

***Washington-Baltimore  
Regional Airports  
Air Passenger Ground Access Forecast Update***

DRAFT  
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***Metropolitan Washington Council of Governments***

**TABLE OF CONTENTS**

Introduction..... 1

Study Area ..... 2

Air Passenger Ground Access Trip Forecasting Methodology..... 5

    Conversion of 2009 Air Passenger Survey Data to Average Weekday Air Passenger Ground Access Trips..... 7

        Review of 2009 Air Passenger Survey data..... 7

        Review of Air Passenger Enplanement Forecast ..... 8

        Market Segmentation ..... 10

Summarization of Base Year Air Passenger Ground Access Trips by Resident Status and Area Type ..... 10

Summarize Land Activity Data for 2009 Base Year and Forecast Years..... 12

Calculate Air Passenger Ground Access Trip Generation Factors ..... 13

Calculate Air Passenger Ground Access Trips for 2007 and Forecast Years..... 14

Summarize 2009 Base Year Air Passenger Ground Access Trips by Mode of Arrival ..... 15

Calculate Air Passenger Ground Access Trips by Mode for 2009 Base Year and Forecast Years ..... 16

Time-Of-Day Split..... 19

Summary and Conclusion ..... 20

Bibliography ..... 21

Appendix A: Washington – Baltimore Air System Planning Region Aviation Analysis Zone System by Jurisdiction ..... 22

Appendix B: Ground Access Forecast Update Average Weekday Trips by Airport 2010 – 2040 ..... 24

Appendix C: Ground Access Forecast Update Average Weekday Trips by Jurisdiction by Airport ..... 33

Appendix D: Household and Employment Forecasts by Jurisdiction ..... 38

**LIST OF TABLES**

Table 1: 2009 Washington-Baltimore Regional Air Passenger Survey – Annual Trip Originations by Airport (000s)..... 7

Table 2: Average Weekday Enplanements – Internal / External Trip Originations by Airport ..... 8

Table 3: Annual Air Passenger Enplanement Forecasts - BWI..... 9

Table 4: Annual Air Passenger Enplanement Forecasts - DCA ..... 9

Table 5: Annual Air Passenger Enplanement Forecasts - IAD..... 9

Table 6: Washington-Baltimore Regional Airports – Local and Internal AAZ Originating Trips ..... 10

Table 7: Average Weekday Air Passenger Ground Access Trips by Resident Status and Trip Origin (Internal AAZs only) - BWI..... 11

Table 8: Average Weekday Air Passenger Ground Access Trips by Resident Status and Trip Origin (Internal AAZs only) - DCA ..... 11

Table 9: Average Weekday Air Passenger Ground Access Trips by Resident Status and Trip Origin (Internal AAZs only) - IAD..... 12

Table 10: Washington-Baltimore Air System Planning Region Household Forecast..... 12

Table 11: Washington-Baltimore Air System Planning Region Employment Forecast..... 13

Table 12: Washington-Baltimore Air System Planning Region – Home and Non-Home Based Trip Rates by Resident Status ..... 14

Table 13: Average Weekday Air Passenger Ground Access Trips (Internal AAZs only) ..... 15

Table 14: Average Weekday Air Passenger Ground Access Trips by Mode of Access - BWI ... 17

Table 15: Average Weekday Air Passenger Ground Access Trips by Mode of Access - DCA... 17

Table 16: Average Weekday Air Passenger Ground Access Trips by Mode of Access - IAD.... 17

Table 17: Average Weekday Air Passenger Ground Access Trips by Time of Day by Airport .. 19

**LIST OF FIGURES**

Figure 1: Washington-Baltimore Air Systems Planning Region..... 3

Figure 2: Washington-Baltimore Aviation Analysis Zones (AAZs) ..... 4

Figure 3: Air Passenger Ground Access Forecast Procedure ..... 6

Figure 4: Average Weekday Air Passenger Ground Access Trips Mode Shares ..... 18

## **Introduction**

The Metropolitan Washington Council of Governments (COG) in cooperation with the Federal Aviation Administration (FAA), the District of Columbia Department of Transportation, (DDOT), the Maryland Aviation Administration (MAA), and the Metropolitan Washington Airports Authority (MWAA), has conducted a metropolitan airport system planning process since 1978. The goal of this Continuous Airport System Planning (CASP) program is to provide a process that supports the planning, development and operation of airport and airport-serving facilities in a systematic framework for the Washington-Baltimore region.

Transportation planning at the regional level is coordinated in the Washington area by the National Capital Region Transportation Planning Board (TPB), which is staffed by COG's Department of Transportation Planning. The TPB is composed of representatives of the transportation agencies of the states of Maryland and Virginia, and the District of Columbia, local governments, the Washington Metropolitan Area Transit Authority, the Maryland and Virginia General Assemblies, and members from the MWAA and federal agencies. Established in 1965, the TPB is the official Metropolitan Planning Organization (MPO) designated by the federal government to carry out the comprehensive regional transportation planning process under the authority of the Federal-Aid Highway Act of 1962, as amended.

The TPB has a Technical Advisory Committee, which in turn, has several standing subcommittees. One of these subcommittees, the Aviation Technical Subcommittee (ATS), provides oversight and direction to the CASP program, including the preparation of this report.

In its role as the MPO, the TPB prepares the region's Constrained Long-Range Plan (CLRP) and Transportation Improvement Program (TIP). A key step in the CLRP and TIP preparation is the preparation of forecasts of travel demand over the planning period. Air passenger forecasts are directly used in the development of forecasts of locally originating ground access (passenger) vehicle trips to the region's three commercial airports. These forecasts of airport trips are included in the travel demand modeling for the CLRP.

The update of forecast air passenger ground access trips to the region's three commercial airports is an important step in the airport system planning process.<sup>1</sup> These airports are Baltimore/Washington International Thurgood Marshall Airport (BWI), Ronald Reagan Washington National Airport (DCA), and Washington Dulles International Airport (IAD). This report documents the latest update of ground access forecasts for the Washington/Baltimore Air Systems Planning region and the methodology used to update these forecasts. Detailed forecasts of average weekday local originating air passenger ground access trips from 161 Aviation Analysis Zones (AAZs) to each of the region's three commercial airports are presented in Appendix A of this report. Air passenger ground access trip forecasts are shown for the 2010 to 2040 forecast period. In Appendices B through D these forecasts are further broken out by major

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<sup>1</sup> Airport ground access trips are made up of four major groups. These are (1) locally originating air passengers, (2) airport employees, (3) airport visitors, and (4) air cargo carriers. Air passenger trips typically account one-half of all airport ground access trips. Forecasts of other types of airport ground access trips are already included in the standard TPB travel demand modeling of auto, transit, and truck trips in the region.

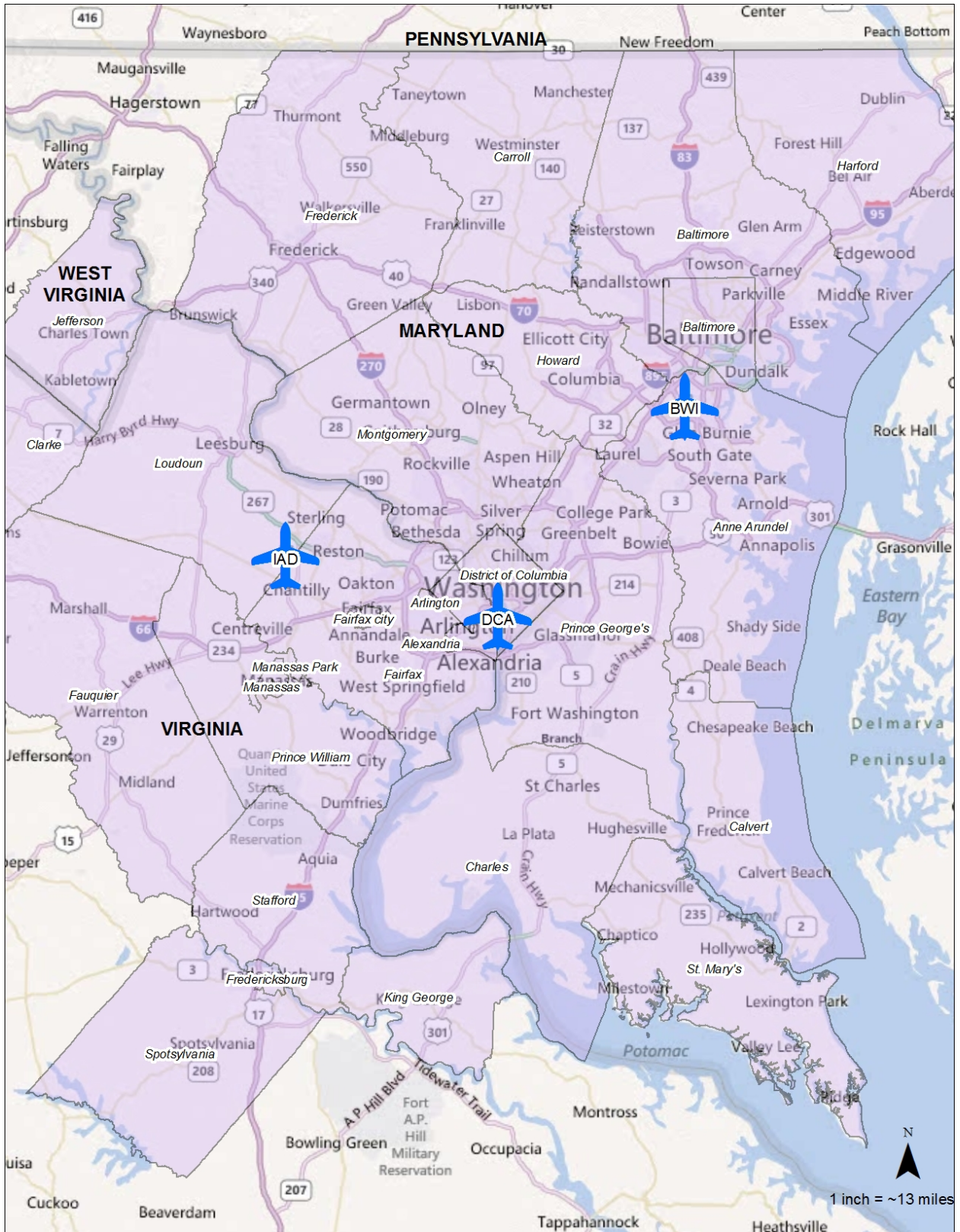
ground access mode for each local AAZ to Airport origin-destination pair. These ground access forecasts will be used as inputs for the CLRP and as the basis for revising the Ground Access Element of the CASP Regional Airport System Plan.

## **Study Area**

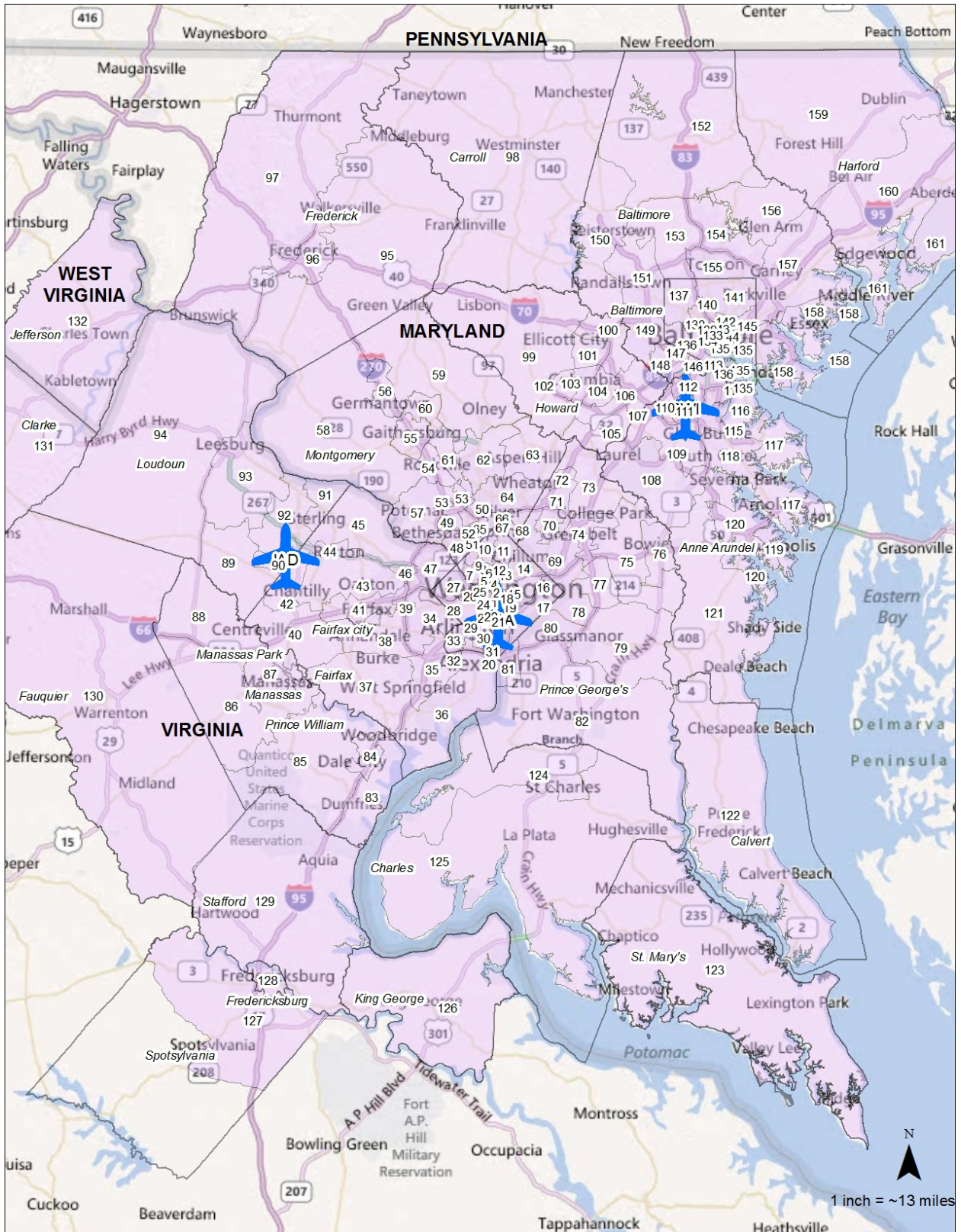
The Washington/Baltimore Air System Planning Region is larger than the combined areas that are normally within the Metropolitan Washington Council of Governments and Baltimore Metropolitan Council's purview. This combined area stretches from Harford County, Maryland, on the Susquehanna River to the north 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 shows the jurisdictions that make up this region and depicts the location of the region's three commercial airports. In 2009, approximately 90% of locally originating air passengers flying out of one of the region's three airports began their ground access trip to the airport from a location within the boundaries of this Air System Planning Region. The other 10% of the locally originating air passengers came from areas beyond the borders of this region.

A locally originating air passenger is defined as air traveler beginning his or her air travel on a flight departing from one of the region's three airports. This definition excludes air travelers who are just connecting to another flight at one of the region's airport, but includes air travelers who are not residents of the Washington/Baltimore region who are making a return air trip home from a business or vacation trip to the Washington/Baltimore region. Thus, local originating air passengers can be either residents or non-residents of the Washington/Baltimore region. In fact, the results of the 2009 Washington/Baltimore Regional Air Passenger Survey showed that approximately 61% of all locally originating air passengers were non-residents who began their ground access trip to the airport from a hotel/motel, place of business, a private residence or other location in the Air System Planning region.

Figure 1: Washington-Baltimore Air Systems Planning Region



**Figure 2: Washington-Baltimore Aviation Analysis Zones (AAZs)**



## **Air Passenger Ground Access Trip Forecasting Methodology**

The update of air passenger ground access forecasts for Washington/Baltimore Air Systems Planning region was accomplished in a series of steps, illustrated in Figure 3. These steps were:

- Convert base year 2009 annual air passenger trips from Regional Air Passenger Survey to average weekday air passenger ground access trips.
- Summarize base year 2009 average weekday air passenger ground access trips by residential (home based) / non-residential (non-home based) trip origin type and area resident/non-resident status for each AAZ.<sup>2</sup>
- Summarize household and employment land activity data by new AAZ base year 2009 and all forecast years (2010, 2015, 2020, 2025, 2030, 2035 and 2040).
- Calculate base year 2009 air passenger ground access trip generation factors by home/non-home trip origin type and area resident/non-resident status for each airport-new AAZ pair.
- Calculate average weekday airport air passenger ground access trips to each airport for 2009 base year and all forecast years.
- Summarize base year 2009 weekday ground access trips by mode of arrival for each airport-new-AAZ-trip origin area type-resident-status classification.
- Calculate average weekday airport ground access trips by mode of arrival for 2009 base year and all forecast years.
- Calculate time-of-day split.

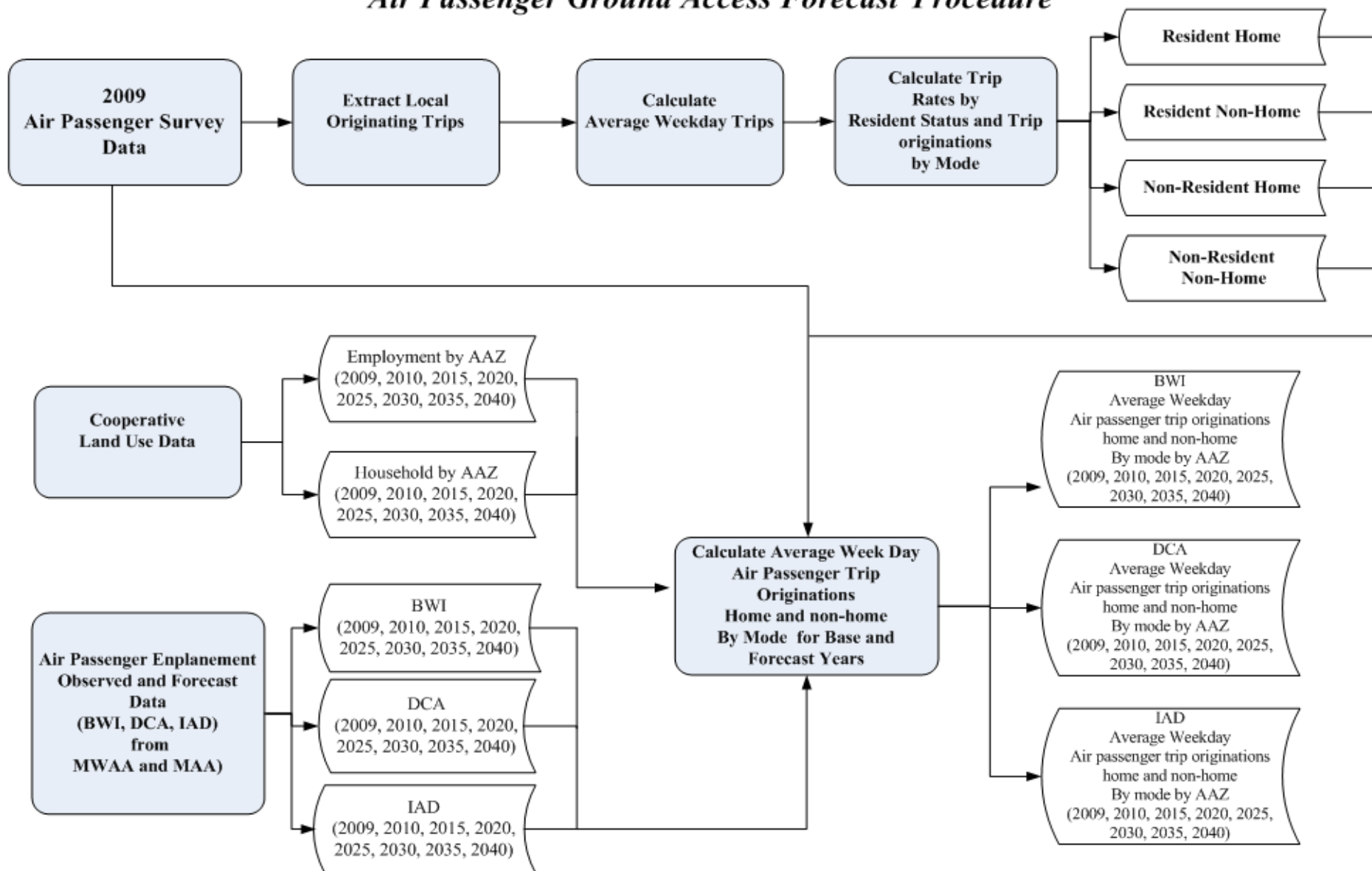
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<sup>2</sup> In the context of air passenger ground access trips, a home-based trip refers to any airport ground access trip that begins at a private residence. For example, an airport ground access trip by a non-resident that begins at the home of friend or family member who lives in this region is considered to be a home-based trip, even though this starting location is not technically the “home” of the non-resident air passenger.



Figure 3: Air Passenger Ground Access Forecast Procedure

*Figure 3  
Air Passenger Ground Access Forecast Procedure*



## Conversion of 2009 Air Passenger Survey Data to Average Weekday Air Passenger Ground Access Trips

The first step in the update of airport ground access trips was converting annual air passenger trips from the 2009 Washington/Baltimore Regional Air Passenger Survey to average weekday figures. This was accomplished by (1) slightly adjusting the annual air passenger survey weights to exactly match the year 2009 observed enplanements at the three commercial airports; (2) selecting only the survey records for local originating air passengers making an airport ground access trips on a weekday; and (3) dividing the adjusted annual survey weights for each air passenger trip record using the following formula:

$$\text{Average Weekday Air Passenger Ground Access Trips} = \frac{\text{Annual Weekday Ground Access Trips}}{260}$$

### Review of 2009 Air Passenger Survey data

30.8 million air passengers originated in the Washington-Baltimore Region in 2000 (see Table 1). Average weekday air passenger originations are further grouped into internal (local originating air passenger trips within the Washington-Baltimore Air System Planning Region), and external (local originating air passenger trips from areas outside the Washington-Baltimore Air System Planning Region), and are presented in Table 2.

**Table 1: 2009 Washington-Baltimore Regional Air Passenger Survey – Annual Trip Originations by Airport (000s)<sup>3</sup>**

Enplanement Type		BWI	DCA	IAD	Total
Local origination	<i>Number</i>	8,913	7,976	6,900	23,789
- (Came by ground transportation)	<i>Percent</i>	85%	91%	60%	77%
Connected from another Flight	<i>Number</i>	1,584	791	4,647	7,022
- (Local and/or International)	<i>Percent</i>	15%	9%	40%	23%
<b>Total Annual Enplanements</b>	<i>Number</i>	<b>10,497</b>	<b>8,767</b>	<b>11,547</b>	<b>30,811</b>
	<i>Percent</i>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>
<b>Percent of Air System Planning Region</b>		<b>34%</b>	<b>28%</b>	<b>37%</b>	

Source:- 2009 Washington-Baltimore Regional Air Passenger Survey

<sup>3</sup> For all tables in this report, totals may not completely add up due to rounding.

**Table 2: Average Weekday Enplanements – Internal / External Trip Originations by Airport**

Enplanement Type		Airport			
		BWI	DCA	IAD	Total
Within Air System Planning Region - ( <i>Internals</i> )	<i>Number</i>	28,923	29,110	22,722	80,755
	<i>Percent</i>	86%	97%	88%	90%
Outside Air System Planning Region - ( <i>Externals</i> )	<i>Number</i>	4,843	886	3,001	8,730
	<i>Percent</i>	14%	3%	12%	10%
<b>Total Annual Enplanements</b>	<i>Number</i>	<b>33,766</b>	<b>29,996</b>	<b>25,723</b>	<b>89,484</b>
	<i>Percent</i>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

- **Internal** originating trips are local originating trips within the Washington/Baltimore Air System Planning Area.

- **External** originating trips are trips originating from PA, DE, WV, NJ or external VA and MD

*Source:- 2009 Washington-Baltimore Regional Air Passenger Survey*

### **Review of Air Passenger Enplanement Forecast**

Enplanement forecasts for the three commercial airports in the Washington / Baltimore region were provided by the Maryland Aviation Administration (MAA) for BWI and by the Metropolitan Washington Airports Authority (MWAA) DCA and IAD.

Table 3, Table 4, and Table 5 present observed and forecast air passenger enplanements for the three airports in the Washington/Baltimore region. Air passenger enplanements for BWI, are presented in Table 3. FAA forecasted enplanements at BWI to reach over 23.4 million by 2040, double the 2009 volume. At DCA, enplanements are projected to reach 12.5 million by 2040. Enplanements at IAD are projected to reach more than 33.2 million by 2040, a 183 percent increase from the 2009 volume.

**Table 3: Annual Air Passenger Enplanement Forecasts - BWI**

Year	Enplanements	Change	Avg Annual Compound Growth	
2009	10,496,865 <sup>1</sup>			
2010	10,996,713 <sup>1</sup>	499,848	2009 - 2010	4.8%
2015	11,887,711 <sup>2</sup>	890,998	2010 - 2015	1.6%
2020	13,667,382 <sup>2</sup>	1,779,671	2015 - 2020	3.0%
2025	15,673,506 <sup>2</sup>	2,006,124	2020 - 2025	2.9%
2030	17,974,981 <sup>2</sup>	2,301,475	2025 - 2030	2.9%
2035	20,416,040 <sup>2</sup>	2,441,059	2030 - 2035	2.7%
2040	23,377,189 <sup>2</sup>	2,961,149	2035 - 2040	2.9%

<sup>1</sup> MAA Observed

<sup>2</sup> FAA BWI Marshall Aviation Activity Forecasts, February 2012

**Table 4: Annual Air Passenger Enplanement Forecasts - DCA**

Year	Enplanements	Change	Avg Annual Compound Growth	
2009	8,767,243 <sup>1</sup>			
2010	9,035,544 <sup>1</sup>	268,301	2009 - 2010	3.1%
2015	9,784,249 <sup>2</sup>	748,705	2010 - 2015	1.7%
2020	10,283,345 <sup>2</sup>	499,096	2015 - 2020	1.0%
2025	10,807,901 <sup>2</sup>	524,556	2020 - 2025	1.0%
2030	11,359,211 <sup>2</sup>	551,310	2025 - 2030	1.0%
2035	11,915,009 <sup>2</sup>	555,798	2030 - 2035	1.0%
2040	12,536,357 <sup>2</sup>	621,348	2035 - 2040	1.0%

<sup>1</sup> MWAA Observed

<sup>2</sup> FAA Ronald Reagan National Airport Aviation Activity Forecasts, February 2012

**Table 5: Annual Air Passenger Enplanement Forecasts - IAD**

Year	Enplanements	Change	Avg Annual Compound Growth	
2009	11,546,771 <sup>1</sup>			
2010	11,812,905 <sup>1</sup>	266,134	2009 - 2010	2.3%
2015	11,986,199 <sup>2</sup>	173,294	2010 - 2015	0.3%
2020	14,772,158 <sup>2</sup>	2,785,959	2015 - 2020	4.6%
2025	17,991,613 <sup>2</sup>	3,219,455	2020 - 2025	4.4%
2030	21,913,221 <sup>2</sup>	3,921,608	2025 - 2030	4.4%
2035	26,791,178 <sup>2</sup>	4,877,957	2030 - 2035	4.5%
2040	33,173,125 <sup>2</sup>	6,381,947	2035 - 2040	4.8%

<sup>1</sup> MWA Observed

<sup>2</sup> FAA Washington Dulles International Airport Aviation Activity Forecasts, February 2012

### Market Segmentation

Based on the 2009 Washington-Baltimore Regional Air Passenger Survey data, enplanements were further grouped into local originations and internal originations. Table 6 shows the breakdown of these two types of originations by airport for base year 2009 and forecast years 2010 through 2040.

**Table 6: Washington-Baltimore Regional Airports – Local and Internal AAZ Originating Trips**

Year	Local Originating Trips				Internal AAZ Originating Trips			
	BWI	DCA	IAD	Total	BWI	DCA	IAD	Total
2009	8,922	7,978	6,928	23,829	7,673	7,739	6,097	21,509
2010	9,347	8,222	7,088	24,657	8,039	7,976	6,237	22,251
2015	10,105	8,904	7,192	26,200	8,690	8,637	6,329	23,655
2020	11,617	9,358	8,863	29,838	9,991	9,077	7,800	26,868
2025	13,322	9,835	10,795	33,953	11,457	9,540	9,500	30,497
2030	15,279	10,337	13,148	38,764	13,140	10,027	11,570	34,737
2035	17,354	10,843	16,075	44,271	14,924	10,517	14,146	39,587
2040	19,871	11,408	19,904	51,183	17,089	11,066	17,515	45,670

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 2009 Air Passenger Survey data to be 85% for BWI, 91% for DCA and 60% for IAD, of the total enplanements, shown on Tables 3, 4 and 5, respectively.
- Internal originating trips are calculated based on the 2009 Air Passenger Survey data to be 86% for BWI, 97% for DCA, and 88% for IAD, of the total local originating trips, that are within the 161 internal AAZ's.
- These data does not include external zones for PA, DE, WV, NJ or external VA and MD

### Summarization of Base Year Air Passenger Ground Access Trips by Resident Status and Area Type

The next step in the process was to summarize the average weekday ground access trip data for each airport (BWI, DCA, and IAD) by trip origin type and resident status for each new AAZ in the air systems planning region. Ground access trip data for all external AAZs were summarized into a single combined external AAZ record. The weekday ground access data were summarized into two trip origin types (home-based, non-home based) and two resident status types (resident, non-resident). Thus, this processing summarized the ground access trip data into four categories for each airport-AAZ pair. These categories were:

- *Resident Status=Resident, Origin Type=Home-based*
- *Resident Status=Resident, Origin Type=Non-home based*
- *Resident Status=Non-Resident, Origin Type=Home-based*
- *Resident Status=Non-Resident, Origin Type=Non-home based*

Table 7, Table 8, and Table 9 show average weekday airport ground access trips for each airport summarized by these four categories. Resident and non resident trips were categorized into Home-Based (HB) and Non-Home-Based (NHB) trip purposes depending on the air passengers' trip origination, i.e., the starting point of the passenger's ground trip to the airport.

**Table 7: Average Weekday Air Passenger Ground Access Trips by Resident Status and Trip Origin (Internal AAZs only) - BWI**

Year	Resident		Non-Resident		Total
	Home-based	Non-Home Based	Home-based	Non-Home Based	
<b>2009</b>	11,110	1,602	6,088	10,121	<b>28,921</b>
<b>2010</b>	11,633	1,679	6,385	10,603	<b>30,300</b>
<b>2015</b>	12,542	1,802	6,929	11,476	<b>32,749</b>
<b>2020</b>	14,312	2,066	7,937	13,353	<b>37,668</b>
<b>2025</b>	16,255	2,359	9,038	15,546	<b>43,198</b>
<b>2030</b>	18,507	2,687	10,306	18,024	<b>49,524</b>
<b>2035</b>	20,888	3,029	11,641	20,694	<b>56,252</b>
<b>2040</b>	23,786	3,443	13,271	23,914	<b>64,414</b>

**Table 8: Average Weekday Air Passenger Ground Access Trips by Resident Status and Trip Origin (Internal AAZs only) - DCA**

Year	Resident		Non-Resident		Total
	Home-based	Non-Home Based	Home-based	Non-Home Based	
<b>2009</b>	9,276	1,651	3,799	14,391	<b>29,117</b>
<b>2010</b>	9,517	1,704	3,886	14,885	<b>29,992</b>
<b>2015</b>	10,352	1,836	4,251	16,053	<b>32,492</b>
<b>2020</b>	10,584	1,950	4,340	17,282	<b>34,156</b>
<b>2025</b>	11,082	2,046	4,536	18,229	<b>35,893</b>
<b>2030</b>	11,655	2,155	4,759	19,139	<b>37,708</b>
<b>2035</b>	12,303	2,257	5,017	19,984	<b>39,561</b>
<b>2040</b>	12,937	2,373	5,271	21,046	<b>41,627</b>

**Table 9: Average Weekday Air Passenger Ground Access Trips by Resident Status and Trip Origin (Internal AAZs only) - IAD**

Year	Resident		Non-Resident		Total
	Home-based	Non-Home Based	Home-based	Non-Home Based	
<b>2009</b>	9,741	1,161	3,857	7,962	<b>22,721</b>
<b>2010</b>	9,947	1,194	3,939	8,155	<b>23,235</b>
<b>2015</b>	10,131	1,207	4,025	8,228	<b>23,591</b>
<b>2020</b>	12,318	1,510	4,914	10,329	<b>29,071</b>
<b>2025</b>	14,941	1,830	5,986	12,652	<b>35,409</b>
<b>2030</b>	18,135	2,233	7,268	15,481	<b>43,117</b>
<b>2035</b>	22,152	2,726	8,882	18,956	<b>52,716</b>
<b>2040</b>	27,286	3,378	10,959	23,652	<b>65,275</b>

**Summarize Land Activity Data for 2009 Base Year and Forecast Years**

Household and employment land activity data for 2009 and forecasts for 2010, 2015, 2020 n 2025, 2030, 2035 and 2040 by small area TAZs were the latest small-area forecasts available obtained from MWCOG and BMC. The MWCOG data were the Round 8.1 Cooperative Forecasts and BMC data were their Round 7c land activity forecasts. These TAZ-level data were aggregated to the internal AAZs shown in Figure 2 above. Table 10 shows the combined MWCOG and BMC household forecasts and Table 11 shows the employment forecasts summarized for the entire air systems planning region.

**Table 10: Washington-Baltimore Air System Planning Region Household Forecast**

Year	Households	Change	Avg Annual Compound Growth	
<b>2009</b>	3,133,149	-		
<b>2010</b>	3,159,157	26,008	2009 - 2010	1%
<b>2015</b>	3,363,864	204,707	2010 - 2015	6%
<b>2020</b>	3,553,276	189,412	2015 - 2020	6%
<b>2025</b>	3,728,913	175,637	2020 - 2025	5%
<b>2030</b>	3,875,745	146,832	2025 - 2030	4%
<b>2035</b>	4,002,979	127,234	2030 - 2035	3%
<b>2040</b>	4,114,471	111,492	2035 - 2040	3%

Source:- MWCOG Round 8.1 Cooperative Forecast and BMC 7C land use data

**Table 11: Washington-Baltimore Air System Planning Region Employment Forecast**

Year	Employment	Change	Avg Annual Compound Growth	
2009	4,944,542	-		
2010	4,994,404	49,862	2009 - 2010	1%
2015	5,309,053	314,649	2010 - 2015	6%
2020	5,690,609	381,556	2015 - 2020	7%
2025	6,017,711	327,102	2020 - 2025	6%
2030	6,293,366	275,655	2025 - 2030	5%
2035	6,514,374	221,008	2030 - 2035	4%
2040	6,726,754	212,380	2035 - 2040	3%

Source:- MWCOG Round 8.1 Cooperative Forecast and BMC 7C land use data

*Note: For regional transportation planning purposes, CTPP-based adjustments were applied to employment forecasts in selected non-MWCOG jurisdictions to account for definitional differences in employment.*

**Calculate Air Passenger Ground Access Trip Generation Factors**

Once the air passenger ground access trip and land activity data were summarized, trip generation factors were calculated for each Airport/AAZ/trip origin type/resident-status classification using the following formulae:

**A. Resident Home-based Trip Origin factor for Airport<sub>(A)</sub> AAZ<sub>(X)</sub> =**

$$\text{Resident Home-based Factor} = \frac{\text{Total Resident Home-based Trip Origin Trips (AAZ}_X\text{) (Year 2007)}}{\text{Total Households (AAZ}_X\text{) (Year 2007)}}$$

**B. Resident Non-home based Trip Origin factor for Airport<sub>(A)</sub> AAZ<sub>(X)</sub> =**

$$\text{Resident Non-home based Factor} = \frac{\text{Total Resident Non-home based Trip Origin Trips (AAZ}_X\text{) (Year 2007)}}{\text{Total Employment (AAZ}_X\text{) (Year 2007)}}$$

**C. Non-Resident Home-based Trip Origin factor for Airport<sub>(A)</sub> AAZ<sub>(X)</sub> =**

$$\text{Non-Resident Home-based Factor} = \frac{\text{Total Non-Resident Home based Trip Origin Trips (AAZ}_X\text{) (Year 2007)}}{\text{Total Households (AAZ}_X\text{) (Year 2007)}}$$

**D. Non-Resident Non-Home based Trip Origin factor for Airport<sub>(A)</sub> AAZ<sub>(X)</sub> =**

$$\text{Non-Resident Non-Home based Factor} = \frac{\text{Total Non-Resident Non-home based Trip Origin Trips (AAZ}_X\text{) (Year 2007)}}{\text{Total Employment (AAZ}_X\text{) (Year 2007)}}$$



**Table 12: Washington-Baltimore Air System Planning Region – Home and Non-Home Based Trip Rates by Resident Status**

Airport	Resident Trip Rate		Non-Resident Trip Rate	
	Home	Non-Home	Home	Non-Home
<b>BWI</b>	0.67188	0.05801	0.37265	0.42087
<b>DCA</b>	0.61073	0.03197	0.27473	0.44539
<b>IAD</b>	0.62704	0.03085	0.32331	0.21547

### **Calculate Air Passenger Ground Access Trips for 2007 and Forecast Years**

Ground access trips for 2009, 2010, 2015, 2020, 2025, 2030, 2035, and 2040 were calculated by multiplying base year and forecast year household and employment data by the appropriate trip generation factors and adjusting the resultant product to be consistent with local air passenger originations estimated from approved MWAA and MAA totals for each airport. For each airport-AAZ combination:

- Air passenger ground access trips by residents with home-based trip origin types were calculated by multiplying AAZ households by the resident home-based trip origin trip generation factor.
- Air passenger ground access trips by residents with non-home-based trip origin types were calculated by multiplying AAZ employment by the resident non-home based trip origin trip generation factor.
- Air passenger ground access trips by non-residents with home based trip origin types were calculated by multiplying AAZ households by the non-resident home-based trip origin trip generation factor.
- Air passenger ground access trips by non-residents with non-home based origin types were calculated by multiplying AAZ employment by the non-resident non-home based trip origin trip generation factor.

The resultant products for each AAZ-origin type-resident-status classification were then summed by airport-AAZ pair and totaled for each airport. This total was then divided by a previously determined MWAA and MAA control total for local passenger originations at that airport to obtain a MWAA and MAA adjustment factor. This adjustment factor was then applied to all airport-AAZ pairs to ensure that the sum of the calculated ground access trips by AAZ for that airport would match the approved MWAA and MAA forecasts.

Table 13 shows calculated 2009 to 2040 air passenger average weekday ground access trips totals by airport for the entire Air Systems Planning Region. Detailed 2009 to 2040 average weekday air passenger ground access trips by AAZ are presented in Appendix A.

**Table 13: Average Weekday Air Passenger Ground Access Trips (Internal AAZs only)**

Forecast Year	BWI	DCA	IAD	Total
2009	28,923	29,110	22,722	80,755
2010	30,300	30,001	23,245	83,546
2015	32,755	32,487	23,586	88,828
2020	37,659	34,144	29,068	100,871
2025	43,186	35,886	35,404	114,476
2030	49,528	37,716	43,121	130,365
2035	56,254	39,562	52,719	148,535
2040	64,413	41,625	65,278	171,315

### **Summarize 2009 Base Year Air Passenger Ground Access Trips by Mode of Arrival**

The next step in the process was to summarize the average weekday ground access trip data from the 2009 Air Passenger survey by mode of arrival for each airport-AAZ pair by trip origin type and resident status. The ground access trip data were summarized into four major arrival modes as follows:

- Auto: Private Car, Rental Car and Taxi
- Transit: Metrorail, Amtrak / MARC / VRE and Light Rail
- Airport Transit: Airport Bus / Limo and Hotel / Motel Courtesy Shuttle
- Other: Charter Bus, Employer Shuttle, and All Other

The auto mode of arrival was further split into two sub-categories:

- Auto Driver
- Auto Passenger

The split of auto ground access trips into auto driver and auto passenger trips was determined from the air passenger survey question that asked for the total number of household members, friends, or business associates that traveled with the surveyed air passenger to the airport. From this question the total vehicle occupancy of air passengers arriving at the airport by private or rental cars could be determined. The reciprocal of this number yields the proportion of air passengers who were likely auto drivers. The complement of this reciprocal yields the proportion of air passengers who were likely auto passengers. Multiplying the survey record weights by these proportions produces estimates of the number of air passengers who were auto drivers and the number of air passengers who were auto passengers for these auto ground access trips. Air passengers arriving at the airport by taxi are by definition auto passengers.

Once the ground access mode of arrival trip data were summarized, modal shares for Auto Driver, Auto Passenger, Transit, Airport Transit and Other arrival modes were calculated for each airport/ AAZ / trip origin type / resident status classification.

## **Calculate Air Passenger Ground Access Trips by Mode for 2009 Base Year and Forecast Years**

Air passenger ground access trips to BWI by mode of arrival for 2009 through 2040 were estimated by multiplying respective year ground access trips for each BWI-AAZ / trip origin type / resident status classification by the base year modal shares for that classification.

Air passenger ground access trips to DCA and IAD by mode of access were estimated in the same way as was done for BWI. For forecast year 2015 and beyond, however, initial estimates of ground access trips by mode of arrival were further adjusted to take into account the planned opening of the Metrorail extension to IAD anticipated in 2015.

The adjustment for IAD was made by taking the 2015 Metrorail air passenger ridership projection from the Dulles Extension FEIS (Final Environmental Impact Statement) Patronage Forecast Report (November 2004) for the Dulles Airport station and allocating this air passenger-related ridership to selected AAZs in the Air System Planning region. This allocation was based upon an examination of the air passenger ground access trips by Metrorail to DCA in 2007, the characteristics of the AAZs from which these DCA Metrorail ground access trips were made, and the modal share of each ground access mode to DCA from these AAZs. No independent mode choice modeling was done and professional judgment was used to allocate the FEIS Metrorail ridership projection to individual AAZs and adjusting the other ground access modal share percentages from these AAZs to IAD accordingly. These adjusted modal shares were then applied to total ground access trips to IAD by AAZ for 2015, 2020, 2025 and 2030 to obtain final adjusted estimates of ground access trips by mode for these forecast years.

Adjustments to initial estimates of DCA air passenger ground access trips to take into account the expected opening of the Dulles Extension in 2015 were fairly limited in geographic scope because the Vienna Metrorail line and other lines throughout the region already well serve DCA. Thus, adjustments to modal shares were only made for a few select AAZs in the Tysons/Dulles Corridor (AAZs 43, 44, 45, 89, 91 and 92). Again, no mode choice modeling was done and professional judgment was used in making these adjustments. These adjusted modal shares were then applied to total air passenger trips to DCA from these selected AAZs for 2015, 2020, 2025 and 2030 to obtain final adjusted estimates of ground access trips by mode for these forecast years. Table 14, Table 15, and Table 16 show air passenger ground access forecast to each airport by mode for the base and forecast years. These data are graphically displayed in Figure 4.

**Table 14: Average Weekday Air Passenger Ground Access Trips by Mode of Access - BWI<sup>4</sup>**

<b>Year</b>	<b>Auto Driver</b>	<b>Auto Passenger</b>	<b>Transit</b>	<b>Airport Transit</b>	<b>Other</b>	<b>Total</b>
<b>2009</b>	13,221	10,017	1,269	3,723	691	28,921
<b>2010</b>	13,843	10,491	1,337	3,903	725	30,300
<b>2015</b>	14,968	11,336	1,450	4,220	776	32,749
<b>2020</b>	17,231	13,025	1,682	4,855	875	37,668
<b>2025</b>	19,760	14,917	1,900	5,627	994	43,198
<b>2030</b>	22,697	17,120	2,141	6,428	1,138	49,524
<b>2035</b>	25,816	19,429	2,401	7,318	1,288	56,252
<b>2040</b>	29,598	22,266	2,750	8,325	1,474	64,414

**Table 15: Average Weekday Air Passenger Ground Access Trips by Mode of Access - DCA**

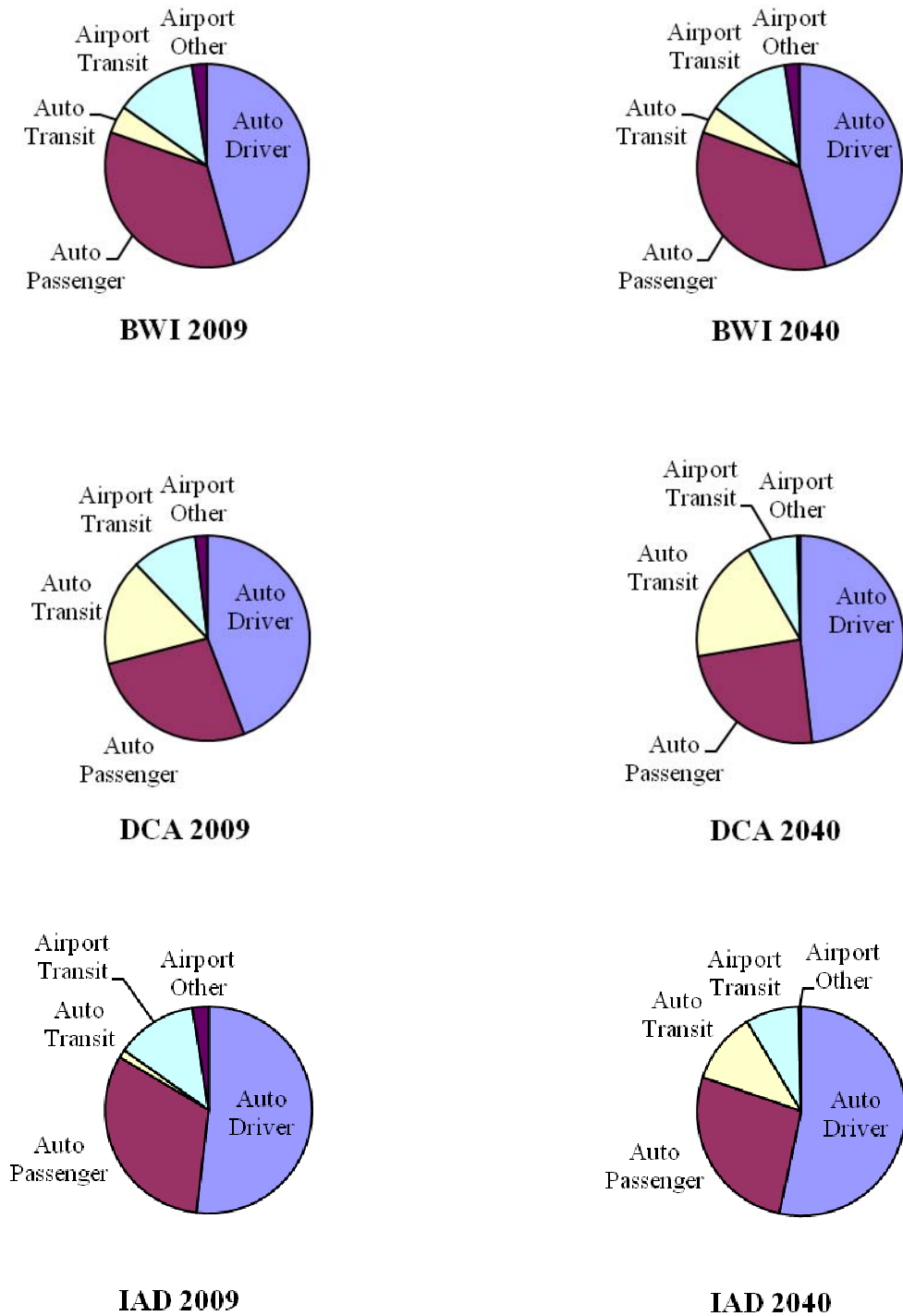
<b>Year</b>	<b>Auto Driver</b>	<b>Auto Passenger</b>	<b>Transit</b>	<b>Airport Transit</b>	<b>Other</b>	<b>Total</b>
<b>2009</b>	12,862	7,795	4,902	3,001	557	29,117
<b>2010</b>	13,214	8,021	5,038	3,152	567	29,992
<b>2015</b>	15,419	7,919	6,470	2,509	175	32,492
<b>2020</b>	16,219	8,301	6,802	2,656	178	34,156
<b>2025</b>	17,159	8,669	7,063	2,826	177	35,893
<b>2030</b>	18,068	9,128	7,344	2,986	183	37,708
<b>2035</b>	19,012	9,593	7,640	3,127	189	39,561
<b>2040</b>	20,061	10,085	8,007	3,272	202	41,627

**Table 16: Average Weekday Air Passenger Ground Access Trips by Mode of Access - IAD**

<b>Year</b>	<b>Auto Driver</b>	<b>Auto Passenger</b>	<b>Transit</b>	<b>Airport Transit</b>	<b>Other</b>	<b>Total</b>
<b>2009</b>	11,799	7,175	294	2,878	575	22,721
<b>2010</b>	12,069	7,332	299	2,949	953	23,602
<b>2015</b>	12,549	6,327	3,344	1,281	103	23,605
<b>2020</b>	15,433	7,826	4,005	1,697	124	29,085
<b>2025</b>	18,794	9,535	4,448	2,484	148	35,409
<b>2030</b>	22,951	11,615	4,903	3,480	182	43,131
<b>2035</b>	28,124	14,197	5,855	4,326	227	52,729
<b>2040</b>	34,848	17,579	7,232	5,365	280	65,303

<sup>4</sup> Source for Table 14, Table 15, and Table 16: 2009 Washington-Baltimore Regional Air Passenger Survey

Figure 4: Average Weekday Air Passenger Ground Access Trips Mode Shares



### Time-Of-Day Split

The 2009 air passenger survey data has scheduled flight time for the survey records. Two separate time-of-day split factors were developed using the survey data. Time-of-day is calculate, as a percent of total trips departing one-hour and/or two hours before the flight time, and is shown in Table 12. These are:

#### One-Hour before flight time:-

1. AM trips = flight time 700 to 1000 (7:00 AM to 10:00 AM).
2. PM trips = flight time 1600 to 1900 (4:00 PM to 7:00 PM).
3. Off-Peak trips = flight time 600 to 700, 1000 to 1600, and 1900 to 2400.  
(6:00-7:00 AM, 10:00 AM-4:00 PM, and 7:00 -12:00 PM).

#### Two-Hours before flight time:-

1. AM trips = flight time 600 to 900 (6:00 AM to 9:00 AM).
2. PM trips = flight time 1500 to 1800 (3:00 PM to 6:00 PM).
3. Off-Peak trips = flight time 900 to 1500, and 1800 to 2400.  
(9:00 AM-3:00 PM, and 6:00 12:00 PM).

**Table 17: Average Weekday Air Passenger Ground Access Trips by Time of Day by Airport**

	One-Hour Before Flight Departure				Two-Hours Before Flight Departure			
	BWI	DCA	IAD	Total	BWI	DCA	IAD	Total
<b>AM-Peak</b>	7,011	6,924	4,974	<b>18,908</b>	7,341	7,156	4,988	<b>19,485</b>
	24%	24%	22%	23%	25%	25%	22%	24%
<b>PM-Peak</b>	6,992	6,914	7,680	<b>21,586</b>	7,736	7,539	7,252	<b>22,527</b>
	24%	24%	34%	27%	27%	26%	32%	28%
<b>Off-Peak</b>	14,920	15,273	10,068	<b>40,260</b>	13,846	14,415	10,481	<b>38,742</b>
	52%	52%	44%	50%	48%	50%	46%	48%
<b>Total</b>	<b>28,923</b>	<b>29,110</b>	<b>22,722</b>	<b>80,754</b>	<b>28,923</b>	<b>29,110</b>	<b>22,722</b>	<b>80,754</b>
	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

Source:- 2009 Washington-Baltimore Regional Air Passenger Survey

## **Summary and Conclusion**

The update of forecast air passenger ground access trips to the region's three commercial airports is an important step in the airport system planning process. This report documents the CASP update of forecast ground access trips to BWI, DCA and IAD from AAZs in the Washington-Baltimore Air Systems Planning Region. These forecasts are detailed by major mode of arrival at each airport for 2009 and by 5-year intervals for the 2010 to 2040 forecast period. Although no independent mode choice modeling has been performed in this study, these forecasts have been adjusted based on the ridership projection from the Dulles Extension FEIS Patronage Forecast to account for the anticipated impact on air passenger ground access travel to Dulles Airport resulting from the planned opening of the Dulles Metrorail line extension in 2015.

These ground access forecasts will be used as inputs for the CLRP update and as the basis for revising the Ground Access Element of the CASP Regional Airport System Plan, both scheduled to occur in 2013.

The ground access forecast, developed in this update by AAZ represents 4,368 Transportation Analysis Zones (TAZ). Of the 161 AAZ's in the study area, 132 are within the MWCOG planning region. Therefore, the ground access forecasts are further disaggregated into the 3,669 TAZ's in the MWCOG planning area by mode and time-of-day as an input to the regional travel demand model process.

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**Appendix A: Washington – Baltimore Air System Planning Region Aviation  
Analysis Zone System by Jurisdiction**

**Table A- 1: Washington-Baltimore Air System Planning Region – Aviation Analysis Zones**

<b>Number</b>	<b>Jurisdiction</b>	<b>Number of AAZs</b>	<b>AAZs Range</b>	<b>No. of TAZs</b>
1	District of Columbia	20	1 - 20	393
2	Arlington County	9	21 - 29	141
3	City of Alexandria	4	30 - 33	65
4	Fairfax County	14	34 - 47	549
5	Montgomery County	21	48 - 68	375
6	Prince George's County	14	69 - 82	636
7	Prince William County	6	83 - 88	376
8	Loudoun County	5	89 -94	282
9	Frederick County	3	95 - 97	130
10	Carroll County	1	98	58
11	Howard County	9	99 - 107	68
12	Anne Arundel County	14	108 - 121	98
13	Calvert County	1	122	47
14	St. Mary's County	1	123	75
15	Charles County	2	124 - 125	113
16	King George County	1	126	25
17	Spotsylvania County	1	127	62
18	City of Fredericksburg	1	128	14
19	Stafford County	1	129	90
20	Fauquier County	1	130	50
21	Clarke County	1	131	9
22	Jefferson County	1	132	13
23	Baltimore City	13	133 - 145	217
24	Baltimore County	13	146 - 158	342
25	Harford County	3	159 - 161	140
<b>Total Washington/Baltimore Air System Planning Area</b>		<b>160</b>		<b>4,368</b>
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
<b>Total Externals</b>		<b>7</b>		
<b>Grand Total</b>		<b>167</b>		

**Appendix B: Ground Access Forecast Update Average Weekday Trips by  
Airport 2010 – 2040**

**Table B-1**  
**Washington / Baltimore Air System Planning Region**  
**Average Weekday Trips 2010 - 2040 - BWI Airport**

AAZ	Average Weekday Trips						
	2010	2015	2020	2025	2030	2035	2040
1	100	102	112	123	136	149	173
2	39	41	44	50	54	60	70
3	904	1,004	1,224	1,393	1,559	1,742	2,007
4	649	678	743	815	902	998	1,149
5	136	143	155	171	189	210	242
6	305	314	344	375	416	461	531
7	50	56	60	67	72	82	96
8	58	62	68	75	84	94	109
9	178	189	207	237	261	294	341
10	118	123	136	149	165	185	214
11	130	132	152	171	192	217	256
12	67	71	79	87	97	109	127
13	78	86	97	116	129	146	170
14	115	128	148	173	199	225	263
15	131	142	165	190	221	247	284
16	175	209	255	284	339	386	446
17	52	55	63	71	82	93	109
18	65	67	74	83	92	103	117
19	42	48	58	78	88	98	114
20	46	52	56	63	74	83	98
21	23	23	25	28	31	34	38
22	231	268	385	444	518	582	659
23	41	42	46	52	58	63	70
24	14	14	15	17	19	21	24
25	79	93	111	134	155	172	199
26	78	87	100	112	129	142	161
27	96	98	110	121	135	149	166
28	135	152	171	197	224	250	283
29	27	28	32	35	39	43	48
30	30	32	38	43	48	56	67
31	159	177	210	246	281	314	355
32	28	31	35	43	47	59	71
33	75	82	95	111	133	157	183
34	112	118	136	156	178	202	228
35	74	82	95	107	123	139	159
36	142	156	182	209	238	271	308
37	101	105	117	129	146	162	182
38	50	52	57	63	70	78	88
39	14	15	17	20	22	25	29
40	56	58	68	78	89	102	116
41	129	139	158	182	208	236	271

AAZ	Average Weekday Trips						
	2010	2015	2020	2025	2030	2035	2040
42	8	9	11	13	16	18	21
43	126	130	145	162	181	201	227
44	84	94	122	150	181	211	247
45	61	64	71	80	89	98	110
46	135	156	200	251	305	360	425
47	239	246	275	306	346	385	433
48	116	119	131	145	160	185	212
49	106	108	119	131	144	165	187
50	85	92	105	115	128	140	160
51	59	66	73	82	91	104	116
52	109	122	144	163	189	209	236
53	149	166	206	242	296	346	409
54	111	122	145	174	208	236	277
55	178	194	234	284	356	426	500
56	100	111	142	195	260	316	370
57	190	200	221	243	270	297	334
58	261	270	303	342	389	436	488
59	266	283	326	382	439	488	547
60	142	146	160	176	195	216	241
61	120	128	158	192	232	284	336
62	342	354	395	433	481	534	599
63	225	232	258	284	317	351	393
64	293	305	345	388	443	496	566
65	107	113	125	145	169	192	219
66	62	64	70	80	90	101	113
67	135	166	199	227	265	296	336
68	100	103	112	122	135	160	180
69	311	332	369	413	472	540	630
70	207	238	304	353	408	492	591
71	82	88	96	106	117	130	147
72	51	109	218	402	756	1,145	1,579
73	207	232	259	293	331	371	421
74	243	260	291	336	388	450	526
75	267	287	328	373	420	471	545
76	221	232	261	293	332	380	442
77	76	79	90	107	123	142	174
78	66	69	78	89	101	113	131
79	156	174	204	239	300	379	480
80	54	56	62	69	80	91	107
81	93	111	178	279	320	365	458
82	246	264	300	339	385	434	497

**Table B-1**  
**Washington / Baltimore Air System Planning Region**  
**Airport Ground Access Forecast Update**  
**Average Weekday Trips 2010 - 2040 - BWI Airport**

cont...

AAZ	Average Weekday Trips						
	2010	2015	2020	2025	2030	2035	2040
83	60	70	88	107	131	155	184
84	15	19	26	32	39	47	56
85	28	29	33	37	41	46	52
86	38	47	59	71	86	102	122
87	81	92	113	134	161	191	227
88	47	65	82	103	127	158	196
89	19	29	42	54	62	70	78
90	49	55	73	90	109	125	144
91	59	61	67	74	83	91	102
92	22	25	35	44	55	65	76
93	148	172	218	263	310	354	409
94	42	49	58	72	88	104	121
95	287	304	356	426	500	583	689
96	133	139	160	189	236	276	326
97	274	289	330	383	442	506	585
98	523	566	649	745	851	966	1,114
99	355	423	503	577	664	751	841
100	346	373	431	491	546	603	674
101	80	84	99	111	123	135	151
102	125	131	142	156	172	190	212
103	256	284	339	400	477	564	644
104	261	270	294	325	360	397	444
105	236	280	331	400	468	522	584
106	304	334	386	440	495	546	611
107	158	209	270	333	392	448	514
108	609	678	776	880	1,014	1,146	1,282
109	394	447	530	604	700	802	897
110	62	74	102	133	155	185	207
111	76	81	97	114	130	150	168
112	1,670	1,810	2,032	2,462	2,822	3,284	3,673
113	51	54	62	70	79	88	98
114	58	62	68	78	88	100	111
115	163	170	191	215	241	269	302
116	25	30	35	42	50	58	66
117	414	434	489	548	617	693	774
118	489	512	575	642	721	807	904
119	580	602	661	726	820	919	1,028
120	508	534	598	668	753	842	942
121	291	305	341	383	429	478	534
122	279	310	357	405	461	520	594
123	218	248	295	345	403	468	549

AAZ	Average Weekday Trips						
	2010	2015	2020	2025	2030	2035	2040
124	111	127	152	179	211	244	288
125	69	80	99	122	145	170	203
126	37	42	52	63	77	91	110
127	23	27	34	41	51	61	73
128	31	36	41	49	59	69	81
129	88	107	135	169	209	252	306
130	48	55	71	86	107	130	163
131	28	30	35	40	47	55	65
132	39	45	55	69	85	104	131
133	1,292	1,364	1,511	1,669	1,852	2,040	2,282
134	216	230	256	281	310	342	383
135	197	208	242	270	301	331	370
136	100	104	116	127	140	157	174
137	215	221	242	266	297	327	365
138	132	141	160	181	203	225	253
139	235	248	280	315	357	395	445
140	394	411	451	496	551	609	683
141	477	492	538	590	651	718	804
142	21	22	24	26	29	32	36
143	183	197	226	252	275	302	339
144	723	785	897	1,021	1,143	1,260	1,409
145	59	67	75	85	98	109	121
146	18	19	20	23	25	29	32
147	22	22	26	27	31	34	39
148	81	85	94	105	116	129	145
149	267	277	311	346	387	429	484
150	201	217	243	270	301	333	375
151	491	520	585	647	722	799	899
152	260	272	305	339	379	419	471
153	303	316	352	389	432	479	539
154	466	485	541	601	672	745	838
155	495	526	586	649	725	801	903
156	111	115	129	142	159	176	198
157	547	591	661	734	820	909	1,024
158	162	170	190	211	234	259	292
159	315	335	382	434	498	562	644
160	588	643	746	865	1,006	1,141	1,318
161	101	119	136	151	168	188	213
<b>Sub-Total Internal</b>	<b>30,300</b>	<b>32,749</b>	<b>37,668</b>	<b>43,198</b>	<b>49,524</b>	<b>56,252</b>	<b>64,414</b>
<b>External Trips</b>	<b>5,074</b>	<b>5,484</b>	<b>6,036</b>	<b>7,231</b>	<b>8,293</b>	<b>9,419</b>	<b>10,785</b>
<b>Total Trips</b>	<b>35,374</b>	<b>38,233</b>	<b>43,704</b>	<b>50,429</b>	<b>57,817</b>	<b>65,671</b>	<b>75,199</b>

*Air Passenger Ground Access Forecast Update – May 2012 Draft*

**Table B-2**  
**Washington / Baltimore Air System Planning Region**  
**Airport Ground Access Forecast Update**  
**Average Weekday Trips 2010 - 2040 - DCA Airport**

AAZ	Average Weekday Trips						
	2010	2015	2020	2025	2030	2035	2040
1	30	31	30	30	31	31	33
2	408	418	408	408	416	426	447
3	4,879	5,295	5,763	5,946	6,126	6,360	6,681
4	2,694	2,808	2,735	2,742	2,792	2,868	3,017
5	333	347	337	339	345	358	379
6	927	954	927	928	946	973	1,024
7	164	180	172	172	175	183	195
8	199	211	207	215	219	231	246
9	262	276	269	279	283	296	313
10	344	361	352	352	357	373	396
11	215	221	224	230	237	251	269
12	290	310	303	307	312	327	348
13	250	274	272	292	299	314	334
14	179	197	201	216	242	269	285
15	358	384	398	419	447	464	489
16	495	575	608	628	701	738	779
17	40	42	43	45	47	49	53
18	632	643	626	652	664	680	716
19	117	136	142	179	185	192	202
20	34	41	38	39	43	45	50
21	0	0	0	0	0	0	0
22	2,001	2,307	2,955	3,121	3,356	3,503	3,601
23	271	276	268	275	281	289	294
24	107	107	103	103	104	108	110
25	512	607	648	736	778	808	859
26	754	829	847	872	910	934	963
27	405	413	410	415	421	432	441
28	611	686	688	725	760	788	812
29	102	111	110	111	113	116	118
30	401	439	448	469	488	526	572
31	967	1,041	1,072	1,128	1,177	1,219	1,264
32	91	98	99	106	108	127	139
33	384	426	440	479	529	577	613
34	516	539	552	580	610	640	664
35	448	490	504	525	552	581	603
36	673	729	755	796	841	888	925
37	455	468	463	472	487	505	518
38	212	218	216	219	226	233	241
39	65	77	81	87	92	98	105
40	46	48	49	50	53	56	58
41	254	271	278	289	305	320	332

AAZ	Average Weekday Trips						
	2010	2015	2020	2025	2030	2035	2040
42	0	0	0	0	0	0	0
43	300	307	304	309	320	329	339
44	46	50	54	58	62	66	69
45	126	129	128	130	134	139	143
46	483	529	599	698	783	857	928
47	243	251	248	254	263	273	280
48	105	106	104	106	108	116	121
49	159	162	157	157	161	171	178
50	146	160	163	164	165	169	176
51	136	156	155	159	170	178	183
52	197	219	226	235	246	255	263
53	285	316	350	375	421	460	495
54	204	223	235	257	282	298	317
55	201	219	232	257	299	333	356
56	59	64	76	99	127	146	159
57	126	133	130	130	133	136	140
58	361	375	372	384	401	417	427
59	74	79	81	87	91	94	97
60	86	89	87	87	89	92	94
61	111	117	129	143	159	178	192
62	104	107	104	106	108	110	113
63	107	110	108	109	112	115	117
64	301	317	321	331	348	365	380
65	135	142	140	147	159	168	174
66	121	124	121	124	129	134	138
67	133	162	171	179	192	199	207
68	40	41	39	39	41	45	46
69	104	111	109	109	114	119	124
70	64	79	95	101	107	118	125
71	5	5	5	5	5	5	5
72	0	0	0	0	0	0	0
73	43	50	50	51	52	55	57
74	43	45	45	49	50	55	58
75	57	59	60	61	63	65	67
76	0	0	0	0	0	0	0
77	74	77	77	84	88	94	104
78	52	55	56	57	60	62	65
79	81	90	99	109	125	142	162
80	97	101	100	101	107	112	123
81	303	364	512	731	768	815	933
82	217	233	234	243	252	265	278

**Table B-2**  
**Washington / Baltimore Air System Planning Region**  
**Airport Ground Access Forecast Update**  
**Average Weekday Trips 2010 - 2040 - DCA Airport**

cont...

AAZ	Average Weekday Trips						
	2010	2015	2020	2025	2030	2035	2040
83	172	201	222	249	277	308	337
84	68	78	89	102	116	132	147
85	235	247	247	252	261	272	281
86	98	122	136	151	166	179	192
87	84	93	100	109	118	130	140
88	24	33	36	41	47	53	60
89	25	37	48	57	59	62	64
90	19	21	25	29	32	34	36
91	10	10	10	10	10	11	11
92	81	94	110	128	142	156	170
93	39	45	51	56	60	62	66
94	10	11	12	14	16	17	19
95	59	63	65	71	76	83	90
96	32	33	34	38	45	49	53
97	32	33	33	34	37	38	40
98	2	3	3	3	3	3	3
99	11	13	14	15	15	16	17
100	0	0	0	0	0	0	0
101	0	0	0	0	0	0	0
102	0	0	0	0	0	0	0
103	24	26	28	32	35	41	47
104	0	0	0	0	0	0	0
105	0	0	0	0	0	0	0
106	3	3	3	3	3	3	4
107	0	0	0	0	0	0	0
108	32	35	36	37	39	40	41
109	18	19	21	21	23	25	25
110	0	0	0	0	0	0	0
111	0	0	0	0	0	0	0
112	36	39	39	43	45	49	50
113	0	0	0	0	0	0	0
114	0	0	0	0	0	0	0
115	0	0	0	0	0	0	0
116	0	0	0	0	0	0	0
117	26	27	27	27	28	30	31
118	0	0	0	0	0	0	0
119	25	25	25	25	26	26	28
120	29	30	30	30	32	33	33
121	0	0	0	0	0	0	0
122	144	160	165	170	178	186	195
123	244	273	283	299	318	339	360

AAZ	Average Weekday Trips						
	2010	2015	2020	2025	2030	2035	2040
124	112	127	136	147	159	173	185
125	75	88	96	109	118	130	141
126	7	8	9	10	10	11	12
127	116	139	153	172	193	213	234
128	87	97	103	112	124	134	145
129	166	201	225	257	293	328	364
130	45	52	59	65	74	85	97
131	5	6	6	6	6	7	8
132	0	0	0	0	0	0	0
133	27	33	32	34	34	35	35
134	22	23	23	23	23	23	24
135	0	0	0	0	0	0	0
136	4	5	4	5	5	5	5
137	18	18	18	18	18	18	18
138	16	17	17	17	19	19	19
139	19	24	27	31	33	35	37
140	0	0	0	0	0	0	0
141	9	9	9	9	9	9	9
142	0	0	0	0	0	0	0
143	7	8	8	8	8	9	9
144	0	0	0	0	0	0	0
145	0	0	0	0	0	0	0
146	0	0	0	0	0	0	0
147	0	0	0	0	0	0	0
148	0	0	0	0	0	0	0
149	0	0	0	0	0	0	0
150	0	0	0	0	0	0	0
151	0	0	0	0	0	0	0
152	0	0	0	0	0	0	0
153	16	17	17	17	17	18	18
154	0	0	0	0	0	0	0
155	0	0	0	0	0	0	0
156	0	0	0	0	0	0	0
157	5	6	5	6	6	6	6
158	0	0	0	0	0	0	0
159	0	0	0	0	0	0	0
160	0	0	0	0	0	0	0
161	0	0	0	0	0	0	0
<b>Sub-Total Internal</b>	<b>29,992</b>	<b>32,492</b>	<b>34,156</b>	<b>35,893</b>	<b>37,708</b>	<b>39,561</b>	<b>41,627</b>
<b>External Trips</b>	<b>913</b>	<b>989</b>	<b>1,039</b>	<b>1,092</b>	<b>1,148</b>	<b>1,204</b>	<b>1,267</b>
<b>Total Trips</b>	<b>30,905</b>	<b>33,481</b>	<b>35,195</b>	<b>36,985</b>	<b>38,856</b>	<b>40,765</b>	<b>42,894</b>

**Table B-3**  
**Washington / Baltimore Air System Planning Region**  
**Airport Ground Access Forecast Update**  
**Average Weekday Trips 2010 - 2040 - IAD Airport**

AAZ	Average Weekday Trips						
	2010	2015	2020	2025	2030	2035	2040
1	10	10	11	13	15	18	21
2	120	114	130	149	173	204	252
3	1,696	1,729	2,195	2,593	3,053	3,653	4,506
4	1,032	998	1,136	1,298	1,511	1,788	2,207
5	166	158	180	207	240	287	356
6	397	382	434	496	578	687	850
7	47	47	54	60	70	86	107
8	101	98	113	134	157	190	236
9	120	117	134	157	183	220	273
10	109	107	120	138	160	192	239
11	39	39	46	54	63	77	97
12	82	81	93	107	125	151	188
13	96	99	115	145	169	204	255
14	115	116	137	171	230	308	380
15	79	75	92	111	131	155	192
16	154	169	211	247	311	380	469
17	0	0	0	0	0	0	0
18	97	91	104	123	143	169	209
19	88	96	118	170	201	239	298
20	0	0	0	0	0	0	0
21	33	32	36	41	48	57	68
22	333	358	536	644	792	952	1,152
23	88	83	94	110	128	151	181
24	103	96	108	125	145	170	204
25	157	173	217	282	340	408	509
26	153	158	187	220	263	311	377
27	189	180	209	241	281	331	397
28	305	323	379	455	547	653	787
29	52	54	61	70	82	96	116
30	61	62	74	88	105	130	166
31	210	210	252	303	362	433	526
32	47	47	56	68	79	108	138
33	121	126	153	191	242	304	381
34	308	299	357	427	515	623	759
35	138	138	165	198	236	287	349
36	250	251	304	365	443	539	659
37	494	473	547	635	750	893	1,076
38	456	437	509	590	698	832	1,007
39	91	106	133	168	208	257	320
40	617	597	715	854	1,026	1,244	1,519
41	633	629	752	895	1,074	1,305	1,595

AAZ	Average Weekday Trips						
	2010	2015	2020	2025	2030	2035	2040
42	327	356	460	571	707	877	1,093
43	1,268	1,216	1,406	1,631	1,921	2,288	2,757
44	1,292	1,313	1,706	2,122	2,632	3,261	4,063
45	701	670	771	893	1,050	1,251	1,509
46	805	830	1,098	1,456	1,867	2,351	2,989
47	250	238	277	321	379	453	547
48	107	102	117	134	156	192	236
49	198	188	214	244	285	349	427
50	39	40	47	54	63	74	91
51	32	34	39	47	56	68	82
52	129	141	177	214	257	305	372
53	106	109	142	173	225	281	358
54	219	221	272	341	427	521	651
55	185	186	231	292	387	499	626
56	143	146	196	282	398	520	655
57	244	238	273	313	363	429	517
58	375	362	420	495	592	709	850
59	113	112	134	164	198	235	283
60	73	71	82	97	114	137	165
61	170	169	210	260	330	419	527
62	230	220	254	291	339	403	484
63	29	28	32	37	44	52	62
64	85	82	97	114	137	164	202
65	83	79	91	105	123	151	188
66	87	81	93	111	135	161	194
67	38	46	58	70	85	103	124
68	77	72	83	95	110	140	168
69	54	54	62	71	85	100	123
70	51	56	76	91	112	142	182
71	10	10	11	12	14	17	21
72	0	0	0	0	0	0	0
73	27	28	32	39	46	55	66
74	20	20	23	28	34	42	53
75	3	3	3	4	5	6	7
76	5	4	5	6	7	8	10
77	0	0	0	0	0	0	0
78	16	16	19	22	27	33	39
79	18	19	26	34	45	56	74
80	12	12	14	16	19	23	28
81	47	53	87	139	167	204	272
82	84	83	98	115	136	164	202



**Table B-3**  
**Washington / Baltimore Air System Planning Region**  
**Airport Ground Access Forecast Update**  
**Average Weekday Trips 2010 - 2040 - IAD Airport**

cont...

AAZ	Average Weekday Trips						
	2010	2015	2020	2025	2030	2035	2040
83	348	369	478	608	779	1,000	1,292
84	111	117	154	200	263	345	457
85	304	296	344	400	473	565	686
86	414	475	623	785	990	1,242	1,566
87	223	232	291	358	443	552	693
88	217	242	307	384	483	607	768
89	348	479	723	979	1,167	1,398	1,693
90	57	59	82	104	134	163	201
91	370	354	405	466	548	651	781
92	709	770	1,072	1,437	1,844	2,332	2,958
93	765	813	1,037	1,279	1,559	1,894	2,328
94	503	526	656	850	1,104	1,393	1,753
95	163	161	195	244	301	376	475
96	19	19	23	28	37	46	59
97	73	72	85	103	126	155	191
98	40	41	49	59	72	88	108
99	103	113	137	166	200	241	288
100	41	42	50	59	68	80	97
101	0	0	0	0	0	0	0
102	0	0	0	0	0	0	0
103	0	0	0	0	0	0	0
104	7	7	8	9	10	12	15
105	0	0	0	0	0	0	0
106	0	0	0	0	0	0	0
107	0	0	0	0	0	0	0
108	49	51	59	70	84	101	121
109	11	12	14	17	21	26	31
110	0	0	0	0	0	0	0
111	0	0	0	0	0	0	0
112	55	55	64	81	98	122	147
113	0	0	0	0	0	0	0
114	22	21	24	29	35	41	50
115	0	0	0	0	0	0	0
116	0	0	0	0	0	0	0
117	13	13	15	17	20	24	29
118	0	0	0	0	0	0	0
119	63	61	69	79	93	112	135
120	61	60	69	81	96	115	138
121	29	29	34	39	47	55	66
122	0	0	0	0	0	0	0
123	41	41	52	63	78	96	120

AAZ	Average Weekday Trips						
	2010	2015	2020	2025	2030	2035	2040
124	89	94	116	142	175	219	277
125	8	9	11	14	18	23	29
126	82	90	116	151	196	253	330
127	32	35	46	59	75	96	124
128	18	19	23	28	36	45	57
129	165	185	240	312	407	526	687
130	177	194	253	331	439	593	812
131	20	20	22	27	33	42	53
132	82	88	113	144	186	245	328
133	41	40	46	53	62	73	87
134	0	0	0	0	0	0	0
135	0	0	0	0	0	0	0
136	0	0	0	0	0	0	0
137	15	15	17	19	22	26	32
138	0	0	0	0	0	0	0
139	16	18	24	31	38	46	57
140	7	7	8	9	10	12	15
141	53	50	57	65	76	90	107
142	0	0	0	0	0	0	0
143	13	13	16	18	22	26	31
144	21	21	25	30	34	40	49
145	0	0	0	0	0	0	0
146	0	0	0	0	0	0	0
147	0	0	0	0	0	0	0
148	0	0	0	0	0	0	0
149	0	0	0	0	0	0	0
150	0	0	0	0	0	0	0
151	30	29	34	39	45	54	65
152	0	0	0	0	0	0	0
153	7	7	8	9	10	12	15
154	10	10	12	13	16	19	22
155	0	0	0	0	0	0	0
156	0	0	0	0	0	0	0
157	8	8	9	10	12	14	17
158	0	0	0	0	0	0	0
159	0	0	0	0	0	0	0
160	43	43	53	64	78	95	117
161	0	0	0	0	0	0	0
<b>Sub-Total Internal</b>	<b>23,235</b>	<b>23,591</b>	<b>29,071</b>	<b>35,409</b>	<b>43,117</b>	<b>52,716</b>	<b>65,275</b>
<b>External Trips</b>	<b>3,070</b>	<b>3,115</b>	<b>3,840</b>	<b>4,676</b>	<b>5,696</b>	<b>6,963</b>	<b>8,622</b>
<b>Total Trips</b>	<b>26,305</b>	<b>26,706</b>	<b>32,911</b>	<b>40,085</b>	<b>48,813</b>	<b>59,679</b>	<b>73,897</b>

**Table B-4**  
**Washington / Baltimore Air System Planning Region**  
**Airport Ground Access Forecast Update**  
**Average Weekday Trips 2010 - 2040 - ALL Airports**

AAZ	Average Weekday Trips						
	2010	2015	2020	2025	2030	2035	2040
1	140	143	153	166	182	198	227
2	567	573	582	607	643	690	769
3	7,479	8,028	9,182	9,932	10,738	11,755	13,194
4	4,375	4,484	4,614	4,855	5,205	5,654	6,373
5	635	648	672	717	774	855	977
6	1,629	1,650	1,705	1,799	1,940	2,121	2,405
7	261	283	286	299	317	351	398
8	358	371	388	424	460	515	591
9	560	582	610	673	727	810	927
10	571	591	608	639	682	750	849
11	384	392	422	455	492	545	622
12	439	462	475	501	534	587	663
13	424	459	484	553	597	664	759
14	409	441	486	560	671	802	928
15	568	601	655	720	799	866	965
16	824	953	1,074	1,159	1,351	1,504	1,694
17	92	97	106	116	129	142	162
18	794	801	804	858	899	952	1,042
19	247	280	318	427	474	529	614
20	80	93	94	102	117	128	148
21	56	55	61	69	79	91	106
22	2,565	2,933	3,876	4,209	4,666	5,037	5,412
23	400	401	408	437	467	503	545
24	224	217	226	245	268	299	338
25	748	873	976	1,152	1,273	1,388	1,567
26	985	1,074	1,134	1,204	1,302	1,387	1,501
27	690	691	729	777	837	912	1,004
28	1,051	1,161	1,238	1,377	1,531	1,691	1,882
29	181	193	203	216	234	255	282
30	492	533	560	600	641	712	805
31	1,336	1,428	1,534	1,677	1,820	1,966	2,145
32	166	176	190	217	234	294	348
33	580	634	688	781	904	1,038	1,177
34	936	956	1,045	1,163	1,303	1,465	1,651
35	660	710	764	830	911	1,007	1,111
36	1,065	1,136	1,241	1,370	1,522	1,698	1,892
37	1,050	1,046	1,127	1,236	1,383	1,560	1,776
38	718	707	782	872	994	1,143	1,336
39	170	198	231	275	322	380	454
40	719	703	832	982	1,168	1,402	1,693
41	1,016	1,039	1,188	1,366	1,587	1,861	2,198

AAZ	Average Weekday Trips						
	2010	2015	2020	2025	2030	2035	2040
42	335	365	471	584	723	895	1,114
43	1,694	1,653	1,855	2,102	2,422	2,818	3,323
44	1,422	1,457	1,882	2,330	2,875	3,538	4,379
45	888	863	970	1,103	1,273	1,488	1,762
46	1,423	1,515	1,897	2,405	2,955	3,568	4,342
47	732	735	800	881	988	1,111	1,260
48	328	327	352	385	424	493	569
49	463	458	490	532	590	685	792
50	270	292	315	333	356	383	427
51	227	256	267	288	317	350	381
52	435	482	547	612	692	769	871
53	540	591	698	790	942	1,087	1,262
54	534	566	652	772	917	1,055	1,245
55	564	599	697	833	1,042	1,258	1,482
56	302	321	414	576	785	982	1,184
57	560	571	624	686	766	862	991
58	997	1,007	1,095	1,221	1,382	1,562	1,765
59	453	474	541	633	728	817	927
60	301	306	329	360	398	445	500
61	401	414	497	595	721	881	1,055
62	676	681	753	830	928	1,047	1,196
63	361	370	398	430	473	518	572
64	679	704	763	833	928	1,025	1,148
65	325	334	356	397	451	511	581
66	270	269	284	315	354	396	445
67	306	374	428	476	542	598	667
68	217	216	234	256	286	345	394
69	469	497	540	593	671	759	877
70	322	373	475	545	627	752	898
71	97	103	112	123	136	152	173
72	51	109	218	402	756	1,145	1,579
73	277	310	341	383	429	481	544
74	306	325	359	413	472	547	637
75	327	349	391	438	488	542	619
76	226	236	266	299	339	388	452
77	150	156	167	191	211	236	278
78	134	140	153	168	188	208	235
79	255	283	329	382	470	577	716
80	163	169	176	186	206	226	258
81	443	528	777	1,149	1,255	1,384	1,663
82	547	580	632	697	773	863	977

**Table B-4**  
**Washington / Baltimore Air System Planning Region**  
**Airport Ground Access Forecast Update**  
**Average Weekday Trips 2010 - 2040 - ALL Airports**

cont...

AAZ	Average Weekday Trips						
	2010	2015	2020	2025	2030	2035	2040
83	580	640	788	964	1,187	1,463	1,813
84	194	214	269	334	418	524	660
85	567	572	624	689	775	883	1,019
86	550	644	818	1,007	1,242	1,523	1,880
87	388	417	504	601	722	873	1,060
88	288	340	425	528	657	818	1,024
89	392	545	813	1,090	1,288	1,530	1,835
90	125	135	180	223	275	322	381
91	439	425	482	550	641	753	894
92	812	889	1,217	1,609	2,041	2,553	3,204
93	952	1,030	1,306	1,598	1,929	2,310	2,803
94	555	586	726	936	1,208	1,514	1,893
95	509	528	616	741	877	1,042	1,254
96	184	191	217	255	318	371	438
97	379	394	448	520	605	699	816
98	565	610	701	807	926	1,057	1,225
99	469	549	654	758	879	1,008	1,146
100	387	415	481	550	614	683	771
101	80	84	99	111	123	135	151
102	125	131	142	156	172	190	212
103	280	310	367	432	512	605	691
104	268	277	302	334	370	409	459
105	236	280	331	400	468	522	584
106	307	337	389	443	498	549	615
107	158	209	270	333	392	448	514
108	690	764	871	987	1,137	1,287	1,444
109	423	478	565	642	744	853	953
110	62	74	102	133	155	185	207
111	76	81	97	114	130	150	168
112	1,761	1,904	2,135	2,586	2,965	3,455	3,870
113	51	54	62	70	79	88	98
114	80	83	92	107	123	141	161
115	163	170	191	215	241	269	302
116	25	30	35	42	50	58	66
117	453	474	531	592	665	747	834
118	489	512	575	642	721	807	904
119	668	688	755	830	939	1,057	1,191
120	598	624	697	779	881	990	1,113
121	320	334	375	422	476	533	600
122	423	470	522	575	639	706	789
123	503	562	630	707	799	903	1,029

AAZ	Average Weekday Trips						
	2010	2015	2020	2025	2030	2035	2040
124	312	348	404	468	545	636	750
125	152	177	206	245	281	323	373
126	126	140	177	224	283	355	452
127	171	201	233	272	319	370	431
128	136	152	167	189	219	248	283
129	419	493	600	738	909	1,106	1,357
130	270	301	383	482	620	808	1,072
131	53	56	63	73	86	104	126
132	121	133	168	213	271	349	459
133	1,360	1,437	1,589	1,756	1,948	2,148	2,404
134	238	253	279	304	333	365	407
135	197	208	242	270	301	331	370
136	104	109	120	132	145	162	179
137	248	254	277	303	337	371	415
138	148	158	177	198	222	244	272
139	270	290	331	377	428	476	539
140	401	418	459	505	561	621	698
141	539	551	604	664	736	817	920
142	21	22	24	26	29	32	36
143	203	218	250	278	305	337	379
144	744	806	922	1,051	1,177	1,300	1,458
145	59	67	75	85	98	109	121
146	18	19	20	23	25	29	32
147	22	22	26	27	31	34	39
148	81	85	94	105	116	129	145
149	267	277	311	346	387	429	484
150	201	217	243	270	301	333	375
151	521	549	619	686	767	853	964
152	260	272	305	339	379	419	471
153	326	340	377	415	459	509	572
154	476	495	553	614	688	764	860
155	495	526	586	649	725	801	903
156	111	115	129	142	159	176	198
157	560	605	675	750	838	929	1,047
158	162	170	190	211	234	259	292
159	315	335	382	434	498	562	644
160	631	686	799	929	1,084	1,236	1,435
161	101	119	136	151	168	188	213
<b>Sub-Total Internal</b>	<b>83,527</b>	<b>88,832</b>	<b>100,895</b>	<b>114,500</b>	<b>130,349</b>	<b>148,529</b>	<b>171,316</b>
<b>External Trips</b>	<b>9,057</b>	<b>9,588</b>	<b>10,914</b>	<b>12,999</b>	<b>15,136</b>	<b>17,586</b>	<b>20,674</b>
<b>Total Trips</b>	<b>92,584</b>	<b>98,420</b>	<b>111,809</b>	<b>127,499</b>	<b>145,485</b>	<b>166,115</b>	<b>191,990</b>

**Appendix C: Ground Access Forecast Update Average Weekday Trips by  
Jurisdiction by Airport**

**Table C- 1: Average Weekday Air Passenger Enplanement Forecast by Jurisdiction - BWI**

<b>Jurisdiction</b>	<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>	<b>2035</b>	<b>2040</b>
<b>District of Columbia</b>	3,438	3,702	4,240	4,771	5,351	5,982	6,916
<b>Montgomery County</b>	3,256	3,464	3,971	4,545	5,257	5,978	6,819
<b>Prince George's County</b>	2,280	2,531	3,038	3,691	4,533	5,503	6,728
<b>Arlington County</b>	724	805	995	1,140	1,308	1,456	1,648
<b>City of Alexandria</b>	292	322	378	443	509	586	676
<b>Fairfax County</b>	1,331	1,424	1,654	1,906	2,192	2,488	2,844
<b>Loudoun County</b>	339	391	493	597	707	809	930
<b>Prince William County</b>	269	322	401	484	585	699	837
<b>Frederick County</b>	694	732	846	998	1,178	1,365	1,600
<b>Howard County</b>	2,121	2,388	2,795	3,233	3,697	4,156	4,675
<b>Anne Arundel County</b>	5,390	5,793	6,557	7,565	8,619	9,821	10,986
<b>Charles County</b>	180	207	251	301	356	414	491
<b>Carroll County</b>	523	566	649	745	851	966	1,114
<b>Calvert County</b>	279	310	357	405	461	520	594
<b>St. Mary's County</b>	218	248	295	345	403	468	549
<b>King George County</b>	37	42	52	63	77	91	110
<b>City of Fredericksburg</b>	31	36	41	49	59	69	81
<b>Stafford County</b>	88	107	135	169	209	252	306
<b>Spotsylvania County</b>	23	27	34	41	51	61	73
<b>Fauquier County</b>	48	55	71	86	107	130	163
<b>Clarke County</b>	28	30	35	40	47	55	65
<b>Jefferson County</b>	39	45	55	69	85	104	131
<b>Baltimore City</b>	4,244	4,490	5,018	5,579	6,207	6,847	7,664
<b>Baltimore County</b>	3,424	3,615	4,043	4,483	5,003	5,541	6,239
<b>Harford County</b>	1,004	1,097	1,264	1,450	1,672	1,891	2,175
<b>Total</b>	<b>30,300</b>	<b>32,749</b>	<b>37,668</b>	<b>43,198</b>	<b>49,524</b>	<b>56,252</b>	<b>64,414</b>

**Table C- 2: Average Weekday Air Passenger Enplanement Forecast by Jurisdiction - DCA**

<b>Jurisdiction</b>	<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>	<b>2035</b>	<b>2040</b>
<b>District of Columbia</b>	12,850	13,704	14,055	14,418	14,867	15,428	16,256
<b>Montgomery County</b>	3,191	3,421	3,501	3,675	3,941	4,179	4,373
<b>Prince George's County</b>	1,140	1,269	1,442	1,701	1,791	1,907	2,101
<b>Arlington County</b>	4,763	5,336	6,029	6,358	6,723	6,978	7,198
<b>City of Alexandria</b>	1,843	2,004	2,059	2,182	2,302	2,449	2,588
<b>Fairfax County</b>	3,867	4,106	4,231	4,467	4,728	4,985	5,205
<b>Loudoun County</b>	184	218	256	294	319	342	366
<b>Prince William County</b>	681	774	830	904	985	1,074	1,157
<b>Frederick County</b>	123	129	132	143	158	170	183
<b>Howard County</b>	38	42	45	50	53	60	68
<b>Anne Arundel County</b>	166	175	178	183	193	203	208
<b>Charles County</b>	187	215	232	256	277	303	326
<b>Carroll County</b>	2	3	3	3	3	3	3
<b>Calvert County</b>	144	160	165	170	178	186	195
<b>St. Mary's County</b>	244	273	283	299	318	339	360
<b>King George County</b>	7	8	9	10	10	11	12
<b>City of Fredericksburg</b>	87	97	103	112	124	134	145
<b>Stafford County</b>	166	201	225	257	293	328	364
<b>Spotsylvania County</b>	116	139	153	172	193	213	234
<b>Fauquier County</b>	45	52	59	65	74	85	97
<b>Clarke County</b>	5	6	6	6	6	7	8
<b>Jefferson County</b>	0	0	0	0	0	0	0
<b>Baltimore City</b>	122	137	138	145	149	153	156
<b>Baltimore County</b>	21	23	22	23	23	24	24
<b>Harford County</b>	0	0	0	0	0	0	0
<b>Total</b>	<b>29,992</b>	<b>32,492</b>	<b>34,156</b>	<b>35,893</b>	<b>37,708</b>	<b>39,561</b>	<b>41,627</b>

**Table C- 3: Average Weekday Passenger Enplanement Forecast by Jurisdiction - IAD**

<b>Jurisdiction</b>	<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>	<b>2035</b>	<b>2040</b>
<b>District of Columbia</b>	4,548	4,526	5,423	6,373	7,513	9,008	11,135
<b>Montgomery County</b>	2,762	2,727	3,262	3,933	4,824	5,912	7,262
<b>Prince George's County</b>	347	358	456	577	697	850	1,077
<b>Arlington County</b>	1,413	1,457	1,827	2,188	2,626	3,129	3,791
<b>City of Alexandria</b>	439	445	535	650	788	975	1,211
<b>Fairfax County</b>	7,630	7,553	9,200	11,126	13,506	16,461	20,242
<b>Loudoun County</b>	2,752	3,001	3,975	5,115	6,356	7,831	9,714
<b>Prince William County</b>	1,617	1,731	2,197	2,735	3,431	4,311	5,462
<b>Frederick County</b>	255	252	303	375	464	577	725
<b>Howard County</b>	151	162	195	234	278	333	400
<b>Anne Arundel County</b>	303	302	348	413	494	596	717
<b>Charles County</b>	97	103	127	156	193	242	306
<b>Carroll County</b>	40	41	49	59	72	88	108
<b>Calvert County</b>	0	0	0	0	0	0	0
<b>St. Mary's County</b>	41	41	52	63	78	96	120
<b>King George County</b>	82	90	116	151	196	253	330
<b>City of Fredericksburg</b>	18	19	23	28	36	45	57
<b>Stafford County</b>	165	185	240	312	407	526	687
<b>Spotsylvania County</b>	32	35	46	59	75	96	124
<b>Fauquier County</b>	177	194	253	331	439	593	812
<b>Clarke County</b>	20	20	22	27	33	42	53
<b>Jefferson County</b>	82	88	113	144	186	245	328
<b>Baltimore City</b>	166	164	193	225	264	313	378
<b>Baltimore County</b>	55	54	63	71	83	99	119
<b>Harford County</b>	43	43	53	64	78	95	117
<b>Total</b>	<b>23,235</b>	<b>23,591</b>	<b>29,071</b>	<b>35,409</b>	<b>43,117</b>	<b>52,716</b>	<b>65,275</b>

**Table C- 4: Average Weekday Air Passenger Enplanement Forecast by Jurisdiction – All Airports**

<b>Jurisdiction</b>	<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>	<b>2035</b>	<b>2040</b>
<b>District of Columbia</b>	20,836	21,932	23,718	25,562	27,731	30,418	34,307
<b>Montgomery County</b>	9,209	9,612	10,734	12,153	14,022	16,069	18,454
<b>Prince George's County</b>	3,767	4,158	4,936	5,969	7,021	8,260	9,906
<b>Arlington County</b>	6,900	7,598	8,851	9,686	10,657	11,563	12,637
<b>City of Alexandria</b>	2,574	2,771	2,972	3,275	3,599	4,010	4,475
<b>Fairfax County</b>	12,828	13,083	15,085	17,499	20,426	23,934	28,291
<b>Loudoun County</b>	3,275	3,610	4,724	6,006	7,382	8,982	11,010
<b>Prince William County</b>	2,567	2,827	3,428	4,123	5,001	6,084	7,456
<b>Frederick County</b>	1,072	1,113	1,281	1,516	1,800	2,112	2,508
<b>Howard County</b>	2,310	2,592	3,035	3,517	4,028	4,549	5,143
<b>Anne Arundel County</b>	5,859	6,270	7,083	8,161	9,306	10,620	11,911
<b>Charles County</b>	464	525	610	713	826	959	1,123
<b>Carroll County</b>	565	610	701	807	926	1,057	1,225
<b>Calvert County</b>	423	470	522	575	639	706	789
<b>St. Mary's County</b>	503	562	630	707	799	903	1,029
<b>King George County</b>	126	140	177	224	283	355	452
<b>City of Fredericksburg</b>	136	152	167	189	219	248	283
<b>Stafford County</b>	419	493	600	738	909	1,106	1,357
<b>Spotsylvania County</b>	171	201	233	272	319	370	431
<b>Fauquier County</b>	270	301	383	482	620	808	1,072
<b>Clarke County</b>	53	56	63	73	86	104	126
<b>Jefferson County</b>	121	133	168	213	271	349	459
<b>Baltimore City</b>	4,532	4,791	5,349	5,949	6,620	7,313	8,198
<b>Baltimore County</b>	3,500	3,692	4,128	4,577	5,109	5,664	6,382
<b>Harford County</b>	1,047	1,140	1,317	1,514	1,750	1,986	2,292
<b>Total</b>	<b>83,527</b>	<b>88,832</b>	<b>100,895</b>	<b>114,500</b>	<b>130,349</b>	<b>148,529</b>	<b>171,316</b>



**Appendix D: Household and Employment Forecasts by Jurisdiction**

**Table D- 1: Washington-Baltimore Air System Planning Region – Household Forecast by Jurisdiction**

Jurisdiction	2010	2015	2020	2025	2030	2035	2040
District of Columbia	266,707	287,617	298,115	309,979	318,252	326,410	339,889
Montgomery County	361,030	376,536	397,237	415,795	436,202	451,446	461,469
Prince George's County	304,042	323,364	336,404	348,604	359,878	370,144	379,317
Arlington County	98,050	105,611	111,190	114,797	116,788	117,795	119,761
City of Alexandria	68,131	71,520	76,426	80,624	83,831	88,491	92,155
Fairfax County	399,514	417,325	440,826	462,164	478,759	492,706	500,832
Loudoun County	104,583	117,839	132,843	146,497	154,159	159,291	162,971
Prince William County	147,819	166,083	183,321	197,890	210,450	221,111	229,944
Frederick County	84,800	87,487	92,740	100,327	107,686	113,895	119,564
Howard County	107,502	117,700	125,600	132,182	135,486	137,773	137,773
Anne Arundel County	202,314	210,888	217,782	223,822	229,371	234,332	234,332
Charles County	50,950	57,528	64,299	70,833	75,847	80,876	85,901
Carroll County	61,592	65,691	69,614	73,417	76,111	78,720	81,464
Calvert County	32,046	34,298	36,027	37,374	38,348	39,322	40,301
St. Mary's County	38,870	44,443	49,352	53,960	58,143	62,326	66,509
King George County	8,370	9,800	11,228	12,792	14,358	15,742	17,125
City of Fredericksburg	9,505	10,236	10,966	11,750	12,533	13,133	13,733
Stafford County	41,769	49,584	57,388	65,384	73,383	80,531	87,679
Spotsylvania County	33,670	39,758	45,171	50,837	56,230	60,787	65,317
Fauquier County	26,871	30,982	35,730	41,197	47,502	54,773	63,154
Clarke County	6,069	6,423	6,722	7,108	7,487	7,886	8,308
Jefferson County	20,427	23,192	25,957	29,518	33,075	37,062	41,527
Baltimore City	266,180	276,668	282,165	286,301	288,728	289,727	290,812
Baltimore County	325,160	334,879	342,550	346,884	349,054	350,805	352,556
Harford County	93,186	98,412	103,623	108,877	114,084	117,895	122,078
<b>Total</b>	<b>3,159,157</b>	<b>3,363,864</b>	<b>3,553,276</b>	<b>3,728,913</b>	<b>3,875,745</b>	<b>4,002,979</b>	<b>4,114,471</b>

Source:- MWCOG Round 8.1 Cooperative Forecast and BMC 7C Landuse Data

**Table D- 2: Washington-Baltimore Air System Planning Region – Employment Forecast by Jurisdiction**

Jurisdiction	2010	2015	2020	2025	2030	2035	2040
District of Columbia	783,460	812,947	865,726	902,631	929,641	955,757	982,647
Montgomery County	510,136	541,995	585,363	633,226	684,284	714,438	737,364
Prince George's County	342,588	356,958	377,879	403,134	427,514	457,275	497,652
Arlington County	223,264	247,135	275,862	291,622	302,588	305,514	308,376
City of Alexandria	106,046	116,274	122,551	134,910	142,738	149,755	155,012
Fairfax County	680,040	722,244	785,619	835,997	875,216	905,688	935,411
Loudoun County	143,738	167,565	206,465	236,344	257,212	271,487	285,449
Prince William County	143,579	163,423	186,215	207,340	230,047	253,511	278,151
Frederick County	98,695	99,386	103,862	107,266	109,755	112,302	114,907
Howard County	164,992	181,143	194,977	209,723	221,168	226,160	231,902
Anne Arundel County	289,246	309,853	329,042	345,027	358,320	370,904	370,904
Charles County	62,227	68,439	71,731	74,731	77,537	80,336	83,138
Carroll County	67,599	69,619	70,813	71,629	72,456	73,260	74,090
Calvert County	35,167	41,059	44,457	46,258	47,159	48,055	48,955
St. Mary's County	59,184	64,083	67,268	70,093	71,969	73,900	75,862
King George County	16,241	17,805	19,370	20,938	22,501	24,123	25,740
City of Fredericksburg	31,491	35,575	39,659	43,717	47,777	51,298	54,818
Stafford County	46,929	52,220	57,505	63,833	70,172	77,152	84,144
Spotsylvania County	42,959	46,322	49,551	52,781	55,896	60,425	64,873
Fauquier County	27,324	30,501	35,762	39,379	43,360	47,749	52,578
Clarke County	6,793	7,240	7,685	8,106	8,550	9,021	9,518
Jefferson County	21,058	23,587	26,115	28,399	30,675	33,129	35,780
Baltimore City	451,052	461,744	471,299	479,870	485,002	485,012	485,023
Baltimore County	510,894	529,642	544,607	552,536	558,327	563,121	567,934
Harford County	129,702	142,294	151,226	158,221	163,502	165,002	166,526
<b>Total</b>	<b>4,994,404</b>	<b>5,309,053</b>	<b>5,690,609</b>	<b>6,017,711</b>	<b>6,293,366</b>	<b>6,514,374</b>	<b>6,726,754</b>

Source:- MWCOG Round 8.1 Cooperative Forecast and BMC 7C Landuse Data