,096	8,513	95,108
111	63,015	5,475	0	68,490
112	564,571	7,935	12,244	584,750
113	53,157	9,927	3,164	66,248
114	34,675	0	0	34,675
115	36,266	0	0	36,266
116	24,686	0	0	24,686
117	135,465	3,045	4,801	143,311
118	161,177	1,470	4,122	166,769
119	292,898	9,562	3,883	306,344
120	199,008	8,082	11,984	219,074
121	66,246	1,934	0	68,180
122	194,933	34,662	23,290	252,885
123	83,606	47,637	62,733	193,975

AAZ	BWI	DCA	IAD	Total
124	89,012	67,162	11,266	167,440
125	33,885	28,630	19,892	82,408
126	42,568	4,278	7,626	54,473
127	16,438	58,021	28,064	102,523
128	2,336	7,051	38,350	47,738
129	21,053	72,239	115,547	208,839
130	18,804	10,660	118,696	148,160
131	985	0	52,185	53,170
132	47,259	7,706	83,121	138,086
133	661,085	3,097	45,437	709,619
134	27,414	0	0	27,414
135	17,788	0	0	17,788
136	19,432	0	1,492	20,924
137	85,998	767	21,820	108,585
138	21,035	0	0	21,035
139	103,907	0	6,884	110,791
140	163,882	0	2,882	166,764
141	339,026	2,732	13,995	355,754
142	15,734	0	6,001	21,735
143	36,195	4,301	0	40,496
144	206,810	0	6,864	213,673
145	21,774	0	5,023	26,797
146	2,673	0	0	2,673
147	9,837	0	0	9,837
148	58,349	0	1,264	59,613
149	110,198	6,988	6,532	123,718
150	116,207	1,796	5,122	123,125
151	236,434	7,017	26,870	270,320
152	152,124	0	1,204	153,328
153	100,470	731	20,744	121,945
154	153,051	0	3,067	156,118
155	230,080	2,123	600	232,803
156	17,885	0	0	17,885
157	200,172	0	0	200,172
158	115,882	0	0	115,882
159	123,383	1,932	7,025	132,340
160	171,366	1,218	16,030	188,615
161	134,519	0	4,586	139,105
Total	**12,480,511**	**9,441,796**	**13,545,505**	**35,467,813**

Table A-5
Annual Air Passenger Originating Trips to Airports by AAZ
2030

AAZ	BWI	DCA	IAD	Total
1	2,647	4,005	2,784	9,436
2	39,631	145,046	98,186	282,863
3	275,734	1,055,796	454,638	1,786,167
4	252,062	765,387	631,280	1,648,730
5	32,803	145,404	139,516	317,723
6	79,639	417,025	102,890	599,554
7	18,713	22,480	18,629	59,822
8	52,212	56,171	54,316	162,699
9	17,942	84,301	98,257	200,500
10	32,960	91,287	45,054	169,301
11	27,930	58,047	40,408	126,385
12	34,953	67,474	12,006	114,433
13	26,550	42,043	39,018	107,611
14	50,344	108,929	19,445	178,718
15	18,967	71,797	18,533	109,297
16	50,969	203,253	129,502	383,725
17	56,203	24,541	204,162	284,906
18	41,681	207,625	58,244	307,550
19	25,772	88,914	2,098	116,785
20	28,630	6,951	4,579	40,160
21	1,569	7,610	5,048	14,226
22	48,804	685,032	146,999	880,835
23	23,988	82,989	57,602	164,579
24	411	52,606	14,835	67,852
25	17,196	321,755	100,198	439,149
26	42,464	255,003	64,066	361,533
27	6,512	94,381	186,460	287,353
28	26,157	136,174	279,741	442,072
29	14,944	24,813	10,992	50,749
30	11,401	140,423	57,882	209,706
31	75,108	318,076	126,740	519,925
32	4,644	75,284	15,886	95,814
33	24,630	189,390	83,523	297,543
34	38,338	119,000	267,307	424,645
35	64,319	223,005	164,523	451,848
36	39,283	248,914	246,017	534,214
37	30,723	85,753	231,500	347,976
38	44,312	94,394	298,525	437,231
39	5,937	55,763	130,043	191,743
40	21,166	52,670	376,528	450,364
41	63,565	106,518	351,325	521,408

AAZ	BWI	DCA	IAD	Total
42	5,508	34,299	606,644	646,452
43	43,950	77,283	701,761	822,994
44	19,864	25,883	823,802	869,549
45	3,761	64,540	547,067	615,368
46	29,291	160,800	692,050	882,142
47	17,791	78,907	248,687	345,386
48	37,329	62,003	53,419	152,751
49	30,331	19,930	48,553	98,813
50	59,756	36,022	29,945	125,724
51	28,040	83,811	17,502	129,353
52	41,093	53,196	149,213	243,502
53	96,469	88,203	93,377	278,049
54	100,035	78,533	75,505	254,073
55	155,869	102,845	158,620	417,335
56	71,649	28,284	20,814	120,747
57	42,258	76,392	109,009	227,660
58	63,157	45,236	101,435	209,828
59	157,666	64,016	59,395	281,076
60	48,559	23,397	50,233	122,189
61	26,293	29,145	20,554	75,992
62	48,204	25,296	48,034	121,534
63	130,656	36,718	47,201	214,575
64	159,828	87,477	168,491	415,796
65	24,917	69,953	47,459	142,329
66	26,788	15,525	21,239	63,552
67	62,083	69,277	55,957	187,318
68	29,744	29,497	23,439	82,681
69	104,187	14,882	39,128	158,197
70	182,082	27,767	57,194	267,043
71	91,882	14,687	13,374	119,942
72	3,135	0	0	3,135
73	117,686	56,629	602	174,916
74	120,042	14,556	37,911	172,509
75	98,791	12,468	11,860	123,119
76	90,237	24,261	665	115,163
77	68,787	11,358	10,694	90,839
78	10,728	35,817	18,830	65,376
79	73,403	31,994	14,458	119,855
80	36,908	18,995	17,909	73,812
81	45,994	17,547	63,240	126,782
82	103,575	81,810	25,225	210,610

Table A-5
Annual Air Passenger Originating Trips to Airports by AAZ
2030

Cont.

AAZ	BWI	DCA	IAD	Total
83	39,242	69,411	90,472	199,124
84	31,527	66,012	176,965	274,504
85	37,010	62,966	191,121	291,097
86	11,677	37,751	218,205	267,632
87	8,182	25,273	229,131	262,586
88	9,716	0	63,636	73,352
89	0	22,022	324,071	346,093
90	0	3,912	26,498	30,410
91	1,670	1,137	221,118	223,925
92	17,722	15,583	718,045	751,350
93	52,731	56,979	779,426	889,136
94	13,916	16,550	452,756	483,222
95	173,095	3,888	90,813	267,796
96	168,181	16,278	120,252	304,711
97	111,132	17,744	68,106	196,981
98	406,164	0	22,655	428,819
99	136,267	2,252	0	138,518
100	147,025	0	5,663	152,687
101	51,973	0	3,110	55,083
102	62,164	3,284	21,715	87,163
103	102,032	16,995	7,659	126,685
104	125,547	1,935	7,487	134,969
105	334,432	21,902	0	356,334
106	131,641	0	2,284	133,924
107	123,103	0	0	123,103
108	267,063	6,997	3,777	277,838
109	192,740	0	0	192,740
110	93,511	1,120	9,718	104,349
111	69,147	5,808	0	74,955
112	620,921	8,395	14,009	643,325
113	57,905	10,398	3,584	71,888
114	37,822	0	0	37,822
115	39,071	0	0	39,071
116	27,841	0	0	27,841
117	146,023	3,155	5,379	154,558
118	173,460	1,519	4,607	179,586
119	316,650	9,893	4,387	330,930
120	215,684	8,412	13,477	237,573
121	71,016	1,993	0	73,009
122	212,477	36,484	26,473	275,435
123	93,071	51,068	73,590	217,729

AAZ	BWI	DCA	IAD	Total
124	101,212	73,667	13,286	188,166
125	37,674	30,310	23,001	90,985
126	50,676	4,852	9,442	64,970
127	18,919	64,301	33,651	116,872
128	2,526	7,331	44,460	54,317
129	24,341	80,185	138,834	243,360
130	22,402	12,559	150,350	185,311
131	1,111	0	61,244	62,355
132	55,224	8,823	101,970	166,016
133	706,034	3,175	50,599	759,809
134	29,208	0	0	29,208
135	19,169	0	0	19,169
136	20,779	0	1,655	22,434
137	91,764	788	24,235	116,787
138	22,690	0	0	22,690
139	114,560	0	8,129	122,690
140	174,167	0	3,158	177,325
141	360,364	2,793	15,470	378,627
142	16,757	0	6,647	23,403
143	38,069	4,446	0	42,514
144	226,529	0	7,808	234,337
145	23,485	0	5,664	29,149
146	2,850	0	0	2,850
147	10,491	0	0	10,491
148	62,220	0	1,401	63,621
149	117,471	7,164	7,243	131,878
150	124,094	1,842	5,690	131,625
151	252,312	7,202	29,817	289,330
152	162,619	0	1,339	163,958
153	107,092	750	22,995	130,836
154	163,238	0	3,403	166,640
155	245,279	2,177	665	248,121
156	19,092	0	0	19,092
157	213,830	0	0	213,830
158	123,509	0	0	123,509
159	133,057	2,000	7,868	142,925
160	186,907	1,278	18,179	206,363
161	144,414	0	5,133	149,547
Total	**13,636,823**	**9,888,030**	**15,523,303**	**39,048,156**

Table A-6
Washington / Baltimore Air System Planning Region
Total Originating Passengers by Jurisdiction

Jurisdiction	Total Originating Passengers					
	2005	2010	2015	2020	2025	2030
District of Columbia	4,768,304	5,082,517	5,611,109	6,098,177	6,583,802	7,006,363
Montgomery County	2,311,454	2,585,474	2,915,312	3,243,209	3,584,124	3,964,875
Prince George's County	989,554	1,177,309	1,328,344	1,486,148	1,645,843	1,821,297
Arlington County	1,694,353	1,889,460	2,009,815	2,316,369	2,528,130	2,708,348
City of Alexandria	712,888	757,770	846,530	920,313	1,028,775	1,122,988
Fairfax County	3,919,852	4,284,740	5,172,043	5,990,482	6,751,581	7,541,319
Loudoun County	899,643	1,090,044	1,475,953	1,934,890	2,354,103	2,724,137
Prince William County	605,422	695,978	865,315	1,025,024	1,187,872	1,368,295
Frederick County	334,366	403,932	475,752	558,275	649,022	769,488
Howard County	646,713	820,197	949,450	1,077,017	1,196,511	1,308,468
Ann Arundel County	1,360,382	1,651,087	1,826,201	2,011,122	2,237,482	2,445,485
Charles County	138,527	160,781	185,166	212,115	249,848	279,151
Carroll County	210,549	266,706	301,491	341,187	382,015	428,819
Calvert County	155,371	192,255	212,109	234,576	252,885	275,435
St. Mary's County	115,034	133,099	151,879	172,720	193,975	217,729
King George County	27,501	35,826	42,284	49,344	54,473	64,970
City of Fredericksburg	26,235	28,481	34,653	41,368	47,738	54,317
Stafford County	98,371	114,808	145,398	176,219	208,839	243,360
Spotsylvania County	51,705	61,160	74,414	88,207	102,523	116,872
Fauquier County	62,146	71,334	91,588	117,787	148,160	185,311
Clarke County	28,644	30,952	37,498	44,717	53,170	62,355
Jefferson County	63,492	74,198	92,407	113,201	138,086	166,016
Baltimore City	1,115,295	1,408,001	1,567,488	1,708,073	1,841,374	1,978,141
Baltimore County	1,072,392	1,288,379	1,388,121	1,492,023	1,587,421	1,695,782
Harford County	251,851	316,195	365,597	408,819	460,060	498,836
Total	**21,660,045**	**24,620,682**	**28,165,916**	**31,861,381**	**35,467,813**	**39,048,156**

Table A-7
Washington / Baltimore Air System Planning Region
Home Based Originating Passengers by Jurisdiction

Jurisdiction	Home Based Originating Passengers					
	2005	2010	2015	2020	2025	2030
District of Columbia	1,477,657	1,572,982	1,763,186	1,976,577	2,194,077	2,357,201
Montgomery County	1,741,667	1,949,501	2,201,118	2,452,125	2,715,243	3,013,001
Prince George's County	658,567	792,394	897,779	998,975	1,092,663	1,184,939
Arlington County	721,542	796,680	896,777	999,959	1,078,780	1,163,167
City of Alexandria	432,342	469,415	527,106	580,380	647,440	711,940
Fairfax County	2,828,429	3,043,246	3,674,334	4,230,912	4,718,501	5,236,852
Loudoun County	626,259	755,114	1,020,262	1,336,436	1,618,777	1,853,884
Prince William County	506,307	583,746	729,972	865,169	1,001,980	1,155,048
Frederick County	298,145	359,029	424,563	500,504	584,812	698,820
Howard County	404,078	509,194	585,375	660,692	723,291	778,801
Ann Arundel County	719,901	873,759	956,143	1,046,916	1,134,193	1,233,020
Charles County	125,031	145,012	168,385	194,222	231,002	259,200
Carroll County	175,212	221,200	252,065	287,760	324,944	367,484
Calvert County	113,332	138,051	153,399	170,607	184,123	201,155
St. Mary's County	84,654	96,298	112,397	130,269	148,835	169,483
King George County	26,872	35,161	41,548	48,538	53,592	64,007
City of Fredericksburg	16,735	18,235	21,661	25,259	28,195	31,007
Stafford County	76,386	89,182	111,748	135,909	160,943	186,619
Spotsylvania County	45,621	53,610	65,757	78,362	91,416	104,345
Fauquier County	50,242	57,119	74,091	95,217	121,078	152,896
Clarke County	28,644	30,952	37,498	44,717	53,170	62,355
Jefferson County	42,185	48,134	60,499	74,592	92,605	112,847
Baltimore City	544,858	724,016	826,394	902,184	970,213	1,043,957
Baltimore County	836,443	1,002,183	1,077,709	1,159,550	1,234,149	1,318,783
Harford County	188,532	235,606	269,467	293,220	317,240	344,421
Total	**12,769,641**	**14,599,820**	**16,949,231**	**19,289,053**	**21,521,261**	**23,805,232**

Table A-8
Washington / Baltimore Air System Planning Region
Non-Home Based Originating Passengers by Jurisdiction

Jurisdiction	Non-Home Based Originating Passengers					
	2005	2010	2015	2020	2025	2030
District of Columbia	3,290,647	3,509,534	3,847,923	4,121,600	4,389,724	4,649,161
Montgomery County	569,787	635,973	714,194	791,084	868,881	951,875
Prince George's County	330,987	384,915	430,565	487,174	553,180	636,358
Arlington County	972,812	1,092,780	1,113,038	1,316,410	1,449,350	1,545,181
City of Alexandria	280,546	288,355	319,424	339,932	381,335	411,048
Fairfax County	1,091,423	1,241,494	1,497,709	1,759,570	2,033,081	2,304,468
Loudoun County	273,383	334,930	455,691	598,454	735,325	870,254
Prince William County	99,115	112,232	135,343	159,855	185,892	213,248
Frederick County	36,221	44,904	51,189	57,771	64,209	70,668
Howard County	242,635	311,002	364,075	416,325	473,221	529,667
Ann Arundel County	640,480	777,327	870,059	964,206	1,103,290	1,212,465
Charles County	13,496	15,769	16,781	17,893	18,846	19,951
Carroll County	35,337	45,505	49,426	53,427	57,071	61,334
Calvert County	42,039	54,204	58,710	63,968	68,762	74,280
St. Mary's County	30,380	36,801	39,482	42,450	45,140	48,246
King George County	629	665	736	806	881	963
City of Fredericksburg	9,500	10,245	12,992	16,109	19,542	23,310
Stafford County	21,986	25,626	33,650	40,310	47,897	56,741
Spotsylvania County	6,085	7,551	8,656	9,844	11,107	12,526
Fauquier County	11,903	14,215	17,497	22,569	27,082	32,414
Clarke County	0	0	0	0	0	0
Jefferson County	21,307	26,064	31,908	38,609	45,481	53,169
Baltimore City	570,437	683,985	741,094	805,889	871,162	934,184
Baltimore County	235,950	286,195	310,413	332,473	353,271	376,999
Harford County	63,319	80,589	96,130	115,599	142,820	154,415
Total	**8,890,404**	**10,020,861**	**11,216,686**	**12,572,329**	**13,946,551**	**15,242,924**

Table A-9
Washington / Baltimore Air System Planning Region
Aviation Analysis Zone System

AAZ	Jurisdiction	Place Name
1	District of Columbia	The Mall
2	District of Columbia	The White House, Federal Triangle, Foggy Bottom
3	District of Columbia	Franklin Square, Mt. Vernon, Gallery Place
4	District of Columbia	Dupont Circle, Adams Morgan
5	District of Columbia	Georgetown
6	District of Columbia	Cleveland Park
7	District of Columbia	Foxhall, Sutton Place, Cathedral Hgts, Senate Hgts, Clover Park, Foxhall Village, Canal View
8	District of Columbia	Tenleytown, American University
9	District of Columbia	Westover Place, Embassy Park, Wesley Hgts, McLean Gardens
10	District of Columbia	Chevy Chase, Friendship Heights, Western Rock Creek Park
11	District of Columbia	Colonial Village, Rock Creek Gardens, Shepherd Park, Walter Reed, Takoma, Petworth, Hampshire Knolls, Cretwood, Eastern Rock Creek Park
12	District of Columbia	Mount Pleasant, North Adams Morgan
13	District of Columbia	Shaw, Howard University
14	District of Columbia	Riggs Park, Michigan Park, Catholic University, Brookland, Fort Lincoln, Langdon, Brentwood, Edgewood, Eckington, Washington Hospital Center
15	District of Columbia	The Capitol
16	District of Columbia	National Arboretum, Gallaudet University, Trinidad, Lincoln Park, Eastern Market, Capitol South, Navy Yard, Stadium Armory
17	District of Columbia	Anacostia, Benning, Fort Dupont, Capitol View, Deanwood, Capitol Heights,
18	District of Columbia	L'enfant Plaza, Fderal Center SW, Waterfront
19	District of Columbia	Buzzard Point
20	District of Columbia	Bolling Airforce Base
21	Arlington County, VA	Ronald Reagan National Airport
22	Arlington County, VA	Pentagon City, Crystel City
23	Arlington County, VA	The Ridge, Forest HillsCommons, Avalon Bay
24	Arlington County, VA	Arlington National Cemetary, The Pentagon
25	Arlington County, VA	Rosslyn
26	Arlington County, VA	Clarendon, Colonial Village
27	Arlington County, VA	East Falls Church, North Arlington,
28	Arlington County, VA	Ballston, Buckingham, Glencarlyn, Barcroft
29	Arlington County, VA	Shirlington
30	City of Alexandria, VA	Bverley Hills, Potomac Yards, Braddock Hgts, Timber Branch Park, Rosemont, Quaker Hill, Ivy Hill,
31	City of Alexandria, VA	Oldtown Alexandria
32	City of Alexandria, VA	Cameron Park, Eisenhower Avenue
33	City of Alexandria, VA	Landmark,
34	Fairfax County, VA	Falls Church, Fairview Park, Annandale, Lincoln
35	Fairfax County, VA	Shirley/Edsal Industrial Park, Springfield, Franconia, Kingstowne, Fort Belvoir Proving Ground, Newington,
36	Fairfax County, VA	Huntington, Rose Hill, Hybla Valley, Fort Hunt, Mount Vernon, Woodlawn, Fort Belvoir, Lorton, Mason Neck,

Table A-9
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Aviation Analysis Zone System Cont.

AAZ	Jurisdiction	Place Name
37	Fairfax County, VA	Lorton,
38	Fairfax County, VA	Ravensworth, Burke, Fairfax Station, Burke Center, George Mason Un iversity,
39	Fairfax County, VA	Merrifield
40	Fairfax County, VA	Centerville, Sully Station, Clifton
41	Fairfax County, VA	Fair Oaks, Fairfax City
42	Fairfax County, VA	Chantilly
43	Fairfax County, VA	Reston, Franklin Farm, Vienna
44	Fairfax County, VA	Woodland Park, Dulles Technology Center,
45	Fairfax County, VA	Herndon, Great Falls,
46	Fairfax County, VA	Tysons Corner
47	Fairfax County, VA	Mclean
48	Montgomery County, MD	Glen Echo
49	Montgomery County, MD	Cabin John, Oakmont
50	Montgomery County, MD	Medical Center
51	Montgomery County, MD	Chevy Chase
52	Montgomery County, MD	Bethesda
53	Montgomery County, MD	Rock Spring, White Flint
54	Montgomery County, MD	West I-270 Rockville
55	Montgomery County, MD	Gaithersburg, Washington Grove
56	Montgomery County, MD	Germantown
57	Montgomery County, MD	Potomac
58	Montgomery County, MD	Dickerson, Barnsville, Poolsville, Dowsonville, Quince Orchard, Darnestown, North Potomac,
59	Montgomery County, MD	Damascus, Cedar Grove, Woodfield, Clarksburg, Laytonsville, Brookeville,
60	Montgomery County, MD	Montgomery Village
61	Montgomery County, MD	East I-270 Rockville
62	Montgomery County, MD	Aspen Hill, Layhill, Norbeck, Olney
63	Montgomery County, MD	Cloverly, Collesville, Spencerville, Burtonsville, Fairland
64	Montgomery County, MD	Glenmont, White Oak, Wheaton, Four Corners, Hillandale, Forest Glen
65	Montgomery County, MD	North Chevy Chase
66	Montgomery County, MD	Forest Glen Park, North Solver Spring,
67	Montgomery County, MD	Downtown Silver Spring
68	Montgomery County, MD	Takoma Park
69	Prince George's County, MD	Langley Park, Adelphi, Chillum, Hyattsville, Mount Rainer, Brentwood, Cottage City, Bladensburg, Edmonton, Berwyn Heights, Cheverly
70	Prince George's County, MD	College Park, University Park, University of Maryland
71	Prince George's County, MD	Beltsville
72	Prince George's County, MD	Calverton
73	Prince George's County, MD	Laurel, Montpleier
74	Prince George's County, MD	Greenbelt, Godard Space Center, New Carrollton
75	Prince George's County, MD	North Bowie, Woodmore, Kettering
76	Prince George's County, MD	Bowie
77	Prince George's County, MD	Glenarden, Kentland

Table A-9
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AAZ	Jurisdiction	Place Name
78	Prince George's County, MD	Seat Pleasant, Fairmount Heights, Capitol Heights, District Heights, Forestville
79	Prince George's County, MD	Anrew Air Force Base, Melwood, Woodyard, Upper Marlboro, Croom, Marlton
80	Prince George's County, MD	Hillcrest Heights, Morningside, Suitland, Temple Hills, Forest Heights
81	Prince George's County, MD	National Harbor
82	Prince George's County, MD	Friendly, Camp Springs, Clinton, Tantallon, Piscataway, Brandywine, Accokeek, Cedarville, Baden, Westwood, Eagle Harbor, Nottingham
83	Prince William County, VA	Woodbridge, Dumfries
84	Prince William County, VA	Woodbridge, Potyomac Mills
85	Prince William County, VA	Dale City, Occoquan, Lake Ridge, Occoquan Marine Corps Base
86	Prince William County, VA	Nokesville, Lake Jackson, Gaimsville, Haymarket
87	Prince William County, VA	Manassas, Manassas Park
88	Prince William County, VA	Sudley, Manassas Battle Field, Haymarket,
89	Loudoun County, VA	South Riding, Arcola
90	Loudoun County, VA	Washington Dulles Internationa Airport
91	Loudoun County, VA	Cascades, Sugarland Run, Lowes Island
92	Loudoun County, VA	Sterling Park, Sterling, Dulles, Ashburn
93	Loudoun County, VA	Leesburg, Ashburn
94	Loudoun County, VA	Lovettsville, Hillsboro, Round Hill, Purcellville, Hamilton, Lucketts Bluemont, Philomont, Saint Louis, Western Loudoun
95	Frederick County, MD	Woodsboro, Libertytown, Oldfield, New Market, Urbana, Point of Rock, Walkesville, Mount Airy
96	Frederick County, MD	City of Frederick
97	Frederick County, MD	Thurmont, Emmitsburg, Myersville, Middletown, Burkittsville,Brunswick
98	Carroll County, MD	Carroll County, MD
99	Howard County, MD	Lisbon,Cooksville, Glenwood, Glenelg, West Friendship, Dayton, Highland Clarkesville
100	Howard County, MD	North Elicott City
101	Howard County, MD	South Elicott City
102	Howard County, MD	Village of River Hill (Columbia)
103	Howard County, MD	Village of Harpers Choice, Village of Hickory Ridge, Simpsonville, Village of Wilde Lake, Village of Doresys Search
104	Howard County, MD	Village of Oakland Mills, Village of Owen Brown, Village of Kings Cobtrivance, Village of Long Reach
105	Howard County, MD	Scaggsville, Dickinson, Laurel, Savage
106	Howard County, MD	Village of Kings Contrivanve, Columbia Gateway,
107	Howard County, MD	Elkridge, Dorsey
108	Anne Arundel County, MD	Laurel, Odenton, Piney Orcahrd, Woodwardville, Gambrills, Crofton, jessup
109	Anne Arundel County, MD	Jessup, Severn, Arundel Mills,
110	Anne Arundel County, MD	Dorsey
111	Anne Arundel County, MD	Baltimore/Washington International Thurgood Marshall Airport
112	Anne Arundel County, MD	Linthicum
113	Anne Arundel County, MD	North Linthicum
114	Anne Arundel County, MD	Glen Burnie

Table A-9
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Cont.

AAZ	Jurisdiction	Place Name
115	Anne Arundel County, MD	Glen Burnie, Harundel
116	Anne Arundel County, MD	Harundel
117	Anne Arundel County, MD	Lake Shore, Gibson Island, Arnold, Cape Saint Claire, US Naval Station
118	Anne Arundel County, MD	Severna Park
119	Anne Arundel County, MD	Annapolis
120	Anne Arundel County, MD	Heritage Harbor, Edgewater, Woodland Beach, Mayo, Highland Beach
121	Anne Arundel County, MD	Crofton, Davidsonville, Harwood, Lothian, Bayard, Owensville, Gallesville, Shady Side, Tracys Landing, Deale Churchton, Friendship
122	Calvert County, MD	Calvert County
123	St. Mary's County, MD	St. Mary's County
124	Charles County, MD	Pinefield, Waldorf, Cedarville, Indian Head, Glaymont, Marbury, Bryans Road, St. Charles
125	Charles County, MD	White Plains, Pomfret, La Plata, Doncaster, Pisgah, Ironsides, Port Tobaco, Bryantown, Hughesville, Benedict, Nanjemoy, Welcome, Bel Alton, Faulkner, Charlotte Hall, Mechanicsville, Newburg
126	King George County, VA	King George County
127	Spotsylvania County, VA	Northern Spotsylvania County
128	Fredericksburg, VA	City of Fredericksburg
129	Stafford County, VA	Stafford County
130	Fauquier County, VA	Fauquier County
131	Clarke County, VA	Clarke County
132	Jefferson County, WV	Jefferson County
133	Baltimore City, MD	Downtown Inner Harbor
134	Baltimore City, MD	Locust Point, Oriols Park
135	Baltimore City, MD	Canton Waterfront
136	Baltimore City, MD	Brooklyn, Cherry Hill, Loudon Park
137	Baltimore City, MD	Arlington, Pimlico, Gwynns Gfalls Park, Park Heights, North West Baltimore
138	Baltimore City, MD	Walbrook, Rosemont, Druid Hill Park
139	Baltimore City, MD	University of MD Baltimore- area
140	Baltimore City, MD	Hampden
141	Baltimore City, MD	Ronald Park, Govans, Hamilton, Waverly, Herring Run Park, Belair-Edison,
142	Baltimore City, MD	Collington Square
143	Baltimore City, MD	Mount Vernon
144	Baltimore City, MD	Lafayette Courts, Little Italy, Inner Harbor East, Fells Point, Washington Hill, Butchers Hill
145	Baltimore City, MD	East Baltimore
146	Baltimore County, MD	Halethrope
147	Baltimore County, MD	North Arbutus
148	Baltimore County, MD	Arbutus
149	Baltimore County, MD	Catonsville, Westview Park, Woodlawn
150	Baltimore County, MD	Upperco, Boring, Reisterstown, Glyndon, Snowy
151	Baltimore County, MD	Garrison, Owings Mills, Pikesville, Randallstown, Woodlawn

Table A-9
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Aviation Analysis Zone System

Cont.

AAZ	Jurisdiction	Place Name
152	Baltimore County, MD	Freeland, Maryland Line, Middletown, Gunpowder Falls, Butler, Belfast, Cooperstown, Dover
153	Baltimore County, MD	Stevenson, Brooklandville
154	Baltimore County, MD	Lutherville, Cockeysville, Timonium, Carney
155	Baltimore County, MD	Towson, Parkville
156	Baltimore County, MD	Long Green, Glen Park, Baldwin, Fork
157	Baltimore County, MD	Fullerton, Perry Hall, Bradshaw, Rosedale, Middle River, White Marsh
158	Baltimore County, MD	Essex, Dundalk, Sparrows Point, Edgemere, East Baltimore County
159	Harford County, MD	Norrisville, Whiteford, Cardiff, Pylesville, Broad Creek, Dublin, Jarrettsville, Forest Hill, Darlington
160	Harford County, MD	Bel Air, Churchville, Fountain Green, Creswell, Level, Aberdeen, Harve De Grace, Joppatown
161	Harford County, MD	Aberdeen Proving Ground

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