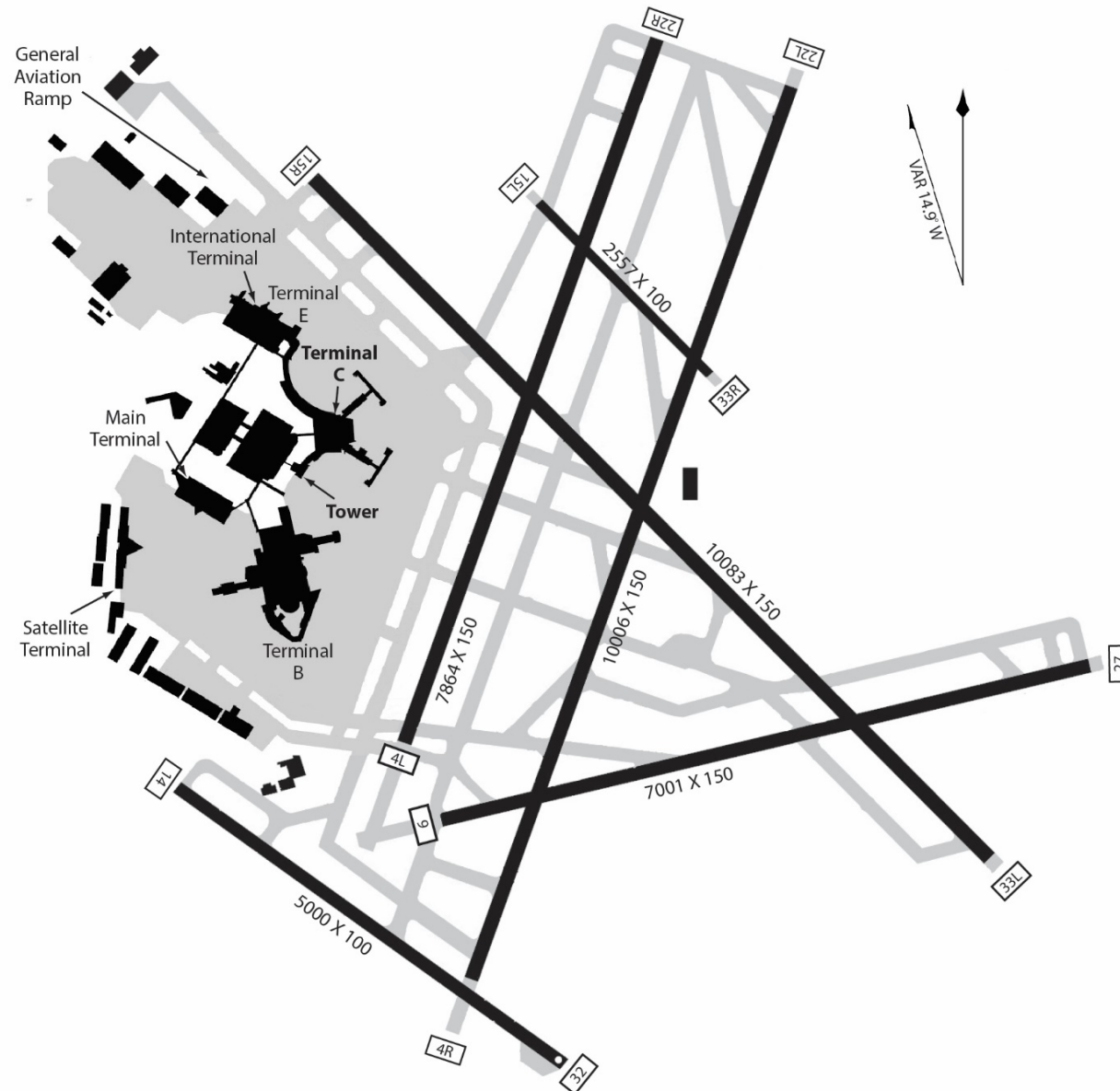


AIRPORT CAPACITY PROFILE: GENERAL EDWARD LAWRENCE LOGAN INTERNATIONAL AIRPORT



Airport capacity profile estimates were created using a standard set of performance characteristics and do not take into account non-runway constraints, unless otherwise noted. The capacity estimates developed for this report are not intended to replace the results of any detailed analysis that would precede an environmental, investment, or policy decision.

The list of Future Improvements and their expected effects on capacity does not imply FAA commitment to, or approval of, any item on the list.

GENERAL EDWARD LAWRENCE LOGAN INTERNATIONAL AIRPORT (BOS) OVERVIEW

About this Airport Capacity Profile

- 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 capacity rate range.
- For each weather scenario, capacity estimates are based on information provided by ATC, including reported arrival and departure rates.

Recent Capacity Improvements at BOS

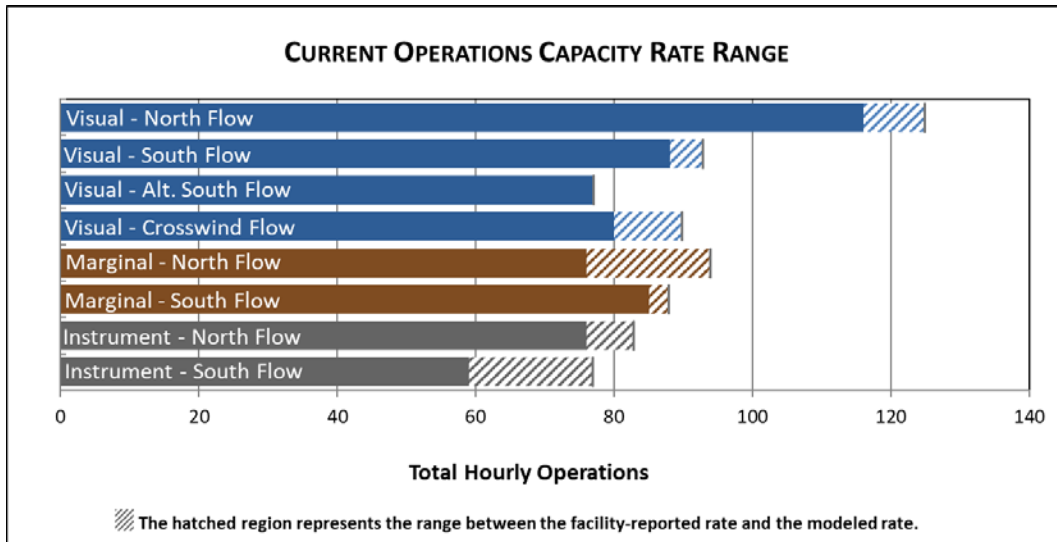
- *Time-Based Flow Management (TBFM)* helps to improve the flow of arrivals to the runways.
- *Arrival-Departure Window (ADW)*: Helps to minimize the long-term risk associated with arrival and departure operations on intersecting and converging runways. The ADW defines a range window from the arrival runway threshold. 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. BOS has an ADW in place for operations between Runway 27 and Runway 22R.

Future Improvements at BOS

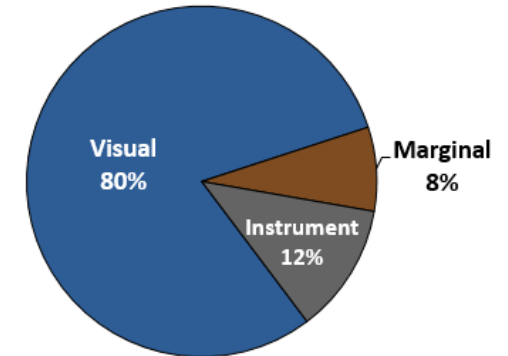
- *Improved Runway Delivery Accuracy*: The combined effects of several new capabilities, including Automatic Dependent Surveillance-Broadcast (ADS-B) Out, Cockpit Display of Traffic Information (CDTI), and Terminal Sequencing and Spacing (TSAS) in the terminal area, will improve the ability of controllers 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.
- *Consolidated Wake Turbulence* 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 reduced longitudinal separation requirements for certain aircraft types without sacrificing safety.

GENERAL EDWARD LAWRENCE LOGAN INTERNATIONAL AIRPORT OVERVIEW - 2

CURRENT OPERATIONS CAPACITY RATE RANGE



ANNUAL WEATHER CONDITIONS



VISUAL CONDITIONS:

- Ceiling and visibility allow for visual approaches: at least 3000 feet ceiling and 3 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
 - Criteria reflect operational practice at BOS

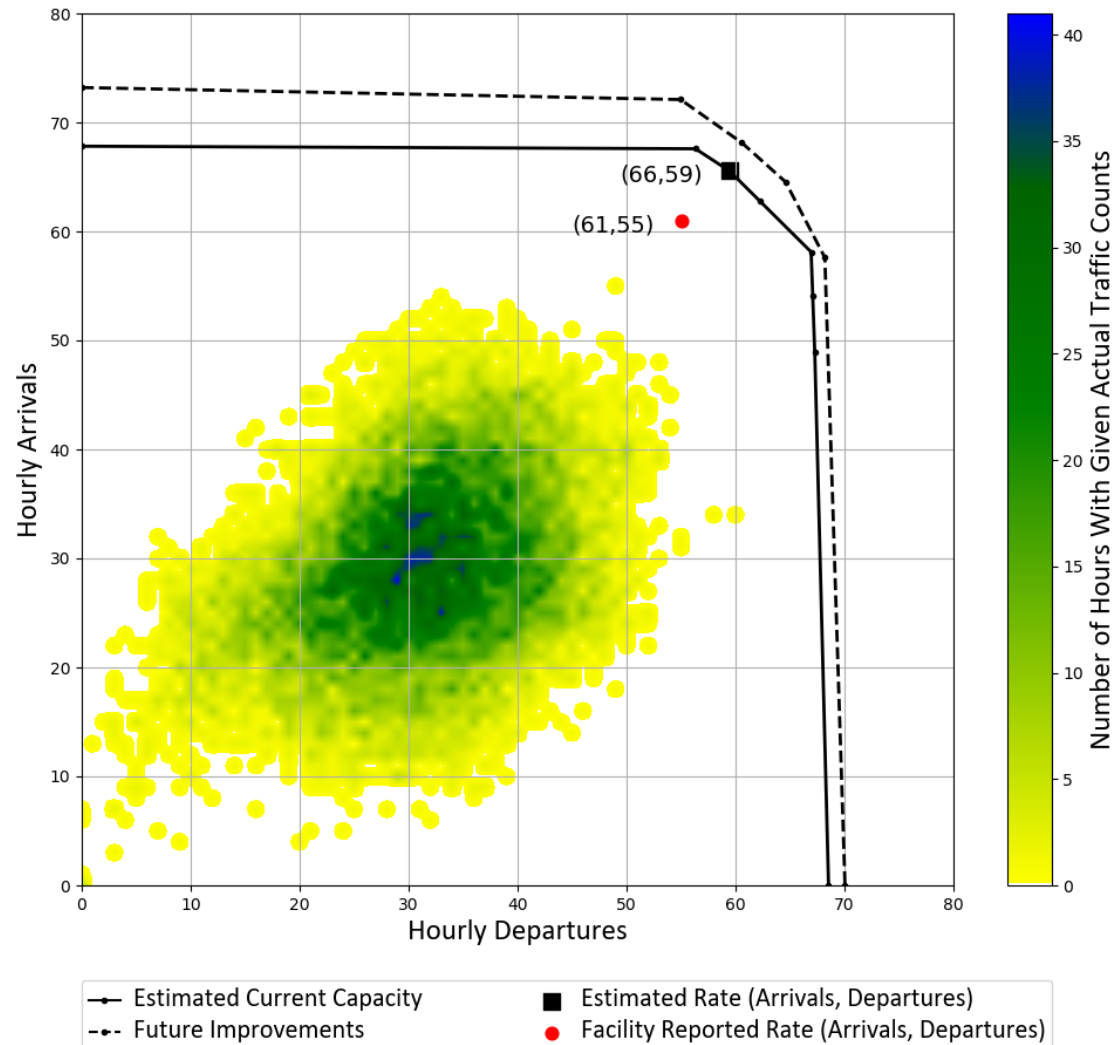
Data Sources

- Throughout the profile, actual hourly BOS operations, weather and configuration data were obtained from the FAA ASPM database, and represent operational hours from 7am to 11pm local time for October 1st 2014 through September 30th 2017. Actual configuration usage is determined by multiple operational factors, including weather conditions.
- Facility-reported rates were provided by ATC personnel at BOS.
- Model-estimated rates are derived from operational information provided by ATC.

Type Operations	Arrival Runways	Departure Runways	Hourly Rate	
			ATC Facility-Reported	Model-Estimated
CURRENT OPERATIONS	04L,04R	04L,04R,09	116	125
FUTURE IMPROVEMENTS	04L,04R	04L,04R,09	N/A	129

- **Future improvements:** Improved Runway Delivery Accuracy, Consolidated Wake Turbulence.
- The capacity rate range in Visual conditions in North Flow is currently 116 - 125 operations per hour.
- BOS's departure capacity is limited by procedures required for noise abatement by jet departures. Jet aircraft cannot depart simultaneously, however, non-jet aircraft on 04L can depart simultaneously with jet aircraft on 04R because 04L departures are fanned away from 04R.

VISUAL WEATHER CONDITIONS

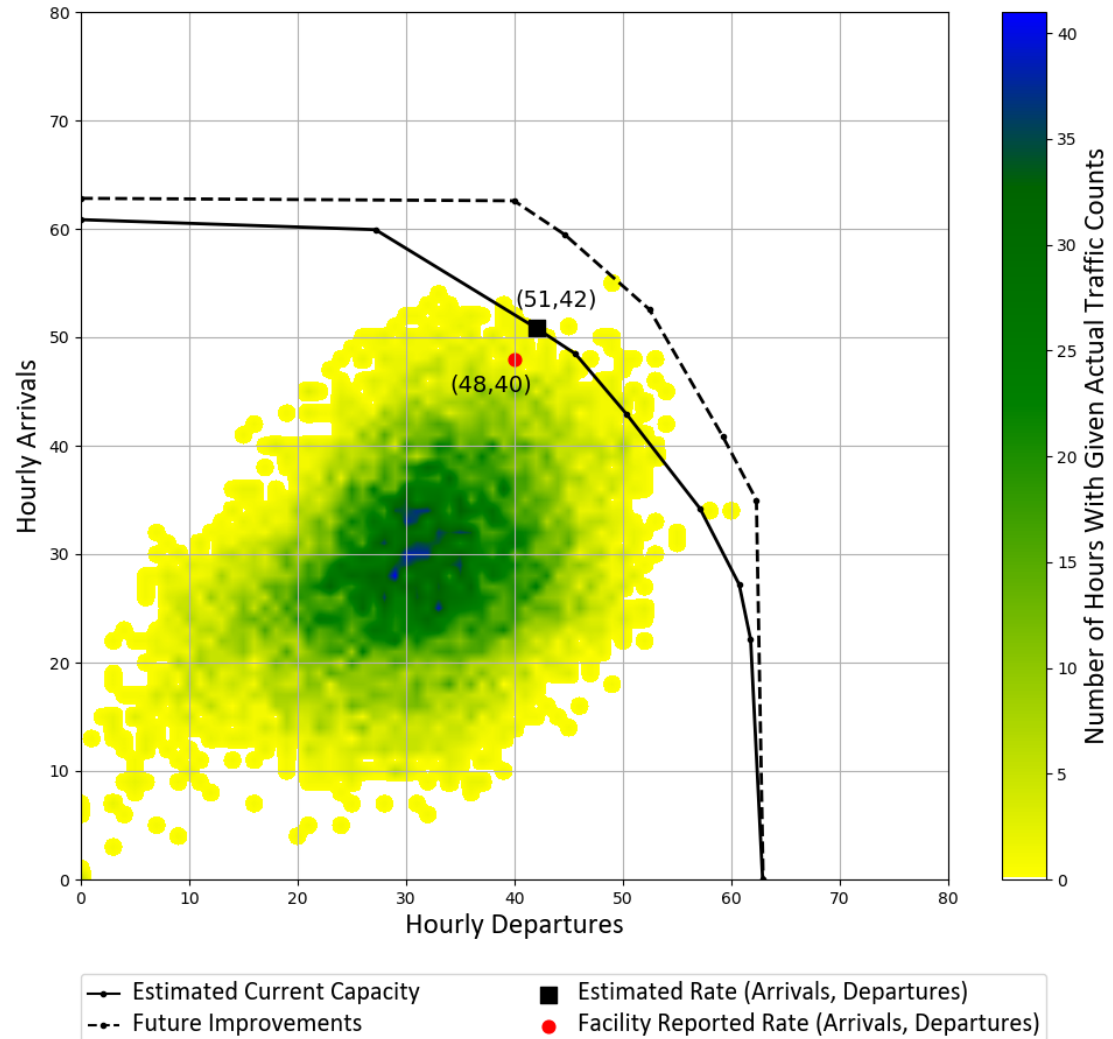


Actual traffic counts shown are for all Visual hours, all configurations.
For data source information, see page 3.

Type Operations	Arrival Runways	Departure Runways	Hourly Rate	
			ATC Facility-Reported	Model-Estimated
CURRENT OPERATIONS	22L,27	22L,22R	88	93
FUTURE IMPROVEMENTS	22L,27	22L,22R	N/A	104

- **Future improvements:** Improved Runway Delivery Accuracy, Consolidated Wake Turbulence.
- The capacity rate range in Visual conditions in South Flow is currently 88 - 93 operations per hour.
- The airport has an ADW in place for arrivals to 27 and departures from 22R.
- BOS utilizes land and hold short (LAHSO) procedures for arrivals on 22L and 27. The standard operation is arrivals on 22L, hold short of runway 27. Only turboprops can land on 27 and hold short of 22L.
- BOS's departure capacity is limited by procedures required for noise abatement by jet departures. When there is a jet on 22L and a turboprop on 22R, the two aircraft can depart simultaneously; otherwise, departures on 22L and 22R are dependent.

VISUAL WEATHER CONDITIONS

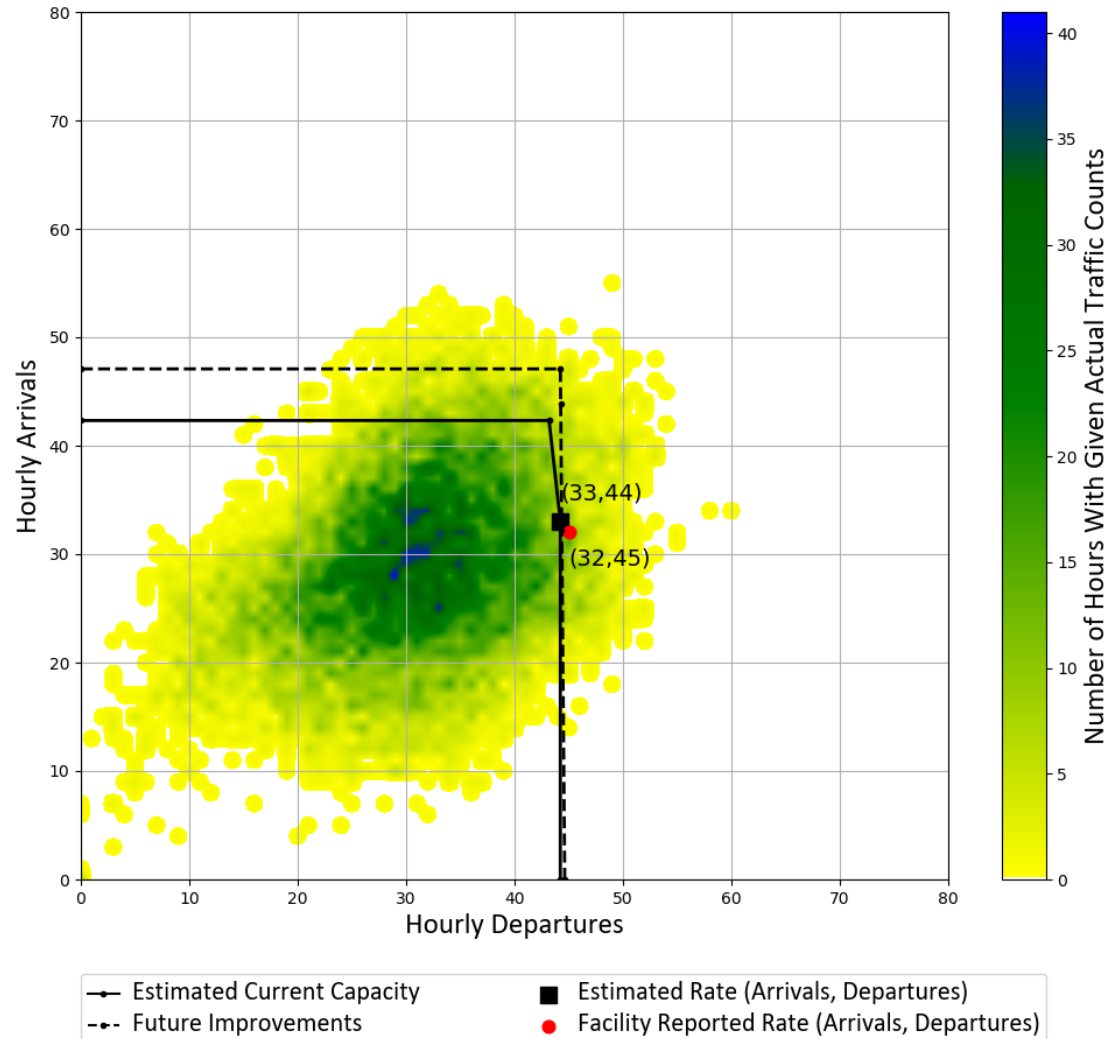


Actual traffic counts shown are for all Visual hours, all configurations.
For data source information, see page 3.

Type Operations	Arrival Runways	Departure Runways	Hourly Rate	
			ATC Facility-Reported	Model-Estimated
CURRENT OPERATIONS	22L	22R	77	77
FUTURE IMPROVEMENTS	22L	22R	N/A	77

- **Future improvements:** Improved Runway Delivery Accuracy, Consolidated Wake Turbulence.
- The capacity rate in Visual conditions in Alternate South Flow is currently 77 operations per hour.
- This configuration is utilized in the morning when arrival demand is low to reduce noise in the residential community around the airport.

VISUAL WEATHER CONDITIONS

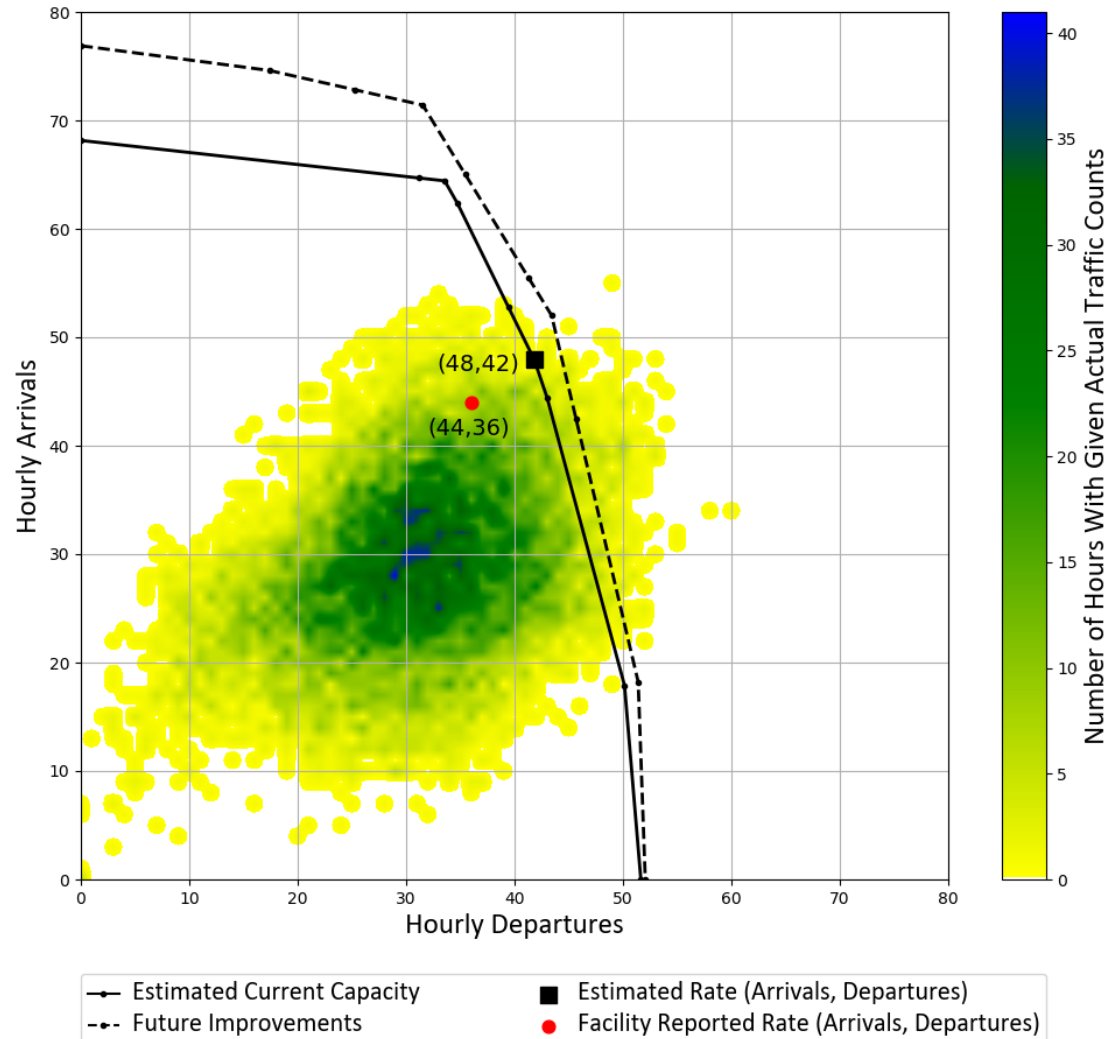


Actual traffic counts shown are for all Visual hours, all configurations.
For data source information, see page 3.

Type Operations	Arrival Runways	Departure Runways	Hourly Rate	
			ATC Facility-Reported	Model-Estimated
CURRENT OPERATIONS	27,32	33L	80	90
FUTURE IMPROVEMENTS	27,32	33L	N/A	95

- **Future improvements:** Improved Runway Delivery Accuracy, Consolidated Wake Turbulence.
- The capacity rate range in Visual conditions in the Crosswind configuration is currently 80 - 90 operations per hour.

VISUAL WEATHER CONDITIONS

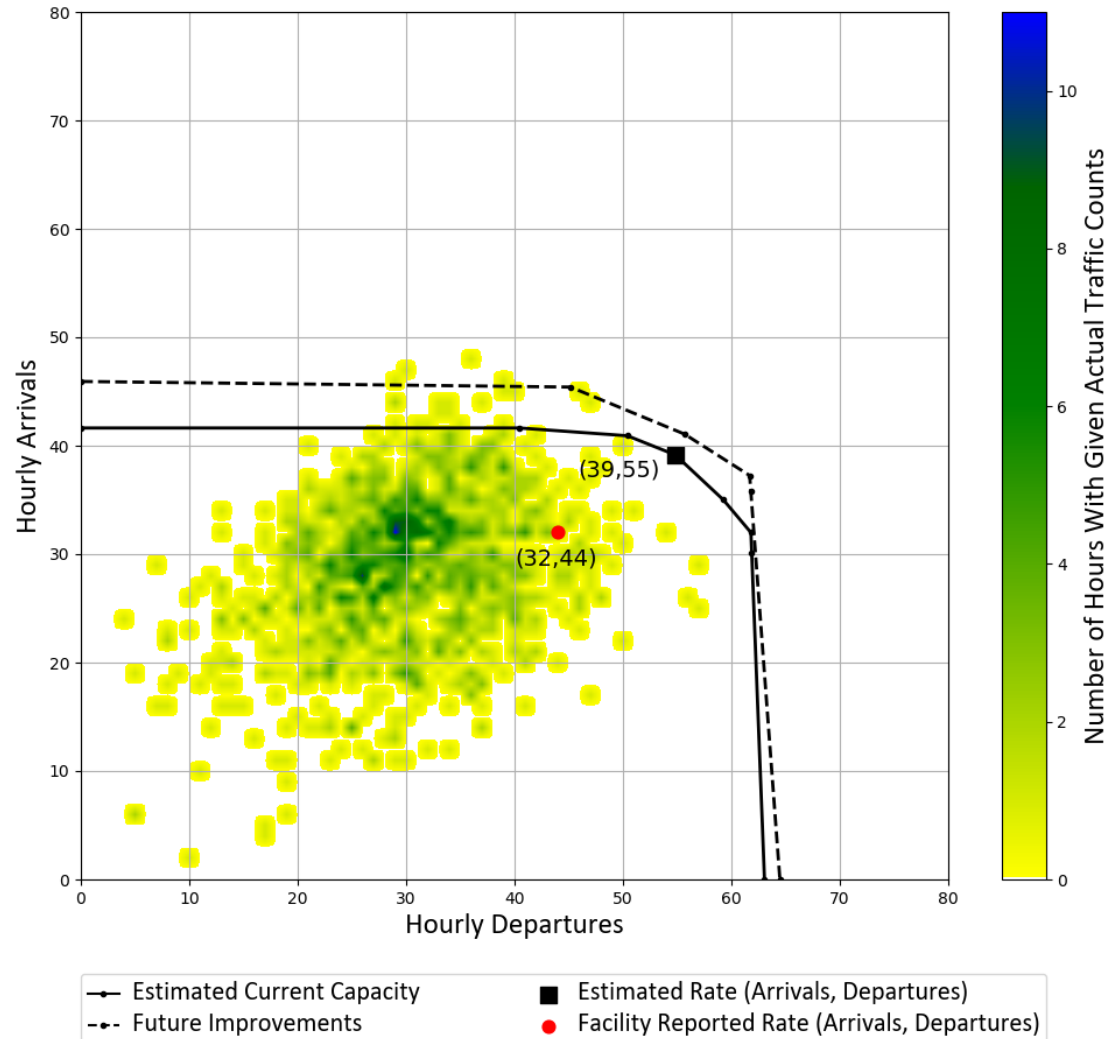


Actual traffic counts shown are for all Visual hours, all configurations.
For data source information, see page 3.

Type Operations	Arrival Runways	Departure Runways	Hourly Rate	
			ATC Facility-Reported	Model-Estimated
CURRENT OPERATIONS	04R	04L,04R,09	76	94
FUTURE IMPROVEMENTS	04R	04L,04R,09	N/A	97

- **Future improvements:** Improved Runway Delivery Accuracy, Consolidated Wake Turbulence.
- The capacity rate range in Marginal conditions in North Flow is currently 76 - 94 operations per hour.
- Reduced separation (2.5 NM) between arrivals is authorized for instrument approaches to Runway 04R.
- BOS's departure capacity is limited by procedures required for noise abatement by jet departures. Jet aircraft cannot depart simultaneously, however, non-jet aircraft on 04L can depart simultaneously with jet aircraft on 04R because 04L departures are fanned away from 04R.

MARGINAL WEATHER CONDITIONS

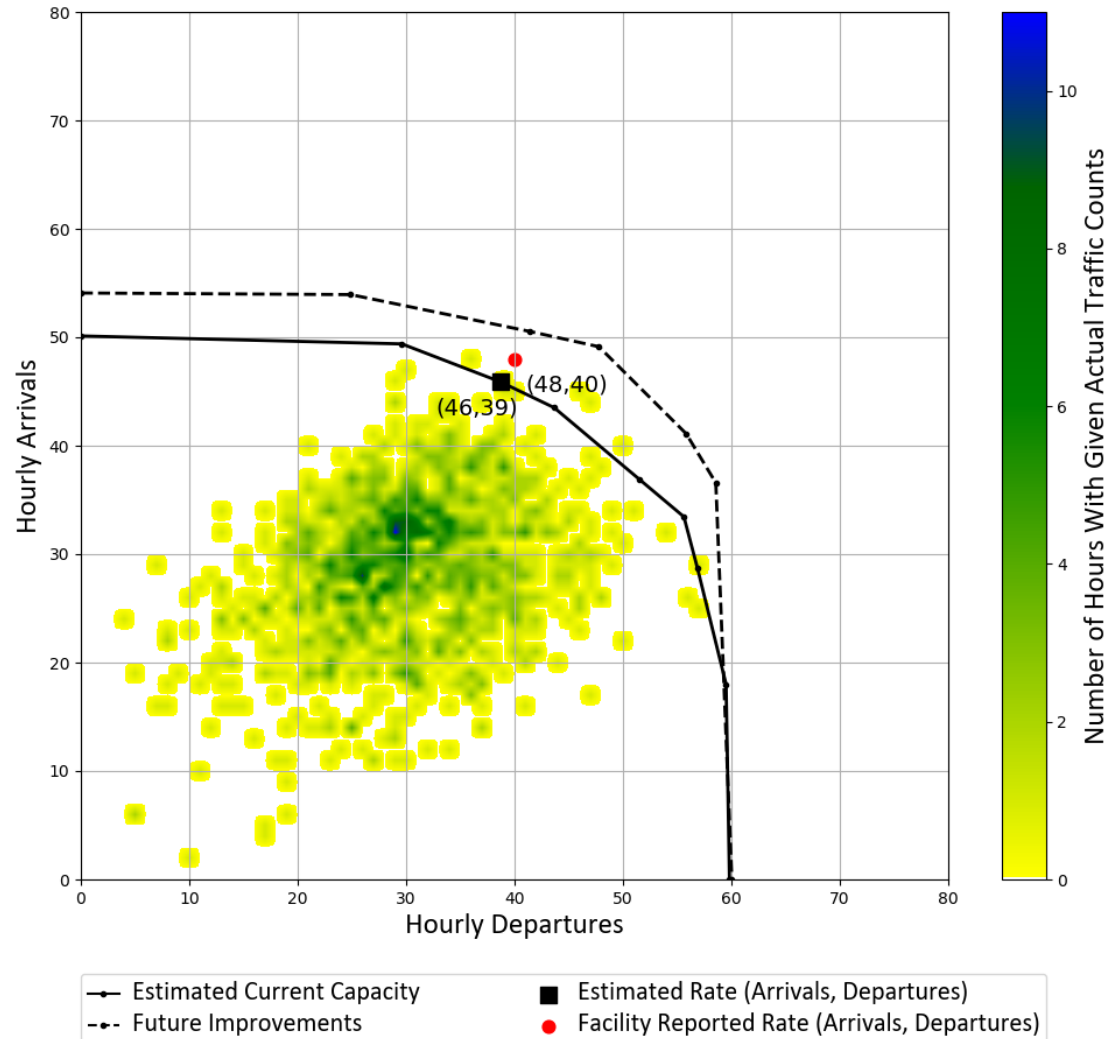


Actual traffic counts shown are for all Marginal hours, all configurations.
For data source information, see page 3.

Type Operations	Arrival Runways	Departure Runways	Hourly Rate	
			ATC Facility-Reported	Model-Estimated
CURRENT OPERATIONS	22L,27	22L,22R	88	85
FUTURE IMPROVEMENTS	22L,27	22L,22R	N/A	92

- **Future improvements:** Improved Runway Delivery Accuracy, Consolidated Wake Turbulence.
- The capacity rate range in Marginal conditions in South Flow is currently 85 - 88 operations per hour.
- Reduced separation (2.5 NM) between arrivals is authorized for instrument approaches to Runways 22L and 27.
- The airport has an ADW in place for arrivals to 27 and departures from 22R.
- BOS utilizes land and hold short (LAHSO) procedures for arrivals on 22L and 27. The standard operation is arrivals on 22L, hold short of runway 27. Only turboprops can land on 27 and hold short of 22L.
- BOS's departure capacity is limited by procedures required for noise abatement by jet departures. When there is a jet on 22L and a turboprop on 22R, the two aircraft can depart simultaneously; otherwise, departures on 22L and 22R are dependent.

MARGINAL WEATHER CONDITIONS

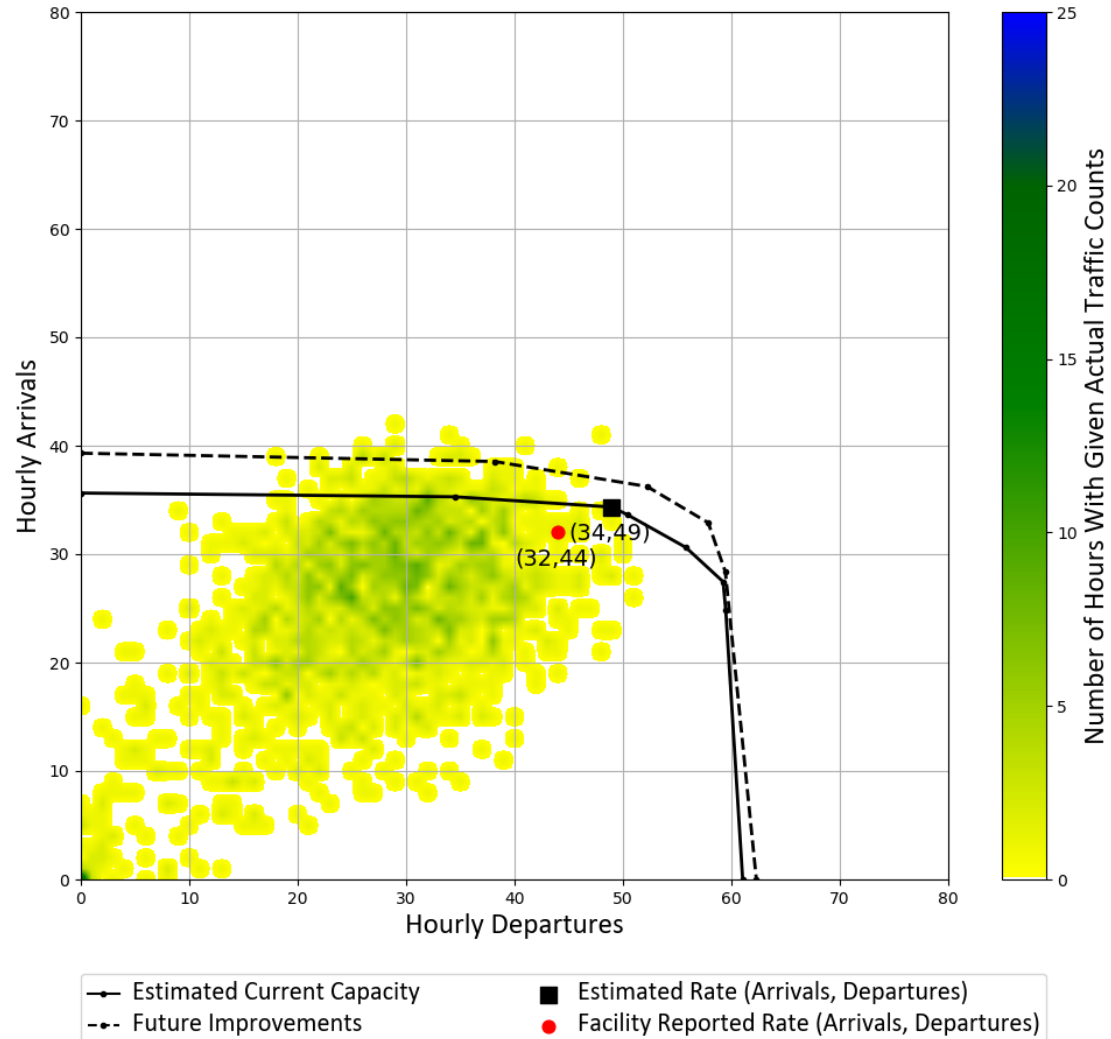


Actual traffic counts shown are for all Marginal hours, all configurations.
For data source information, see page 3.

Type Operations	Arrival Runways	Departure Runways	Hourly Rate	
			ATC Facility-Reported	Model-Estimated
CURRENT OPERATIONS	04R	04L,04R,09	76	83
FUTURE IMPROVEMENTS	04R	04L,04R,09	N/A	88

- **Future improvements:** Improved Runway Delivery Accuracy, Consolidated Wake Turbulence.
- The capacity rate range in Instrument conditions in North Flow is currently 76 - 83 operations per hour.
- Reduced separation (2.5 NM) between arrivals is authorized for instrument approaches to Runway 04R.
- BOS's departure capacity is limited by procedures required for noise abatement by jet departures. Jet aircraft cannot depart simultaneously, however, non-jet aircraft on 04L can depart simultaneously with jet aircraft on 04R because 04L departures are fanned away from 04R.

INSTRUMENT WEATHER CONDITIONS

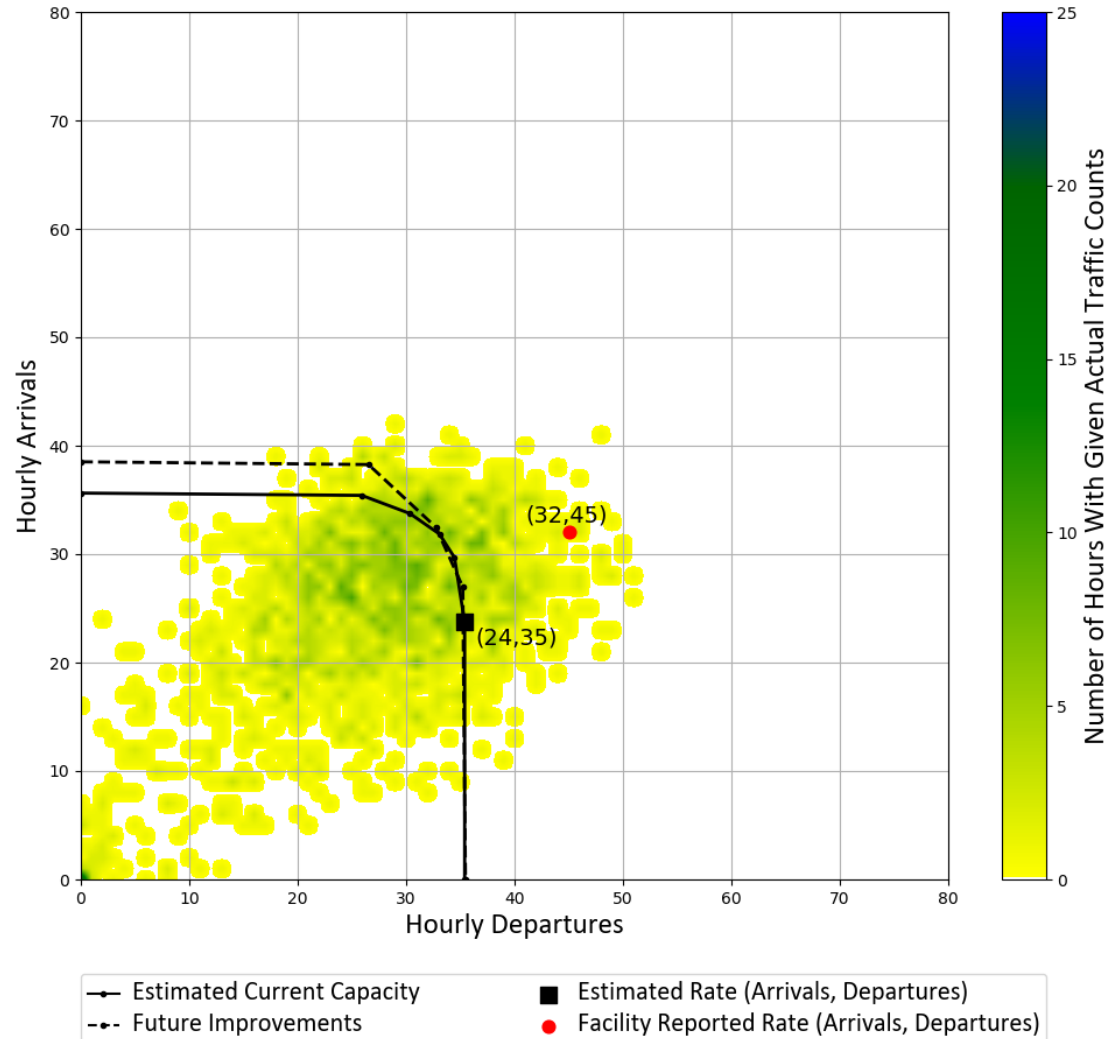


Actual traffic counts shown are for all Instrument hours, all configurations.
For data source information, see page 3.

Type Operations	Arrival Runways	Departure Runways	Hourly Rate	
			ATC Facility-Reported	Model-Estimated
CURRENT OPERATIONS	22L	22R	77	59
FUTURE IMPROVEMENTS	22L	22R	N/A	62

- **Future improvements:** Improved Runway Delivery Accuracy, Consolidated Wake Turbulence.
- The capacity rate range in Instrument conditions in South Flow is currently 59 – 77 operations per hour.
- Reduced separation (2.5 NM) between arrivals is authorized for instrument approaches to Runway 22L.

INSTRUMENT WEATHER CONDITIONS



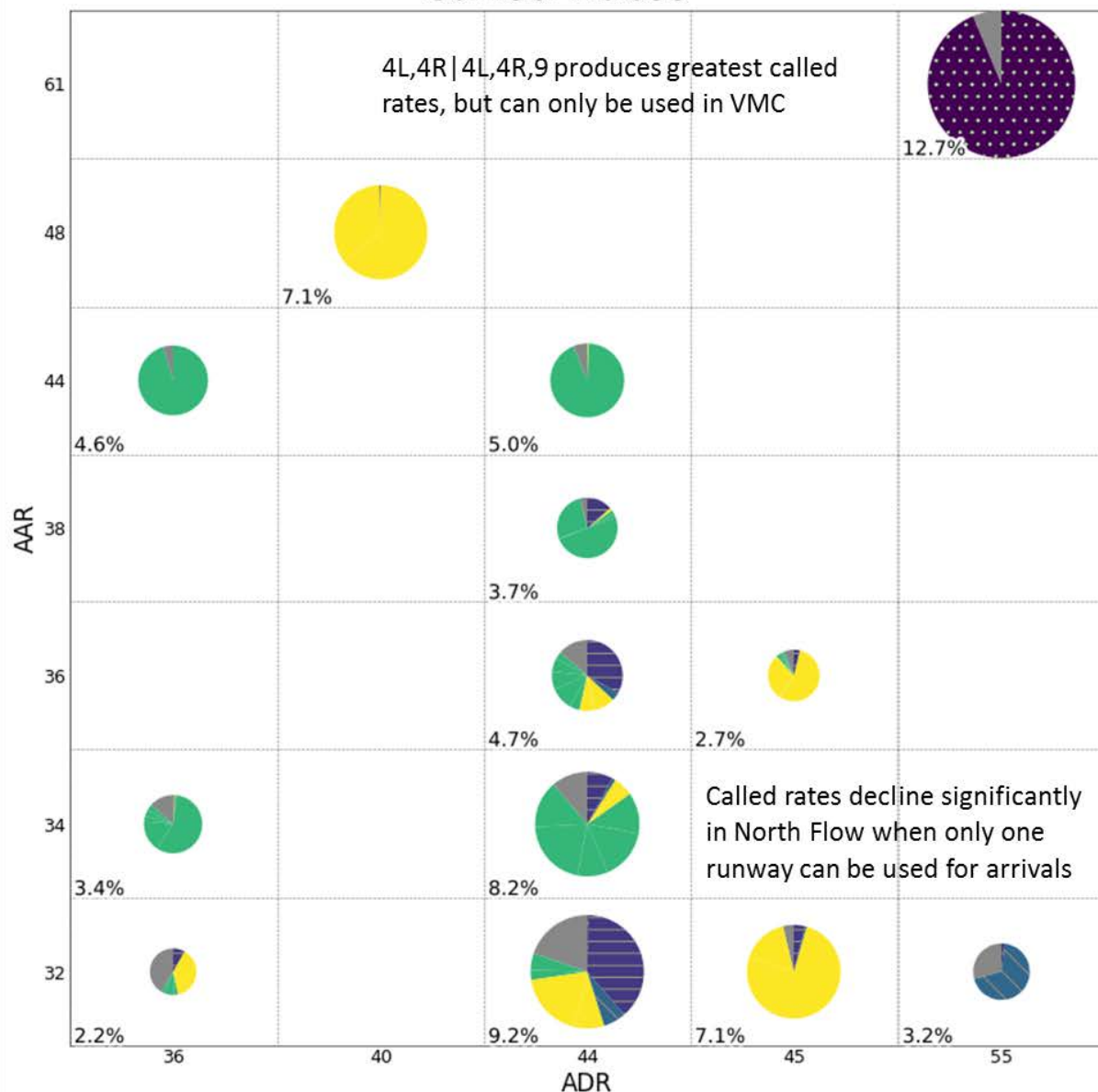
Actual traffic counts shown are for all Instrument hours, all configurations.
For data source information, see page 3.

HISTORICAL CALLED RATE AND CONFIGURATION USAGE BY FLOW

HISTORICAL USAGE – NORTH FLOW

Called Rates

4L,4R | 4L,4R,9 produces greatest called rates, but can only be used in VMC



Other rates: 26.2%

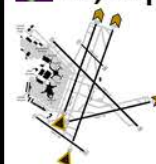
Rates for all hours regardless of configuration, minimum 2% of time

NORTH FLOW FACILITY REPORTED RATES		
61,55 (VMC)	32,44 (MMC)	32,44 (IMC)

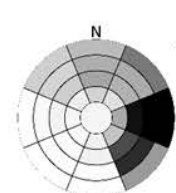
All data for hours from 1 Oct 2014 – 30 Sept 2017, 7 AM to 11 PM. Excludes variable winds and missing or incomplete data. Only shows rates called at least 2% of all hours.

Configuration Usage

4L,4R | 4L,4R,9 (14%)



RATES
61,55 (97%)

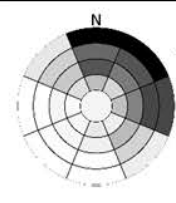


WIND & WEATHER
VMC: 100%
MMC: 0%
IMC: 0%

4R | 4R,9 (8%)



RATES
32,44 (46%)
36,44 (20%)
34,44 (8%)
38,44 (6%)



WIND & WEATHER
VMC: 39%
MMC: 19%
IMC: 42%

Other North Flow > 2%
• 4R | 4L,4R,9

South Flow Configurations

Crosswind Configurations

Other Configurations

Key

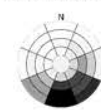
Arrivals | Departures (percent of time in configuration)



RATES

90,90 (90%) Rates (AAR, ADR) called at least 5% of time when configuration used

WIND & WEATHER



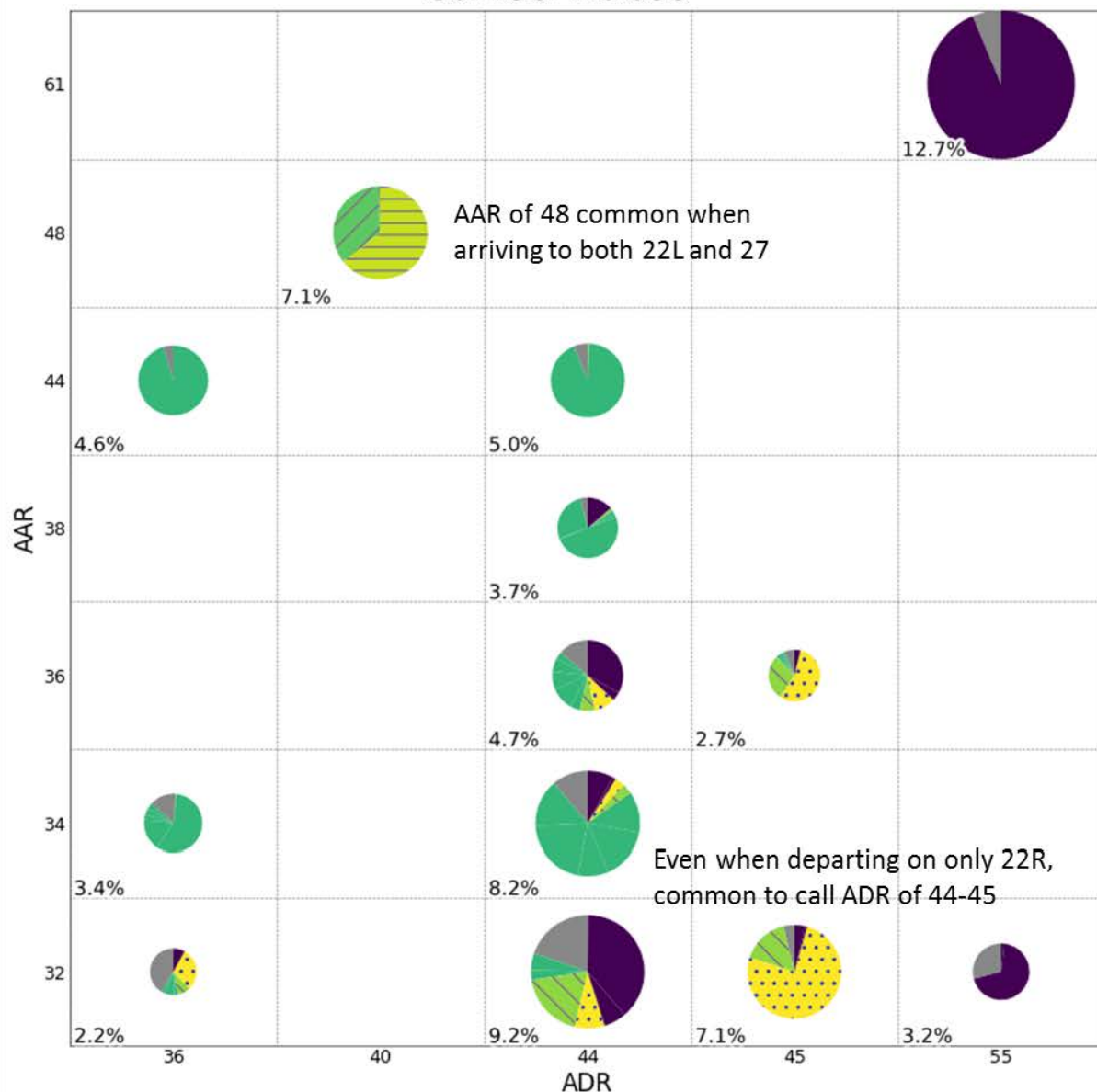
Wind speeds increase away from center (3 knot increments)

More common winds are darker

Percent of time spent in VMC/MMC/IMC when configuration used

HISTORICAL USAGE – SOUTH FLOW

Called Rates



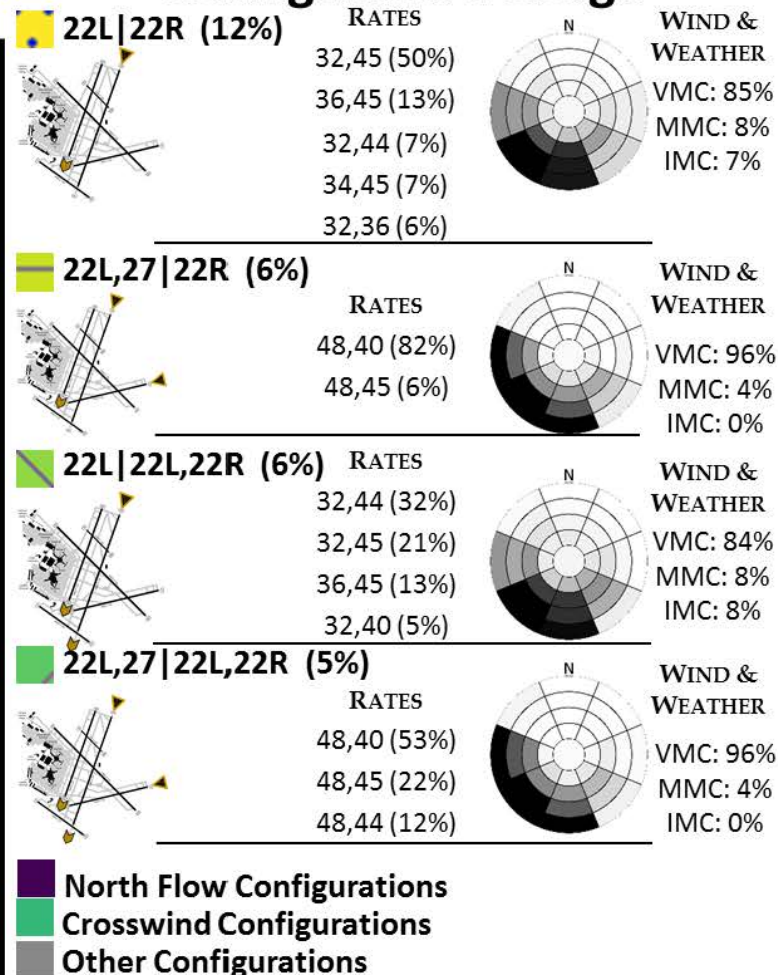
Other rates: 26.2%

Rates for all hours regardless of configuration, minimum 2% of time

SOUTH FLOW FACILITY REPORTED RATES			
48,40 (VMC)	32,45 (VMC Alternate)	48,40 (MMC)	32,45 (IMC)

All data for hours from 1 Oct 2014 – 30 Sept 2017, 7 AM to 11 PM. Excludes variable winds and missing or incomplete data. Only shows rates called at least 2% of all hours.

Configuration Usage



Key

Arrivals|Departures (percent of time in configuration)



RATES

90,90 (90%) Rates (AAR, ADR) called at least 5% of time when configuration used

WIND & WEATHER



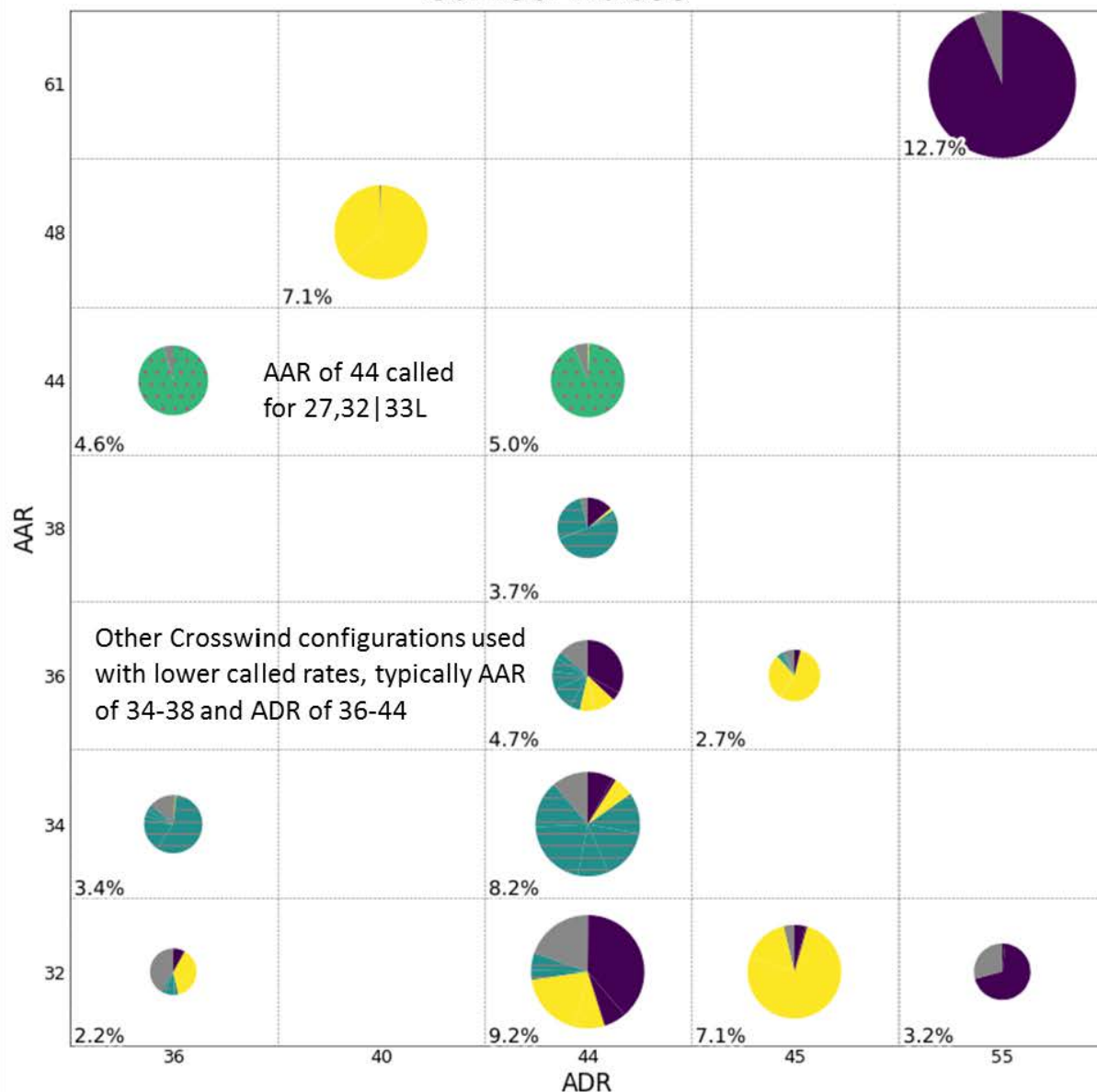
Wind speeds increase away from center (3 knot increments)

More common winds are darker

Percent of time spent in VMC/MMC/IMC when configuration used

HISTORICAL USAGE – CROSSWIND

Called Rates



Other rates: 26.2%

Rates for all hours regardless of configuration, minimum 2% of time

CROSSWIND FACILITY REPORTED RATES
44,36 (VMC)

Configuration Usage

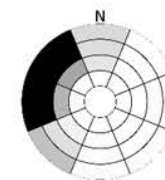
27,32|33L (10%)



RATES

44,44 (51%)

44,36 (47%)



WIND & WEATHER
VMC: 99%
MMC: 1%
IMC: 0%

Other Crosswind > 2%

- 27|33L
- 33L|27
- 33L,33R|27,33L
- 33L|27,33L
- 33L,33R|27

North Flow Configurations

South Flow Configurations

Other Configurations

Key

Arrivals|Departures (percent of time in configuration)



RATES

90,90 (90%) Rates (AAR, ADR) called at least 5% of time when configuration used

WIND & WEATHER



Wind speeds increase away from center (3 knot increments)

More common winds are darker

Percent of time spent in VMC/MMC/IMC when configuration used

All data for hours from 1 Oct 2014 – 30 Sept 2017, 7 AM to 11 PM. Excludes variable winds and missing or incomplete data. Only shows rates called at least 2% of all hours.