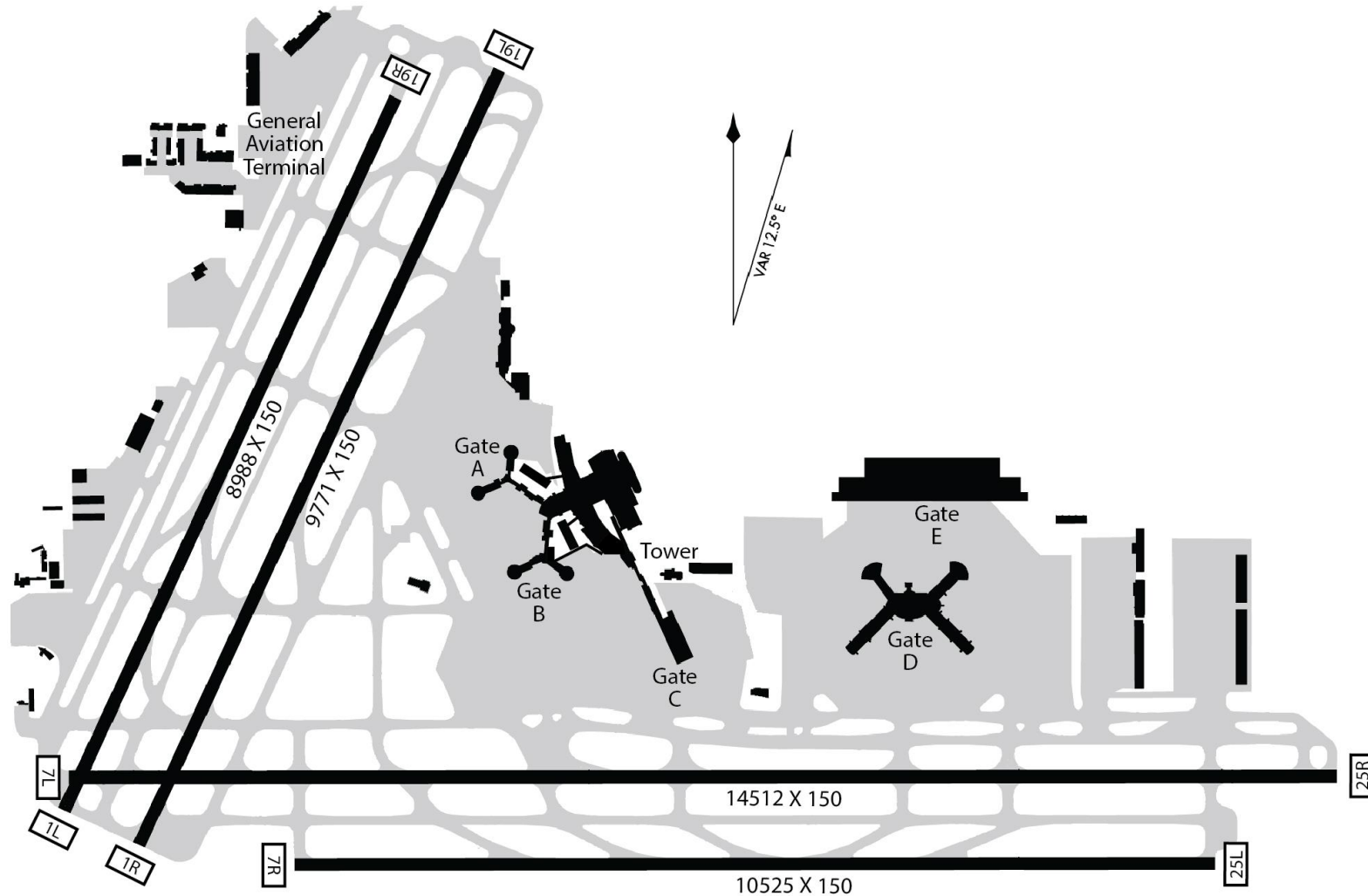


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Airport capacity profile estimates were created using a standard set of performance characteristics and do not take into account non-runway constraints, unless otherwise noted. The capacity estimates developed for this report are not intended to replace 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 expected to be 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 (visual, marginal, and instrument) 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 LAS. Please note that a few 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 Runways 1L or 19L 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 OPERATIONAL IMPACTS AT LAS

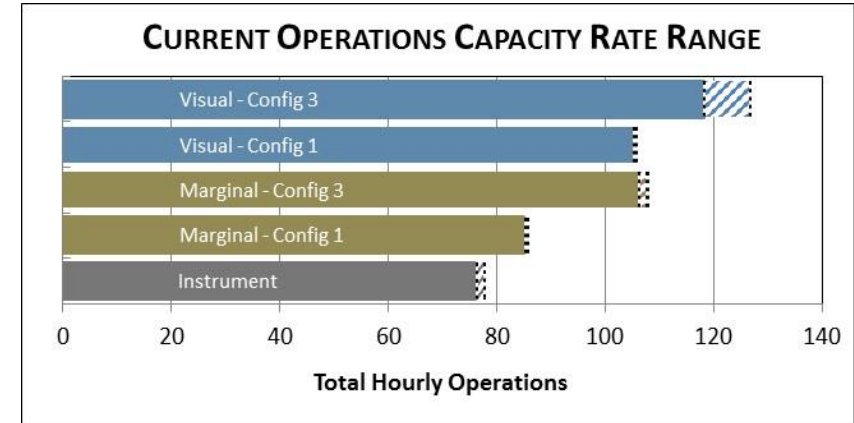
- *Time-Based Flow Management (TBFM)* helps to improve the flow of arrivals to the runways.
- *Arrival-Departure Window (ADW)*: Helps to minimize the long-term risk associated with arrival and departure operations on intersecting and converging runways. The ADW defines a range window from the arrival 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. LAS has multiple ADWs; the ADW modeled here is for Configuration 1 operations between Runway 25L and Runway 19L.

FUTURE IMPROVEMENTS AT LAS

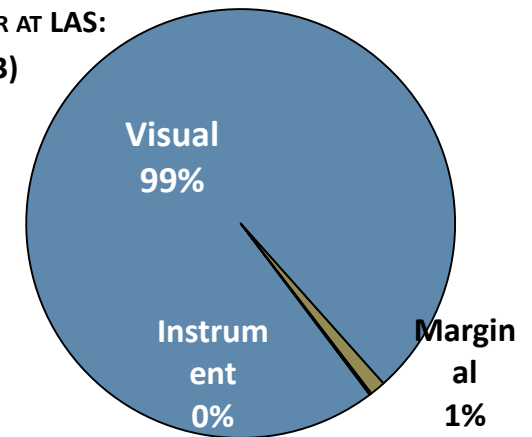
- *Improved Runway Delivery Accuracy*: The combined effects of several new capabilities, including ADS-B Out, CDTI, and TBM in the terminal area, will improve the ability of controllers to deliver aircraft to the runway with the desired separation from the preceding aircraft. This will reduce the average 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.
- *Wake Turbulence Mitigation for Arrivals – Procedural (WTMA-P)* could be available at LAS in the future. WTMA-P will enable reduced diagonal separation between closely-spaced parallel arrivals to Runways 25L and 25R for all categories of lead aircraft.

DATA SOURCES

- Actual hourly LAS 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 2011 through 2013. Actual configuration usage is determined by multiple operational factors, including weather conditions.
- Facility reported rates were provided by ATC personnel at LAS.
- Model-estimated rates are derived from operational information provided by ATC.



ANNUAL WEATHER AT LAS: (FY2011-FY2013)



VISUAL CONDITIONS:

- Ceiling and visibility allow for visual approaches: at least 5000 feet ceiling and 5 miles visibility

MARGINAL CONDITIONS:

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

INSTRUMENT CONDITIONS:

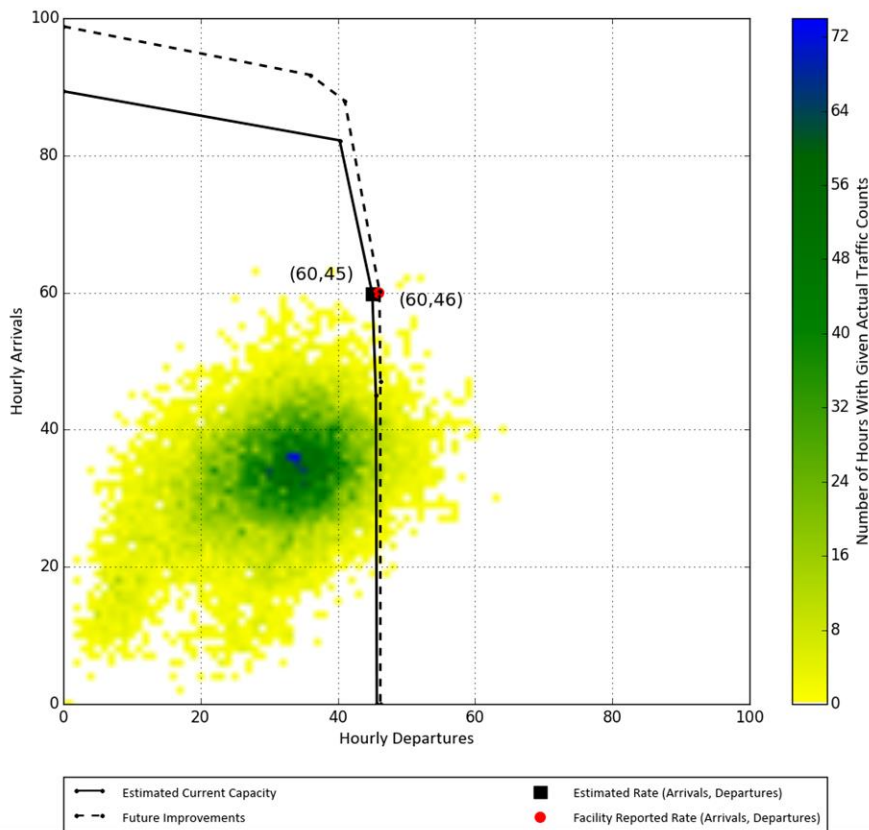
- Ceiling and visibility below 1000 feet ceiling or 3 miles visibility

VISUAL – CONFIGURATION 1

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LAS Scenario	Arrival Runways	Departure Runways	Procedures	Hourly Rate	
				ATC Facility Reported	Model-Estimated
CURRENT OPERATIONS	19R, 25L	19L, 25R	Visual Approaches, Visual Separation	106	105
FUTURE IMPROVEMENTS Improved Runway Delivery Accuracy Wake Recategorization Phase 1	19R, 25L	19L, 25R		N/A	106

VISUAL WEATHER CONDITIONS



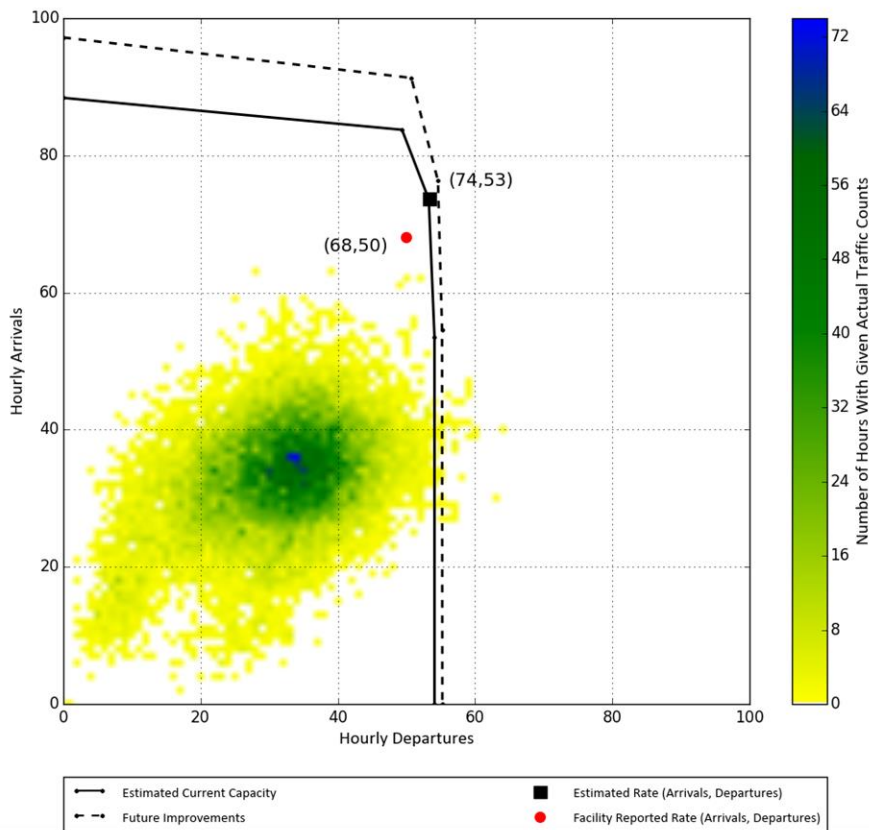
- Air traffic control at LAS refers to this operation as Configuration 1. The capacity range for Configuration 1 in Visual conditions is currently 105-106 operations per hour.
- This configuration is LAS's most commonly used configuration. Configuration 1 does not offer the highest capacity due to high terrain to the west and an uphill departure off runway 25R, but prevailing winds favor it.
- The airport operated in variations of Configuration 1 approximately 56% of the time in Visual weather conditions, or 56% in all weather conditions.
- As of August 2012, the airport has been using an Arrival-Departure Window with this configuration.
- Military airspace, high terrain, and proximity to other airports reduce arrival and departure flows at LAS. Most departures from Runways 19L and 25R use the same departure fix which limits departure capacity. Runway 25R is favored during the heat as aircraft performance limits use of Runway 19L. (Note: Configuration 4 is preferred during high temperatures, with departures using Runway 7L).

VISUAL – CONFIGURATION 3

McCARRAN INTERNATIONAL (LAS VEGAS)

LAS Scenario	Arrival Runways	Departure Runways	Procedures	Hourly Rate	
				ATC Facility Reported	Model-Estimated
CURRENT OPERATIONS	1L, 25L	1L, 1R	Visual Approaches, Visual Separation	118	127
FUTURE IMPROVEMENTS Improved Runway Delivery Accuracy Wake Recategorization Phase 1	1L, 25L	1L, 1R		N/A	131

VISUAL WEATHER CONDITIONS



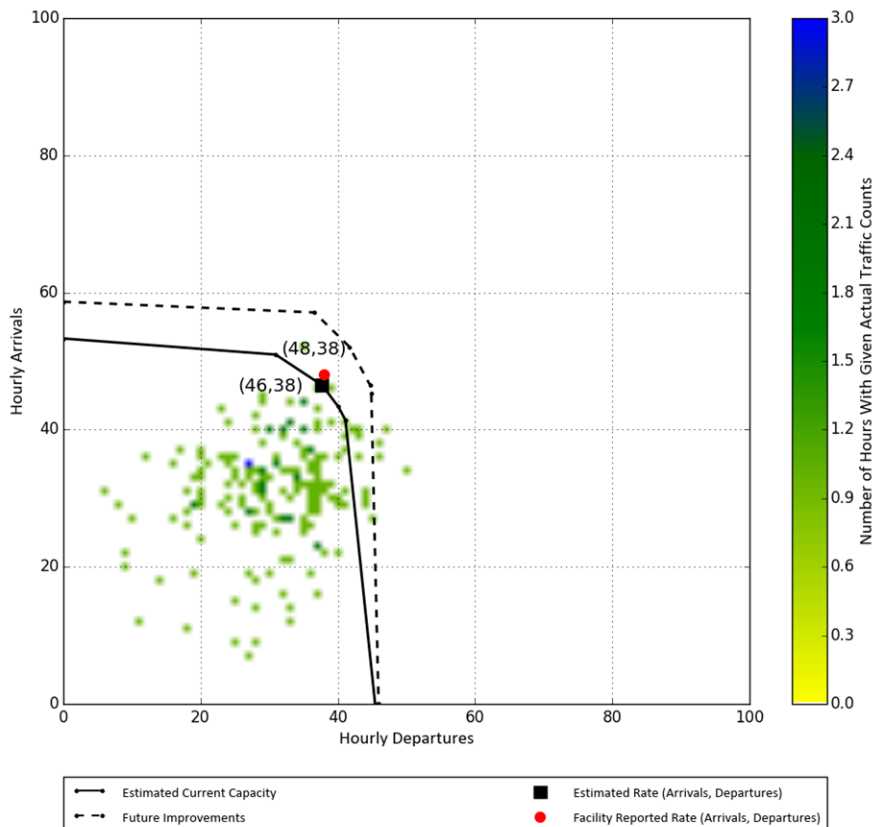
- Air traffic control at LAS refers to this operation as Configuration 3. The capacity range for Configuration 3 in Visual conditions is currently 118-127 operations per hour.
- This configuration is not LAS's most commonly used configuration. Prevailing winds, which typically occur in the winter time, must be favorable for LAS to use it. This configuration offers higher capacity due to the least restrictive departure headings, the ability to distribute arrival demand and controller workload evenly, and the lack of a physical intersection.
- The airport operated in variations of Configuration 3 approximately 13% of the time in Visual weather conditions, or 13% in all weather conditions.
- Military airspace, high terrain, and proximity to other airports reduce arrival and departure flows at LAS.
- Departures on Runway 1L are limited to aircraft that meet weight requirements.

MARGINAL – CONFIGURATION 1

McCARRAN INTERNATIONAL (LAS VEGAS)

LAS Scenario	Arrival Runways	Departure Runways	Procedures	Hourly Rate	
				ATC Facility Reported	Model-Estimated
CURRENT OPERATIONS	19R, 25L	19L, 25R	Instrument Approach, Visual Separation	86	84
FUTURE IMPROVEMENTS Improved Runway Delivery Accuracy Wake Recategorization Phase 1	19R, 25L	19L, 25R		N/A	94

MARGINAL WEATHER CONDITIONS



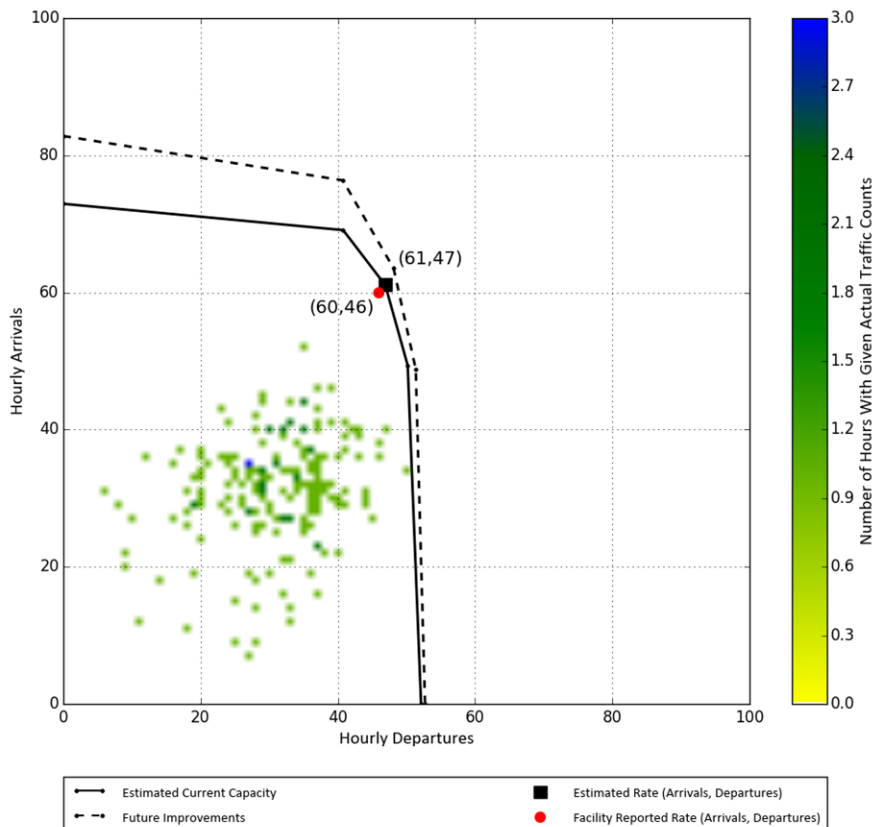
- Air traffic control at LAS refers to this operation as Configuration 1. The capacity range for Configuration 1 in Marginal conditions is currently 84-86 operations per hour.
- This configuration is LAS's most commonly used configuration. Configuration 1 does not offer the highest capacity due to high terrain to the west and an uphill departure off runway 25R, but prevailing winds favor it.
- The airport operated in variations of Configuration 1 approximately 54% of the time in Marginal weather conditions (which total to less than 1% annually), or 56% in all weather conditions
- As of August 2012, the airport has been using an Arrival-Departure Window to facilitate Converging Runway Operations with this configuration.
- Military airspace, high terrain, and proximity to other airports reduce arrival and departure flows at LAS. Most departures from Runways 19L and 25R use the same departure fix which limits departure capacity. Runway 25R is favored during the heat as aircraft performance limits use of Runway 19L.

MARGINAL – CONFIGURATION 3

McCARRAN INTERNATIONAL (LAS VEGAS)

LAS Scenario	Arrival Runways	Departure Runways	Procedures	Hourly Rate	
				ATC Facility Reported	Model-Estimated
CURRENT OPERATIONS	1L, 25L	1L, 1R	Instrument Approach, Visual Separation	106	108
FUTURE IMPROVEMENTS Improved Runway Delivery Accuracy Wake Recategorization Phase 1	1L, 25L	1L, 1R		N/A	112

MARGINAL WEATHER CONDITIONS



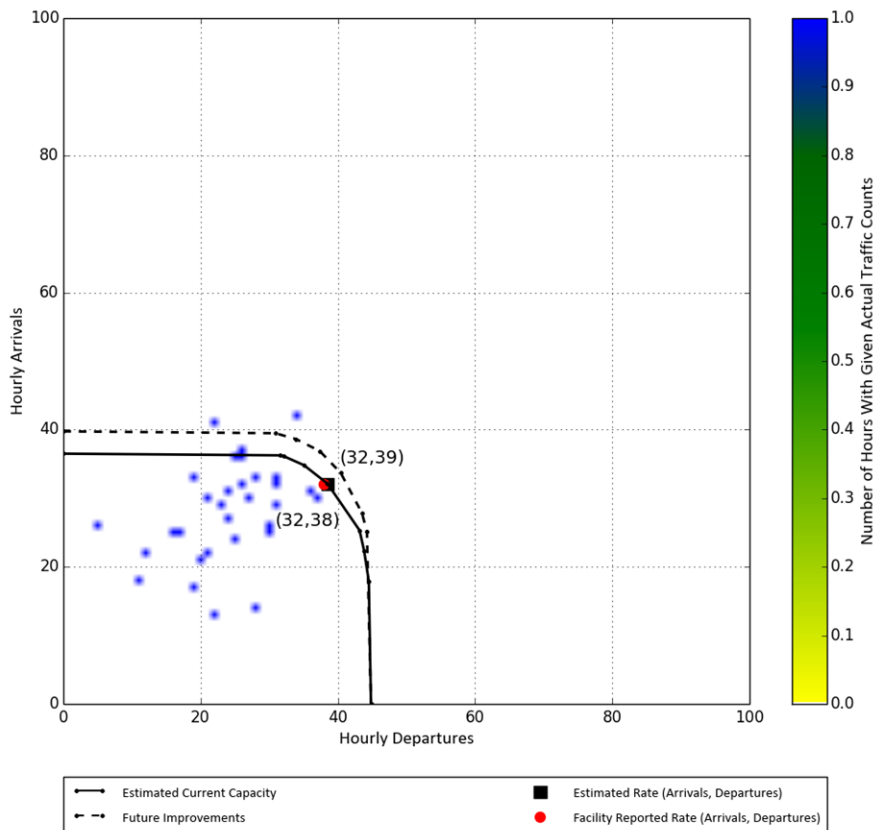
- Air traffic control at LAS refers to this operation as Configuration 3. The capacity range for Configuration 3 in Marginal conditions is currently 106-108 operations per hour.
- The airport operated in variations of this configuration approximately 38% of the time in Marginal weather conditions (which total to less than 1% annually), or 13% in all weather conditions.
- Military airspace, high terrain, and proximity to other airports, reduce arrival and departure flows at LAS.
- Departures on Runway 1L are limited to aircraft that meet weight requirements.
- Reduced separation (2.5 NM) between arrivals is authorized for approaches to Runway 25L at LAS.
- One factor in this configuration is the tower's ability to see aircraft at the procedural intersections between the 1s and the 25s, otherwise this configuration will not be used.

INSTRUMENT – CONFIGURATION 1

McCARRAN INTERNATIONAL (LAS VEGAS)

LAS Scenario	Arrival Runways	Departure Runways	Procedures	Hourly Rate	
				ATC Facility Reported	Model-Estimated
CURRENT OPERATIONS	25L	19L, 25R	Instrument Approach, Radar Separation	70	71
FUTURE IMPROVEMENTS Improved Runway Delivery Accuracy Wake Recategorization Phase 1	25L	19L, 25R	Instrument Approach, Radar Separation	N/A	74

INSTRUMENT WEATHER CONDITIONS



- The capacity range in Instrument conditions is currently 70-71 operations per hour.
- This configuration is LAS's most commonly used configuration. Configuration 1 does not offer the highest capacity due to high terrain to the west and an uphill departure off runway 25R, but prevailing winds favor it.
- The airport operated in variations of Configuration 1 approximately 50% of the time in Instrument weather conditions (which total to less than 1% annually), or 56% in all weather conditions.
- Military airspace, high terrain, and proximity to other airports reduce arrival and departure flows at LAS. Most departures from Runways 19L and 25R use the same departure fix which limits departure capacity. Runway 25R is favored during the heat as aircraft performance limits use of Runway 19L.