La Guardia Airport

Background:

- LaGuardia is one of three major airports serving New York City, United States.
- LaGuardia is the smallest of the New York area's three primary commercial airports
- LaGuardia is popular due to its central location and proximity to Manhattan.
- Named after a former Mayor of New York, Fiorello LaGuardia.
- In 1960, it was voted the "greatest airport in the world" by the worldwide aviation community.
- LaGuardia is the smallest of the New York area's three primary commercial airports
- The airport serves as a focus city for Delta Air Lines, American Airlines, and US Airways.
- Aircraft servicing la Guardia are mostly Regional Jets (30 – 80 seats), and Single-aisle, narrow-body jets (90 seats – 200 seats. The only scheduled wide-body service is one of Delta's many Atlanta flights aboard a Boeing 767-300.
- Most flights from LaGuardia go to destinations within the US and Canada, with seasonal flight service to Aruba, the Bahamas and Bermuda.
- A perimeter rule prohibits incoming and outgoing flights that exceed 1,500 miles (2,400 km)—except on Saturdays, when the ban is lifted, and to Denver, which was grandfathered in — so most transcontinental and international flights use the area's other two major airports, JFK and Newark.[1]
- In 2005 the airport handled 26 million passengers (JFK handled about 41 million and Newark handled about 33 million).
- There are over 9,000 people employed at the airport.
- LGA contributes $6.1 billion in economic activity to the NY/NJ metropolitan region, generating more than 63,000 jobs and $2.1 billion in annual wages

Operations:

- La Guardia operates two runways a north-south and an east-west runway.
- These runways were designed and constructed to match the direction of the prevailing seasonal winds. Only one runway was used at a time, mixing departures with arrivals.
- Due to the increased demand for travel to La Guardia nowdays, both runways are used simultaneously, one for departures and the other for arrivals (see video). To facilitate this operation, it is occasionally required for pilots to land with a cross-wind. This requires the pilots to "crab" the aircraft to the runway and change course at the last minute as the aircraft lands
- In 2005, La Guardi handled 406,618 arrivals and departures

In the video:

- the arrivals are from the north, landing towards the south on the north-south runway.
- the departures are from the west, taking off to the east on the east-west runway.
- to maximize use of the runways, as the landing aircraft crosses the intersection of the 2 runways, the departing aircraft is cleared for takeoff
- taxiways are also a problem, optimal strategies are used to flow aircraft leaving the gate to the departure end of the east-west runway. Note how the aircraft have to wait for the arriving aircraft to pass on the arrival runway before crossing over the runway to get to the departure queue
- one of the problems the air traffic controllers face is keeping the "inventory" of departing aircraft up, so that there is always an aircraft waiting to depart. This way the runways are fully utilized and there are no wasted slots