

ANNUAL SERVICE VOLUME (ASV) CALCULATIONS
Washington Dulles International Airport
Environmental Impact Statement

Annual Service Volume (ASV)

$$ASV = C_W \times D \times H$$

where:

C_W = Weighted hourly capacity of the runway component

D = Ratio of annual demand to average daily demand during the peak month

H = Ratio of average daily demand to average peak hour demand

$$C_W = \frac{(P_1 \times C_1 \times W_1) + (P_2 \times C_2 \times W_2) + \dots + (P_n \times C_n \times W_n)}{(P_1 \times W_1) + (P_2 \times W_2) + \dots + (P_n \times W_n)}$$

where:

P = Percent of time each runway-use configuration is in use

C = Hourly capacity for each runway-use configuration

W = ASV weighting factor

ASV Weighting Factors

Percent of Maximum Capacity ¹	Weighting Factors			
	VFR	IFR		
		Mix Index (0 - 20)	Mix Index (21 - 50)	Mix Index (51 - 180) ²
91% +	1	1	1	1
81 - 90%	5	1	3	5
66 - 80%	15	2	8	15
51 - 65%	20	3	12	20
0 - 50%	25	4	16	25

¹ Ratio of hourly capacity of each runway-use configuration to the hourly capacity of the runway-use configuration that provides the maximum capacity

² Mix Index of IAD is between 51 and 180

Source: FAA Advisory Circular 150/5060-5, *Airport Capacity and Delay*

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2002, 2010 Existing Configuration

Runway-Use Configuration	P	C	Percent of Maximum Capacity	W	P x C x W	P x W
North Flow - VFR	13.01%	150	100%	1	19.52	0.13
North Flow - IFR	10.37%	125	83%	5	64.81	0.52
South Flow - VFR	2.44%	120	80%	15	43.92	0.37
South Flow - IFR	1.70%	100	67%	15	25.50	0.26
Mixed Flow - VFR	59.18%	150	100%	1	88.77	0.59
Mixed Flow - IFR	6.44%	125	83%	5	40.25	0.32
Mixed Flow (No RW 12 Arr)-VFR	5.87%	150	100%	1	8.81	0.06
Northwest Flow - VFR	1.00%	60	40%	25	<u>15.00</u>	<u>0.25</u>
				TOTAL	306.57	2.49

C_W (2002, 2010) = 123.02

Annual Demand (2002) = 372,636

Avg. Daily Demand-Peak Month (2002) = 992

D (2002) = 375.64

Annual Demand (2010) = 568,410

Avg. Daily Demand-Peak Month (2010) = 1,728

D (2010) = 328.94

Avg. Daily Demand-Peak Month (2002) = 992

Avg. Peak Hour Demand-Peak Month (2002) = 90

H (2002) = 11.02

Avg. Daily Demand-Peak Month (2010) = 1,728

Avg. Peak Hour Demand-Peak Month (2010) = 144

H (2010) = 12.00

ASV (2002) = 509,343

ASV (2010) = 485,587

Sources: *Washington Dulles International Airport Updated Activity Forecasts and Simulation*, HNTB Corporation, July 2003.
HNTB Corporation analysis (annual Service volume) sent to Allan Nagy, URS, via mail on October 9, 2002, from Charles Baummer, MWAA.
Proposed Runway Development - FAA Air Traffic Analysis, FAA, October 2000.
FAA Advisory Circular 150/5060-5, *Airport Capacity and Delay*

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2010 Four Runway Configuration (with East-West Runway)

Runway-Use Configuration	P	C	Percent of Maximum Capacity	W	P x C x W	P x W
North Flow - VFR	13.01%	180	100%	1	23.42	0.13
North Flow - IFR	10.37%	150	83%	5	77.78	0.52
South Flow - VFR	2.44%	120	67%	15	43.92	0.37
South Flow - IFR	1.70%	100	56%	20	34.00	0.34
Mixed Flow - VFR	65.05%	180	100%	1	117.09	0.65
Mixed Flow - IFR	6.44%	150	83%	5	48.30	0.32
Northwest Flow - VFR	1.00%	120	67%	15	<u>18.00</u>	<u>0.15</u>
				TOTAL	362.50	2.48

$C_{W(2010)} = 146.34$

Annual Demand $_{(2010)} = 568,410$
 Avg. Daily Demand-Peak Month $_{(2010)} = 1,728$

$D_{(2010)} = 328.94$

Avg. Daily Demand-Peak Month $_{(2010)} = 1,728$
 Avg. Peak Hour Demand-Peak Month $_{(2010)} = 144$

$H_{(2010)} = 12.00$

$ASV_{(2010)} = 577,653$

Sources: *Washington Dulles International Airport Updated Activity Forecasts and Simulation*, HNTB Corporation, July 2003.
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Proposed Runway Development - FAA Air Traffic Analysis, FAA, October 2000.
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2010 Four Runway Configuration (with North-South Runway)

Runway-Use Configuration	P	C	Percent of Maximum Capacity	W	P x C x W	P x W
North Flow - VFR	13.01%	180	100%	1	23.42	0.13
North Flow - IFR	10.37%	150	83%	5	77.78	0.52
South Flow - VFR	2.44%	180	100%	1	4.39	0.02
South Flow - IFR	1.70%	150	83%	5	12.75	0.09
Mixed Flow - VFR	65.05%	180	100%	1	117.09	0.65
Mixed Flow - IFR	6.44%	150	83%	5	48.30	0.32
Northwest Flow - VFR	1.00%	60	33%	25	<u>15.00</u>	<u>0.25</u>
				TOTAL	298.73	1.98

$C_{W(2010)} = 150.83$

Annual Demand $(2010) = 568,410$
 Avg. Daily Demand-Peak Month $(2010) = 1,728$

$D_{(2010)} = 328.94$

Avg. Daily Demand-Peak Month $(2010) = 1,728$
 Avg. Peak Hour Demand-Peak Month $(2010) = 144$

$H_{(2010)} = 12.00$

$ASV_{(2010)} = 595,382$

Sources: *Washington Dulles International Airport Updated Activity Forecasts and Simulation*, HNTB Corporation, July 2003.
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Proposed Runway Development - FAA Air Traffic Analysis, FAA, October 2000.
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2010 Five Runway Configuration

Runway-Use Configuration	P	C	Percent of Maximum Capacity	W	P x C x W	P x W
North Flow - VFR	13.01%	217	90%	5	141.16	0.65
North Flow - IFR	10.37%	178	74%	15	276.88	1.56
South Flow - VFR	2.44%	180	75%	15	65.88	0.37
South Flow - IFR	1.70%	150	63%	20	51.00	0.34
Mixed Flow - VFR	65.05%	240	100%	1	156.12	0.65
Mixed Flow - IFR	6.44%	200	83%	5	64.40	0.32
Northwest Flow - VFR	1.00%	120	50%	25	<u>30.00</u>	<u>0.25</u>
				TOTAL	785.44	4.13

$C_{W(2010)} = 189.97$

Annual Demand $(2010) = 568,410$
 Avg. Daily Demand-Peak Month $(2010) = 1,728$

$D_{(2010)} = 328.94$

Avg. Daily Demand-Peak Month $(2010) = 1,728$
 Avg. Peak Hour Demand-Peak Month $(2010) = 144$

$H_{(2010)} = 12.00$

$ASV_{(2010)} = 749,873$

Sources: *Washington Dulles International Airport Updated Activity Forecasts and Simulation*, HNTB Corporation, July 2003.
 HNTB Corporation analysis (annual Service volume) sent to Allan Nagy, URS, via mail on October 9, 2002, from Charles Baummer, MWAA.
Proposed Runway Development - FAA Air Traffic Analysis, FAA, October 2000.
 FAA Advisory Circular 150/5060-5, *Airport Capacity and Delay*