

Asian Breeze (45)

(亜細亜の風)

Happy Spring to you

6 April, 2016

Dear Coordinators and Facilitators in the Asia/Pacific region. A long waited spring has finally come to Tokyo with a full bloom of “Sakura” or Cherry Blossom. The peak of Sakura was last weekend, but it will last till the end of this week in Tokyo. Sakura front line is going up to northern part of Japan. The full bloom is expected around 18-25 April in Aomori, the northern most of Honshu. In Sapporo, Hokkaido, the northern most island of Japan, the full bloom is expected around 1-5 May. If you want to appreciate “Sakura” bloom, you can still make it by visiting northern Japan.

As a new start of fiscal year of 2016, I received a wonderful contribution from Mr. Brian Meehan, FAA featuring JFK International Airport (JFK) and Newark Liberty International Airport (EWR). Both are the most congested airports in the USA and registered as Level 3 airport. I hope you will find it interesting and informative.



Federal Aviation Administration (FAA)

The Federal Aviation Administration (FAA) is the national aviation authority of the United States. As an agency of the United States Department of Transportation, it has authority to regulate and oversee all aspects of American civil aviation. The FAA is currently providing the slot allocation services for JFK and Newark Liberty International Airport (EWR) as Level 3 airport. Beginning on October 30, 2016, the FAA will designate EWR as a Level 2, schedule-facilitated airport under the IATA Worldwide Slot Guidelines (WSG).

John F. Kennedy International Airport (JFK)

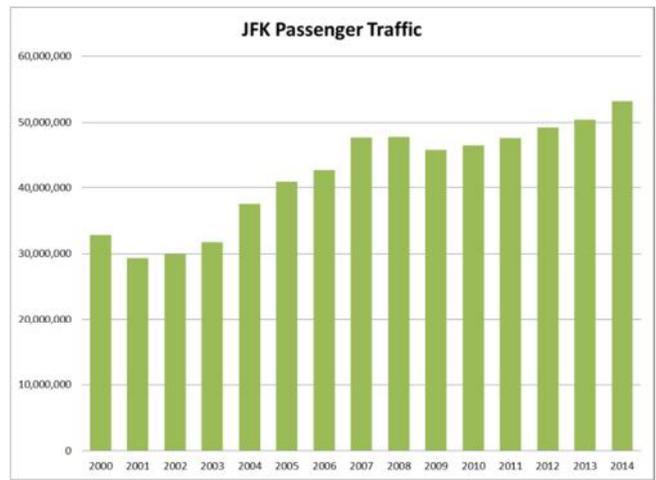
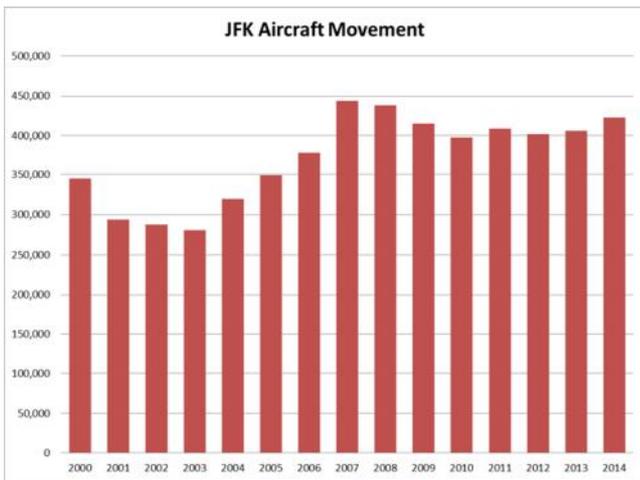
John F. Kennedy International Airport (IATA: JFK, ICAO: KJFK) is a major international airport located in Queens, New York City, United States, 20 km southeast of Lower Manhattan. It is the busiest international air passenger gateway in the United States, handling 53,254,533 passengers in 2014. Over seventy airlines operate out of the airport, with non-stop or direct flights to destinations in all six inhabited continents. The airport features six passenger terminals, four runways, and serves as a hub for American Airlines, Delta Air Lines, and is the primary operating base for JetBlue Airways.

Air Transport Statistics

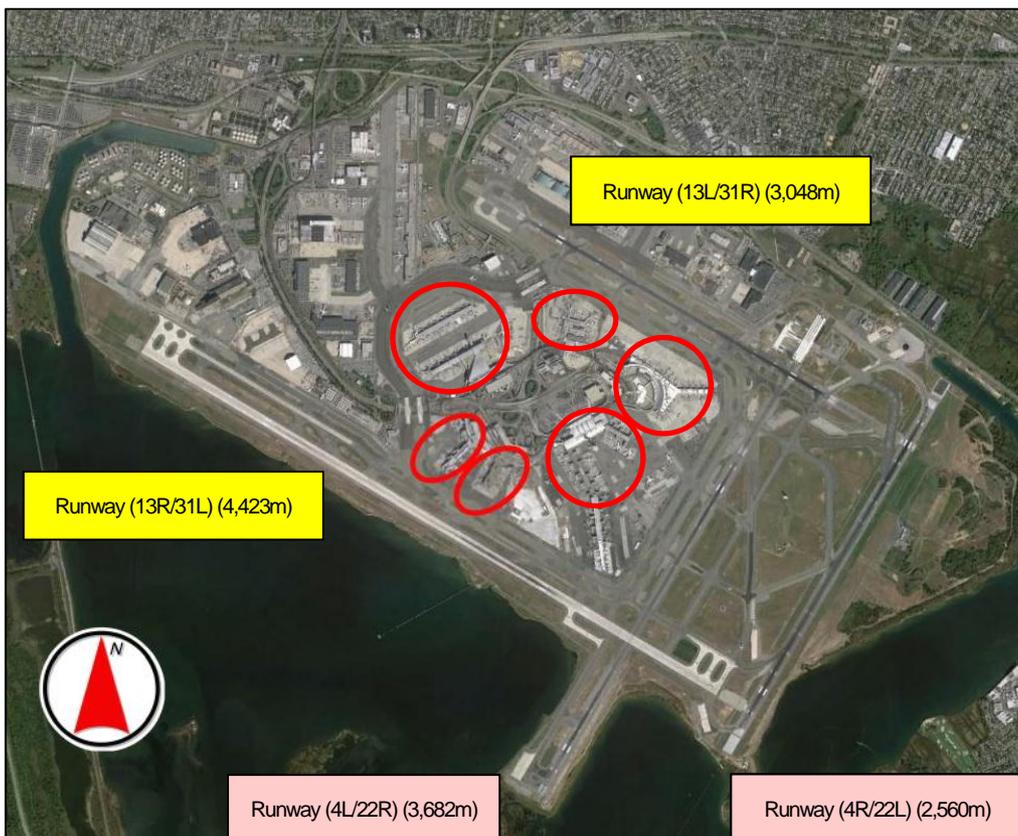
The aircraft movement and passenger traffic are shown below. While there was a sharp decline in 2001 when the September 11 attacks took place, the air traffic is growing steadily.

Year	2000	2001	2002	2003	2004	2005	2006	2007
Aircraft Movement	345,311	294,026	287,699	280,302	320,013	349,518	378,410	443,752
Passenger Traffic	32,827,864	29,350,052	29,939,212	31,732,446	37,517,496	40,884,350	42,629,407	47,716,941

Year	2008	2009	2010	2011	2012	2013	2014
Aircraft Movement	438,391	414,928	397,633	408,913	401,680	406,181	422,415
Passenger Traffic	47,807,475	45,915,069	46,514,154	47,683,529	49,292,733	50,423,765	53,254,533



Airport Infrastructure



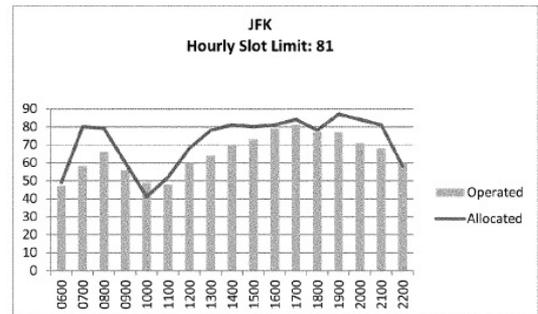
JFK spans over 21 square kilometers. There are four runways (two pairs of parallel runways) surrounding the airport's central terminal area. The main open parallel runways are 4,423m (13R/31L) and 3,048m (13L/31R). The close parallel runways for cross wind operations are 3,682m (4L/22R) and 2,560m (4R/22L).

The reconstruction and rehabilitation of Runway (4L/22R) was completed in 2015 which included installing high-speed taxiways. The completion of high-speed taxiways, in addition to the runway renovations finished in 2015, allows aircraft landing at JFK the ability to exit the runway faster. This will allow the FAA to utilize the airfield more efficiently to reduce delays.

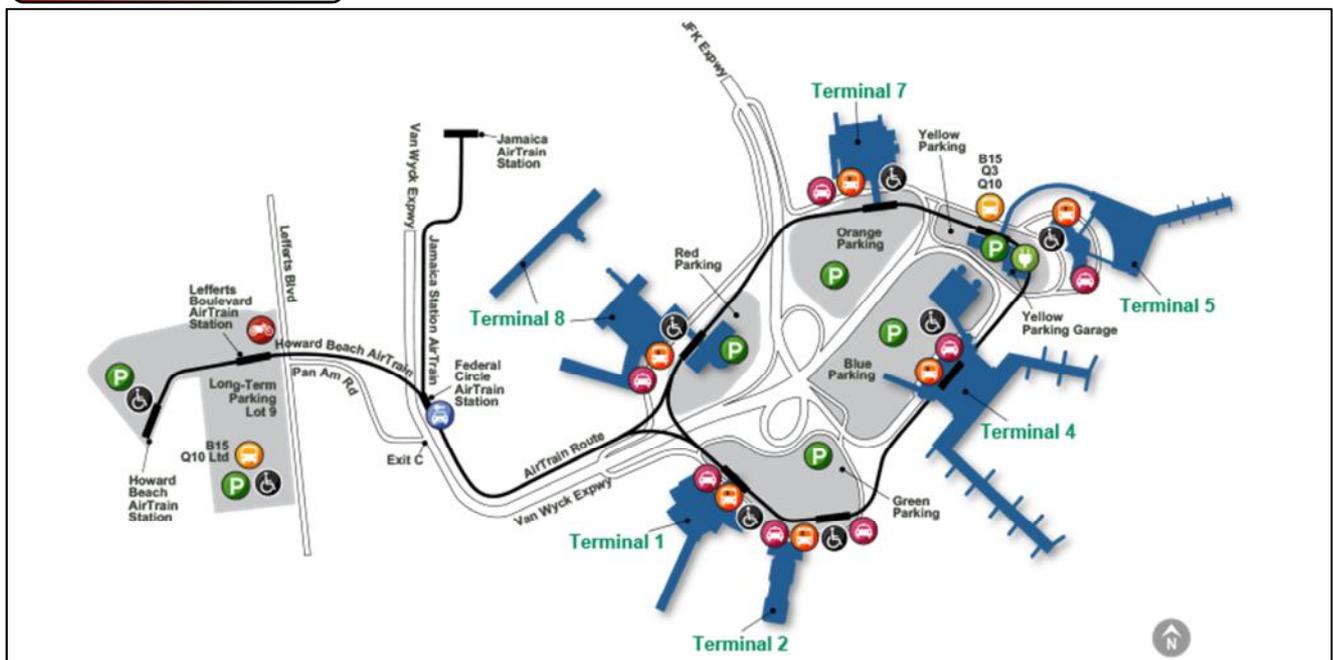
Airport Constraints

There is one airport constraint at JFK which is hourly slot limit. The maximum of 81 per hour is allowed in any 60 minute period from 0600 to 2259 in Eastern Time.

The right hand graph shows the comparison of allocated slots and average actual operations for JFK in August 2012.



Passenger Terminal



JFK has six terminals, containing 128 gates, numbered 1 - 8 but skipping terminals 3 (demolished in 2013) and 6 (demolished in 2011).

The terminal buildings are arranged in a deformed U-shaped wavy pattern around a central area containing parking, a power plant and other airport facilities. The terminals are connected by the AirTrain system and access roads. Most inter-terminal connections require passengers to exit security, then walk, use a shuttle-bus or using the AirTrain system to get to the other terminal, then re-clear security. Until the early 1990s, each terminal was

known by the primary airline that served it, except for Terminal 4, which was known as the International Arrivals Building. In the early 1990s, all of the terminals were given numbers except for the Tower Air terminal, which sat outside the Central Terminals area and was not numbered.

Like in the other airports controlled by the Port Authority, terminals are sometimes managed and maintained by independent terminal operators. At JFK, all terminals are currently managed by airlines or consortiums of the airlines serving them, with the exception of the Schiphol Group-operated Terminal 4. All terminals except Terminal 2 can handle international arrivals that are not pre-cleared.

Terminal 1

Terminal 1 was opened in 1998, 50 years after the opening of JFK, at the direction of the Terminal One Group, a consortium of four key operating carriers: Air France, Japan Airlines, Korean Air and Lufthansa. This partnership was founded after the four airlines reached agreement that the then-existing international carrier facilities were inadequate for their needs. Mostly European and some Asian carriers land at Terminal 1, such as Alitalia, Austrian Airlines, Norwegian Air Shuttle and Saudi. Terminal 1, along with Terminal 4, is one of two terminals at JFK Airport that has the capability to handle the Airbus A380 aircraft, which are flown by Air France on the route from Paris Charles De Gaulle, Lufthansa on the route from Frankfurt Airport and Korean Air on the route from Seoul-Incheon. Air France operated Concorde here until 2003. Terminal 1 has 11 gates.



Terminal 2

Terminal 2 opened in 1962 as the home of Northeast Airlines, Braniff and Northwest Airlines, and is now exclusively used and operated by Delta Air Lines. After the demise of Northeast Airlines and Braniff, the building was taken over by Pan American World Airways and subsequently by Delta. Since the opening of the Terminal 4 addition in May 2013, Terminal 2 has been designated as the "C" gates by Delta and has 7 Jetway-equipped gates (C60-C63, C67-C70) and 17 stands for Delta Connection carriers (C64A-H, C64J, C66K-N, C66P-S).

Terminal 4

Terminal 4 was developed by LCOR, Inc and is managed by JFK International Air Terminal (IAT) LLC, a subsidiary of the Schiphol Group. This terminal serves as a major international hub for Delta Air Lines and was the first one in the United States to be managed by a foreign airport operator. It also serves as the main terminal for mostly Asian (including all the Middle Eastern carriers except Saudi and Qatar Airways) airlines, and some African and European airlines. Terminal 4 is the major gateway for international arrivals at JFK. Opened in 2001

and designed by Skidmore, Owings and Merrill, the 140,000 m² building was built at a cost of \$1.4 billion and replaced JFK's old International Arrivals Building or simply IAB, which opened in 1957. The terminal was expanded in the late 2000s and early 2010s. The first phase of Delta's \$1.4 billion project at the airport which includes nine new international gates, additional baggage space, a centralized security checkpoint (moving two checkpoints into one location just after check-in), and customs and border-security facilities was completed on May 24, 2013. Terminal 4 also serves many international airlines daily, including few Skyteam airlines and the majority of Star and non-aligned airlines.]

Terminal 4 has 38 gates in two concourses: A2 - A7, B18, B22 - B55 with the exclusion of B40, B50 and B52. As of 2013, Delta and the Port Authority of New York and New Jersey agreed to an additional \$175 million phase II expansion, which allowed Delta to construct 11 regional jet gates at Terminal 4, as well. The agreement allowed Delta to eliminate a proposed physical connection it has previously planned to build with its existing Terminal 2 and instead close T2 eventually. The work on the Delta hub has completed as of January 2015, with funding primarily from \$900 million in special-project bonds. Delta sought funding for the regional jet expansion from the New York City Industrial Development Agency.



As Terminal 4 was built during the construction of the AirTrain, the AirTrain station was built inside the terminal building. Other AirTrain stations are built across from terminal buildings. Delta Air Lines has also moved much of its operations to T4, as it expands operations beyond T2, with T3 now closed. Concourse A serves as the stopping location for Asian and some European airlines, whereas Concourse B is made up of Delta flights, and a number of Asian and some European airlines.

Like Terminal 1, it is Airbus A380-compatible and Asiana Airlines (to Seoul), Emirates (to Dubai and Dubai via Milan), Etihad Airways (to Abu Dhabi) and Singapore Airlines (to Singapore via Frankfurt) currently use Terminal 4 for their Airbus A380s. A variety of other airlines from across the globe as well as SkyTeam and Star Alliance utilize the terminal as well.

Terminal 5

Terminal 5 opened in 2008 for JetBlue Airways, the manager and primary (then only) tenant of the building and serves as the base of their large JFK hub. This particular terminal handles (except for Aer Lingus flights to Ireland) exclusively North American regional flights - American domestic flights, Caribbean flights and Hawaiian Airlines flights to Honolulu, Hawaii. It sits behind the preserved Eero Saarinen-designed



terminal originally known as the TWA Flight Center, which is now connected to the new structure and is considered part of Terminal 5. Currently closed for refurbishment, the Saarinen building is planned to reopen in 2018 as a hotel. The active Terminal 5 building (including the international arrivals section named T5i) has 29 gates (26 until November 2014): 1 - 12 and 14 - 30 (with gates 25-30 handling international flights that are not precleared; gates 28-30 opened in November 2014). The terminal is also used by Hawaiian Airlines, which partnered with JetBlue and began service in Terminal 5 in June 2012, and Irish flag carrier Aer Lingus, whose flights arriving into JFK have already been pre-cleared in Ireland. Aer Lingus previously used Terminal 4 prior to the introduction of preclearance in Ireland, moving to Terminal 5 on April 3, 2013. On November 12, 2014, JetBlue opened the International Arrivals Concourse (T5i) at the terminal. Airspace Lounge opened an airport lounge near Gate 24 in July 2013 and Aer Lingus opened an airport lounge in 2015.

Terminal 7

Terminal 7 was built for BOAC and Air Canada in 1970. Currently operated by British Airways, it is also the only airport terminal operated by a foreign carrier on US soil, although Terminal 1 is operated by a consortium of foreign carriers serving the building. A handful of Oneworld alliance carriers operate out of Terminal 7 at this time, including IAG carriers British Airways and Iberia, Cathay Pacific and Qantas. Other airlines operating out of Terminal 7 include Star Alliance carriers ANA, Air Canada Jazz, as well as Aerolíneas Argentinas, Icelandair and Ukraine International Airlines.

Between 1989 and 1991, the terminal was renovated and expanded at a cost of \$120 million. In 1997, the Port Authority approved British Airways' plans to renovate and expand the terminal. The \$251 million project was designed by Corgan Associates and was completed in 2003. The renovated terminal has 12 gates. In 2008, British Airways unveiled a \$30 million, 18-month-long project to enhance its premium ground facilities at the terminal.

British Airways is currently evaluating the future of Terminal 7, as its lease with the Port Authority ended in 2015. After the alliance between BA/Iberia and American Airlines was finalized in 2010, American began talks to move BA and Iberia into an expanded Terminal 8. BA temporarily moved one of its flights to Terminal 8 in March 2013 due to ongoing renovation work in Terminal 7. United Airlines was a major operator out of Terminal 7 until operations from JFK were discontinued on October 24, 2015.



Terminal 8

In 1999, American Airlines began an eight-year program to build the largest passenger terminal at JFK to replace

both Terminal 8 and Terminal 9. The new terminal was built in four phases, which involved the construction of a new midfield concourse and demolition of old Terminals 8 and 9. It was opened in stages between 2005 and its "official" opening in August 2007. It is a major Oneworld hub and American Airlines is the main Oneworld carrier at Terminal 8. American Airlines is the largest carrier in and manager of the terminal and is the third largest carrier at JFK. Some Oneworld airlines that operate out of Terminal 8 include Air Berlin, Finnair, and LAN Airlines. Qatar Airways, Royal Jordanian Airlines, and TAM Airlines also operate out of Terminal 8. Alaska Airlines, another airline partner with American Airlines also operates out of Terminal 8.

The terminal is twice the size of Madison Square Garden. It offers dozens of retail and food outlets, 84 ticket counters, 44 self-service kiosks, 10 security checkpoint lanes and a U.S. Customs and Border Protection facility that can process more than 1,600 people an hour. Terminal 8 has an annual capacity of 12.8M passengers.



Terminal 8 has 29 gates: 12 gates in Concourse B (1 - 8, 10, 12, 14 and 16) and 17 gates in Concourse C (31 - 47). Gate 31 is further subdivided into 5 regional service gates for small jets, 31A - 31E. Gate 32 is subdivided into 4 regional service gates for small jets, 32F - 32I. The total number of jetbridges is, therefore, 36. Passenger access to Concourse C is by an underground tunnel which includes moving walkways.

Newark Liberty International Airport (EWR)

Newark Liberty International Airport (IATA: EWR, ICAO: KEWR) is an international airport which straddles the municipal boundary between Newark and Elizabeth, New Jersey in the United States. The airport is owned by the city of Newark and leased to and operated by the Port Authority of New York and New Jersey. The airport is about 24 km southwest of Midtown Manhattan (New York City). Newark Airport was the first major airport in the United States and through 2013 was the New York-New Jersey metropolitan area's busiest in terms of flights.

The airports in the New York metropolitan area combine to create the largest airport system in the United States, the second-largest in the world in terms of passenger traffic and largest in the world in terms of total flight operations. In 2014 Newark Airport handled 35.6 million passengers, JFK handled 53.3 million and LaGuardia handled 27 million.

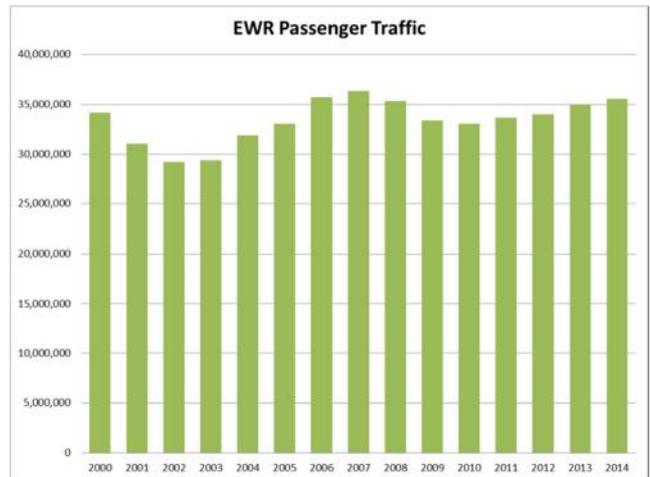
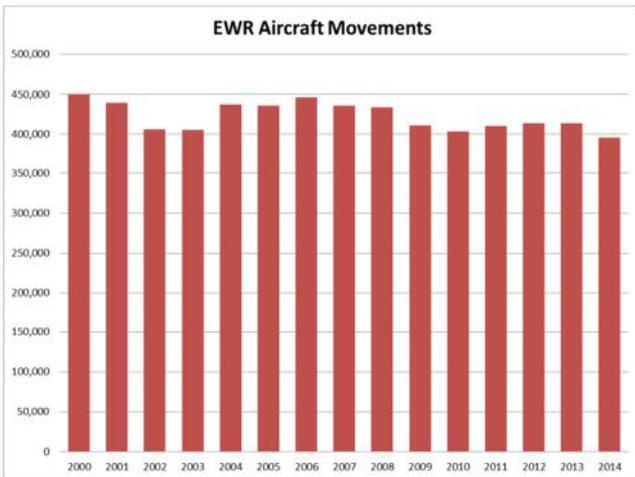
Newark serves 50 carriers and is the third-largest hub for United Airlines (after Chicago-O'Hare and Houston-Intercontinental), which is the airport's largest tenant (operating within all of Terminal C and part of Terminal A). Newark's second-largest tenant is FedEx Express, whose third-largest cargo hub uses three buildings on two million square feet of airport property. During the 12-month period ending in July 2014, over 68% of all passengers at the airport were carried by United Airlines.

Air Transport Statistics

The aircraft movement and passenger traffic are shown below. They have a stable record of neither decrease nor increase.

Year	2000	2001	2002	2003	2004	2005	2006	2007
Aircraft Movements	450,289	439,275	405,816	405,734	437,446	436,244	446,166	435,931
Passenger Traffic	34,188,701	31,100,491	29,220,775	29,428,899	31,893,372	33,078,473	35,764,910	36,367,240

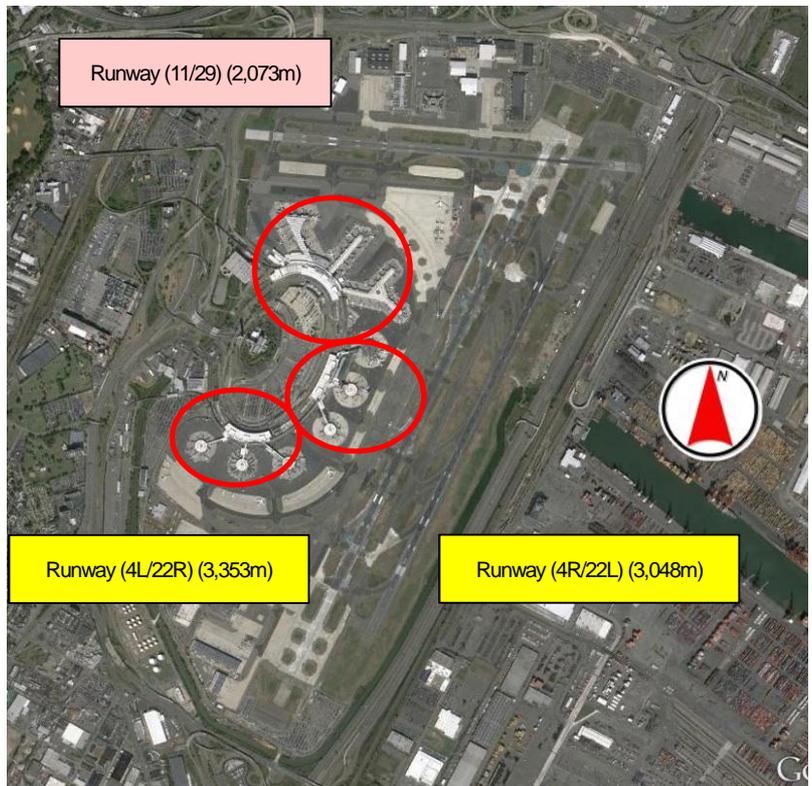
Year	2008	2009	2010	2011	2012	2013	2014
Aircraft Movements	434,054	411,176	403,429	410,013	414,061	413,744	395,525
Passenger Traffic	35,366,359	33,424,110	33,107,041	33,711,372	34,014,027	35,016,236	35,610,759



Airport Infrastructure

Newark Liberty International Airport covers 820 ha and has three runways and one helipad.

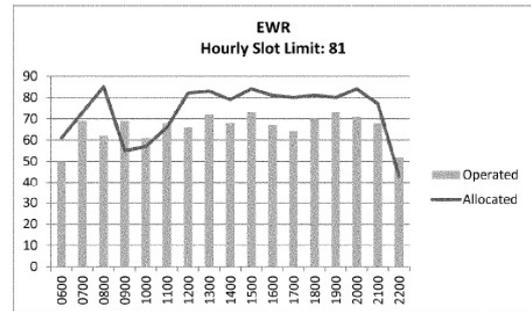
The main close parallel runways are 3,353m (4L/22R) and 3,048m (4R/22L). The cross wind runway is 2,073m (11/29).



Airport Constraints

There is one airport constraint at EWR which is hourly slot limit. The maximum of 81 per hour is allowed in any 60 minute period from 0600 to 2259 in Eastern Time.

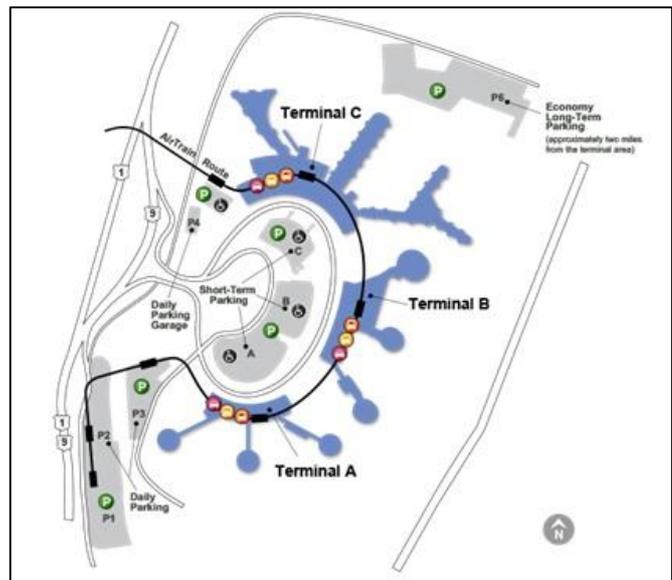
The right hand graph shows the comparison of allocated slots and average actual operations for EWR in August 2012.



Passenger Terminal

Newark Liberty International Airport has three passenger terminals. Terminal A handles all non-United domestic, Canadian and some United Express (i.e. ultra-short haul flights) flights; Terminal B exclusively handles foreign carriers and the short-haul Delta Connection flights, and Terminal C is exclusively for United Airlines and its short haul carrier United Express.

Each terminal has three concourses: Terminal A, for instance, is divided into concourses A1, A2 and A3. Gate numbering starts in Terminal A with Gate A10 and ends in Terminal C with Gate C139. Wayfinding signage throughout the terminals was designed by Paul Mijksenaar, who also designed signage for LaGuardia and JFK Airports.



Terminal A

Terminal A and Terminal B were completed in 1973 and have four levels. Ticket counters are on the top floor, except for the second-floor Air India and first-floor British Airways desks in Terminal B. Gates and shops are on the third floor. Baggage carousels (both A and B) are on the second floor and Terminal B has an international arrivals lounge on that floor too. Finally, short-term parking and ramp operations (restricted areas) are on the ground floor.

Following the business model of the Port Authority's other facilities, in some cases entire terminals are operated by terminal operators and not by the Port Authority directly. At Newark Liberty, Terminal A and Terminal C are operated by United Airlines. Terminal B is the only passenger terminal directly operated by the Port Authority.



Terminal A is the only terminal having no immigration facilities: flights arriving from other countries cannot use Terminal A (except countries with US customs preclearance), although some departing international flights use the terminal.

Plans are in place to expand Terminal A by adding a new parking garage and radically expanding the size of the first concourse to add new gates, ticketing, baggage and security areas.

Terminal B

In 2008, Terminal B was renovated to increase capacity for departing passengers and passenger comfort. The renovations included expanding and updating the ticketing areas, building a new departure level for domestic flights and building a new arrivals hall.

In January 2012, Port Authority executive director Patrick Foye said \$350 million would be spent on Terminal B, addressing complaints by passengers that they cannot move freely. That renovation is currently underway. Foye also said a new Terminal A may be built.



Further developments were made in Terminal B when the Port Authority installed new LED fixtures in 2014. The LED fixtures developed by Sensity Systems, use wireless network capabilities to collect and feed data into the software that can spot long lines, recognize license plates as well as identify suspicious activity and alert the appropriate staff.

Terminal C

Terminal C, designed by Grad Associates and completed in 1988, has two ticketing levels, one for international check-in and one for domestic check-in. The main terminal building for Terminal C was built alongside Terminals A and B in the 1970s, but lay dormant until People Express Airlines took it over as a replacement for the former North Terminal when the airline's hub there outgrew the old facility. Upon opening, Terminal C had 41 gates, originally with one departures level, one arrivals level and an underground parking garage. The gates, as well as food and shopping outlets, are located on a mezzanine level between the two check-in floors.

From 1998 to 2003, Terminal C was rebuilt and expanded in a \$1.2 billion program known as the Continental Airlines Global Gateway Project. The project, which was designed by Skidmore, Owings & Merrill, doubled the available space for outbound travelers as the former baggage claim/arrivals hall was remodeled and turned into a second departures level. Probably most significant was



the addition of International Concourse C-3, a spacious and airy new facility with capacity for a maximum of 19 narrow-body aircraft (or 12 wide-body planes). Completion of this new concourse brought Terminal C's total number of mainline jet gates to 57. Concomitant with Concourse C-3 is a new international arrivals facility. Also included in the project: a 3,400-space parking garage constructed in front of the terminal, a new airside corridor connecting Concourses C-1, C-2 and C-3, a new President's Club (now called United Club) lounge between C-2 and C-3, and all-new baggage processing facilities, including reconstruction of the former underground parking area into a new baggage claim and arrivals hall.

Introduction of computer system

In addition to software developed in-house, the FAA uses the "Air Cord" system. AirCord is a slot allocation and slot monitoring system provided by AirSched Solutions, a Swiss-based SaaS and Custom Software company. AirCord is fully compliant with SSIM chapter 6 requirements, automatically imports and exports all message types, analyzes operational data, and evaluates airport limitations. AirCord is part of the wider AirSched platform which provides tools for gate planning, scheduling and schedule analysis, operations control, and commercial planning.

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From the Chief Editor

I would like to express my sincere appreciation to Mr. Brian Meehan for an excellent contribution to Asian Breeze. Although there are so many large airports with heavy traffic in USA, Level 3 airport is only JFK and EWR. With the designation of EWR as Level 2 effective for W16, JFK will be the only Level 3 airport in USA. It is amazing!

This is because the airport capacity (number of runways and parking spots, terminal capacity) is so large and adequate to accommodate the airlines' needs.



Having finished this issue, I should go to “花見” or flower viewing with “弁当” or box lunch. There are so many places in Tokyo to appreciate Sakura bloom. Flower viewing at night time is also very popular. You should come to Japan to enjoy Sakura season. (H.T.)

