

Geographic Findings from the 2011 Washington-Baltimore Regional Air Passenger Survey

**Travel Forecasting Subcommittee
March 22, 2013**



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Introduction / Previous Findings (1)

- ▶ Transportation and air travel characteristics findings from 2011 APS presented to TFS at September 21, 2012 meeting
- ▶ Airport passenger traffic has grown since 2009
- ▶ Proportion of business travel has grown over 2009 levels at all three airports: BWI, DCA, IAD
- ▶ Proportion of travel by area residents has grown over 2009 levels at all three airports
- ▶ Each airport's regional share of passengers generally constant since 2007



Introduction / Previous Findings (2)

- ▶ Airport choice reveals distinct markets
 - DCA – Accessibility
 - BWI – Less expensive airfares
 - IAD – Long-haul domestic and international flights
- ▶ Proportion of local originations (using ground access network) generally constant but travel base growing
- ▶ Private auto dominant mode of access except at DCA
- ▶ Most locally originating travelers affluent and value time highly



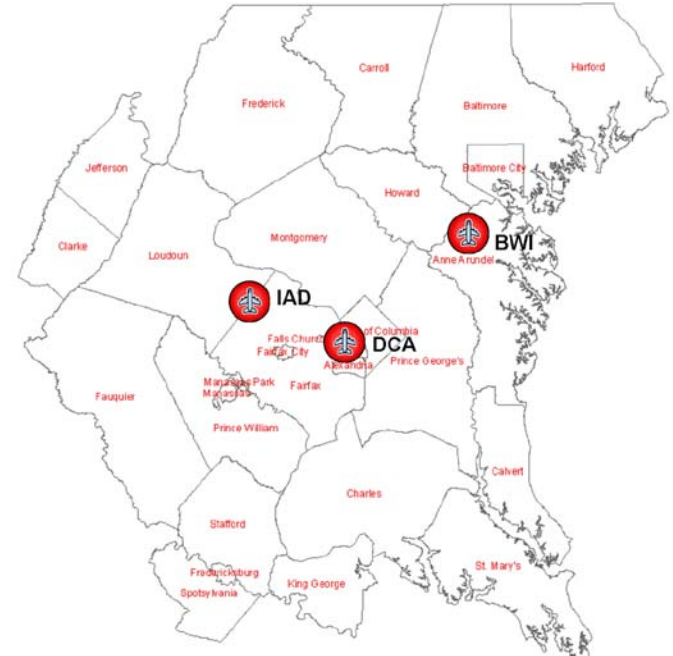
2011 APS Geographic Findings Report: Topics Covered Today

- ▶ Survey Geocoding
- ▶ Local Originations by Jurisdiction
- ▶ Geographic Pattern of Airport Use
- ▶ Air Passenger Destinations
- ▶ Departures by Time-of-Day
- ▶ Airport Usage and MD 200
- ▶ Washington Core Area and Baltimore City



Geocoding Process

- ▶ Merge BMC/BRTB TAZ system with MWCOG/TPB to create Washington/Baltimore Air System Region TAZ boundaries
- ▶ Convert Washington/Baltimore Air System Region TAZ boundaries into “kml” file for geocoding
- ▶ Use Google Earth as a base to identify TAZs for each originating air passenger trip record address.



Model Region	TAZs	AAZs
MWCOG/TPB	3,669	132
BMC/BRTB	699	29
Total	4,368	161



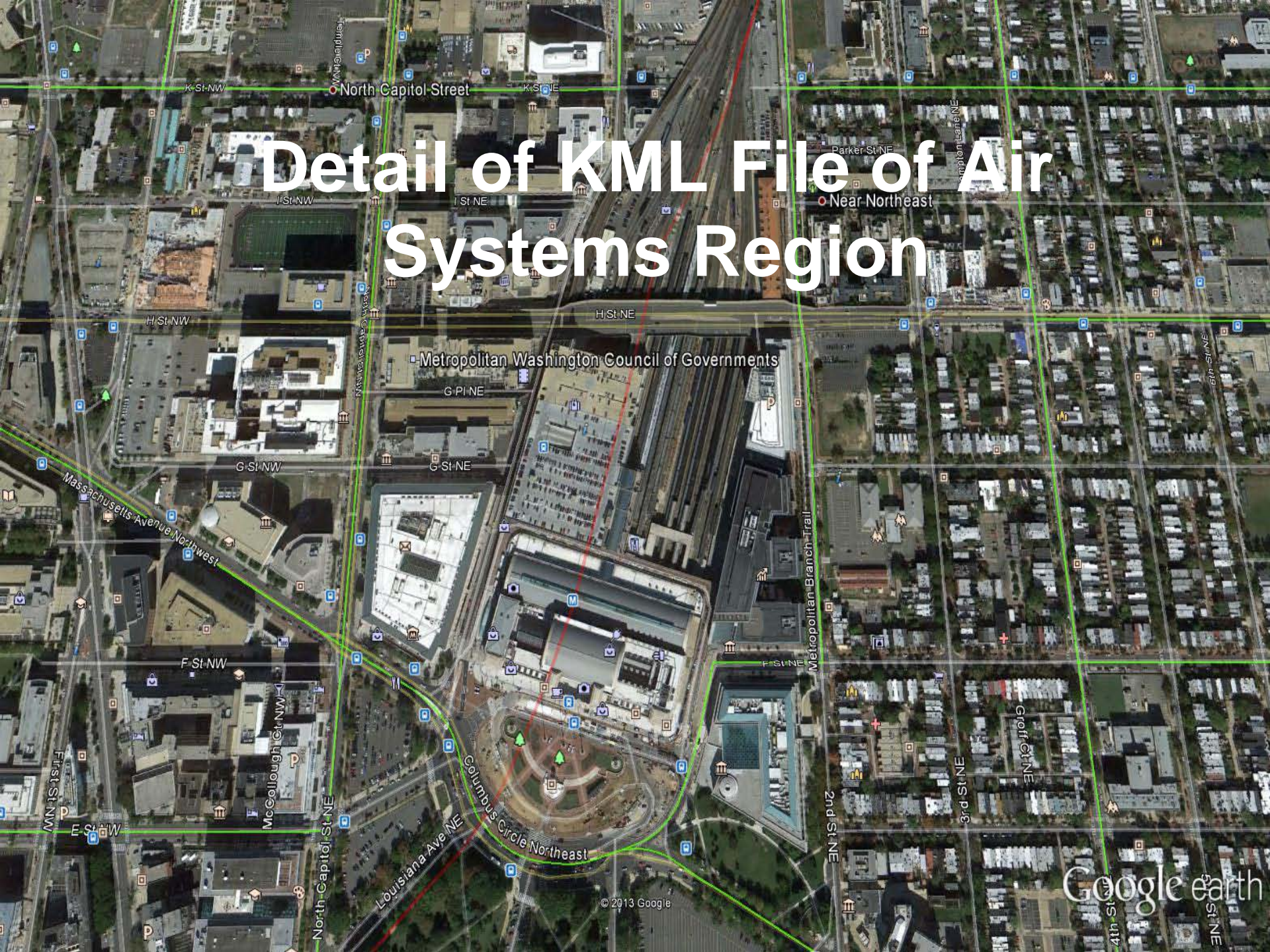
KML File of Air Systems Region



Data SIO, NOAA, U.S. Navy, NGA, GEBCO
Image © 2013 TerraMetrics

Google earth

Detail of KML File of Air Systems Region



Metropolitan Washington Council of Governments

Near Northeast

Geocoding Results

2011 Washington-Baltimore Regional Air Passenger Survey Originating Passengers Survey Records Geo-Coding

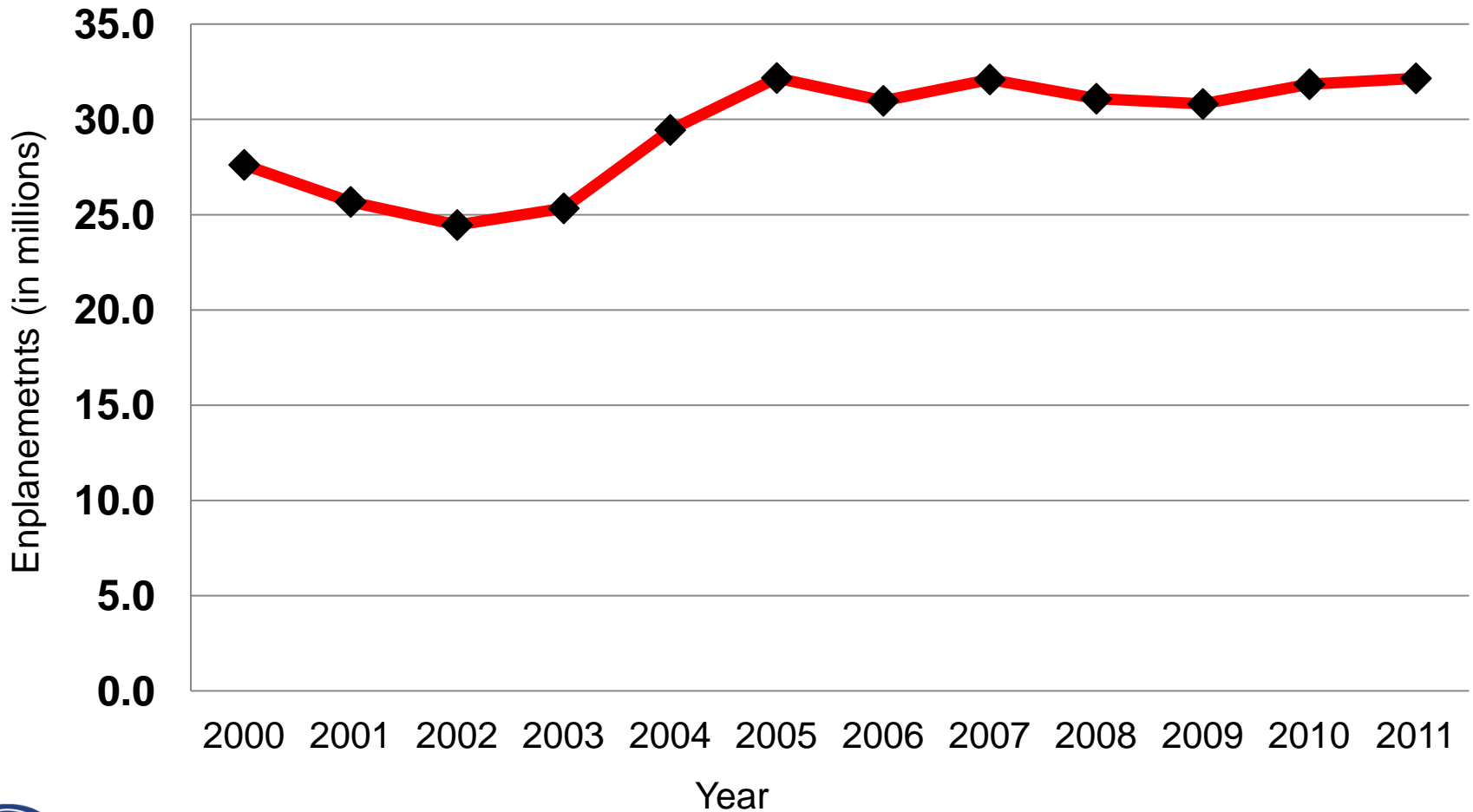
Geo-Coding		Internal	External	Total
Hand-Coded	<i>Number</i>	11,360	975	12,335
	<i>Percent</i>	70%	85%	71%
Partial-Address	<i>Number</i>	2,598	0	2,598
	<i>Percent</i>	16%	0%	15%
Allocated	<i>Number</i>	2,338	169	2,507
	<i>Percent</i>	14%	15%	14%
Total	<i>Number</i>	16,296	1,144	17,440
	<i>Percent</i>	100%	100%	100%

Internal = Locations within the Air System Region

External = Locations outside the Air System Region

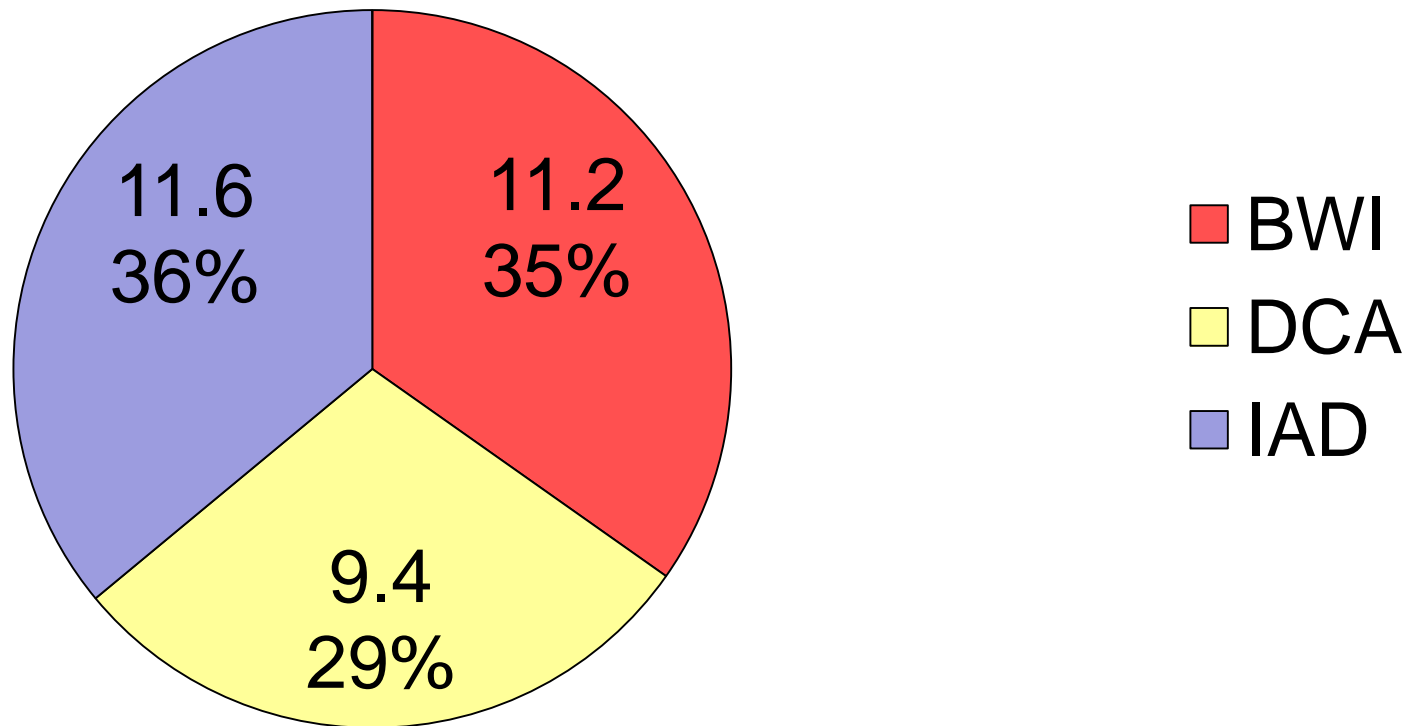


Regional Air Passenger Enplanements Trend (2000 – 2011)



More than 32 million air passengers boarded flights at the region's commercial airports in 2011

Total Annual Enplanements
(in Millions)



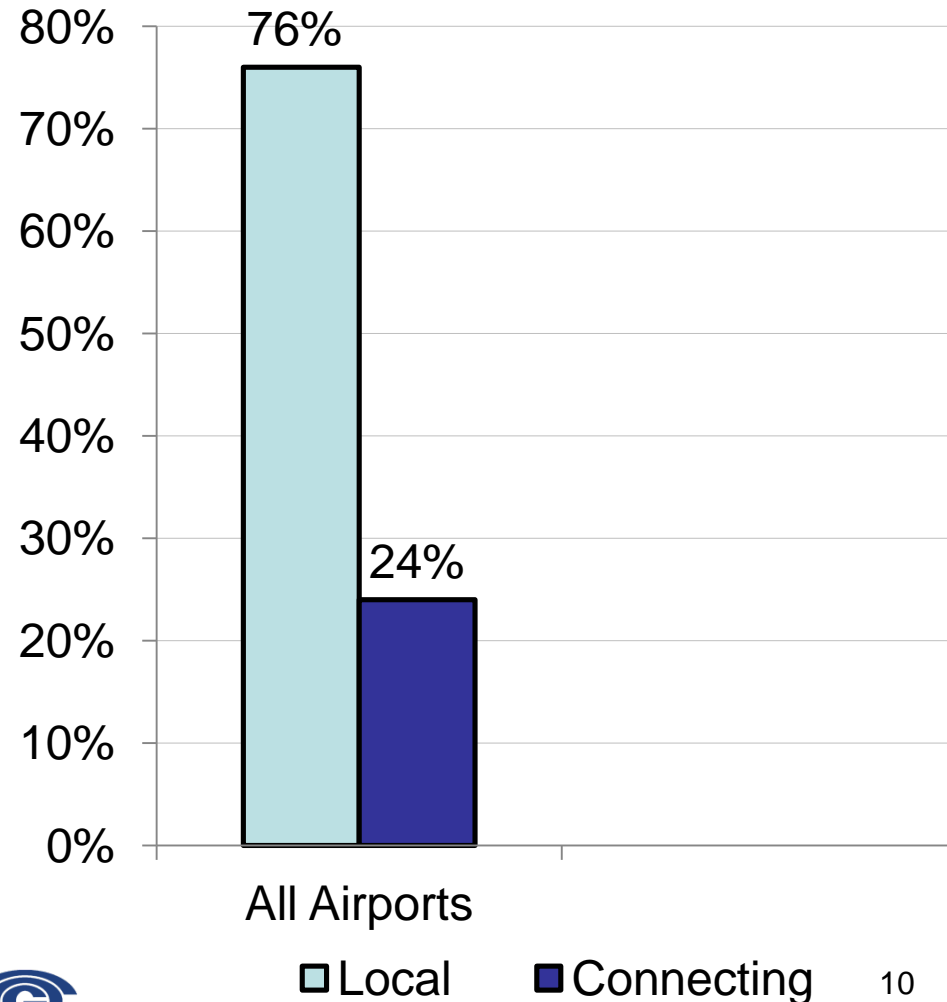
32.2 Million



Locally Originating vs. Connecting Passengers

Connecting passengers
account for:

- ▶ 22% of BWI enplanements
- ▶ 35% of IAD enplanements
- ▶ 12% of DCA enplanements



Air Systems Region – Super Districts

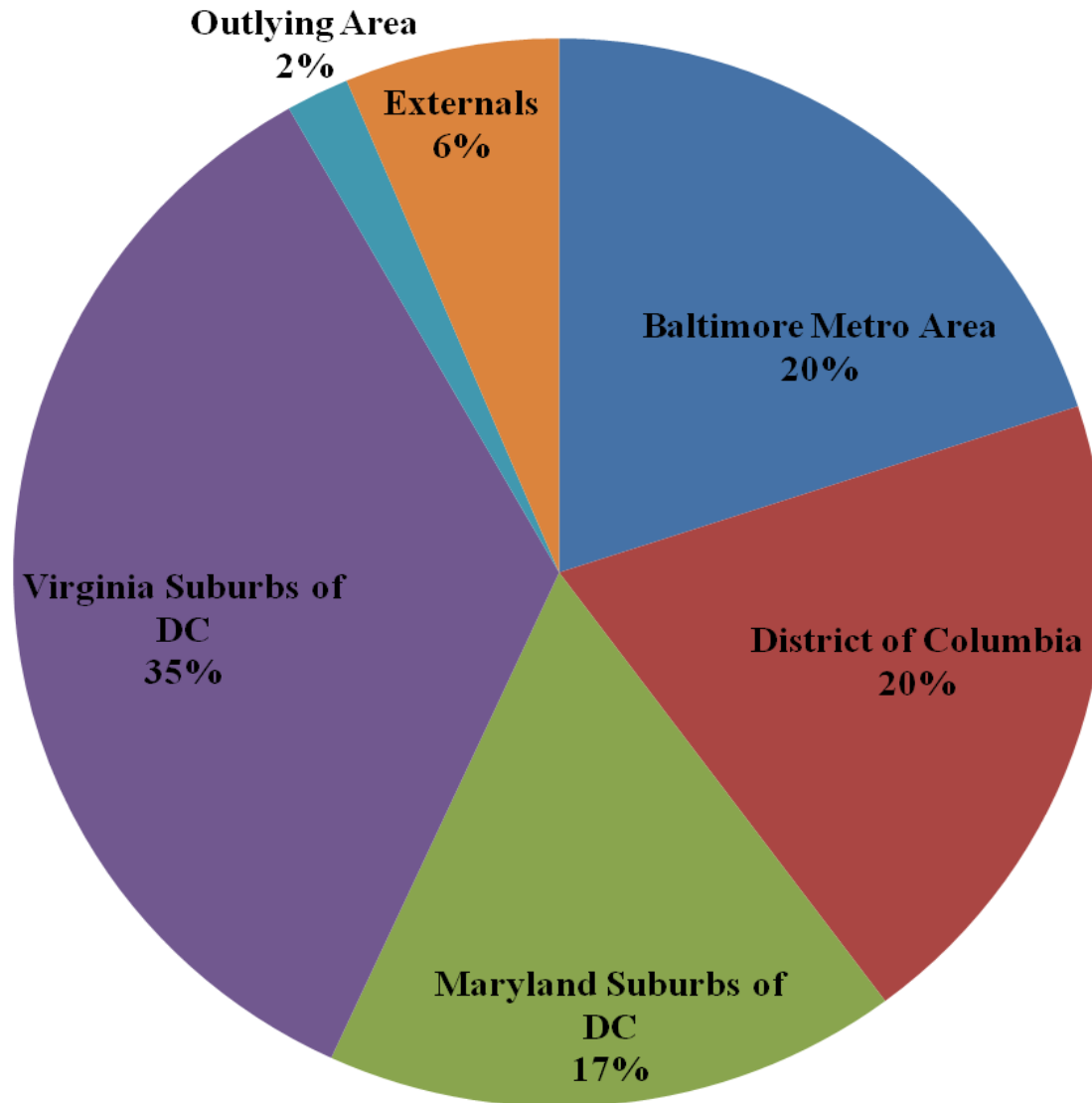


Legend

- Baltimore Metro Area
- District of Columbia
- Maryland Suburbs of DC
- Virginia Suburbs of DC
- Outlying Areas



Regionally, More than 24 Million Local Air Passenger Originations in 2011

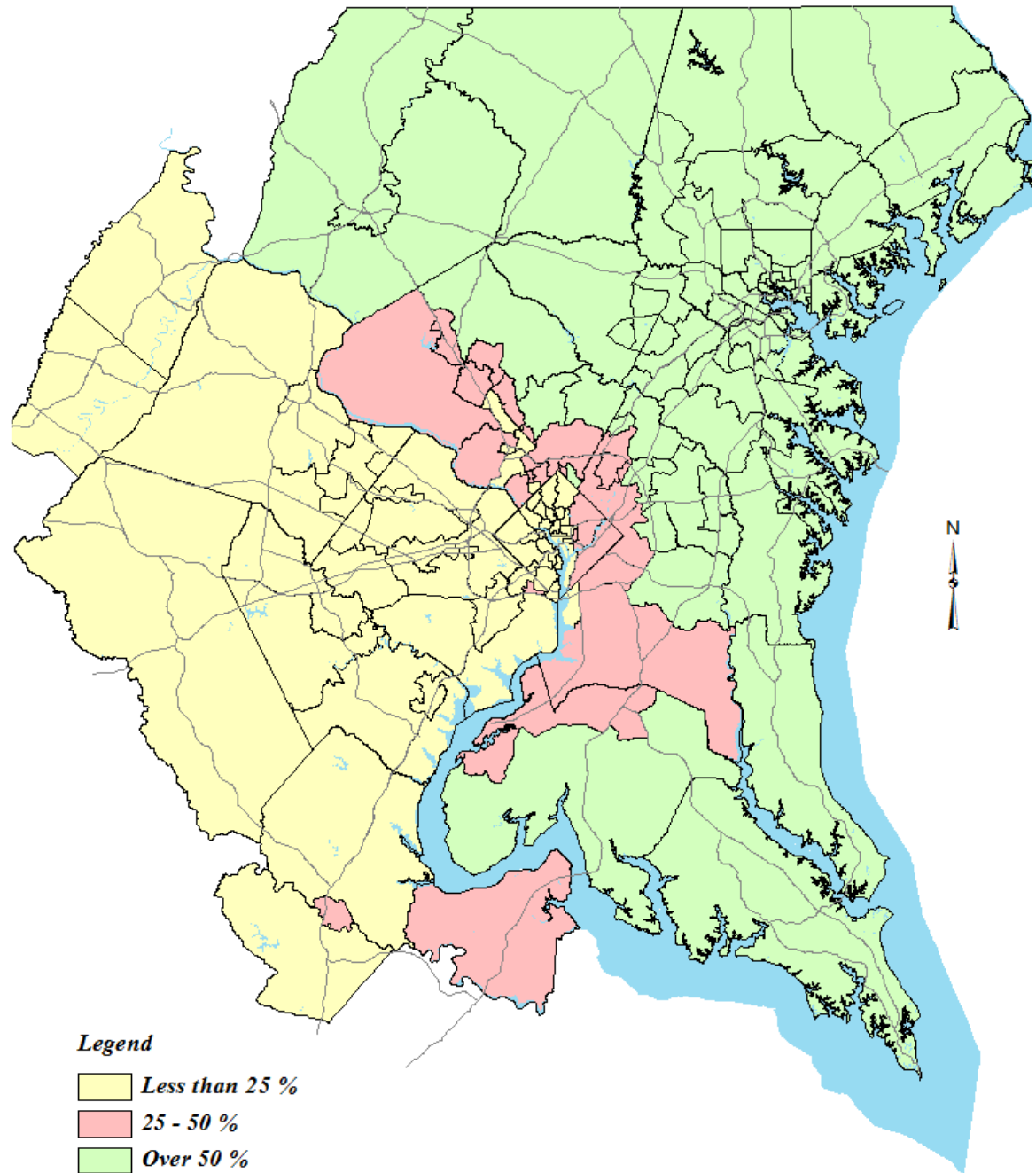


Annual Local Originations by Jurisdiction 2009 and 2011 (000s)




ORIGIN COUNTY	BWI AIRPORT				NATIONAL AIRPORT				DULLES AIRPORT				REGION			
	2009	2011	09-11	% Change	2009	2011	09-11	% Change	2009	2011	09-11	% Change	2009	2011	09-11	% Change
<i>Anne Arundel Co.</i>	1,336	1,394	58	4%	45	42	-3	-8%	79	97	18	23%	1,460	1,533	73	5%
<i>Baltimore City</i>	1,069	1,234	165	15%	33	21	-12	-35%	51	48	-3	-5%	1,153	1,304	151	13%
<i>Baltimore Co.</i>	871	878	7	1%	6	27	21	342%	14	49	35	247%	891	953	62	7%
<i>Carroll Co.</i>	130	135	5	4%	1	3	2	205%	10	22	12	121%	141	160	19	13%
<i>Harford Co.</i>	251	266	15	6%	1	2	1	132%	11	5	-6	-51%	263	274	11	4%
<i>Howard Co.</i>	527	591	64	12%	10	15	5	47%	40	55	15	39%	577	661	84	15%
SUBTOTAL BALTIMORE METRO AREA	4,184	4,497	313	7%	96	109	13	14%	205	277	72	35%	4,485	4,884	399	9%
<i>Calvert Co.</i>	68	54	-14	-20%	37	4	-33	-90%	0	15	15	0%	105	73	-32	-30%
<i>Charles Co.</i>	44	77	33	76%	48	58	10	20%	25	17	-8	-31%	117	152	35	30%
<i>Frederick Co.</i>	172	230	58	34%	31	36	5	17%	68	66	-2	-3%	271	332	61	23%
<i>Montgomery Co.</i>	815	892	77	9%	831	876	45	5%	727	749	22	3%	2,373	2,517	144	6%
<i>Prince Georges Co.</i>	568	519	-49	-9%	305	402	97	32%	96	174	78	81%	969	1,095	126	13%
SUBTOTAL MARYLAND SUBURBS OF DC	1,667	1,773	106	6%	1,252	1,375	123	10%	916	1,021	105	11%	3,835	4,170	335	9%
<i>Alexandria</i>	77	81	4	6%	495	539	44	9%	119	170	51	43%	691	791	100	14%
<i>Arlington Co.</i>	177	153	-24	-14%	1,243	1,468	225	18%	370	499	129	35%	1,790	2,120	330	18%
<i>Fairfax Co.</i>	358	287	-71	-20%	1,003	1,219	216	22%	1,999	2,252	253	13%	3,360	3,758	398	12%
<i>Loudoun Co.</i>	82	54	-28	-34%	46	75	29	64%	704	913	209	30%	832	1,043	211	25%
<i>Prince William Co.</i>	66	42	-24	-36%	173	204	31	18%	416	445	29	7%	655	691	36	6%
<i>Stafford Co.</i>	21	6	-15	-71%	43	65	22	51%	41	64	23	56%	105	135	30	29%
SUBTOTAL VIRGINIA SUBURBS OF DC	781	624	-157	-20%	3,003	3,571	568	19%	3,649	4,343	694	19%	7,433	8,538	1,105	15%
<i>District of Columbia</i>	887	676	-211	-24%	3,336	2,900	-436	-13%	1,210	1,280	70	6%	5,433	4,857	-576	-11%
<i>Outlying Areas</i>	104	133	30	29%	130	138	9	7%	116	187	71	62%	349	459	110	31%
<i>Externals</i>	1,272	1054	-218	-17%	233	121	-112	-48%	800	383	-417	-52%	2,305	1,558	-747	-32%
Total	8,894	8,758	-136	-2%	8,050	8,215	165	2%	6,896	7,493	597	9%	23,840	24,466	626	3%



BWI's Service Area covers all of the BMC Region and most of the eastern portion of the Air Systems Region

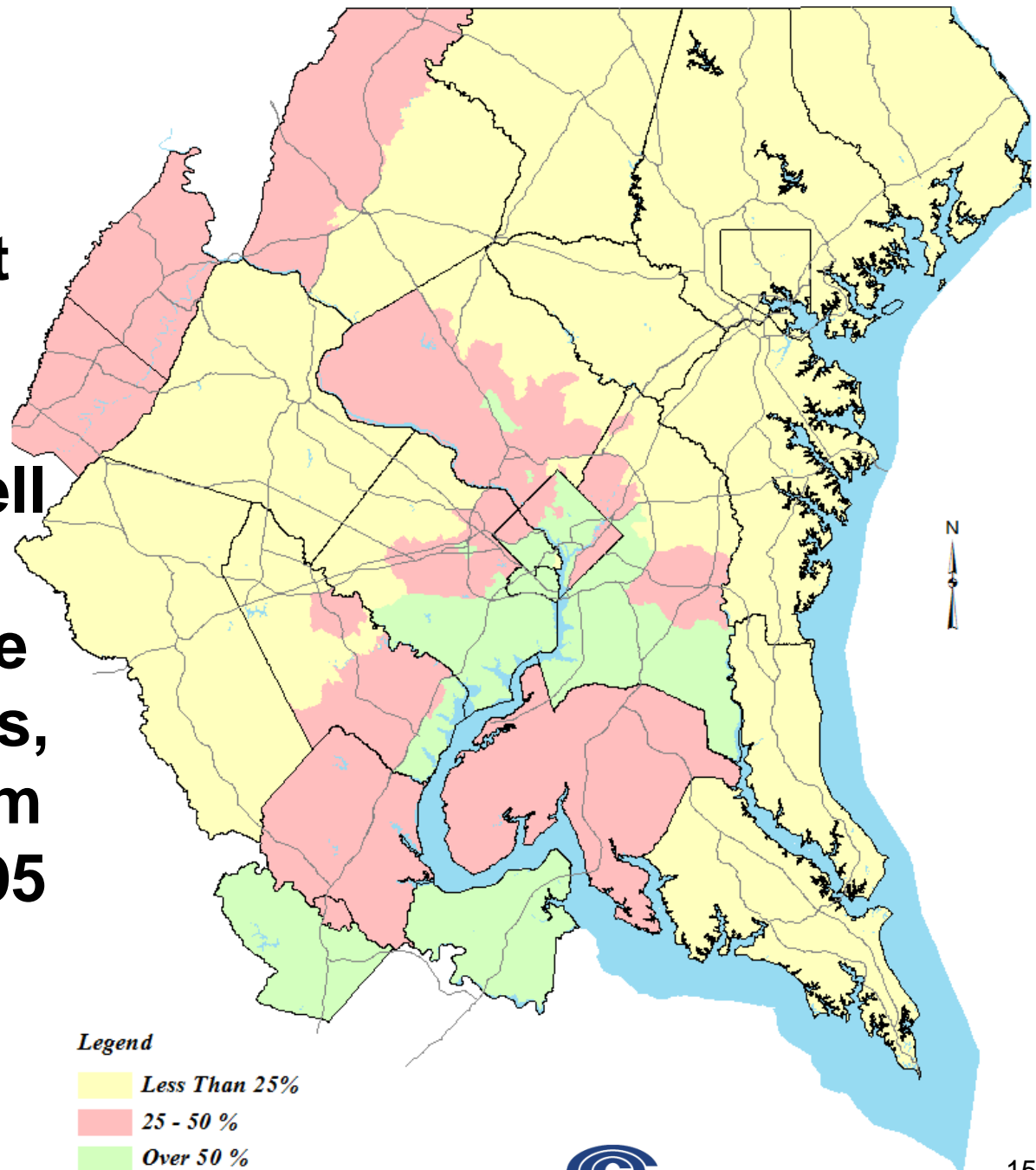


Legend

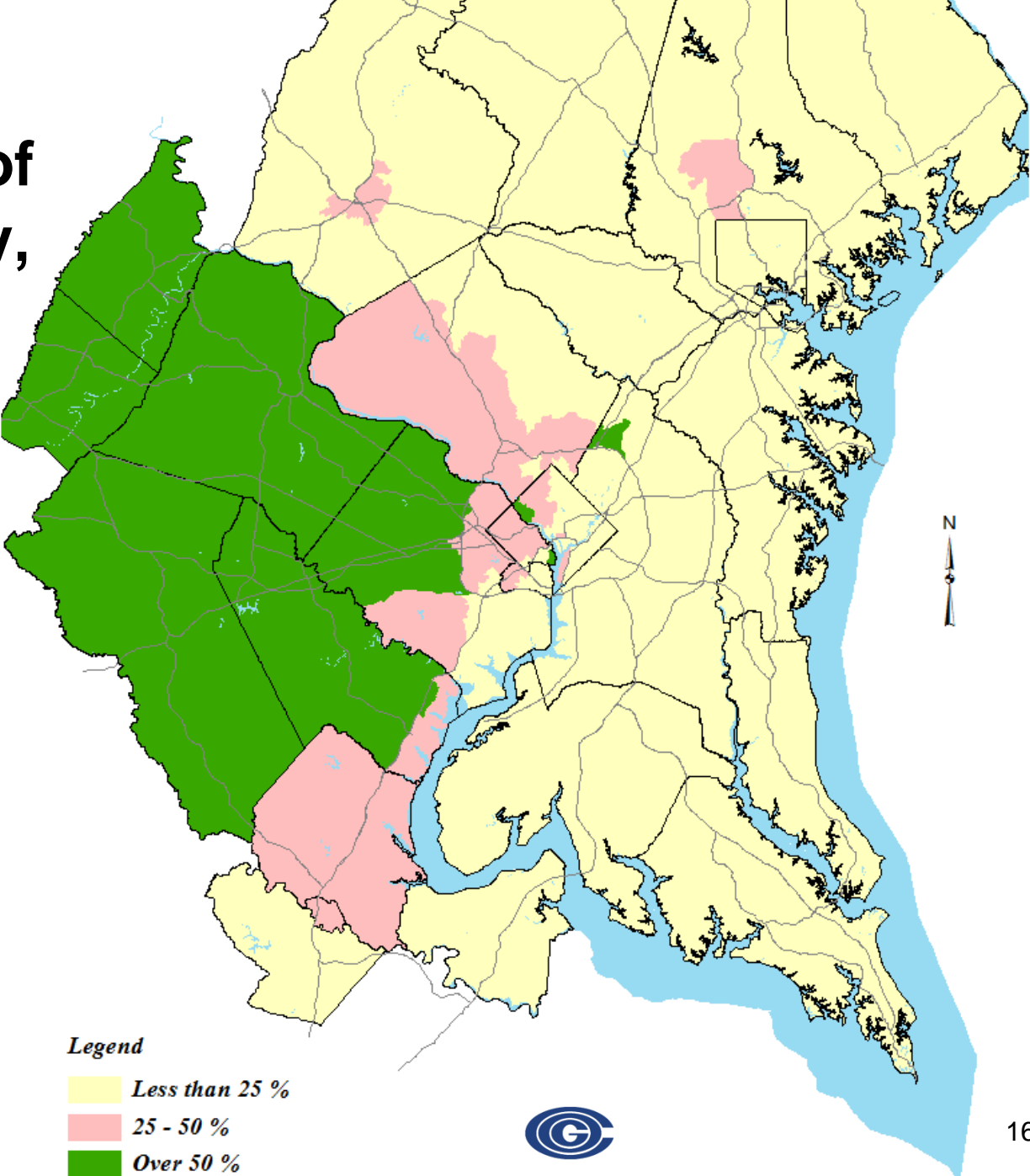
-  Less than 25 %
-  25 - 50 %
-  Over 50 %



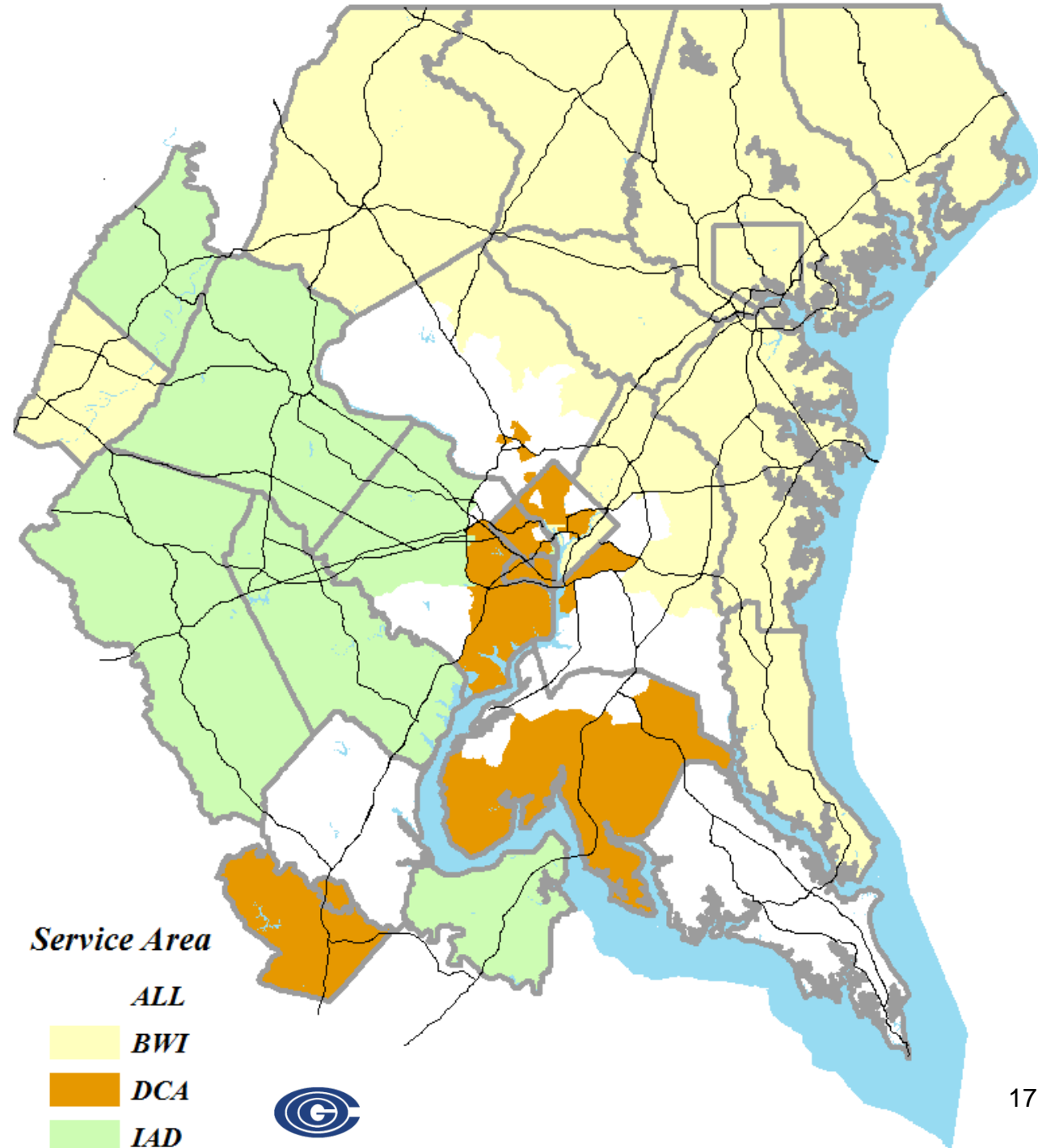
DCA's Service Area covers most of the District, Arlington and Alexandria, as well as southern Fairfax and Prince George's counties, and Prince William County east of I-95



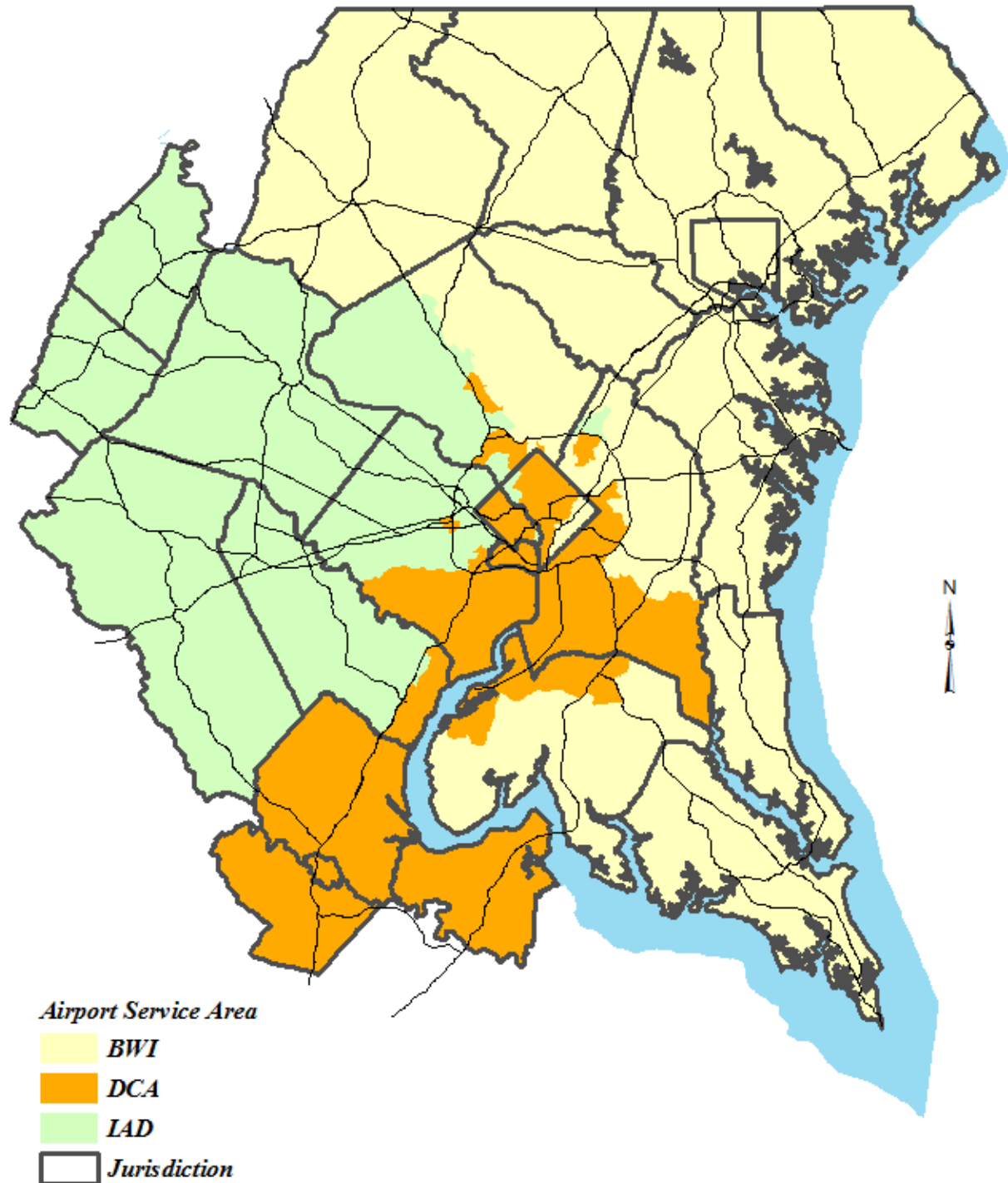
IAD's Service Area covers all of Loudoun County, all of Prince William County west of I-95, and most of Fairfax County outside the Capital Beltway



2009 Airport Service Areas by AAZ

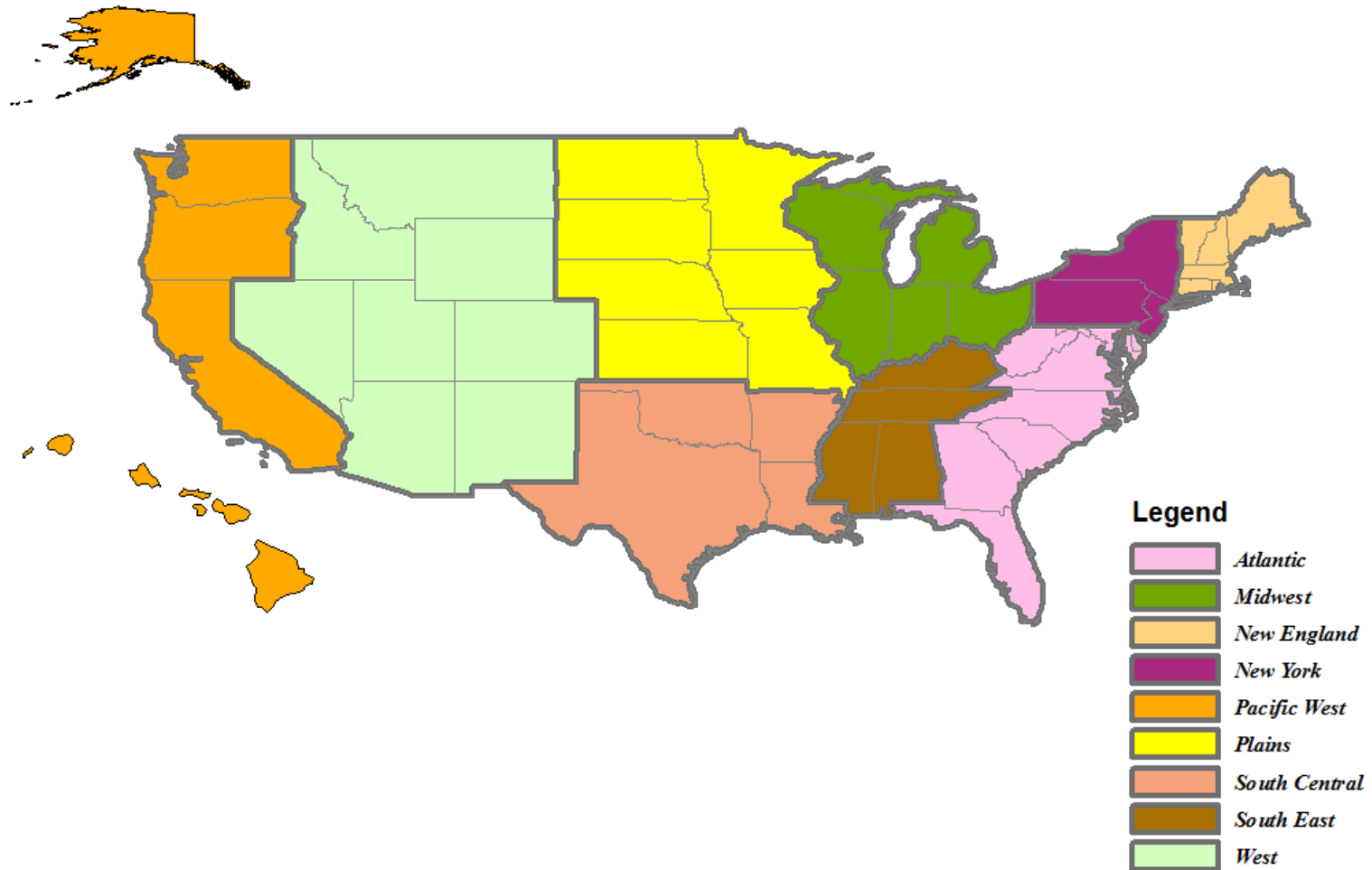


2011 Airport Service Areas by AAZ



Air Passenger Destinations

2011 Survey Uses Ten Destination Strata, Instead of Seven in 2009 Survey



Air Passenger Destination Results

- ▶ The Atlantic and Midwest regions combined received 50% of all departing passengers
- ▶ The 2011 distribution of travel is consistent with 2009 findings
- ▶ IAD remained dominant for international travel, but BWI's international service is increasing



Air Passenger Destinations by Air Systems Regional Origin (000s)

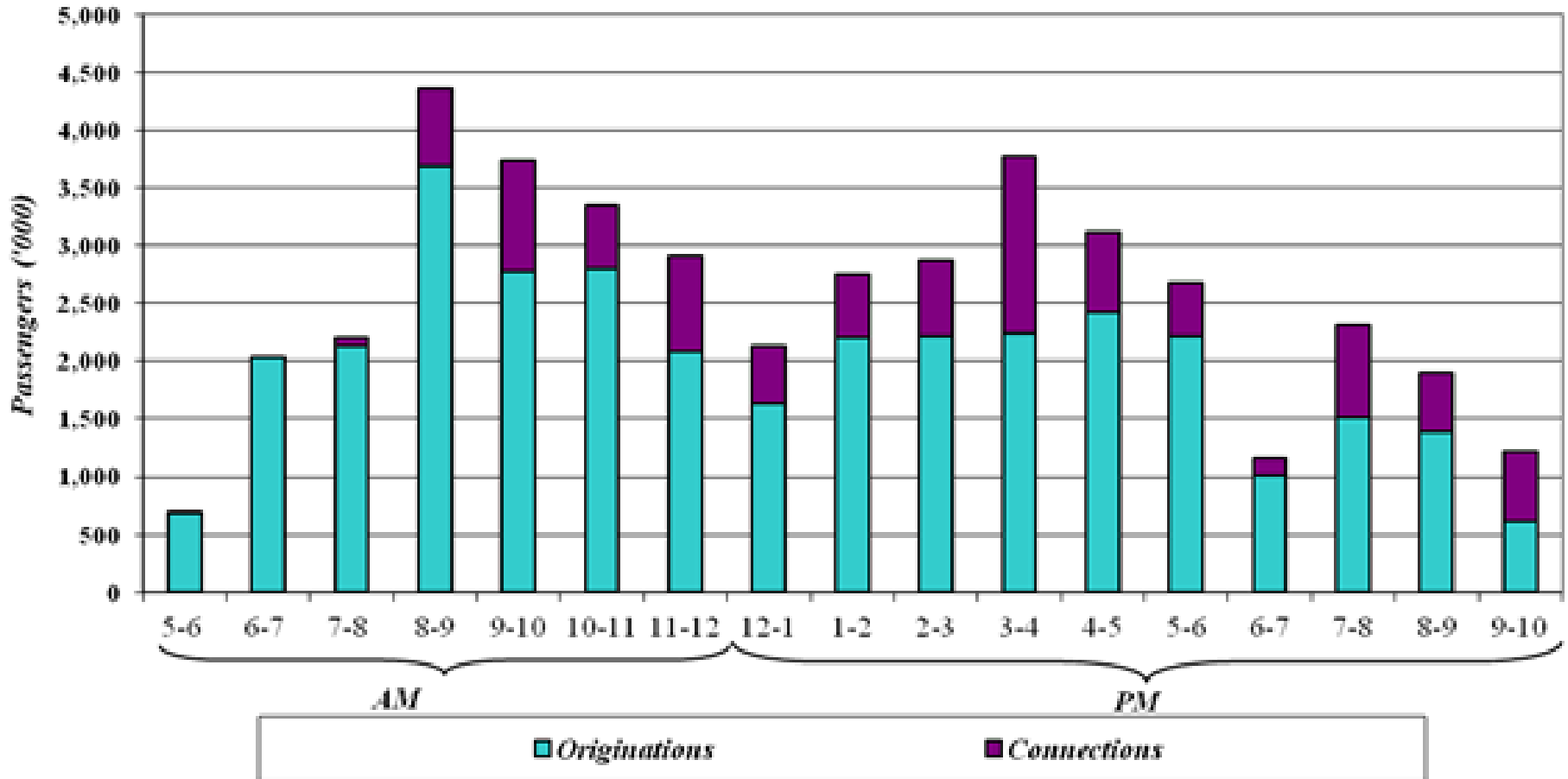
Destination Region	Baltimore Suburbs		Maryland Suburbs		Virginia Suburbs		Washington D.C.		Outlying Region		Externals		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Pacific Northwest/Alaska	135	8%	283	17%	786	47%	370	22%	39	2%	73	4%	1,686	100%
West	417	23%	291	16%	657	36%	296	16%	42	2%	120	7%	1,823	100%
Plains	181	24%	104	14%	213	28%	194	25%	34	4%	38	5%	764	100%
South Central	417	21%	340	17%	671	33%	430	21%	55	3%	107	5%	2,021	100%
South East	225	28%	145	18%	215	27%	152	19%	6	1%	62	8%	806	100%
Atlantic	1,583	22%	1,238	17%	2,493	35%	1,149	16%	119	2%	521	7%	7,103	100%
Midwest	844	21%	616	16%	1,301	33%	862	22%	75	2%	251	6%	3,949	100%
North East / New York	358	21%	294	17%	546	32%	404	24%	10	1%	98	6%	1,711	100%
New England	446	21%	378	18%	656	31%	485	23%	45	2%	107	5%	2,116	100%
Sub-Total	4,607	21%	3,689	17%	7,538	34%	4,342	20%	426	2%	1,378	6%	21,980	100%
International	277	11%	481	19%	1,000	40%	515	21%	33	1%	180	7%	2,486	100%
Total	4,884	20%	4,170	17%	8,538	35%	4,857	20%	459	2%	1,558	6%	24,466	100%

Source: 2011 Washington-Baltimore Regional Air Passenger Survey



Diurnal Distribution of Air Passenger Activity

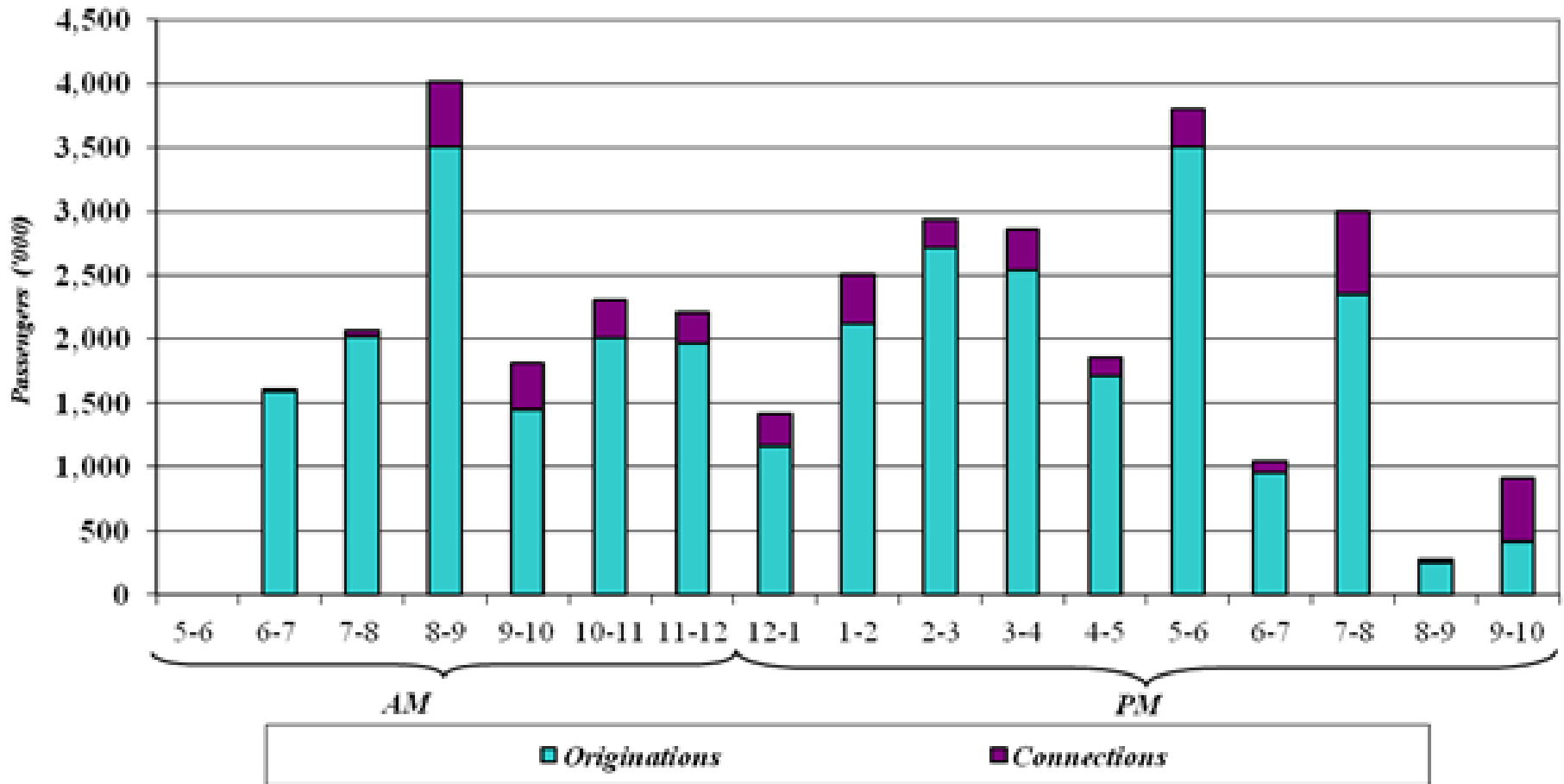
Passenger Activity at BWI is High Through Most of the Day



Source: - 2011 Washington-Baltimore Regional Air Passenger Survey



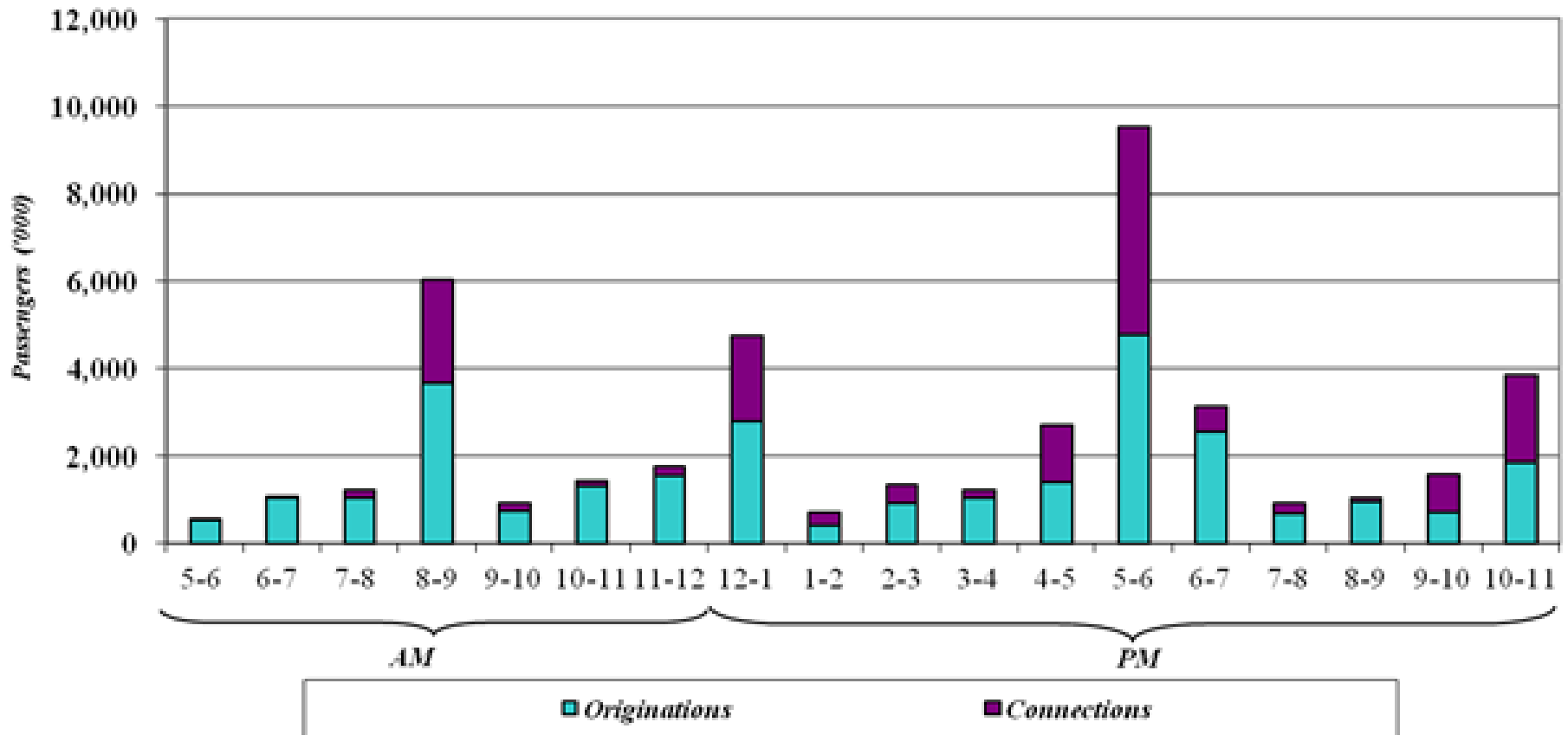
DCA Activity Similar to BWI, but with Higher Transit Usage



Source: - 2011 Washington-Baltimore Regional Air Passenger Survey



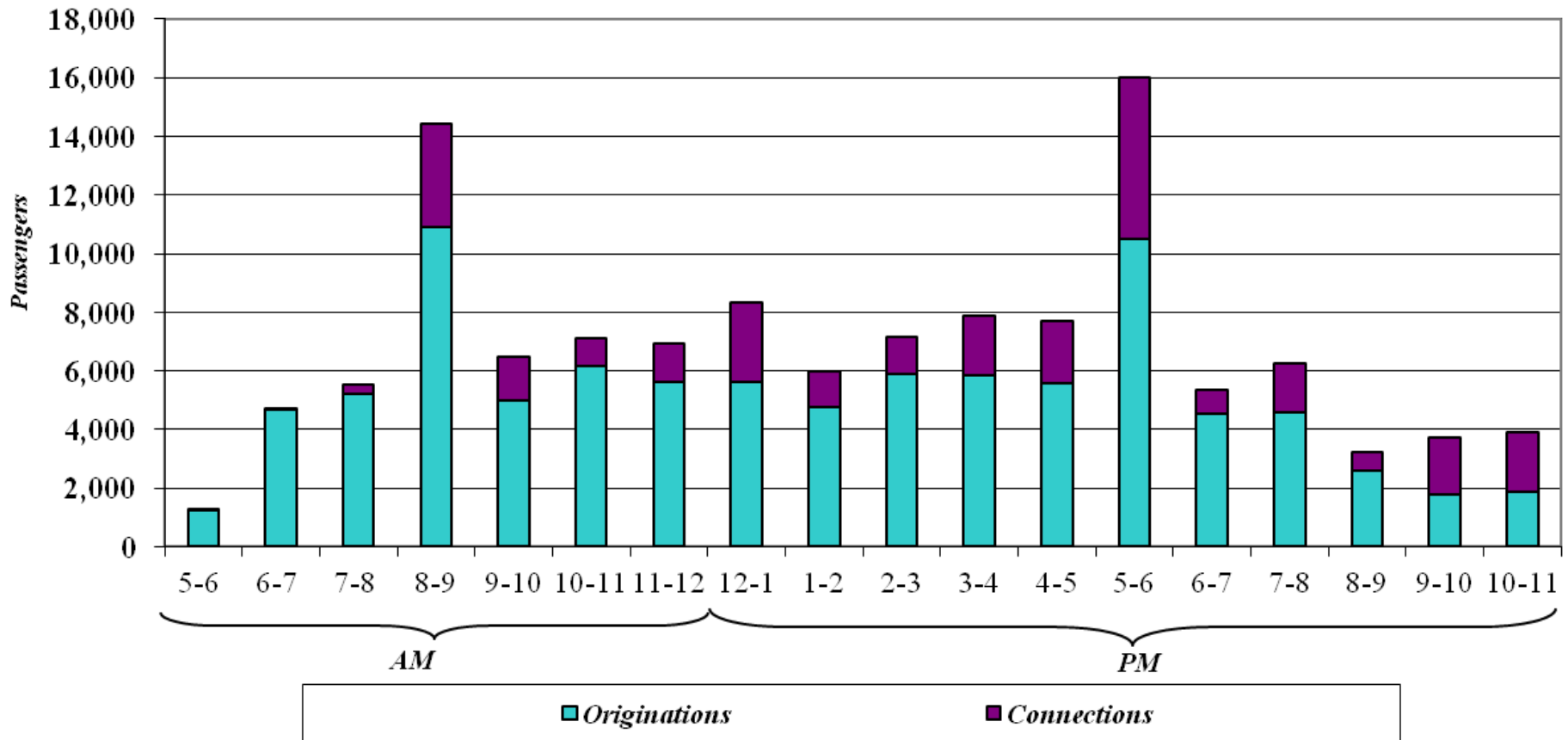
IAD Activity Much More Peaked Due to Scheduling of Long-Haul Flights



Source: - 2011 Washington-Baltimore Regional Air Passenger Survey



Most People Traveling to Regional Airports During Peak Usage Times on the Ground Access Network

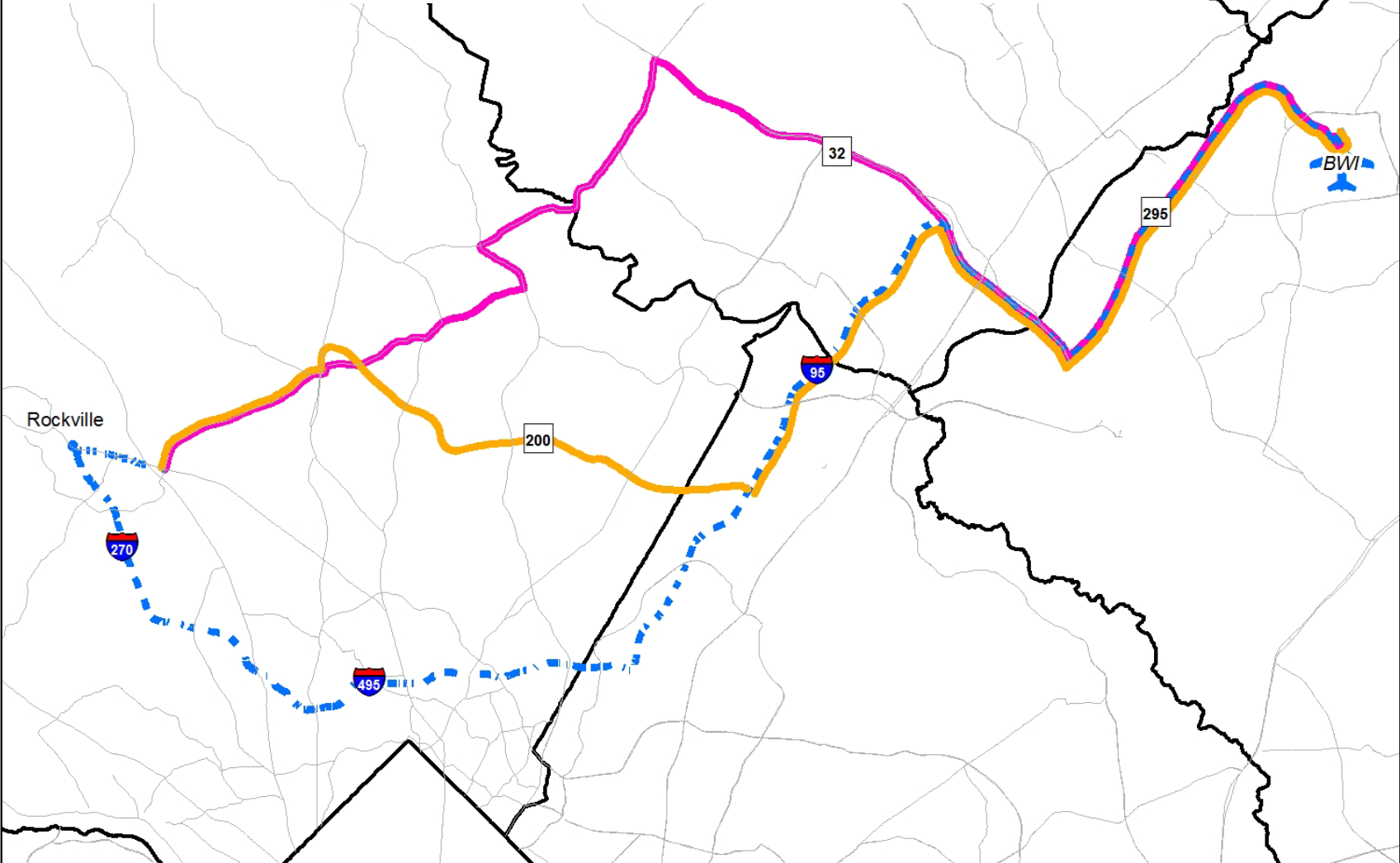


Source: - 2011 Washington-Baltimore Regional Air Passenger Survey

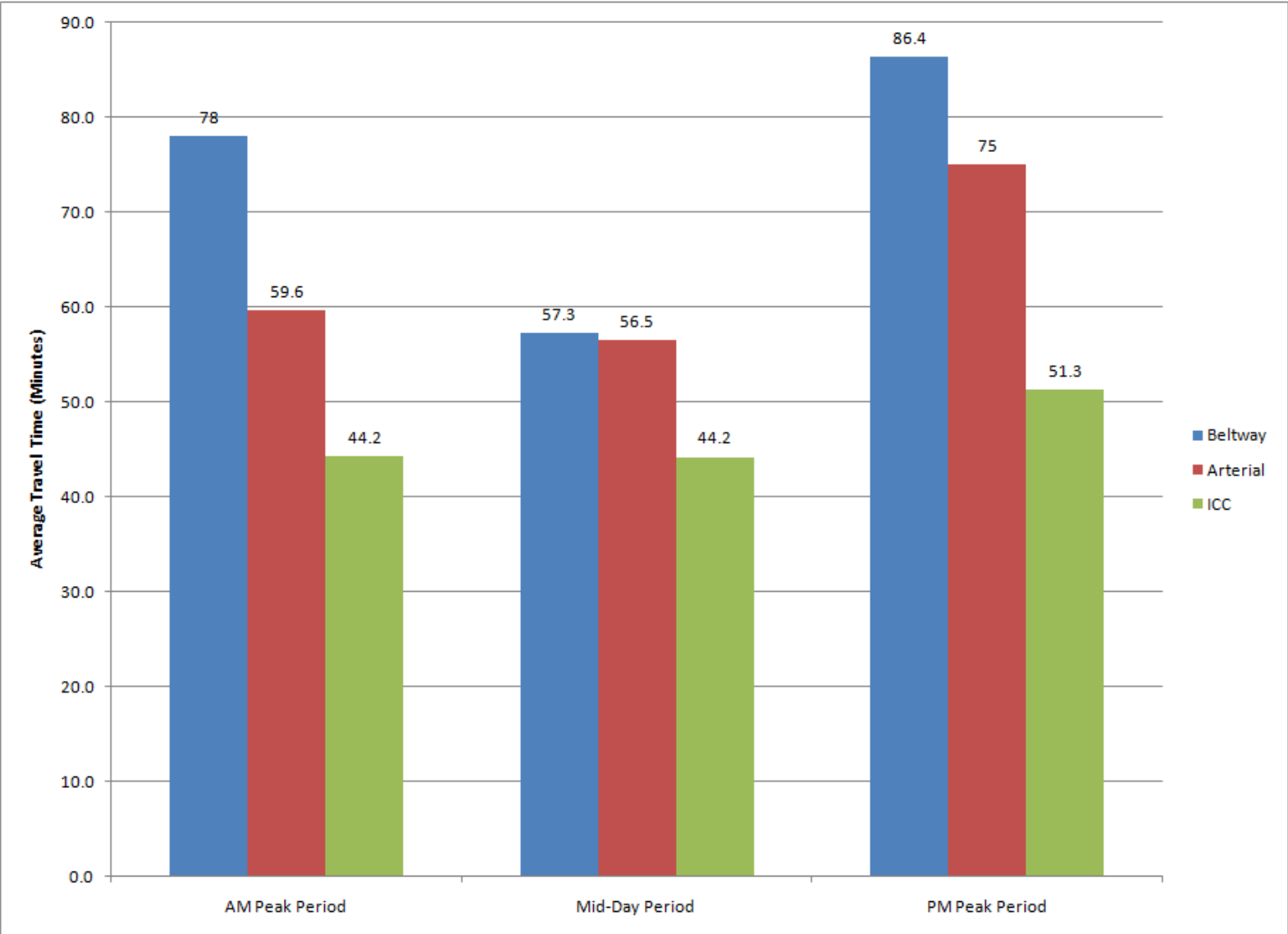


Airport Usage and MD 200

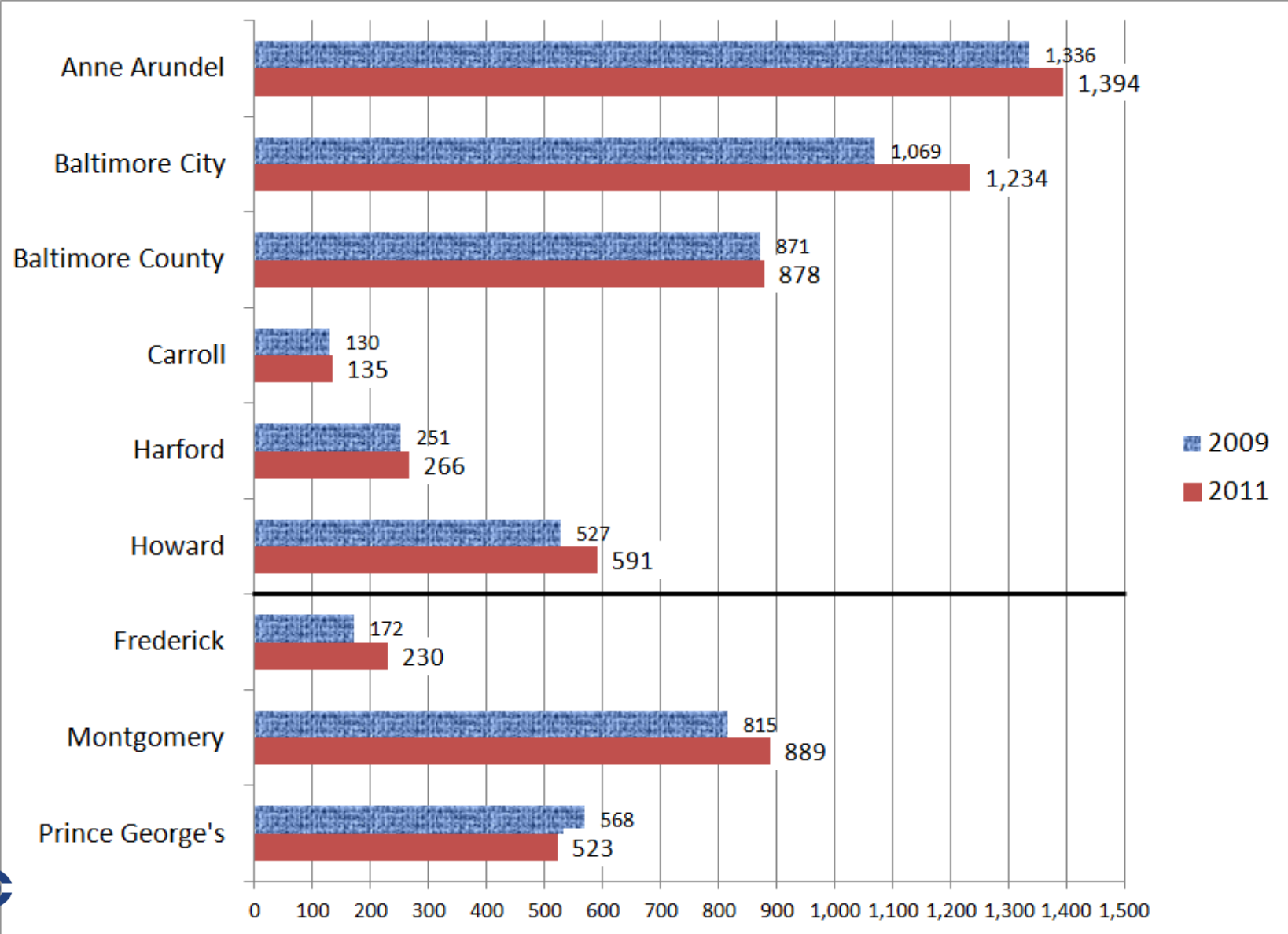
Travel Time Data Collection Routes Rockville to BWI



Impact of the ICC (MD 200) on Highway Travel Times from Rockville to BWI (Average 2011-2012)



Annual Local Originations to BWI (000s)



Washington Core Area and Baltimore City

Washington Core Area and Baltimore City

- ▶ Washington Core Area: All of District of Columbia, plus Arlington County and City of Alexandria
- ▶ Washington Core Area generated 7.7 million air passengers in 2011 and 63% of them used DCA
- ▶ Baltimore City originations: 5% of the regional total, nearly 27% of all passengers from the Baltimore region



Washington Core Area and Baltimore City: Trip Origins

- ▶ 48% of local originations from the Washington Core Area and 41% from Baltimore City began at a hotel or motel (26% regionally)
- ▶ 14% of local originations from the Washington Core Area 9% from Baltimore City began at a place of business (10% regionally)
- ▶ Trip purpose for Washington Core Area and Baltimore City similar to regional results



Washington Core Area and Baltimore City: Mode of Access (Annual, 000s)

Mode of Access	Baltimore		Washington		All		Region	
	Downtown Center No.	%	Downtown Center No.	%	Other No.	%	No.	%
Private Auto	538	41%	1,877	24%	9,767	63%	12,181	50%
Rental Auto	173	13%	482	6%	2,140	14%	2,795	11%
Taxicab	283	22%	2,744	35%	1,184	8%	4,211	17%
Public Transportation	90	7%	1,304	17%	489	3%	1,883	8%
Airport Bus or Limousine	175	13%	1,058	14%	1,205	8%	2,438	10%
Other	44	3%	303	4%	610	4%	958	4%
Total	1,304	100%	7,768	100%	15,395	100%	24,466	100%



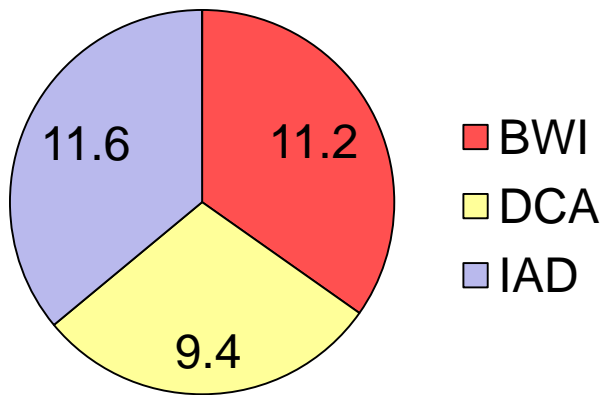
Washington Core Area and Baltimore City: Airport Usage (Annual, 000s)

Airport Used	Baltimore		Washington		All		Region	
	Downtown Center		Downtown Center		Other			
	No.	%	No.	%	No.	%	No.	%
BWI	1,234	95%	910	12%	6,614	43%	8,758	36%
DCA	21	2%	4,908	63%	3,286	21%	8,215	34%
IAD	48	4%	1,950	25%	5,495	36%	7,493	31%
Total	1,304	100%	7,768	100%	15,395	100%	24,466	100%



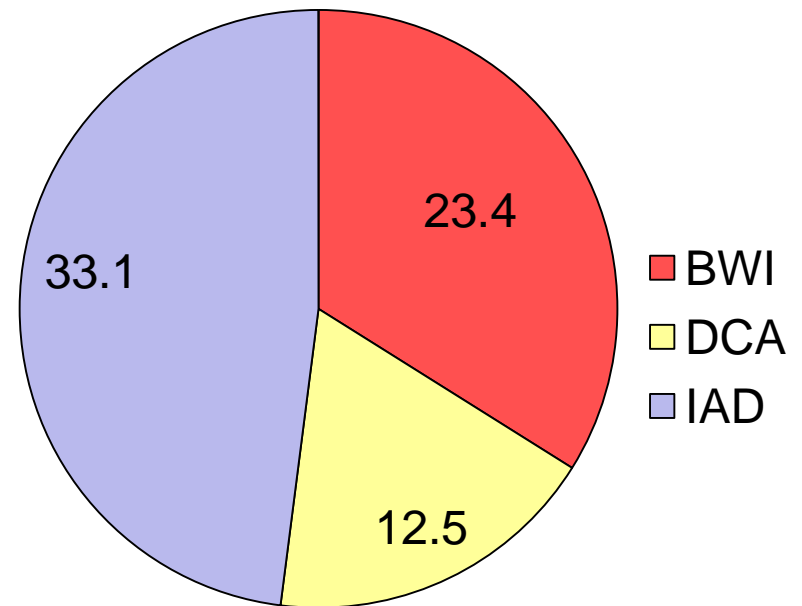
FAA Forecast Increase in Regional Air Passengers

2011



32.2 Million
Air Passengers

2040



69.0 Million
Air Passengers



Issues for the Future

- ▶ By 2040, air passenger travel at the region's three major airports is forecast to more than double, with most of the growth projected to occur at BWI and IAD
- ▶ Significant air cargo growth forecast at BWI and IAD by USDOT
- ▶ Continued growth in domestic and international air travel, especially business travel, and air cargo, is vitally important to the region's economy
- ▶ Improving ground access connections to BWI and IAD will be very important to future regional economic growth and prosperity



Trip Origins of Locally Originating Air Passengers

Originating at a private residence:

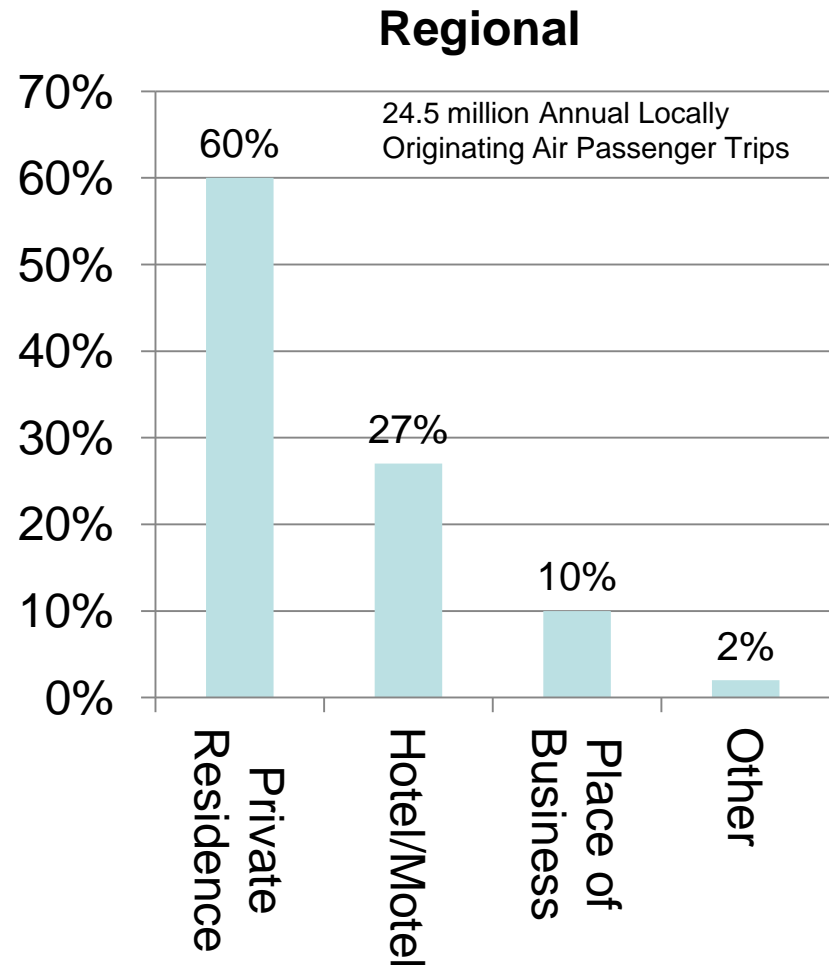
- ▶ 67% for BWI and IAD
- ▶ 50% for DCA

Originating at a hotel or motel:

- ▶ 21% for BWI
- ▶ 26% for IAD
- ▶ 33% for DCA

Originating at a place of business:

- ▶ 10% at BWI
- ▶ 8% at IAD
- ▶ 14% at DCA



Air Passenger Mode of Travel to Airport

Usage of private and rental cars:

- ▶ 78% at BWI
- ▶ 68% at IAD
- ▶ 43% at DCA

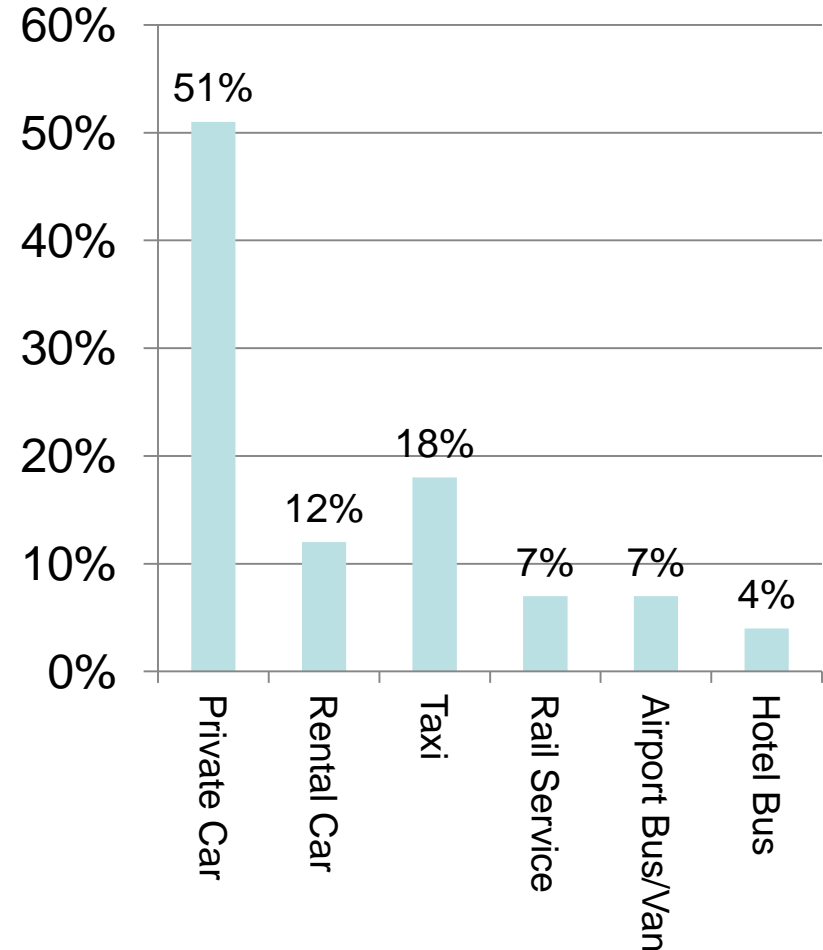
Use of taxis:

- ▶ 6% at BWI
- ▶ 17% at IAD
- ▶ 31% at DCA

Use of transit:

- ▶ 4% at BWI
- ▶ 2% at IAD
- ▶ 17% at DCA

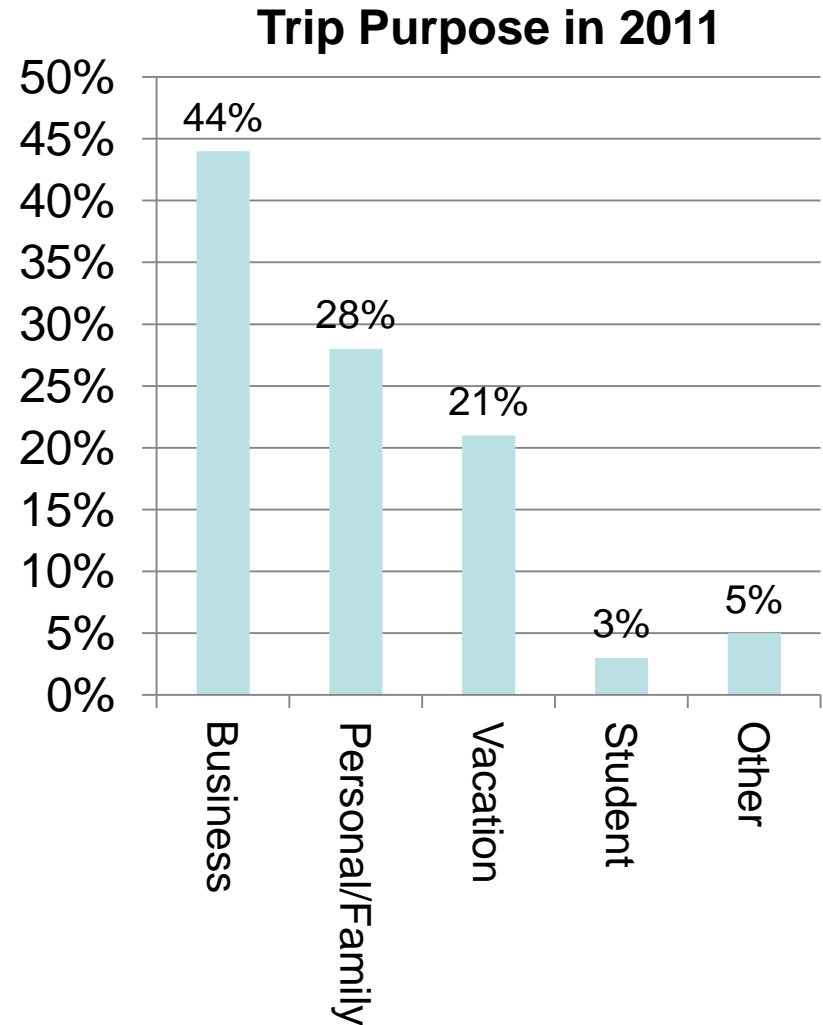
Mode of Access in 2011



Air Passenger Trip Purposes

Compared to 2009:

- ▶ Business travel up to 44% from 38%
- ▶ Government-related business up from 18% to 20%
- ▶ Non-government related business up from 20% to 24%
- ▶ Vacation trips down from 24% to 21%
- ▶ School trips down from 5% to 3%



Airports Are Vital to the Region's Economic Health

- ▶ **Annual Regional Economic Impact of Commercial Airports: More than \$30 Billion and 250,000 jobs**
- ▶ Airport ground access problems impact both passengers and air cargo
- ▶ Airport access must continue to be addressed as part of MPO work programs and plans

