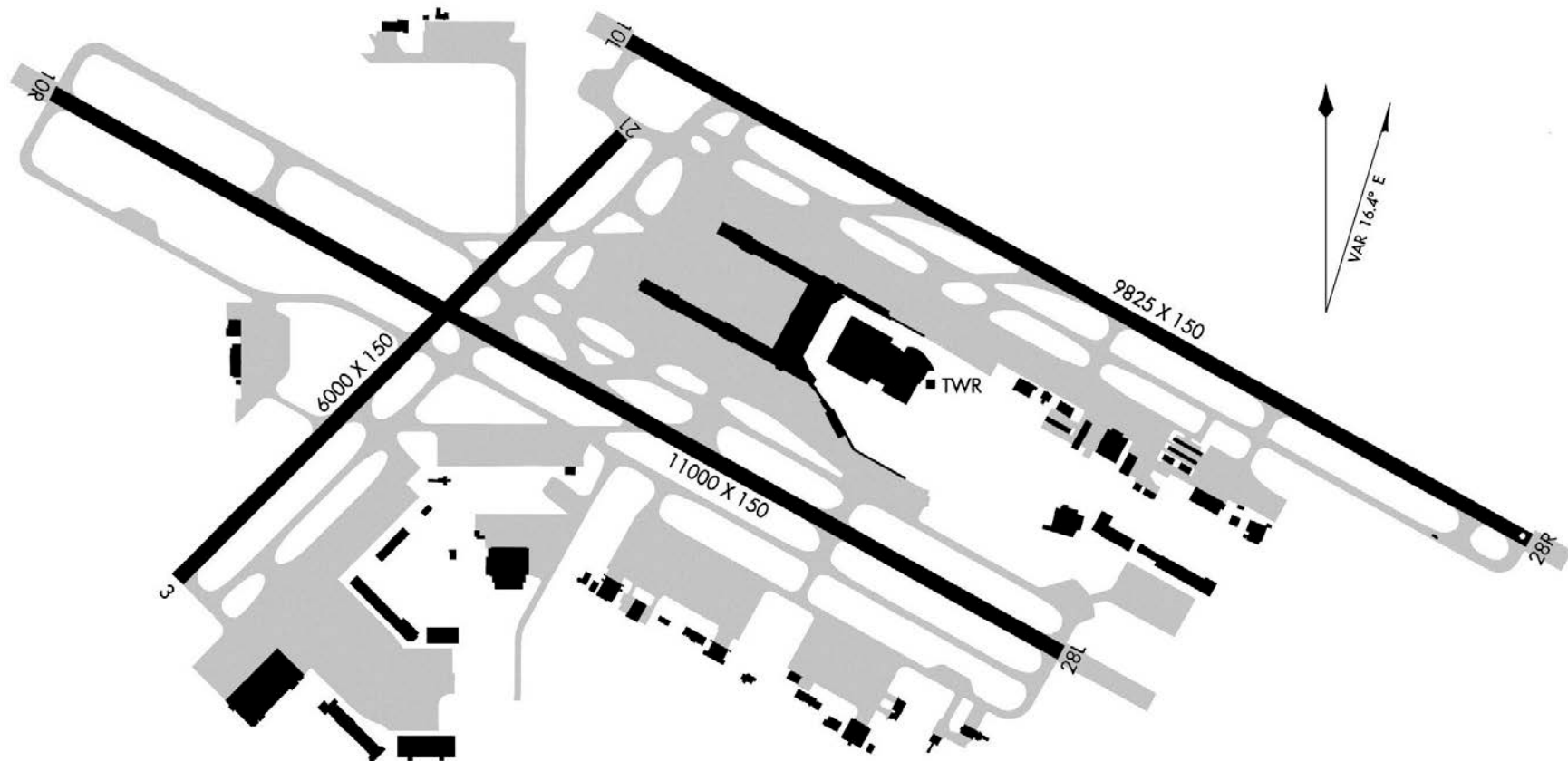




Airport capacity profile estimates were created using a standard set of performance characteristics and do not take into account non-runway constraints, unless otherwise noted. The capacity estimates developed for this report are not intended to replace the results of any detailed analysis that would 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.
- For each weather scenario, capacity estimates are based on information provided by ATC, including reported arrival and departure rates.
- The following charts compare actual hourly traffic with the estimated capacity curves for PDX. Some hourly traffic points fall outside the estimated capacity curves. There are many reasons why this may occur without affecting operational safety. For example, fewer wake-producing aircraft may have used the airport 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 PDX

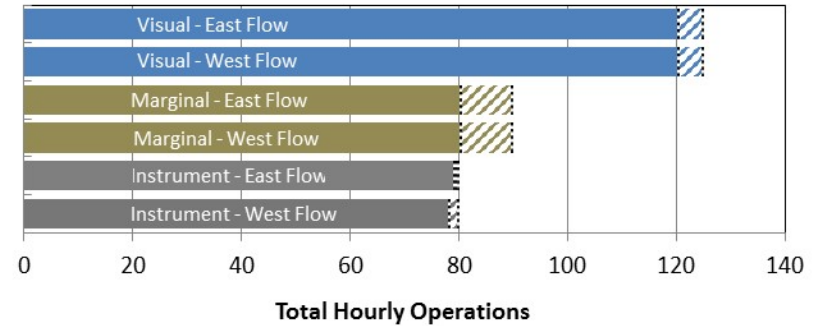
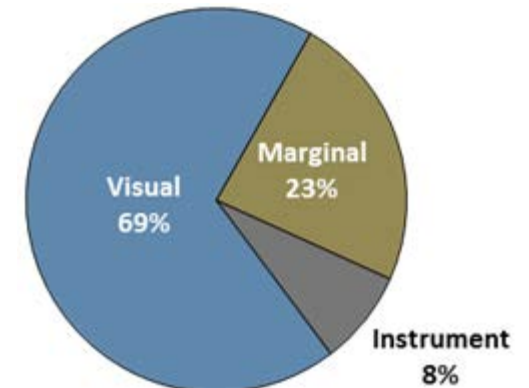
- Traffic Management Advisor (TMA) helps to improve the flow of arrivals to the runways.

FUTURE IMPROVEMENTS AT PDX

- *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.
- *Improved Parallel Runway Operations* could enable simultaneous independent approaches to closely spaced parallel runways 10L/28R and 10R/28L, spaced 3100' apart.

DATA SOURCES

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

CURRENT OPERATIONS CAPACITY RATE RANGE**ANNUAL WEATHER AT PDX:****VISUAL CONDITIONS:**

- Ceiling and visibility allow for visual approaches: at least 3500 feet and 8 miles visibility

MARGINAL CONDITIONS:

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

INSTRUMENT CONDITIONS:

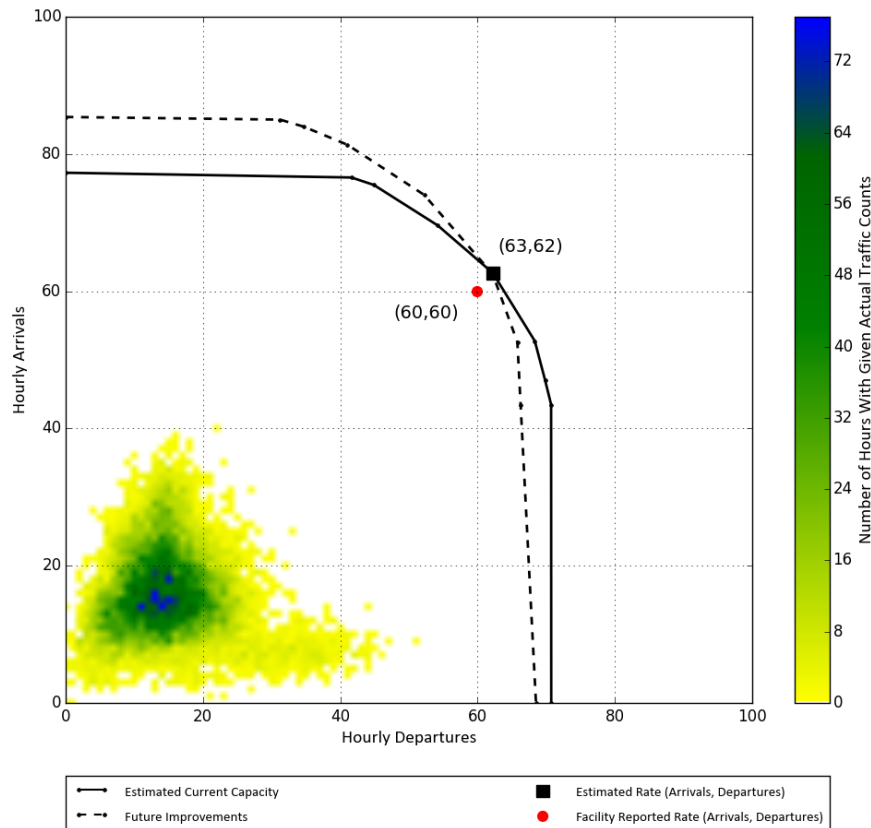
- Ceiling and visibility below 1000 feet ceiling or 3 miles visibility

VISUAL – EAST FLOW

PDX SCENARIO: VISUAL APPROACHES, VISUAL SEPARATION

Type of Operations	Arrival Runways	Departure Runways	Hourly Rate	
			ATC Facility Reported	Model-Estimated
CURRENT OPERATIONS	10L, 10R	10L, 10R	120	125
FUTURE IMPROVEMENTS	10L, 10R	10L, 10R	N/A	125

VISUAL WEATHER CONDITIONS



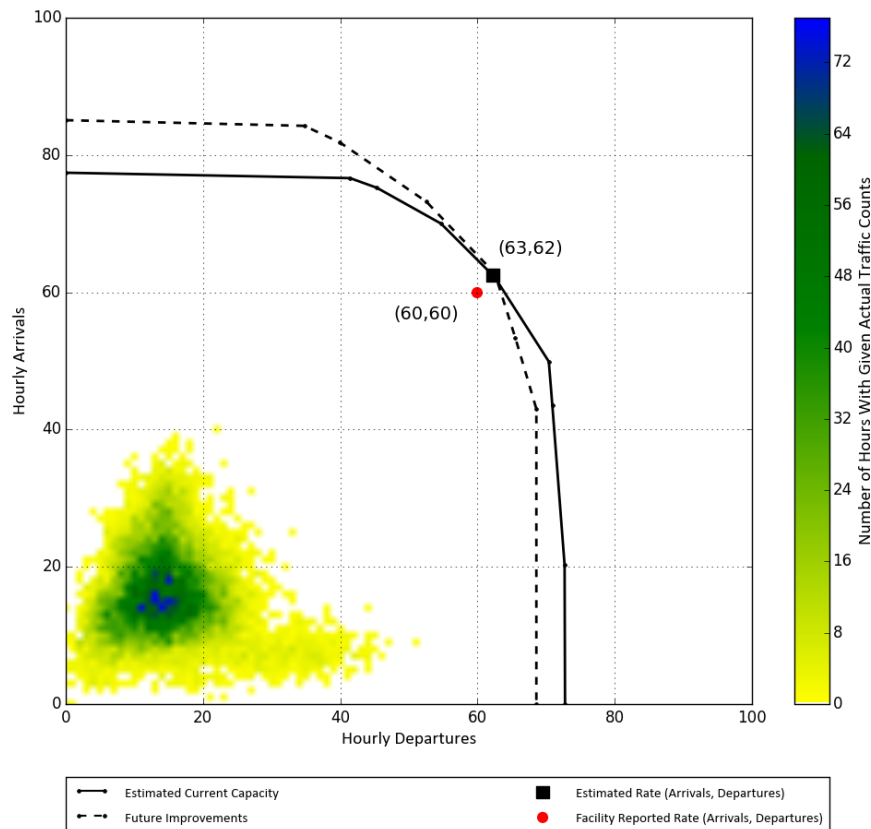
- **Future improvements:** Improved Runway Delivery Accuracy, Wake Recategorization Phase 1.
- The capacity rate range in Visual conditions for operations on Runways 10L and 10R is currently 120-125 operations per hour.
- PDX operates in East Flow approximately 28% of the time in Visual weather conditions (19% of hours annually).
- Limited same runway departure fanning is conducted from Runways 10L and 10R for non-jet aircraft. This procedure enables higher departure throughput by reducing the minimum time required between successive departures.
- Departures from the parallel runways are generally restricted to a single flow along the Columbia River for noise abatement, which limits operational capacity.
- Wake Recategorization Phase 1 is projected to reduce peak departure capacity by 2-5 operations per hour, because of new wake protection requirements for small aircraft (Category F) behind large aircraft (Category D). Small and large wake category aircraft comprise an overwhelming majority of PDX operations. Wake Recategorization Phase 2, if implemented, is expected to mitigate this disbenefit.

VISUAL – WEST FLOW

PDX SCENARIO: VISUAL APPROACHES, VISUAL SEPARATION

Type of Operations	Arrival Runways	Departure Runways	Hourly Rate	
			ATC Facility Reported	Model-Estimated
CURRENT OPERATIONS	28L, 28R	28L, 28R	120	125
FUTURE IMPROVEMENTS	28L, 28R	28L, 28R	N/A	125

VISUAL WEATHER CONDITIONS



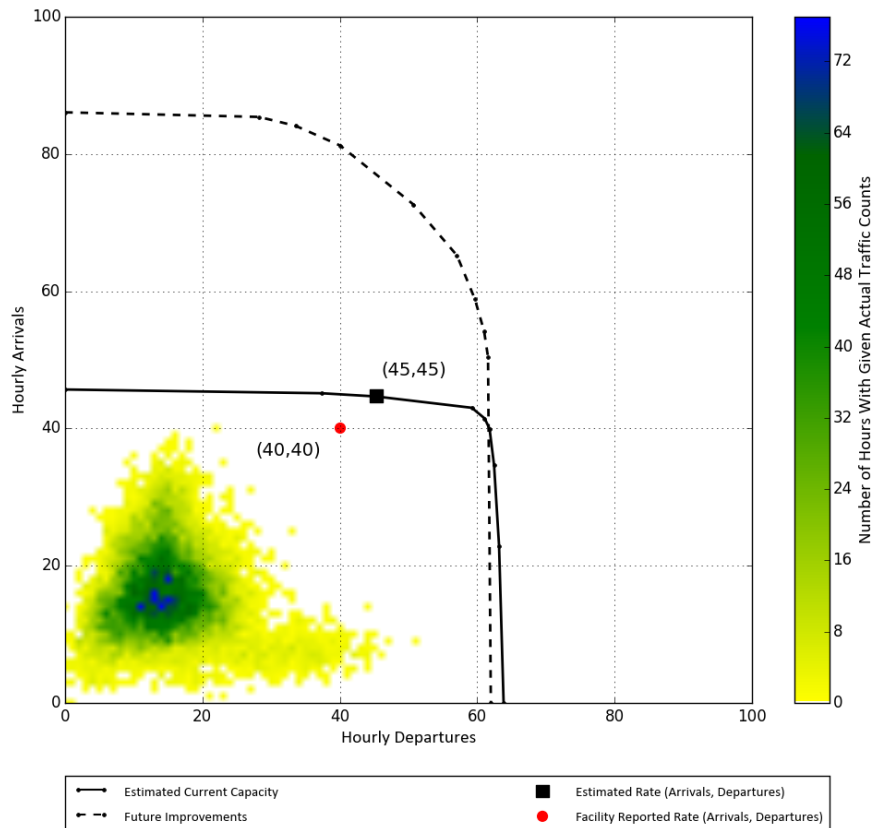
- **Future improvements:** Improved Runway Delivery Accuracy, Wake Recategorization Phase 1.
- The capacity rate range in Visual conditions for operations on Runways 28L and 28R is currently 120-125 operations per hour.
- PDX operates in West Flow approximately 52% of the time in Visual weather conditions (35% of hours annually).
- Limited same runway departure fanning is conducted from Runways 28L and 28R for non-jet aircraft. This procedure enables higher departure throughput by reducing the minimum time required between successive departures.
- Departures from the parallel runways are generally restricted to a single flow along the Columbia River for noise abatement, which limits operational capacity.
- Wake Recategorization Phase 1 is projected to reduce peak departure capacity by 2-5 operations per hour, because of new wake protection requirements for small aircraft (Category F) behind large aircraft (Category D). Small and large wake category aircraft comprise an overwhelming majority of PDX operations. Wake Recategorization Phase 2, if implemented, is expected to mitigate this disbenefit.

MARGINAL – EAST FLOW

PDX SCENARIO

Type of Operations	Arrival Runways	Departure Runways	Procedures	Hourly Rate	
				ATC Facility Reported	Model-Estimated
CURRENT OPERATIONS	10L, 10R	10L, 10R	Dependent Instrument Approaches, Visual Separation	80	90
FUTURE IMPROVEMENTS	10L, 10R	10L, 10R	Independent Instrument Approaches, Visual Separation	N/A	119

MARGINAL WEATHER CONDITIONS



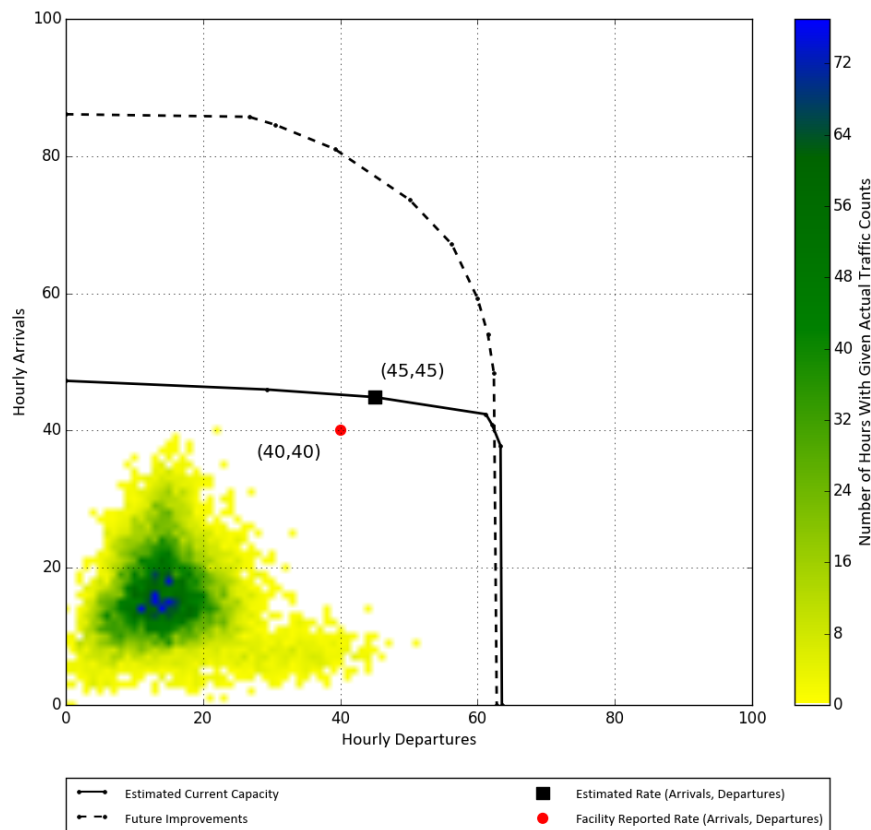
- **Future improvements:** Improved Runway Delivery Accuracy, Improved Parallel Runway Operations, Wake Recategorization Phase 1.
- The capacity rate range in Marginal conditions is currently 80-90 operations per hour.
- PDX operates in East Flow approximately 45% of the time in Marginal weather conditions (11% of hours annually).
- Reduced separation (2.5 NM) between arrivals is authorized for instrument approaches to Runway 10L and Runway 10R at PDX.
- Limited same runway departure fanning is conducted from Runways 10L and 10R for non-jet aircraft. This procedure enables higher departure throughput by reducing the minimum time required between successive departures.
- Departures from the parallel runways are generally restricted to a single flow along the Columbia River for noise abatement, which limits operational capacity.
- Wake Recategorization Phase 1 is projected to reduce peak departure capacity by up to 2 operations per hour, because of new wake protection requirements for small aircraft (Category F) behind large aircraft (Category D). Small and large wake category aircraft comprise an overwhelming majority of PDX operations. Wake Recategorization Phase 2, if implemented, is expected to mitigate this disbenefit.
- Peak arrival capacity could increase by 80%, primarily due to Improved Parallel Runway Operations.

MARGINAL – WEST FLOW

PDX SCENARIO

Type of Operations	Arrival Runways	Departure Runways	Procedures	Hourly Rate	
				ATC Facility Reported	Model-Estimated
CURRENT OPERATIONS	28L, 28R	28L, 28R	Dependent Instrument Approaches, Visual Separation	80	90
FUTURE IMPROVEMENTS	28L, 28R	28L, 28R	Independent Instrument Approaches, Visual Separation	N/A	119

MARGINAL WEATHER CONDITIONS



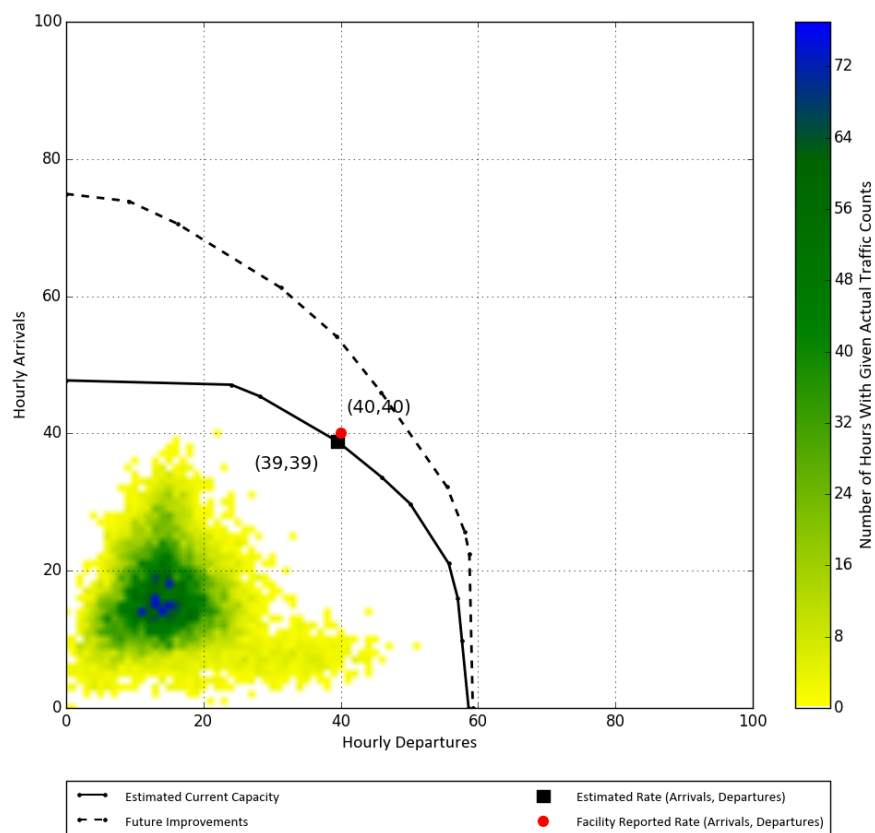
- **Future improvements:** Improved Runway Delivery Accuracy, Improved Parallel Runway Operations, Wake Recategorization Phase 1.
- The capacity rate range in Marginal conditions is currently 80-90 operations per hour.
- PDX operates in West Flow approximately 39% of the time in Marginal weather conditions (9% of hours annually).
- Reduced separation (2.5 NM) between arrivals is authorized for instrument approaches to Runway 28L and Runway 28R at PDX.
- Limited same runway departure fanning is conducted from Runways 28L and 28R for non-jet aircraft. This procedure enables higher departure throughput by reducing the minimum time required between successive departures.
- Departures from the parallel runways are generally restricted to a single flow along the Columbia River for noise abatement, which limits operational capacity.
- Wake Recategorization Phase 1 is projected to reduce peak departure capacity by up to 2 operations per hour, because of new wake protection requirements for small aircraft (Category F) behind large aircraft (Category D). Small and large wake category aircraft comprise an overwhelming majority of PDX operations. Wake Recategorization Phase 2, if implemented, is expected to mitigate this disbenefit.
- Peak arrival capacity could increase by 80%, primarily due to Improved Parallel Runway Operations.

INSTRUMENT – EAST FLOW

PDX SCENARIO

Types of Operations	Arrival Runways	Departure Runways	Procedures	Hourly Rate	
				ATC Facility Reported	Model-Estimated
CURRENT OPERATIONS	10L, 10R	10L, 10R	Dependent Instrument Approaches, Radar Separation	80	78
FUTURE IMPROVEMENTS	10L, 10R	10L, 10R	Independent Instrument Approaches, Radar Separation	N/A	93

INSTRUMENT WEATHER CONDITIONS



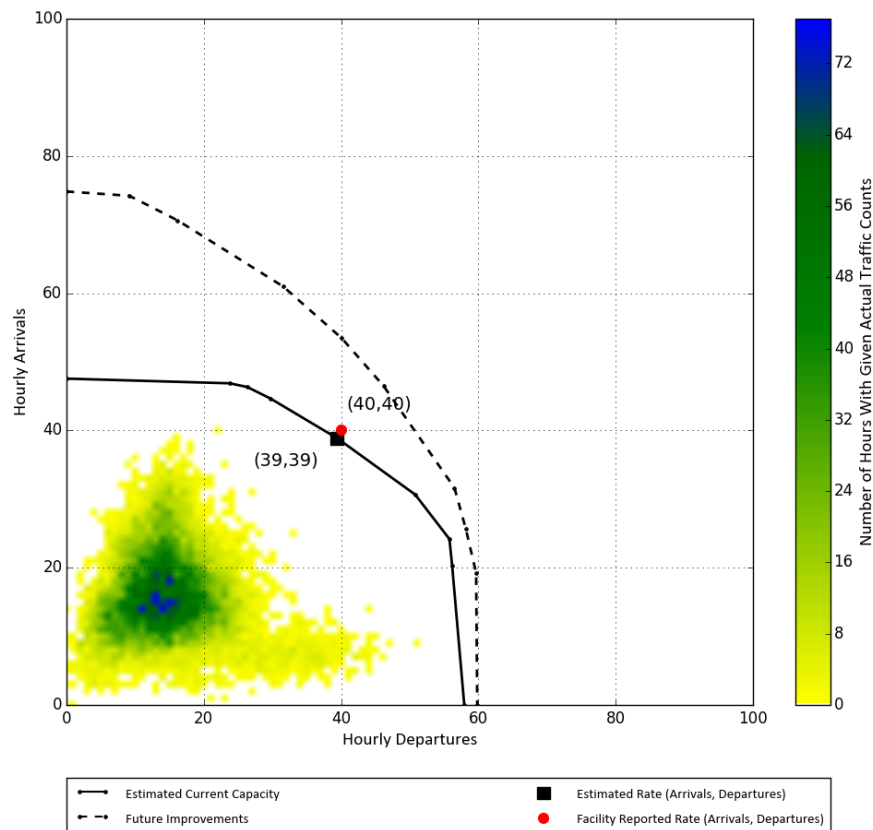
- **Future improvements:** Improved Runway Delivery Accuracy, Improved Parallel Runway Operations, Wake Recategorization Phase 1.
- The capacity rate range in Instrument conditions is currently 78-80 operations per hour.
- PDX operates in East Flow approximately 64% of the time in Instrument weather conditions (5% of hours annually).
- Reduced separation (2.5 NM) between arrivals is authorized for instrument approaches to Runway 10L and Runway 10R at PDX.
- Limited same runway departure fanning is conducted from Runways 10L and 10R for non-jet aircraft. This procedure enables higher departure throughput by reducing the minimum time required between successive departures.
- Departures from the parallel runways are generally restricted to a single flow along the Columbia River for noise abatement, which limits operational capacity.
- Peak arrival capacity could increase by 50%, primarily due to Improved Parallel Runway Operations.

INSTRUMENT – WEST FLOW

PDX SCENARIO

Types of Operations	Arrival Runways	Departure Runways	Procedures	Hourly Rate	
				ATC Facility Reported	Model-Estimated
CURRENT OPERATIONS	28L, 28R	28L, 28R	Dependent Instrument Approaches, Radar Separation	80	78
FUTURE IMPROVEMENTS	28L, 28R	28L, 28R	Independent Instrument Approaches, Radar Separation	N/A	93

INSTRUMENT WEATHER CONDITIONS



- **Future improvements:** Improved Runway Delivery Accuracy, Improved Parallel Runway Operations, Wake Recategorization Phase 1.
- The capacity rate range in Instrument conditions is currently 78-80 operations per hour.
- PDX operates in West Flow approximately 19% of the time in Instrument weather conditions (totaling 1% annually).
- Reduced separation (2.5 NM) between arrivals is authorized for instrument approaches to Runway 28L and Runway 28R at PDX.
- Limited same runway departure fanning is conducted from Runways 28L and 28R for non-jet aircraft. This procedure enables higher departure throughput by reducing the minimum time required between successive departures.
- Departures from the parallel runways are generally restricted to a single flow along the Columbia River for noise abatement, which limits operational capacity.
- Peak arrival capacity could increase by 50%, primarily due to Improved Parallel Runway Operations.