

Washington – Baltimore
Regional Air Passenger
Origin/Destination
Forecast Update



Aviation Technical Subcommittee
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Air Passenger Origin/Destination Forecast Update



Objective

- Develop base and forecast years of local originating air passenger trips from each Aviation Analysis Zones to the three regional commercial airports BWI, DCA and IAD



Methodology

1. Obtain enplanements forecast from FAA for BWI, DCA and IAD for forecast years 2013 to 2040
2. Convert FAA forecast data from U.S. government fiscal year (October to September) to calendar year (January to December).



A. BWI Marshall (BWI)

Forecast Year	Enplanements	Difference	
		No.	%
2010 ¹	10,996,713		
2015 ²	10,950,496	-46,217	-0.42%
2020 ²	12,665,736	1,715,240	15.66%
2025 ²	14,569,596	1,903,860	15.03%
2030 ²	16,761,920	2,192,324	15.05%
2035 ²	19,286,631	2,524,711	15.06%
2040 ²	22,194,357	2,907,725	15.08%

¹ *Observed Years*

² *Forecast Years*

Note:- Forecast based on FAA TAF Fiscal Year annual percent increase



B. Ronald Reagan Washington National (DCA)

Forecast Year	Enplanements	Difference	
		No.	%
2010 ¹	9,035,544		
2015 ²	10,013,171	977,627	10.82%
2020 ²	10,523,940	510,769	5.10%
2025 ²	11,060,767	536,827	5.10%
2030 ²	11,624,979	564,213	5.10%
2035 ²	12,217,972	592,993	5.10%
2040 ²	12,841,211	623,239	5.10%

¹ *Observed Years*

² *Forecast Years*

Note:- Forecast based on FAA TAF Fiscal Year annual percent increase



C. Washington Dulles International (IAD)

Forecast Year	Enplanements	Difference	
		No.	%
2010 ¹	11,812,905		
2015 ²	11,608,411	-204,494	-1.73%
2020 ²	13,737,545	2,129,134	18.34%
2025 ²	15,870,722	2,133,177	15.53%
2030 ²	18,350,007	2,479,285	15.62%
2035 ²	21,234,177	2,884,170	15.72%
2040 ²	24,592,421	3,358,243	15.82%

¹ *Observed Years*

² *Forecast Years*

Note:- Forecast based on FAA TAF Fiscal Year annual percent increase



Methodology

3. Obtain land use forecast of household and employment base year 2010 and forecast years to 2040 for the Washington/Baltimore Air System Planning Region
4. Summarize Household and Employment data from 4,374 TAZ to 161 AAZ



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Household Forecast

Year	Household	Change	Percent Growth	
2010	3,159,157	-		
2015	3,363,864	204,707	2010 - 2015	6.5%
2020	3,553,276	189,412	2015 - 2020	5.6%
2025	3,728,913	175,637	2020 - 2025	4.9%
2030	3,875,745	146,832	2025 - 2030	3.9%
2035	4,002,979	127,234	2030 - 2035	3.3%
2040	4,114,488	111,509	2035 - 2040	2.8%

Source:- MWCOG Round 8.1 and BMC Round 7.2 Cooperative Land Use Forecast

Employment Forecast

Year	Employment	Change	Percent Growth	
2010	5,084,030	-		
2015	5,404,785	320,755	2010 - 2015	6.3%
2020	5,791,114	386,329	2015 - 2020	7.1%
2025	6,122,830	331,716	2020 - 2025	5.7%
2030	6,401,899	279,069	2025 - 2030	4.6%
2035	6,624,866	222,967	2030 - 2035	3.5%
2040	6,837,100	212,234	2035 - 2040	3.2%

Source:- MWCOG Round 8.1 and BMC Round 7.2 Cooperative Land Use Forecast



5. Review 2011 Regional Air Passenger Survey Data

- A. Adjust survey weight to annual passenger for 2011
- B. Select local originating passenger trips

Enplanement Type		Airport			
		BWI	DCA	IAD	Total
Local origination	<i>Number</i>	8,758,172	8,215,338	7,492,613	24,466,123
- (<i>Came by ground transportation</i>)	<i>Percent</i>	78%	88%	65%	76%
Connected from another Flight	<i>Number</i>	2,465,995	1,147,441	4,077,535	7,690,971
- (<i>Local and/or International</i>)	<i>Percent</i>	22%	12%	35%	24%
Total Annual Enplanements	<i>Number</i>	11,224,167	9,362,779	11,570,148	32,157,094
	<i>Percent</i>	100%	100%	100%	100%

Source:- 2011 Washington-Baltimore Regional Air Passenger Survey

Note:- Originating Trips are factored to 2011 observed enplanements



C. Select trips originating within the Washington/Baltimore Air System Planning Area

**2011 Washington / Baltimore Regional Air Passenger Survey
Internal and External Annual Trip Originations by Airport (in thousands)**

Enplanement Type		Airport			Total
		BWI	DCA	IAD	
Within Air System Planning Region	<i>Number</i>	7,704,500	8,094,074	7,109,399	22,907,973
- (<i>Internals</i>)	<i>Percent</i>	88%	99%	95%	94%
Outside Air System Planning Region	<i>Number</i>	1,053,672	121,264	383,214	1,558,150
- (<i>Externals</i>)	<i>Percent</i>	12%	1%	5%	6%
Total Annual Enplanements	<i>Number</i>	8,758,172	8,215,338	7,492,613	24,466,123
	<i>Percent</i>	100%	100%	100%	100%

- **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:- 2011 Washington-Baltimore Regional Air Passenger Survey

Note:- Originating Trips are factored to 2011 observed enplanements

- Numbers may not add to total due to rounding



Calculate Forecast Years Local and Internal AAZ Originating Trips

Local Originations				
Year	BWI	DCA	IAD	Total
2010	8,580,691	7,928,207	7,649,818	24,158,715
2011	8,758,172	8,215,338	7,492,613	24,466,123
2015	8,544,628	8,786,022	7,517,391	24,848,041
2020	9,883,023	9,234,194	8,896,179	28,013,396
2025	11,368,597	9,705,231	10,277,585	31,351,413
2030	13,079,258	10,200,298	11,883,124	35,162,680
2035	15,049,280	10,720,617	13,750,859	39,520,756
2040	17,318,167	11,267,476	15,925,595	44,511,238

Internal Originations			
BWI	DCA	IAD	Total
7,548,371	7,811,181	7,258,564	22,618,116
7,704,500	8,094,074	7,109,399	22,907,973
7,516,647	8,656,334	7,132,910	23,305,891
8,694,023	9,097,891	8,441,179	26,233,093
10,000,872	9,561,976	9,751,932	29,314,779
11,505,728	10,049,734	11,275,355	32,830,817
13,238,742	10,562,373	13,047,563	36,848,679
15,234,665	11,101,161	15,111,071	41,446,897



Air Passenger Origin/Destination Forecast Update

- 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 2011 Air Passenger Survey data to be 78% for BWI, 88% for DCA and 65% for IAD, of the total enplanements
- Internal originating trips are calculated based on the 2011 Air Passenger Survey data to be 88% for BWI, 99% for DCA, and 65% 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



D. Summarize local originating trips to Home and Non-Home originations

**2011 Washington / Baltimore Regional Air Passenger Survey
Home and Non-Home Annual Local Trip Originations by Airport (in thousands)**

Enplanement Type		Airport			
		BWI	DCA	IAD	Total
Home	<i>Number</i>	5,743,659	4,127,948	4,569,213	14,440,820
	<i>Percent</i>	66%	50%	61%	59%
Non-Home	<i>Number</i>	3,014,513	4,087,390	2,923,400	10,025,303
	<i>Percent</i>	34%	50%	39%	41%
Total Annual Enplanements		8,758,172	8,215,338	7,492,613	24,466,123
		100%	100%	100%	100%

Source:- 2011 Washington-Baltimore Regional Air Passenger Survey

Note:- Originating Trips are factored to 2011 observed enplanements

- Numbers may not add to total due to rounding



E. Calculate household and employment trip rates by airport

1. Home Based Trips

Trip Rate for Airport $(A)AAZ_{(X)} =$

AAZ_x Origin Home Trips (2011)

AAZ_x Number of Household (2010)

2. Non-Home Based Trips

Trip Rate for Airport $(A)AAZ_{(X)} =$

AAZ_x Origin Home Trips (2011)

AAZ_x Number of Employment (2010)

Airport	Trip Rates	
	Household	Employment
BWI	1.76	0.42
DCA	1.47	0.68
IAD	1.62	0.40



E. Calculate Home and Non-Home based airport Originating Trips by airport

1. Home Based Trips

Home Based Trips for Airport $(A)AAZ_{(X)} =$

Home Based Trip Rate for Airport $(A)AAZ_{(X)}$
* Household $AAZ_{(X)}$ Year (Y)

2. Non-Home Based Trips

Non-Home Based Trips for Airport $(A)AAZ_{(X)} =$

Non-Home Trip Rate for Airport $(A)AAZ_{(X)}$
* Employment $AAZ_{(X)}$ Year (Y)



**Washington / Baltimore Air System Planning Region
Originating Passengers forecast**

Year	Home	Non-Home	Total
2010	15,301,097	7,606,829	22,907,926
2015	15,539,768	7,766,179	23,305,947
2020	17,401,376	8,831,748	26,233,124
2025	19,449,768	9,865,064	29,314,832
2030	21,878,012	10,952,767	32,830,779
2035	24,683,973	12,164,759	36,848,732
2040	27,841,018	13,605,834	41,446,852

Note:- Numbers may not add to total due to rounding

