

DEFINITION

- The capacity profile shows the hourly throughput that an airport is able to sustain during periods of high demand, represented as the range between the model-estimated capacity and the ATC facility reported rate (called rate). Each weather condition has a unique capacity rate range. IAD tends to operate in an arrival or departure priority mode, as opposed to a balanced operation. An arrival or departure priority operation is only feasible when the airport's flight schedule is unbalanced for sustained periods of time.
- For each weather scenario, capacity estimates are based on information provided by ATC, including reported arrival and departure rates.

RECENT CAPACITY IMPROVEMENTS AT IAD

- Time-Based Flow Management (TBFM)* helps to improve the flow of arrivals to the runways.
- Arrival-Departure Window (ADW)* helps to minimize the long-term risk associated with arrival and departure operations on intersecting and converging runways (e.g., landing Runway 19R while Departing Runway 30). A range window prior to the arrival runway threshold is depicted on the controller's radar monitor. The departing flight cannot be released if the arrival is within that window, minimizing the risk of separation loss with the departing aircraft in the event the arrival executes a missed approach.

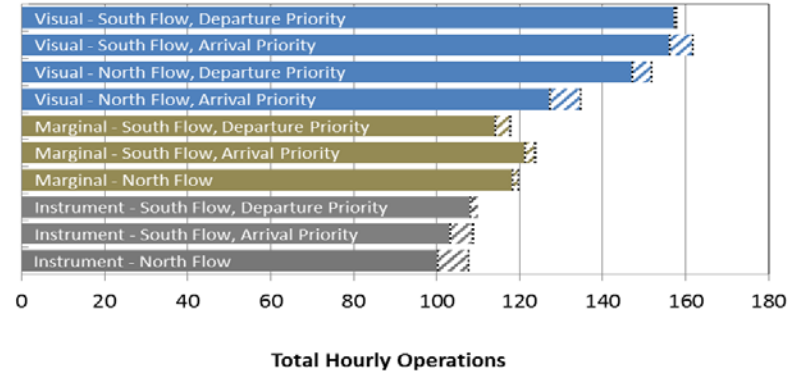
FUTURE IMPROVEMENTS AT IAD

- Improved Parallel Runway Operations:* Centerline spacing of Runway 1L/19R allows for Triple Simultaneous Instrument Approaches, however this procedure has not been implemented yet at IAD and requires the installation of upgraded surveillance equipment. Such approaches would be implemented until required by traffic levels.
- Improved Runway Delivery Accuracy:* The combined effects of several new capabilities, including ADS-B Out, CDTI, and TBM in the terminal area, will improve the ability of controllers to deliver aircraft to the runway with the desired separation from the preceding aircraft. This will reduce the average spacing between arrivals and boost arrival capacity.
- Wake Recategorization Phase 1* assigns aircraft to new wake turbulence classifications based on their wake turbulence characteristics, such as wake generation, wake decay, and encounter effects. This results in closer longitudinal separation for certain aircraft types without sacrificing safety.

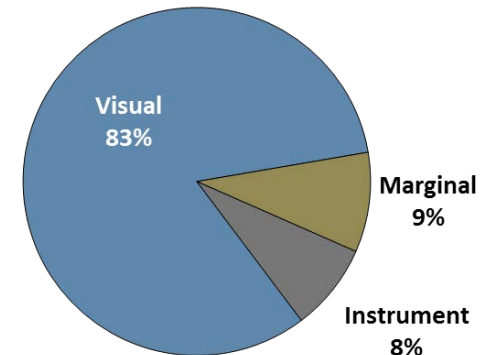
DATA SOURCES

- Actual hourly IAD operations, weather and configuration data were obtained from the FAA ASPM database, and represent operational hours from 7am to 11pm local time for all of Fiscal Years 2012 through 2014. Actual configuration usage is determined by multiple operational factors, including weather conditions.
- Facility reported rates were provided by ATC personnel at IAD.
- Model-estimated rates are derived from operational information provided by ATC.

CURRENT OPERATIONS CAPACITY RATE RANGE



ANNUAL WEATHER AT IAD:



VISUAL CONDITIONS:

- Ceiling and visibility allow for visual approaches: at least 3000 feet ceiling and 7 miles visibility

MARGINAL CONDITIONS:

- Ceiling and visibility below visual approach minima but better than Instrument conditions

INSTRUMENT CONDITIONS:

- Ceiling and visibility below 1000 feet ceiling or 3 miles visibility

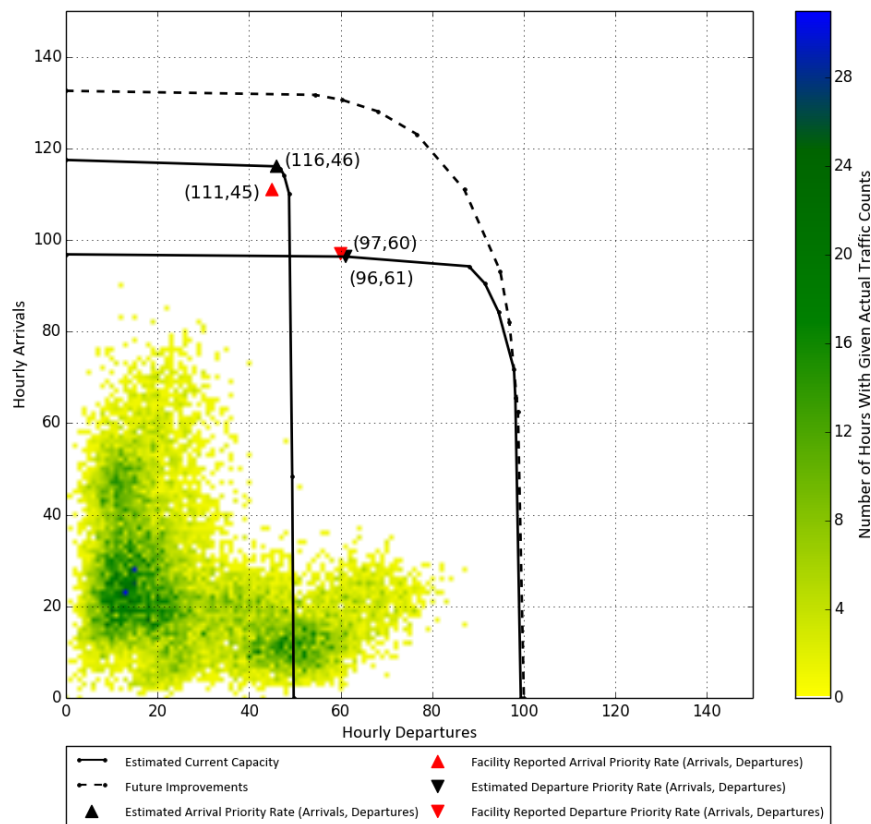
VISUAL – SOUTH FLOW

IAD SCENARIO:

INDEPENDENT APPROACHES, VISUAL SEPARATION

Type Operations		Arrival Runways	Departure Runways	Hourly Rate	
				ATC Facility Reported	Model-Estimated
CURRENT OPERATIONS	ARRIVAL PRIORITY	19C, 19L, 19R	30	156	162
	DEPARTURE PRIORITY	19C, 19L, 19R	19L, 30	157	157
FUTURE IMPROVEMENTS		19C, 19L, 19R	19L, 30	N/A	200

VISUAL WEATHER CONDITIONS



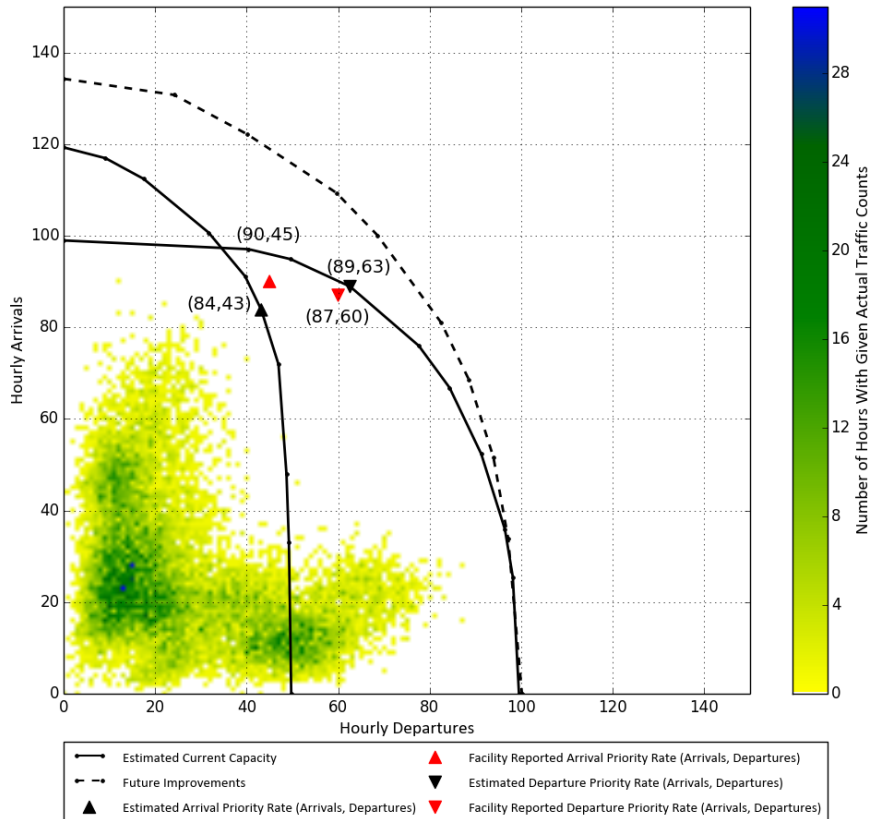
- **Future improvements:** Improved Runway Delivery Accuracy, Wake Recategorization Phase 1.
- The capacity rate range for South Flow operations in Visual conditions is 156-162 operations per hour in arrival priority and 157 in departure priority.
- The airport operates in the arrival priority configuration approximately 24% of the time in Visual weather conditions (totaling 20% annually).
- The airport operates in the departure priority configuration approximately 8% of the time in Visual weather conditions (totaling 6% annually).
- When in departure priority, IAD uses 19L as an overflow arrival runway. It is assumed that IAD will use all three arrival runways equally in the future.
- Radar separation is used at the Outer Marker and no visual spacing is allowed behind Heavies or B757s.
- The airport has an ADW in place for arrivals to 19R and departures from 30.

VISUAL – NORTH FLOW

IAD SCENARIO: INDEPENDENT APPROACHES, VISUAL SEPARATION

IAD Scenario		Arrival Runways	Departure Runways	Hourly Rate	
				ATC Facility Reported	Model-Estimated
CURRENT OPERATIONS	ARRIVAL PRIORITY	01C, 01L, 01R	30	135	127
	DEPARTURE PRIORITY	01C, 01L, 01R	01R, 30	147	152
FUTURE IMPROVEMENTS		01C, 01L, 01R	01R, 30	N/A	169

VISUAL WEATHER CONDITIONS



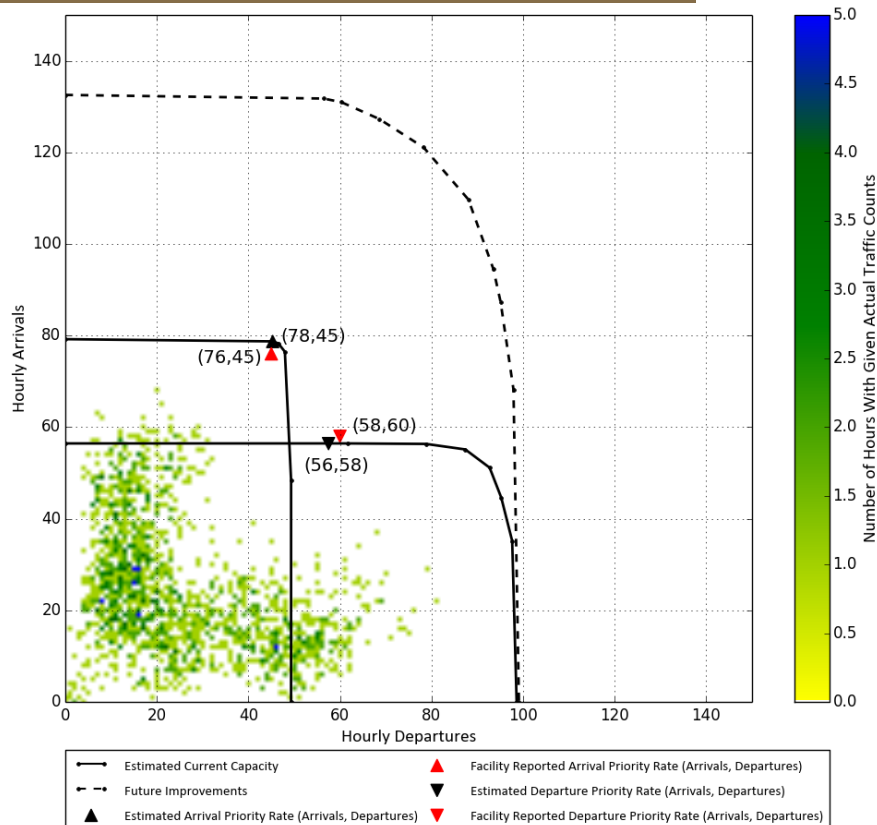
- **Future improvements:** Improved Runway Delivery Accuracy, Wake Recategorization Phase 1.
- The capacity rate range for South Flow operations in Visual conditions is 127-135 operations per hour in arrival priority and 147-152 in departure priority.
- The airport operates in the arrival priority configuration approximately 35% of the time in Visual weather conditions (totaling 29% annually).
- The airport operates in the departure priority configuration approximately 11% of the time in Visual weather conditions (totaling 9% annually).
- When in departure priority, IAD uses 01R as an overflow arrival runway. It is assumed that IAD will use all three arrival runways equally in the future.
- Radar separation is used at the Outer Marker and no visual spacing is allowed behind Heavies or B757s.

MARGINAL – SOUTH FLOW

IAD SCENARIO: INDEPENDENT APPROACHES, VISUAL SEPARATION

Type Operations		Arrival Runways	Departure Runways	Hourly Rate	
				ATC Facility Reported	Model-Estimated
CURRENT OPERATIONS	ARRIVAL PRIORITY	19C, 19L	30	121	124
	DEPARTURE PRIORITY	19C, 19L	19L, 30	118	114
FUTURE IMPROVEMENTS		19C, 19L, 19R	19L, 30	N/A	189

MARGINAL WEATHER CONDITIONS



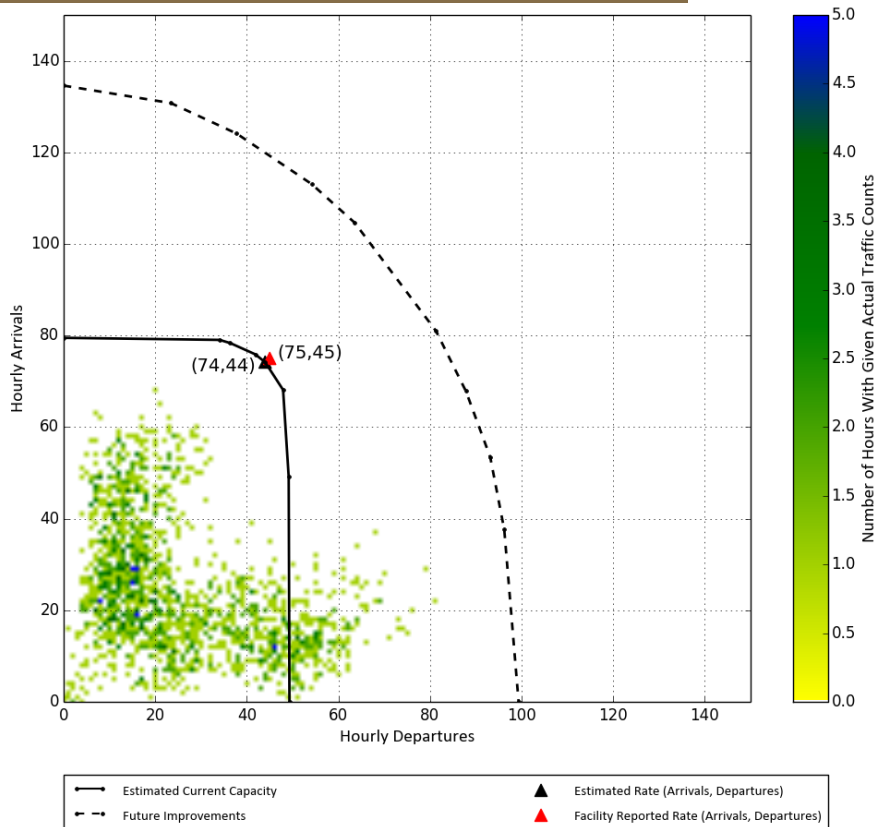
- **Future improvements:** Improved Parallel Runway Operations , Improved Runway Delivery Accuracy, Wake Recategorization Phase 1.
- The capacity rate range for South Flow operations in Marginal conditions is 121-124 operations per hour in arrival priority and 114-118 in departure priority.
- The airport operates in the arrival priority configuration approximately 31% of the time in Marginal weather conditions (totaling 3% annually).
- The airport operates in the departure priority configuration approximately 7% of the time in Marginal weather conditions (totaling 1% annually).
- No visual spacing is allowed behind Heavies or B757s.
- Reduced separation (2.5 NM) between arrivals is authorized for instrument approaches to Runways 19C and 19L at IAD.
- When in departure priority, IAD uses 19L as an overflow arrival runway. It is assumed that IAD will use all three arrival runways equally in the future.
- The airport has an ADW in place for arrivals to 19R and departures from 30, which will be used in the future configuration.

MARGINAL – NORTH FLOW

IAD SCENARIO: INDEPENDENT APPROACHES, VISUAL SEPARATION

IAD Scenario	Arrival Runways	Departure Runways	Hourly Rate	
			ATC Facility Reported	Model-Estimated
CURRENT OPERATIONS	01C, 01R	30	120	118
FUTURE IMPROVEMENTS	01C, 01L, 01R	01R, 30	N/A	168

MARGINAL WEATHER CONDITIONS



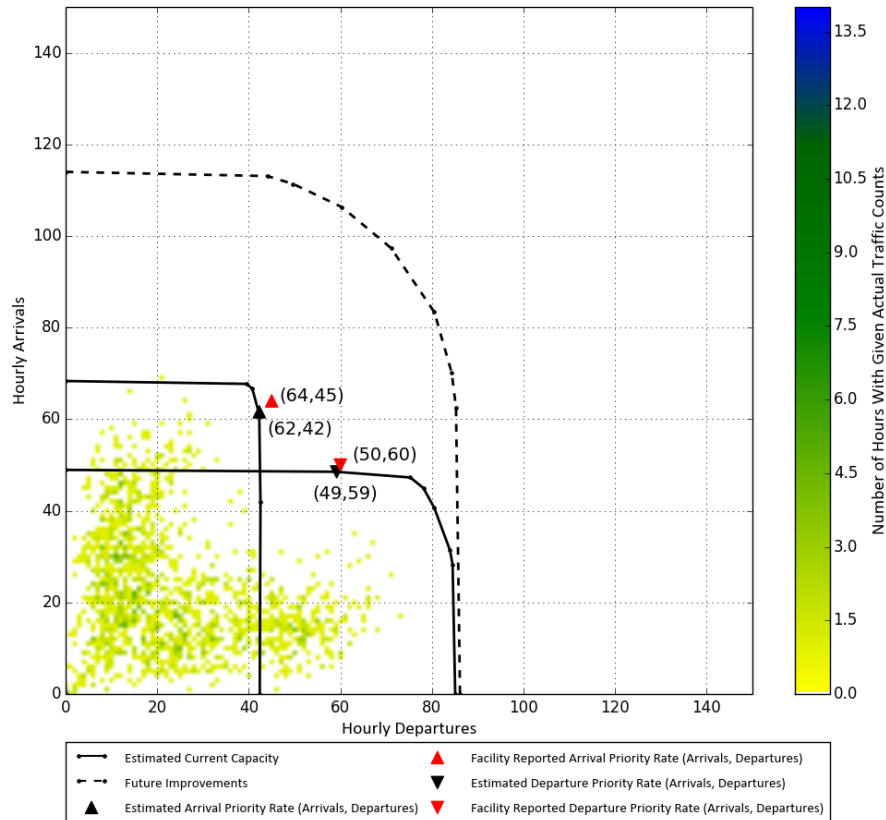
- **Future improvements:** Improved Parallel Runway Operations, Improved Runway Delivery Accuracy, Wake Recategorization Phase 1.
- The capacity rate range for North Flow operations in Marginal conditions is 118-120 operations per hour.
- The airport operates in this configuration approximately 26% of the time in Marginal weather conditions (totaling 2% annually).
- No visual spacing is allowed behind Heavies or B757s.
- Reduced separation (2.5 NM) between arrivals is authorized for instrument approaches to Runways 01C, 01L, and 01R at IAD.

INSTRUMENT – SOUTH FLOW

IAD SCENARIO: INDEPENDENT APPROACHES, RADAR SEPARATION

IAD Scenario		Arrival Runways	Departure Runways	Hourly Rate	
				ATC Facility Reported	Model-Estimated
CURRENT OPERATIONS	ARRIVAL PRIORITY	19C, 19L	30	109	103
	DEPARTURE PRIORITY	19C, 19L	19L, 30	110	108
FUTURE IMPROVEMENTS		19C, 19L, 19R	19L, 30	N/A	168

INSTRUMENT WEATHER CONDITIONS



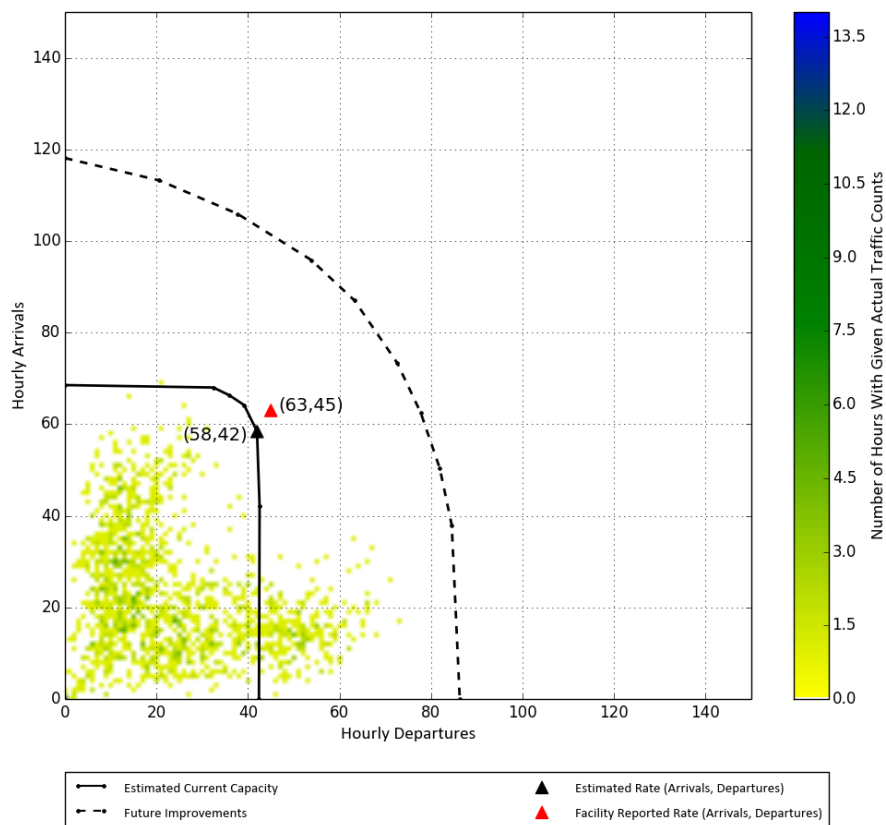
- Future improvements:** Improved Parallel Runway Operations , Improved Runway Delivery Accuracy, Wake Recategorization Phase 1.
- The capacity rate range for South Flow operations in Instrument conditions is 103-109 operations per hour in arrival priority and 108-110 in departure priority.
- The airport operates in the arrival priority configuration approximately 36% of the time in Instrument weather conditions (totaling 3% annually).
- The airport operates in the departure priority configuration approximately 10% of the time in Instrument weather conditions, which equates to less than 1% annually.
- Reduced separation (2.5 NM) between arrivals is authorized for instrument approaches to Runways 19C and 19L at IAD.
- When in departure priority, IAD uses 19L as an overflow arrival runway. It is assumed that IAD will use all three arrival runways equally in the future.
- The airport has an ADW in place for arrivals to 19R and departures from 30, which will be used in the future configuration.

INSTRUMENT – NORTH FLOW

IAD SCENARIO: INDEPENDENT APPROACHES, RADAR SEPARATION

IAD Scenario	Arrival Runways	Departure Runways	Hourly Rate	
			ATC Facility Reported	Model-Estimated
CURRENT OPERATIONS	01C, 01R	30	108	100
FUTURE IMPROVEMENTS	01C, 01L, 01R	01R, 30	N/A	150

INSTRUMENT WEATHER CONDITIONS



- **Future improvements:** Improved Parallel Runway Operations, Improved Runway Delivery Accuracy, Wake Recategorization Phase 1.
- The capacity rate range for North flow operations in Instrument conditions is 100-108 operations per hour.
- The airport operates in this configuration approximately 32% of the time in Instrument weather conditions (totaling 3% annually).
- Reduced separation (2.5 NM) between arrivals is authorized for instrument approaches to Runways 01C, 01L, and 01R at IAD.