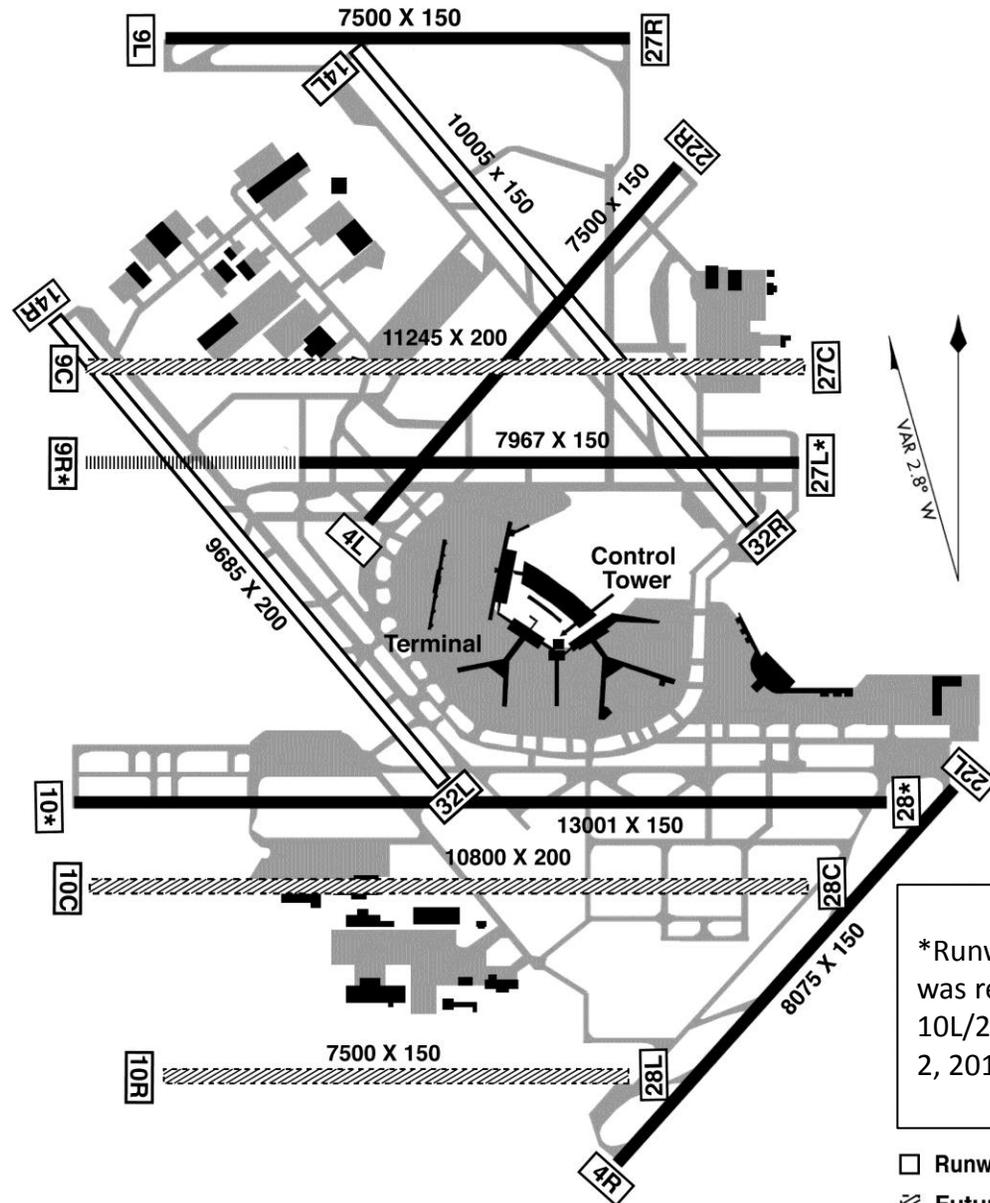


O'HARE INTERNATIONAL (CHICAGO)



**Runway 10C/28C was commissioned on October 17, 2013. However, the majority of the analysis in this report was conducted prior to its opening. As such, it is considered a future runway in this document.

*Runway 10/28 was renamed 10L/28R in May 2, 2013.

- Runway to be Decommissioned
- ▨ Future Runway
- ⋯ 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 ORD. 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 depart on Runway 28R 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 ORD

- In 2008, ORD commissioned a new parallel runway, 9L/27R, which is primarily used for arrivals.
- In 2008, Runway 10/28 was extended almost 3,000 feet to provide additional length for larger departing aircraft. Previously, Runway 32L/14R had been used for this purpose. Once 10/28 was extended, 32L/14R was shortened to construct 10C/28C.
- Implementation of Traffic Management Advisor (TMA) helps to improve the flow of arrivals to the runways.
- In 2013, a new parallel runway 10C/28C was commissioned which is used primarily for arrivals.

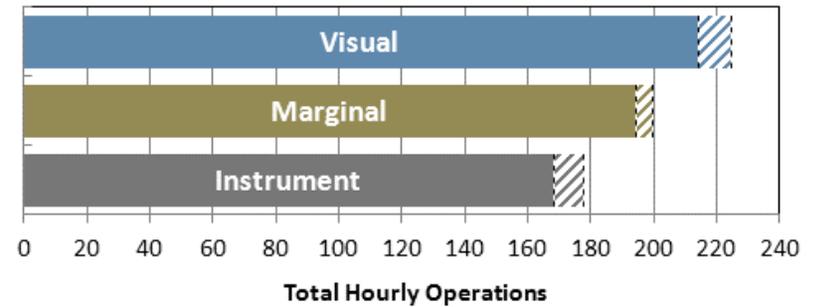
FUTURE IMPROVEMENTS AT ORD

- *New Runways and Extensions:* The O'Hare Modernization Program (OMP) calls for a series of new runways and extensions. The first phase, construction of Runway 9L/27R and extension of Runway 10/28, was completed in 2008. Then, a new closely-spaced Runway 10C/28C was completed in 2013. Runway 10R/28L, on the south side of the airport, will be completed in 2015. Thereafter the completion of OMP includes: (1) extending existing Runway 9R/27L, (2) opening a new closely-spaced parallel runway 9C/27C on the north side, and (3) closing existing Runways 14L/32R and 14R/32L. The model-estimated rates in this profile assume that ground infrastructure, environmental constraints, and other operational factors allow for the planned use of the runways.
- *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.
- Additional information on these improvements may be found in this report under "Future Operation Assumptions."

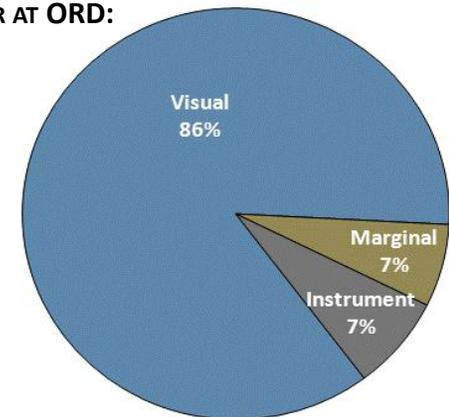
DATA SOURCES

- Actual hourly ORD 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 ORD.
- Model-estimated rates are derived from operational information provided by ATC.

CURRENT OPERATIONS CAPACITY RATE RANGE



ANNUAL WEATHER AT ORD:



VISUAL CONDITIONS:

- Ceiling and visibility allow for visual approaches: at least 1900 feet ceiling and 3 miles visibility

MARGINAL CONDITIONS:

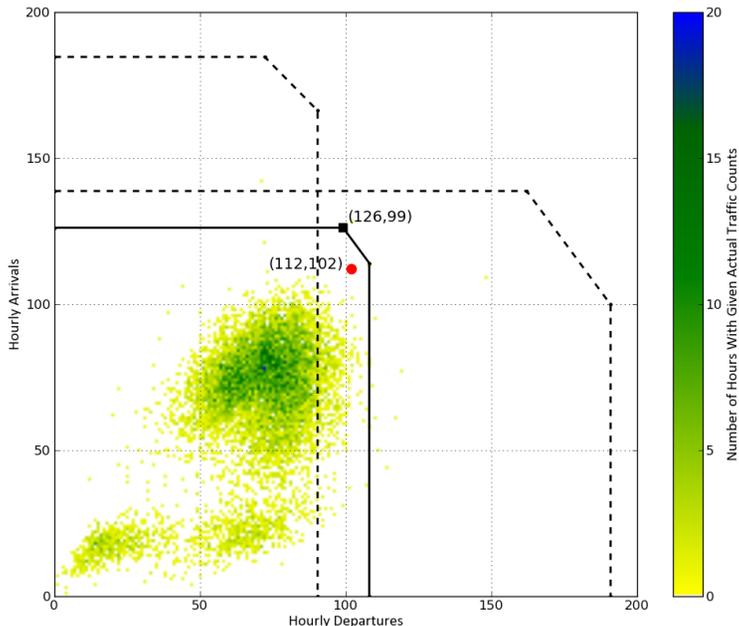
- Ceiling and visibility below visual approach minima but better than Instrument conditions

INSTRUMENT CONDITIONS:

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

ORD Scenario		Arrival Runways	Departure Runways	Procedures	Hourly Rate	
					ATC Facility Reported	Model-Estimated
BASELINE OPERATIONS** (PRIOR TO OCT-2013)		27L, 27R, 28R	22L, 28R, 32L	Visual Approaches, Visual Separation	214	225
NEW RUNWAY** (TODAY) Runway 10C/28C		27L, 27R, 28C	22L, 28R, 32L		224	256
NEW RUNWAY (OMP COMPLETION) Runways 10C/28C, 9C/27C, 10R/28L Runway Extension 9R/27L	ARRIVAL PRIORITY	27R, 27C, 28C, 28L	27L, 28R		N/A	243
	DEPARTURE PRIORITY	27R, 27C, 28C	22L, 28R, 27L, 28L		N/A	288
FUTURE IMPROVEMENTS OMP Completion Improved Runway Delivery Accuracy	ARRIVAL PRIORITY	27R, 27C, 28C, 28L	27L, 28R		N/A	257
	DEPARTURE PRIORITY	27R, 27C, 28C	22L, 28R, 27L, 28L		N/A	301

VISUAL WEATHER CONDITIONS



Estimated Current Capacity
 Estimated Rate (Arrivals, Departures)
 Future Improvements
 ● Facility Reported Rate (Arrivals, Departures)

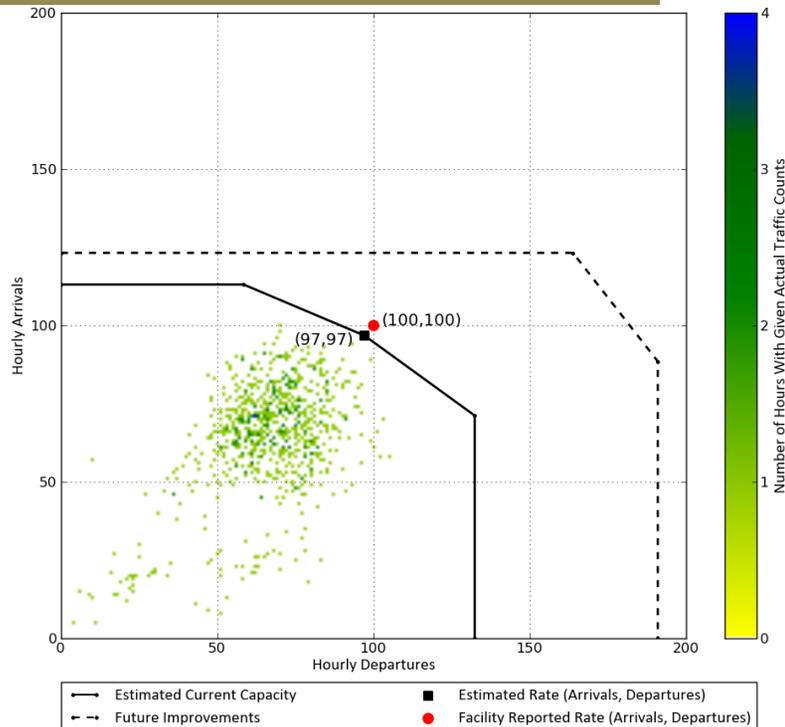
- The baseline capacity rate range in Visual conditions is 214-225 operations per hour.
- ORD has two primary directional traffic flows, east and west. The airport operates in variations of this profiled configuration approximately 30% of the time in Visual weather conditions (totaling 26% annually).
- In Visual conditions Future Runway 10R/28L is planned to be used for offloading operations in times of heavy arrival or departure demand. The arrival priority configuration, using 10R/28L, has a much higher ratio of arrivals to departures compared to the previous no-priority new runway case. However this type of arrival heavy operation causes a drop in total estimated capacity.
- Peak arrival capacity is estimated to increase as future improvements are implemented for the arrival priority mode.
- Peak departure capacity is estimated to increase as future improvements are implemented for the departure priority mode.

MARGINAL

O'HARE INTERNATIONAL (CHICAGO)

ORD Scenario	Arrival Runways	Departure Runways	Procedures	Hourly Rate	
				ATC Facility Reported	Model-Estimated
BASELINE OPERATIONS** <i>(PRIOR TO OCT-2013)</i>	4R, 9R, 10L	4L, 9R, 32L	Converging Instrument Approaches, Visual Separation	200	194
NEW RUNWAY** (TODAY) Runway 10C/28C	27L, 27R, 28C	22L, 28R, 32L	Triple Simultaneous Instrument Approaches, Visual Separation	212	207
NEW RUNWAY (OMP COMPLETION) Runways 10C/28C, 9C/27C, 10R/28L Runway Extension 9R/27L	27R, 27C, 28C	22L, 27L, 28R, 28L		N/A	226
FUTURE IMPROVEMENTS OMP Completion Improved Runway Delivery Accuracy	27R, 27C, 28C	22L, 27L, 28R, 28L		N/A	246

MARGINAL WEATHER CONDITIONS



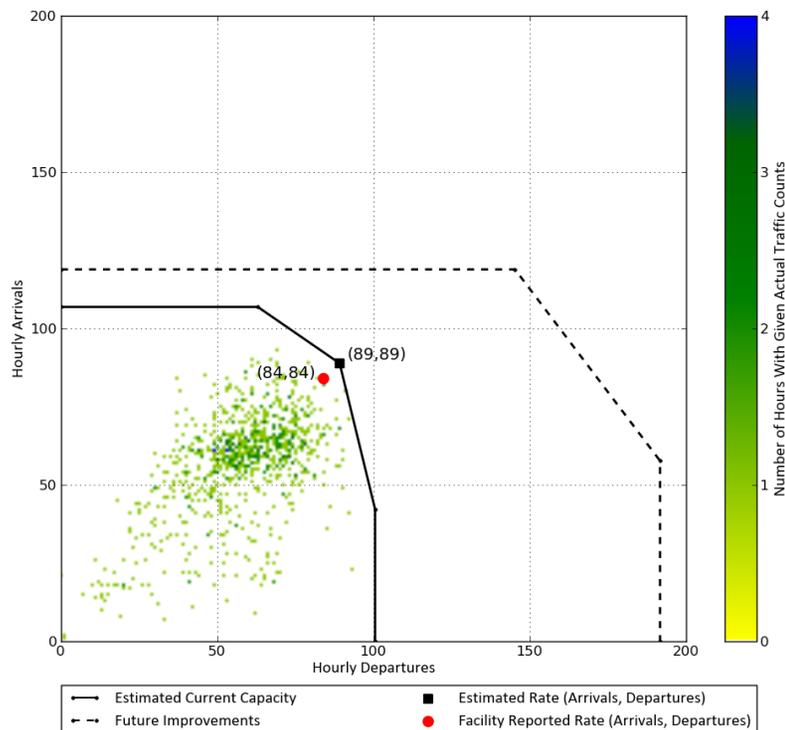
- The baseline capacity rate range in Marginal conditions is 194-200 operations per hour.
- ORD has two primary directional traffic flows, east and west. The airport operates in variations of this profiled configuration approximately 37% of the time in Marginal weather conditions (totaling 2% annually).
- Reduced separation (2.5 NM) between arrivals is authorized for approaches to Runways 4R, 9R, and 10L at ORD. All new arrival runways, and existing Runway 27R are assumed to be eligible for reduced separation in the future.
- This profiled configuration will not typically be used, following the opening of Runway 10C/28C.
- Runway 32L cannot be used for departures, while arriving on Runway 27R, if the ceiling falls below 1500 feet, or visibility is less than 5 miles.
- Peak departure capacity is estimated to increase as future improvements are implemented.

INSTRUMENT

O'HARE INTERNATIONAL (CHICAGO)

ORD Scenario	Arrival Runways	Departure Runways	Procedures	Hourly Rate	
				ATC Facility Reported	Model-Estimated
BASELINE OPERATIONS** <i>(PRIOR TO OCT-2013)</i>	27L, 27R, 28	22L, 28	Triple Simultaneous Instrument Approaches, Radar Separation	168	178
NEW RUNWAY** (TODAY) Runway 10C/28C	27L, 27R, 28C	22L, 28R		212	181
NEW RUNWAY (OMP COMPLETION) Runways 10C/28C, 9C/27C, 10R/28L Runway Extension 9R/27L	27R, 27C, 28C	22L, 27L, 28R, 28L		N/A	220
FUTURE IMPROVEMENTS OMP Completion Improved Runway Delivery Accuracy	27R, 27C, 28C	22L, 27L, 28R, 28L		N/A	238

INSTRUMENT WEATHER CONDITIONS



- The baseline capacity rate range in Instrument conditions is 168-178 operations per hour.
- ORD has two primary directional traffic flows , east and west. The airport operates in variations of this configuration approximately 21% of the time in Instrument weather conditions (totaling less than 2% annually).
- Reduced separation (2.5 NM) between arrivals is authorized for approaches to Runways 27L, 28R at ORD. All new arrival runways, and existing Runway 27R are assumed to be eligible for reduced separation in the future.
- Peak departure capacity is estimated to increase as future improvements are implemented.