

* Runway 8/26 will be 7000' x 150' after the extension is complete. Runway 9R/27L will be 12000' x 200' after the extension is complete

|||| Runway Extension

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.

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.
- The following charts compare actual hourly traffic with the estimated capacity curves for PHL. Some hourly traffic points fall outside the estimated capacity curves. There are many reasons why this may occur without affecting operational safety. For example, more aircraft may have been able to use Runway 8/26 or 17/35 than were assumed in the analysis. Also, actual weather may have been better for part of the hour than that recorded for the hour, allowing more efficient ATC procedures than were modeled.

RECENT CAPACITY IMPROVEMENTS AT PHL

- In 2009 Runway 17/35 was extended by 1040 feet to allow a wider range of aircraft type operations.
- Implementation of Traffic Management Advisor (TMA) helps to improve the flow of arrivals to the runways.

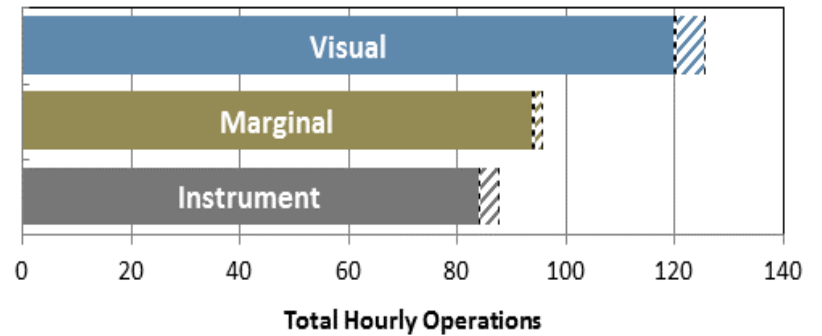
FUTURE IMPROVEMENTS AT PHL

- *Runway Extensions:* In December of 2010, the Federal Aviation Administration approved the PHL Capacity Enhancement Program. The airside improvements of this program include extending Runway 8/26 to 7000 feet, which will allow a wider range of aircraft to use this runway. However the runway will remain unidirectional, serving westbound arrivals and eastbound departures. Runway 9R/27L will be extended to 12,000 feet, to better accommodate long-haul flights. Finally, a new 9,100 foot parallel runway is planned for construction south of 9R/27L, but this is expected to be completed after the year 2020.
- *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 by 2020 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 Turbulence Mitigation for Departures (WTMD)* is anticipated to be available at PHL by 2020. WTMD will eliminate the need for wake vortex separation behind a B757 or Heavy aircraft departing on the adjacent closely-spaced runway when specific wind conditions exist that reduce the vortex hazard.
- *Wake Turbulence Mitigation for Arrivals – System (WTMA-S)* is anticipated to be available at PHL by 2020. WTMA-S will employ a wind forecasting algorithm to allow reduced separation between PHL’s closely spaced parallel arrivals under specific wind conditions. However this procedure does not apply to the profiled configurations.
- Additional information on these improvements may be found in this report under “Future Operation Assumptions.”

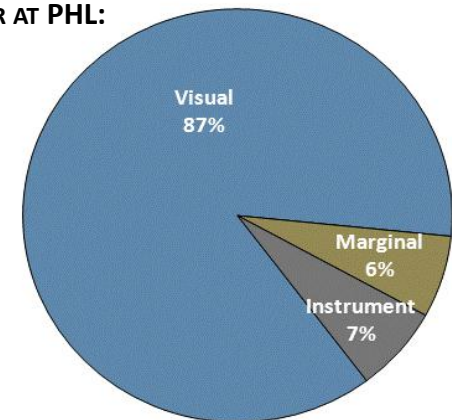
DATA SOURCES

- Actual hourly PHL 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 2009 and 2010. Actual configuration usage is determined by multiple operational factors, including weather conditions.
- Facility reported rates were provided by ATC personnel at PHL.
- Model-estimated rates are derived from operational information provided by ATC.

CURRENT OPERATIONS CAPACITY RATE RANGE



ANNUAL WEATHER AT PHL:



VISUAL CONDITIONS:

- Ceiling and visibility allow for visual approaches: at least 2300 feet ceiling and 4 miles visibility

MARGINAL CONDITIONS:

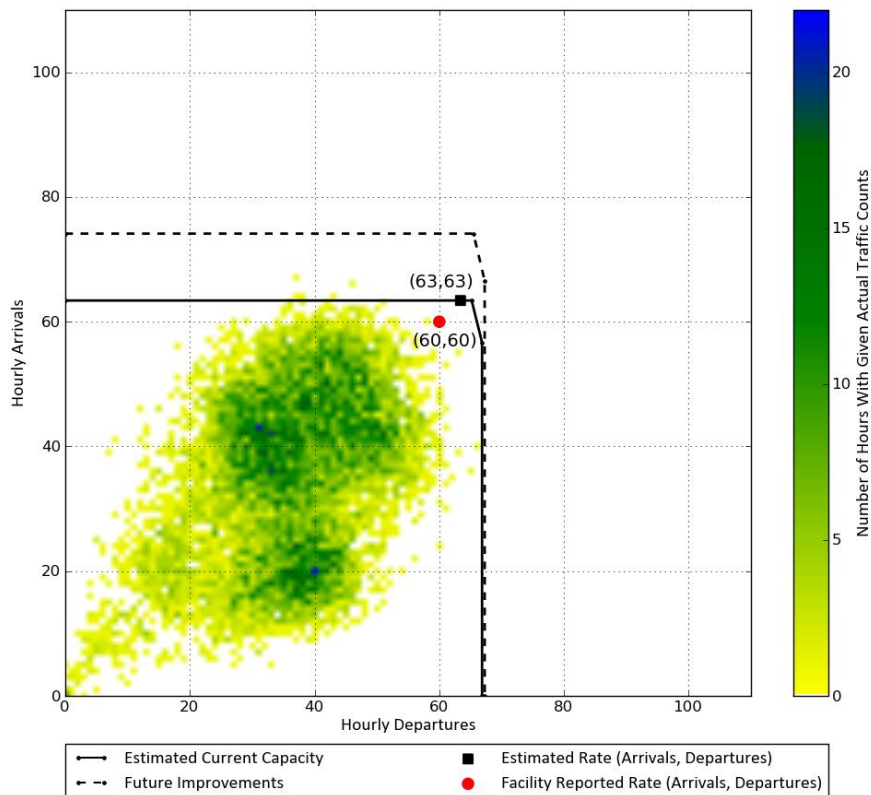
- Ceiling and visibility below visual approach minima but better than Instrument conditions

INSTRUMENT CONDITIONS:

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

PHL Scenario	Arrival Runways	Departure Runways	Procedures	Hourly Rate	
				ATC Facility Reported	Model-Estimated
CURRENT OPERATIONS	26, 27R, 35	27L, 35	Instrument Approaches, Visual Separation	120	126
RUNWAY EXTENSIONS Runway Extensions 8/26 and 9R/27L	26, 27R, 35	27L, 35		N/A	133
FUTURE IMPROVEMENTS Runway Extensions 8/26 and 9R/27L Improved Runway Delivery Accuracy	26, 27R, 35	27L, 35		N/A	134

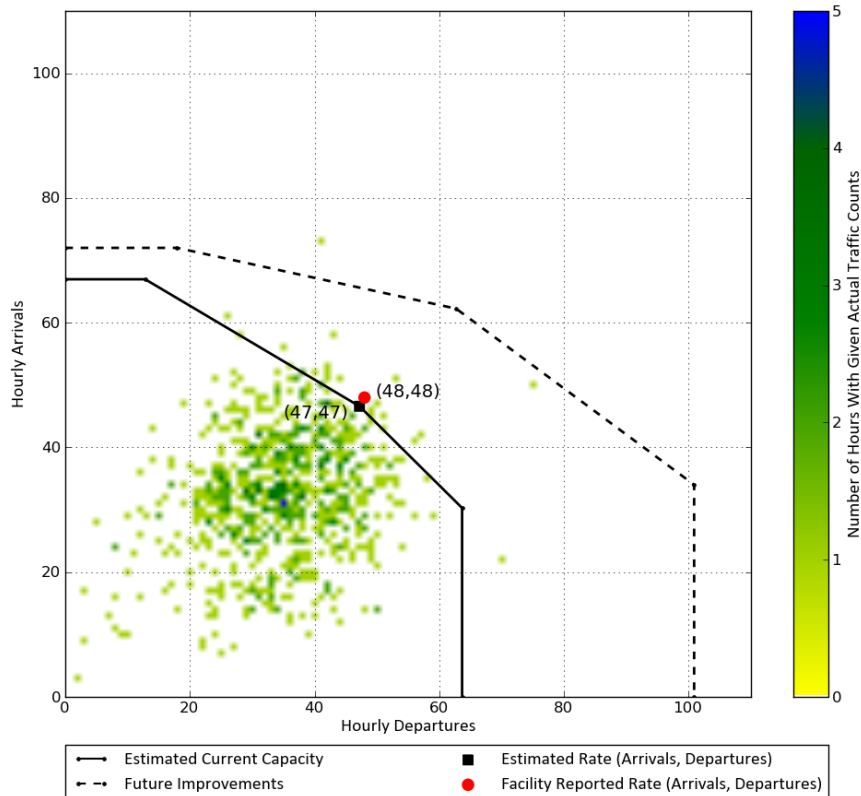
VISUAL WEATHER CONDITIONS



- The capacity rate range in Visual conditions is currently 120-126 operations per hour.
- PHL has two primary directional traffic flows. The airport operates in variations of this configuration approximately 71% of the time in Visual weather conditions (totaling 62% annually).
- Some aircraft do not operate on Runways 35 and 26 due to length.
- Same runway departure fanning is conducted from Runway 27L. This procedure enables higher departure throughput by reducing the minimum time required between successive departures.
- This capacity profile does not take into consideration operating configurations at nearby airports such as LGA, EWR, or JFK.

PHL Scenario	Arrival Runways	Departure Runways	Procedures	Hourly Rate	
				ATC Facility Reported	Model-Estimated
CURRENT OPERATIONS	9R, 17	8, 9L	Simultaneous Converging Instrument Approaches, Radar Separation	96	94
RUNWAY EXTENSIONS Runway Extensions 8/26 and 9R/27L	9R, 17	8, 9L		N/A	119
FUTURE IMPROVEMENTS Runway Extensions 8/26 and 9R/27L Improved Runway Delivery Accuracy WTMD	9R, 17	8, 9L		N/A	125

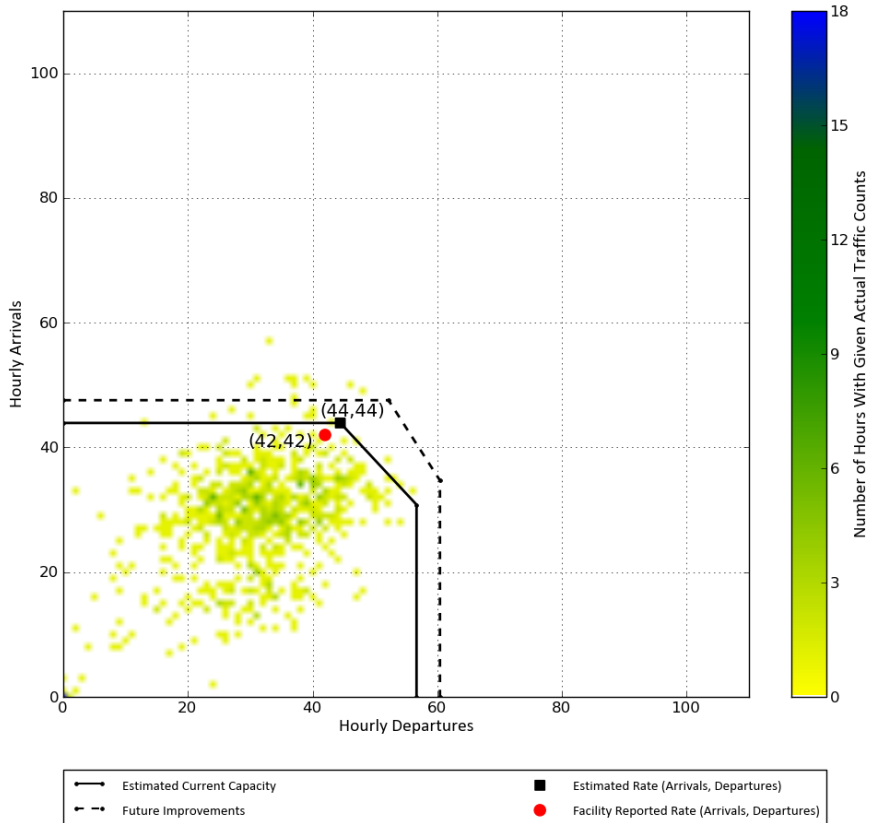
MARGINAL WEATHER CONDITIONS



- The capacity rate range in Marginal conditions is currently 94-96 operations per hour.
- PHL has two primary directional traffic flows. The airport operates in variations of this configuration approximately 44% of the time in Marginal weather conditions (totaling 3% annually).
- Some aircraft do not operate on Runways 17 and 8 due to length.
- Reduced separation (2.5 NM) between arrivals is authorized for approaches to Runway 9R at PHL.
- Same runway departure fanning is conducted from Runway 9L. This procedure enables higher departure throughput by reducing the minimum time required between successive departures.
- This capacity profile does not take into consideration operating configurations at nearby airports such as LGA, EWR, or JFK.
- Peak departure capacity is estimated to increase as future improvements are implemented.

PHL Scenario	Arrival Runways	Departure Runways	Procedures	Hourly Rate	
				ATC Facility Reported	Model-Estimated
CURRENT OPERATIONS	9R, 17	8, 9L	Simultaneous Converging Instrument Approaches, Radar Separation	84	88
RUNWAY EXTENSIONS Runway Extensions 8/26 and 9R/27L	9R, 17	8, 9L		N/A	88
FUTURE IMPROVEMENTS Runway Extensions 8/26 and 9R/27L Improved Runway Delivery Accuracy	9R, 17	8, 9L		N/A	96

INSTRUMENT WEATHER CONDITIONS



- The capacity rate range in Instrument conditions is currently 84-88 operations per hour.
- PHL has two primary directional traffic flows. The airport operates in variations of this configuration approximately 23% of the time in Instrument weather conditions (totaling 2% annually).
- Some aircraft do not operate on Runways 17 and 8 due to length.
- Reduced separation (2.5 NM) between arrivals is authorized for approaches to Runway 9R at PHL.
- A converging approach to Runways 9R and 17 can only be performed when the ceiling is above 700 feet with at least 2 miles of visibility. If weather conditions fall below those minima, only a single arrival runway would be used.
- Same runway departure fanning is conducted from Runway 9L. This procedure enables higher departure throughput by reducing the minimum time required between successive departures.
- This capacity profile does not take into consideration operating configurations at nearby airports such as LGA, EWR, or JFK.