La Guardia Airport: an Analysis of Airport Expansion and Accessibility

1.231

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12/10/2013
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1. Introduction

LaGuardia International Airport (LGA) is one of three major airports that service the metro New York area along with Newark and JFK. LaGuardia is operated by the Port Authority of New York & New Jersey (PANYNJ). Located just 8 miles from Manhattan, the airport has become the 21st busiest airport in the U.S. handling more than 25 million passengers in 2012. LaGuardia, however, is extremely constrained both on the landside and airside. Its 680 acres are sandwiched between Flushing Bay and the Grand Central Parkway, and there is little to no opportunity for property expansion. LaGuardia’s two runways 4-22 and 13-31, both measuring 7,000ft, are the shortest of any major U.S. airport. On the landside, the airport has a Central Terminal Building (Terminal B), and three smaller terminals A, C, and D. The nearly 50 year old Central Terminal Building (CTB) is severely congested and has operated well above its capacity for years. Currently, there are no rail or subway lines that connect to LaGuardia, which combined with roadway congestion both at the airport and leading to the airport, makes LaGuardia not very accessible despite its close proximity to Manhattan. With a forecast of 34 million passengers by 2030, LaGuardia Airport must act swiftly to relieve congestion and improve the current and future levels of service.

In this paper, I will attempt to evaluate the current state and future plans for LaGuardia airport. First it will give a brief history of the airport and then will describe how LaGuardia has evolved to where it is today. Next it will describe the current operating conditions on both the landside and airside. Then the paper will focus on describing the proposal for a new Central Terminal Building, and examining and evaluating its components. Subsequently the paper will discuss the current airport accessibility, and evaluate potential future plans. Finally this paper will conclude with a summary and some closing remarks.

2. History

On September 9, 1937, ground was broken by the City of New York for a new airport to serve New York that was closer than Newark Airport in New Jersey. The airport was completed on October 15, 1939, and was dedicated as New York City Municipal Airport. On November 2, just eighteen days later, the airport was renamed New York Municipal Airport-LaGuardia Field to honor New York City’s Mayor, Fiorello LaGuardia, who had been instrumental in the building of the airport. On December 2, 1939, the airport opened to commercial traffic. It soon became known simply as LaGuardia Airport. The airport’s original terminal, the Overseas Terminal serviced both airplanes on land and flying boats the adjacent bay.

The Port Authority of New York and New Jersey began operating LaGuardia Airport in 1947. Demand at the airport grew rapidly and was accelerated by the growth of the American commercial aviation industry in the 1940’s and 50’s. By the late 1940’s, LaGuardia was the busiest airport in the world. A new terminal, the Central Terminal
Building, was opened in 1964 at a cost of $36 million. The new terminal was 750,000 ft$^2$ and had a design capacity of 8 million annual air passengers.

LaGuardia continued its rapid growth and demand soon overtook the capacity of the Central Terminal Building. In October 1979, the PANYNJ approved a new 10 gate terminal for Delta at the east end of the airport, Terminal D, which opened in 1983.

The next airport expansion came in 1986 when PANYNJ announced a renovation plan for the CTB and expansion plans for a new terminal. The $335 million project included renovating and expanding the CTB to 835,000ft$^2$ and extending its baggage claim level 55 feet towards the parking garage, widening the departures roadway to six lanes from three, building a new 12-gate East End terminal (Terminal C), as well as additional roadway and access improvements. Throughout the 1990’s and early 2000’s the Port Authority spent $340 million on various additional renovations and cosmetic improvements to the CTB which have been completed in the years since.

3. Current Operations

3.1 Airside

LaGuardia Airport has two main runways, 4-22 and 13-31. Each is 7,000 feet long by 150 feet wide. In 1967, the Port Authority extended both runways over the East River to their present length and width. The runways have high-intensity runway edge lighting, centerline and taxiway exit lighting, and are grooved to improve skid resistance and minimize hydroplaning. Touch down zone lighting (TDZ) was added on Runway 13-31 in 2005 and on Runway 4-22 in 2009, both as part of the runways’ rehabilitation programs. The airfield is constrained by Flushing and Bowery Bays and there is no possibility of future runways expansion due to environmental and political factors.

Figure 1: An aerial view of Runways 13-31 and 4-22
The airport is controlled by a state-of-the-art 233 foot tall air traffic control tower that was commissioned by the Federal Aviation Administration (FAA) in October 2010. The new tower features the latest aviation technology, including a system that tracks the surface movement of aircraft and vehicles, enhancing safety and efficiency. The new tower replaced a tower that had served the airport since 1964.

Congestion and delay at LGA has been managed by the Port Authority and is constrained by the FAA. In an effort to deal with over scheduling and flight delays during peak hours of operation at JFK, LGA and EWR, the FAA published a series of documents to establish caps on operations (“slots”) at each airport, which restrict the number of scheduled operations per hour during peak hours. Currently the FAA has maintained a cap of 75 commercial aviation slots (arrivals and departures) per hour for certain hours, to regulate congestion at the airport. The caps on slots at LGA are in effect between the hours of 6:00 a.m. and 9:59 p.m. Monday through Friday and Noon to 9:59 p.m. on Sunday. The caps do not apply on Saturday. The cap does not include an allowance for 3 general aviation movements at the airport per hour. Throughout the slot creation process, the Port Authority has advised the FAA that, in its opinion, the best approach to address air traffic congestion and resultant delays is through increasing airspace capacity, better management of existing airspace capacity, and improved customer service.

The airport is further constrained at night in order to accommodate airfield construction and maintenance. LaGuardia closes fixed wing aircraft operations nightly from midnight to 6:00 a.m., between April and October each year. For this reason, and in consideration of the residential communities bordering LGA, there are no scheduled flights between midnight and 6:00 a.m. year-round. LGA also operates under a self-imposed “Perimeter Rule”, restricting Sunday through Friday nonstop flights to a distance within of 1,500 miles, and to and from Denver. This perimeter rule was initially created in 1984 to control overcrowding at the airport, and does not apply to general aviation operations.

In 2012, LaGuardia handled 369,989 movements and carried 25.7 million people. The aircraft mix was made up of 49.6% regional jets as a percentage of movements, and had no cargo freighter flights.

### 3.2 Terminals

Once called the Overseas Terminal, and then the Marine Air Terminal, Terminal A was the original airport terminal building serving international flights on flying boats through the 1940s. On September 1, 1986, PanAm began shuttle operations from six gates to Boston and Washington, D.C. The terminal is currently leased by Delta Air Lines, which currently operates shuttle services to Boston, Washington, D.C., and Chicago.
The central terminal building, Terminal B, opened in 1964. Modernized in the 1990’s, the terminal consists of a four-story central section, two three-story wings, and four concourses that can accommodate up to 35 aircraft gate positions. For several years the existing CTB has operated above its capacity, which has affected levels of service.

Figure 2: LaGuardia's Airport Layout

Terminal C, located east of the CTB was constructed in two parts, a 12-gate main section and an 8-gate shuttle section. The main section, which opened in 1992, features a food, retail, and concessions court and a Welcome Center on the arrivals level. In 2011, Delta Air Lines acquired the terminal lease from US Airways and added four gates.

Delta Air Lines constructed Terminal D at the east end of the airport. The terminal opened in June 1983 and has 10 aircraft gate positions.

<table>
<thead>
<tr>
<th>TERMINAL BUILDING</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central Terminal Building - B</td>
<td>12,919,450</td>
</tr>
<tr>
<td>Delta Terminal - D</td>
<td>5,779,740</td>
</tr>
<tr>
<td>Marine Air Terminal - A</td>
<td>990,230</td>
</tr>
<tr>
<td>US Airways Terminal - C</td>
<td>6,018,364</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>25,707,784</strong></td>
</tr>
</tbody>
</table>

Figure 3: 2012 LGA Passenger Distribution by Terminal
3.3 Landside

LaGuardia provides nearly 6,800 public parking spaces in seven parking lots. The inventory of parking spaces by Lot is shown in Figure 4. E-ZPass Plus is provided in all parking lots, and Express Pay machines are located in Lots P2, P4 and P5. Additionally, approximately 1,700 parking spaces are available for airport employees in Lot 10E.

<table>
<thead>
<tr>
<th>Lot</th>
<th>P1</th>
<th>P2</th>
<th>P3</th>
<th>P4</th>
<th>P5</th>
<th>P6</th>
<th>P7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spaces</td>
<td>430</td>
<td>2,700 (five-level garage)</td>
<td>920</td>
<td>1440</td>
<td>850</td>
<td>180</td>
<td>260</td>
</tr>
</tbody>
</table>

Figure 4: Parking Capacity at LGA

Currently the airport is accessible by car via the Grand Central Parkway, by cab, by hired car, and by select bus lines. The only bus line into Manhattan is the M60, and the Q33, Q47, Q48 and Q72 bus routes serve the borough of Queens. Bus service is often slowed by non-dedicated lanes, narrow streets, and long dwell times.
4. **CTB Expansion**

4.1 Need and Constraints

The existing CTB is functionally inefficient based on current passenger and industry standard categories. These inefficiencies will only be exacerbated as demand increases. In addition, nearly every component of the existing infrastructure serving the existing CTB and adjacent Terminals C and D are past their useful life and/or are undersized for current passenger demand.

The existing CTB suffers from severe spatial constraints. Today’s airline fleet of larger aircraft deliver passenger loads that are well in excess of the CTB’s original design, causing congestion throughout the concourses, circulation space, concessions, and rest rooms. The CTB has an insufficient amount of concessions options past security, and gate hold areas cannot accommodate future demand. Furthermore, the existing CTB does not provide the required floor space to meet Transportation Security Administration (TSA) standards for accommodating security personnel, screening processes, and equipment at passenger checkpoints and baggage areas. The CTB was designed for about eight million passengers per year when it opened in April 1964. Renovations and expansion projects over the years expanded that capacity to about 15 million per year, according to PANYNJ estimates in 1990. It handled 13 million passengers in 2006, but peaked at nearly 19 million in the late 1970’s and early 1980’s. The CTB building and LaGuardia airport in general is consistently rated as one of the worst airports in the U.S. in terms of passenger satisfaction according to JD Power and Associates and Zagat surveys.

![Figure 6: Snapshot of LGA’s Constrained CTB](image)
LaGuardia’s future is also severely constrained by other airport infrastructure. Some of the utilities systems date back to LaGuardia’s original 1939 Work Projects administration construction. These systems are at the end of their useful lives and currently require a significant investment to be maintained in a state of good repair. In addition, they are undersized and cannot adequately serve current and future airport demands. The existing CTB parking garage (P2), which was constructed in the 1970s, is approaching the end of its useful life. Further major investment in the garage will merely provide state of good repair. The inadequacies in the existing CTB extend to the Frontage Roads, where inherent capacity constraints and insufficient frontage length fail to meet industry design standards. As a result, these frontages are overly congested during peak periods and often cause passenger delays. The roadways create conflicts between pedestrians and vehicles, and there is insufficient curb frontage which impedes passenger pick-up and drop-off. Finally, The CTB’s aircraft ramp, which is constrained by the four concourses, inhibits the maneuverability of aircrafts. The CTB’s original design aircraft in the early 1960s, the DC-9, has been replaced with aircraft that are typically wider and longer. Width for taxilanes between the concourses and depth for aircraft parking positions limit availability for larger aircraft. As a result, aircraft are unable to power into position, requiring slower tow-in operations, there is insufficient space to start up engines independently of adjacent aircraft, and some gates require pushback onto taxiways. These ramp constraints also contribute to higher airline operating costs, including labor and fuel.
The Port Authority has been evaluating its options to redesign and rebuild the CTB for over 25 years. In 1986, then aviation director of the PANYNJ Robert Aaronson acknowledged that the Central Terminal Building is overcrowded and outmoded. Despite over $1 billion in various redevelopment and improvement projects at the airport, there has been little discernible improvement since Aaronson’s comment. Ideally the CTB would be torn to the ground and rebuilt, but this is not feasible. The improvements must come in stages, to allow the rest of the airport to operate at a maximum capacity while construction takes place. In 2000, the Port Authority completed a $17 million planning study for the development of LaGuardia Airport. In 2010 the Port Authority hired consultants to do another study of expansion options and from this study a series of proposals were made.

4.2 Forecast

In order to properly plan the expansion of the airport, a forecast of demand must be built, and assumptions made about things such as the aircraft mix, capacity constraints, and numerous other factors. Because of the amount of guesswork that goes into pinpointing forecasting models, they can never be trusted. With that being said, the Port Authority is responsible for making a best guess for demand under the conditions they predict will most likely exist. In the forecast of the Port Authority of New York and New Jersey, they project 34 million annual air passengers served to occur around 2030, and they expect 17.5 million of those passengers to travel on airlines out of the CTB. The current demand, for the year 2012, was 25.7 million passengers of which 13 million traveled on airlines out of the CTB. The Port Authority is assuming that there will be 8-10 airlines operating at LaGuardia, that the current 1,500 mi perimeter rule will remain in place, that LaGuardia will be slot constrained and the future schedule has no more than 75 scheduled operations per hour (plus 3 general aviation operations), that there are no freight aircraft in the aircraft mix, and that international destinations served have pre-clearance facilities. These assumptions are saying that capacity will remain the same for the next 20 years, and that they do not expect airport capacity to improve at all. The forecast has also made predictions about the mix of the fleet servicing LaGuardia. They are using in the forecast the assumption that aircraft types allocated in the flight schedule would be representative of a 2030 fleet, assuming the most current aircraft characteristics as a proxy for the type of aircraft that will operate in 2030. Further, they predict aircraft wingspans at LaGuardia will be limited to no larger than Aircraft Design Group (Group IV) and will represent 5% to 10% of the total fleet mix. In their forecast, the design aircraft for Group III is the B737-900W while the design aircraft for Group IV is the B767-400.

While most of their assumptions are reasonable, the claim that in 2030 the number of passengers in the CTB is 17.5 million is arbitrary. If the number of operations does not increase, then the only way the number of passengers can increase is if the size of the aircrafts at LaGuardia increase. Because of the perimeter rule, the aircraft mix at LaGuardia is highly skewed towards regional jets. We can see in Figure 8 that regional jets as a proportion of total movements increased rapidly in the early 2000’s before
slowing down and steadying around 45% in the late 2000’s. If we look at regional jets as a proportion of the total passengers handled in Figure 9 we see a very different trend. The proportion of LaGuardia passengers on regional jets has consistently risen from 7% in 1999 to 27% in 2012. If the proportion of passengers on regional jets is growing faster than the proportion of regional jet movements, that tells us that the regional jets are getting larger. This agrees with the current trend in the overall airline industry, a migration away from 50 seat regional jets to larger regional airplanes as well as airplanes such as the Boeing 737.

In order for passenger demand to increase by nearly 9 million passengers with capacity held constant, the number of seats per plane must increase dramatically. The Port Authority has identified a key feature of forecasts, a factor they did not consider strongly enough when they built the original CTB. When the Central Terminal Building was built, the airport planners designed for aircrafts of that time, the McDonnell

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Douglas DC-9, and immediate future, the DC-10. They were not able to project far enough into the future of aircraft design, and they paid the price for it. Because of the tight constraints on space at LaGuardia, this decision became exponentially more costly. Many of the inefficiencies of the airfield today are because the airfield is designed for the now little used DC-10.

In the proposal, the airport planners have understood that the airport should not be built for the current mix which is regional jet heavy, and have instead designed proposals that take into account the types of aircrafts that will come after regional jets.

### 4.3 Proposal Options

The Authority’s objectives for the New CTB include:

- A balanced terminal, airside and landside capacity to meet current and projected demand with optimal levels of service
- An enduring design that:
  - Is innovative and efficient
  - Can be easily adapted to changing needs and standards
  - Incorporates sustainable strategies with respect to energy efficiency and water conservation
- Enhanced efficiency of operations for terminal, airside, and roads
- Improved terminal amenities
- Fair and reasonable costs to tenant airlines
- A common use platform, meeting the operational requirements of the airlines and other stakeholders

The first option for redevelopment involved reusing the current CTB to fix many of its current problems, and increase its efficiency. This plan would reconstruct the Central Terminal Building in the same location with five short concourses. This plan would renovate the existing CTB parking garage and add an additional garage, and would also maximize the use of the existing roadway system. This proposed solution was rejected because it ultimately did not meet the purpose and need of the project. This terminal would have insufficient square footage, as well as not enough road frontages and would have traffic delays from at-grade pedestrian crossings. Further, on the airside, this design has insufficient airplane parking and aircraft taxilane area, as well as single taxiways which would cause delays. Ultimately, this design had the same problems as the current CTB and the benefit would not justify the investment.
The second proposed option involved an island terminal, with a midfield linear terminal much like what was constructed at Denver International Airport in 1995. This would require the building of a new terminal south of the existing CTB in the location of the current CTB parking garage. It would also require the building of a new concourse with a pedestrian bridge to connect it to the terminal. Finally, the current roadways and parking areas would have to be moved and rebuilt with direct access to the new CTB. While this design had its advantages, it was determined that this proposal would not meet the purpose and need of the CTB redevelopment project. The airfield site constraints limited aircraft fleet mix and flexibility for aircraft parking and aircraft taxilane areas. This layout also created conflict between aircraft and ground service equipment. Further, this plan had demanding engineering requirements and an inefficient terminal layout due to the site constraints. For these reasons, the island terminal proposal was rejected.

The third proposed plan included the building of a CTB south of the existing CTB with four concourses. This plan would not keep any of the old CTB and would also provide new roadways and parking with direct access to the CTB. This design provided the highest capacity and efficiency of aircraft parking and taxilane area. This terminal layout accommodates state-of-the-art passenger processing and future flexibility, as well as the shortest construction time and simplest phasing. This design provides enhanced terminal frontage and improves passenger and pedestrian experiences. For these reasons, it was determined that the concourse proposal meets the purpose and need and the Port Authority moved forward with this design plan.
4.4 Selected Proposal

Figure 11: Proposed New CTB

4.4.1 Terminal

The new CTB terminal will have 1.3 million ft\(^2\) of terminal space, 214 equivalent check-in positions (counters and kiosks), checked bag handling system with a centralized in-line baggage screening facility to current TSA specifications, 1,620 linear feet of baggage claim device presentation frontage, and two passenger Security Screening Check-Points (SSCP) with a total of 22 lanes, consistent with TSA specifications. The CTB will also have improved and expanded concessions, airline lounges, passenger amenities, operations and support space, enlarged gate hold areas, and secure circulation and bridge gates to serve aircraft stands.

The headhouse will have three levels for departures, arrivals, and ground transportation. Most passengers will move through the terminal’s nodes, which connect to the headhouse and piers. There are two 98 foot wide double-loaded piers (Piers 2 and 3), and two 55-foot wide single-loaded piers (Piers 1 and 4). The piers will consist of two principle levels. Holdrooms, concessions, restrooms, and other passenger spaces will be located on Level 2, connected by central circulation corridors. Circulation spaces will have moving walkways in both directions. Gate holdrooms will be paired wherever possible and passenger amenities are distributed throughout the piers. Level 1 of the piers will contain the baggage makeup areas and the main MEP spaces serving all piers, as well as airline and ground handling support spaces.
The new CTB is being planned with the underlying assumption that it will be operated on a common use basis, with the possibility of some preferential rights. The common use concept of operations will not only allow for the planning and construction of a more efficient set of facilities, and permit a more intensive and flexible utilization of these facilities, but also make possible the maintenance of the facilities at a higher and more uniform standard, letting airlines focus on their core businesses. It is anticipated that common use systems will include airline operational systems such as check-in, gate counters, baggage handling systems, and aircraft boarding bridges and associated airside features.

The landside will have elevated roadways to improve pedestrian safety and traffic flow, separate and dedicated Ground Transportation access to the terminal, and additional dedicated drop-off and pick-up sites. The airport will plan for future right of way for either heavy or light rail access, and will have improved taxi hold areas with a dedicated road. Two new parking garages will also be built to replace P2. The West Garage will have 2,800 spaces while the East Garage will have 1,100 spaces.

### 4.4.2 Airside

The airfield will be designed to maximize future flexibility of the apron for Group II to group IV aircraft. There will be 31 Group III contact gates designed for the B737-900W and 4 Group IV contact gates designed for the B767-400. There is the option for later expansion to demolish Hangar 3 and add 3 Group III contact gates. There will also be 20 RON positions within close proximity to the ramp area. There will be dual taxilanes or two points of entry for contact gates where possible and no single taxilanes will serve more than 7 aircraft. There will be 24-foot wide Head-of-Stand (HOS) roads and Tail-
of-Stand (TOS) roads as well as a dedicated 30-foot wide RVSR shared by all airport vehicles with convenient access to baggage processing areas. Finally there will be airside connection to Terminal C, power-in/push-back operations to all gates and no push-backs directly onto Taxiway A.

4.4.3 Financing

The projected total cost estimate for the CTB Redesign Program is $3.6 billion including an estimated construction cost of $2.595 billion. The Port Authority will select a private Project Company, and will then lease the CTB to them through December 30, 2050. The selected Project Company will fund its share of the capital required for the CTB Project as seen in Figure 13. The Project Company would recover its investment from project revenues, consisting primarily of airline terminal rentals, ramp fees and charges, and revenues from food and beverage, retail and duty free concessions. The Port Authority will fund a portion of the project through Passenger Facility Charges ($1.5 billion). The rest of the project will be funded by equity from the Project Company and Special Project Bonds issued by the Port Authority to the Project Company.

<table>
<thead>
<tr>
<th>Program Element</th>
<th>Delivery Responsibility</th>
<th>Project Company (Project)</th>
<th>Port Authority (Supporting)</th>
<th>Total Cost</th>
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<tbody>
<tr>
<td>Terminal - 35 gates (Demo. Existing)</td>
<td></td>
<td>1,500</td>
<td>1,500</td>
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<tr>
<td>Aeronautical Ramp within Leasehold</td>
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<td>100</td>
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<tr>
<td>Airside Utilities</td>
<td></td>
<td>20</td>
<td>10</td>
<td>30</td>
</tr>
<tr>
<td>Hydrant Fueling Infrastructure</td>
<td></td>
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<td></td>
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<tr>
<td>Terminal Frontage Roads</td>
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<td>100</td>
<td></td>
</tr>
<tr>
<td>Demolition: Hangar 1, CTB Garage</td>
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<td>20</td>
<td></td>
</tr>
<tr>
<td>Airfield Modifications</td>
<td></td>
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<td>60</td>
<td></td>
</tr>
<tr>
<td>Roads &amp; Parking Garages/Lots</td>
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<td>530</td>
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<td>Central Heating &amp; Refrigeration Plant</td>
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<td>95</td>
<td>95</td>
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<tr>
<td>East End Substation</td>
<td></td>
<td>55</td>
<td>55</td>
<td></td>
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<tr>
<td>Landside Utilities</td>
<td></td>
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<td>50</td>
<td></td>
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<tr>
<td>Demolition: Hangars 2 and 4</td>
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<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>$1,865</strong></td>
<td><strong>$730</strong></td>
<td><strong>$2,595</strong></td>
</tr>
</tbody>
</table>

Figure 13: Construction Cost Estimates in Millions
5. Airport Transportation

5.1 Overview

Despite its close proximity to Manhattan, just 8 miles, LaGuardia Airport is very inaccessible and its transportation network experiences some of the same constraints as the airports airfield. There is one bus line to Manhattan, and five bus lines to Queens, but LaGuardia is the only major airport in the New York metro area without a rapid transit connection, and much of western Queens lacks easy access to the subway for local travel. The idea of providing rapid transit for the airport and the surrounding community has been studied many times over the years, but nothing has ever been implemented. Over 40% of the airports passengers take a cab or car services to get to the airport, and another 37% drive a personal car to the airport. Because of the lack of alternatives, the roads leading to LaGuardia Airport are very congested and have periods of extremely heavy traffic.

The M60, the only bus line from LaGuardia to Manhattan and serves over 32,000 people per day, but over 10,000 of those riders are traveling entirely on 125th street and only 11% of riders are taking it to the airport. The M60 is characterized by crowded busses, narrow streets, and long dwell times. Although the M60 runs every 10 minutes, because of congestion, the busses often get bunched and there can be large wait times between bus service. The M60 is stopped 60% of the time and at times the bus moves as slow as 2.7 mph, which is slower than the average walking speed. The M60 also does not run early enough in the morning for some employees to take it to work.

In order to fully understand the issue of transportation to LaGuardia we must first ask who is going to the airport and where are they coming from? While passengers make up a large percentage of airport visits, LaGuardia employees over 11,000 people who...
travel to the airport every day. The employees are not only from different demographics than travelers, but they also travel to the airport from different neighborhoods and have different preferences. Airline passengers at LaGuardia throughout history have placed extra emphasis on speed and reliability, while employees traditionally care more about price and connectivity.

Often times huge capital expenditures are necessary to connect a region’s airport to the city center by rail are not justified because there is typically relatively few passengers whose journey originate from the city center. This is especially true if the rail does not connect to a larger network of service. For LaGuardia, however, the majority of passengers travel from the heart of Manhattan to the airport as seen in Figure 15. New York’s subway system is one of the most connected subway systems in the world, and the N rail goes within 3 miles of LaGuardia Airport. This combination of factors makes connecting the N line to LaGuardia Airport seem very logical.

Figure 15: Originating Zip Code for LaGuardia Passengers
If we look at the starting location heat map for the commutes in Figure 16 of LaGuardia employees, we find that it is dramatically different than the heat map of passengers. Employees come mostly from Upper Manhattan, the Bronx, and Queens. These are regions that have either no public transportation service, or have public transportation at a very poor level of service. For this employee demographic, new bus lines and improvements to existing bus lines would provide the most feasible benefit.

5.2 Subway Connection

In 1998, the city of New York and the Metropolitan Transportation Authority (MTA) invested heavily in building both an Airtrain to JFK and to extend the subway to LaGuardia. The JFK line, which was built over preexisting rights-of-way survived while the project to connect the subway to LaGuardia did not. The LaGuardia project ran into major political headwind because of the proposed routes through Astoria. While the project would have benefited New York City as a whole, not a single Queens’s politician supported the route. The residents of Queens did not want a big ugly subway running down their streets, destroying their property value, so they protested the project. The political struggle between city hall and the Queens communities continued into the 20th century. In 2002, Mayor Bloomberg threw his weight behind the LaGuardia extension as a key post 9/11 revitalization plan.
The first and biggest problem the city faced in Queens came about because of the proposed routes. Finally, in mid-2003, the Queens communities won the political battle as the MTA announced plans to shelve the airport extension. With money tight after 9/11 and Lower Manhattan on the radar, then-MTA Chair Peter Kalikow said that the agency’s attention had turned elsewhere. The N train subway connection never materialized both because of the backlash from local communities who would be negatively affected, and because the MTA decided its funds would be better used on other projects.

5.3 SBS Bus Service

The LaGuardia corridor was identified as needing shorter term, lower cost transit improvements by area residents as part of the Bus Rapid Transit Phase II study in 2009. In particular, the area generates a high density of transit trips that are a long distance from the subway. The Department of Transportation requested and received funding from the Federal Transit Administration to conduct a LaGuardia Airport Access Alternatives Analysis. The Alternatives Analysis began in May 2011, with a focus on improvements that can be implemented at a low cost within a short timeframe. The Analysis decided the best course of action would be a Bus Rapid Transit system for the M60 bus line. Much like the Silver Line in Boston and Select Bus Service on Fordham Rd in the Bronx, the bus M60 SBS would have limited stops, dedicated bus lanes, transit signal priority, off-board fare payment, and luggage racks. This improved service would reach LaGuardia 20% faster and improve reliability. Despite New York officials vowing to bring SBS Service to the M60 line, pushback from elected officials and community boards have pressured the MTA to cancel the project. Community members worrying about their free parking turning into bus lanes and the affect of the bus lanes on local businesses were able persuade politicians to get the project canceled. Much like the N rail project, the combination of protest from the local community with the eventual feeling by the MTA that the resources could be used elsewhere doomed the M60 SBS Bus Service.

5.4 Future Prospectus

Public transportation to LaGuardia has definitely been placed on the back burner by both New York officials and the MTA. The MTA continues to tweak bus services to improve reliability and access to LaGuardia but has no plans for any major projects. One example of the MTA’s efforts is M60 Bus Times, an app which will tell you how long until the next bus will arrive.

In the eyes of the Port Authority, the CTB redevelopment is a much more pressing issue. The Port Authority would still like to connect LaGuardia to the subway system and improve airport transportation, but had decided that the new CTB must be built before it can work on less important projects. In the CTB plans, however, contains...
planning features for a future rail station at the airport, an indication the Port Authority eventually would like to improve connectivity the airport

6. Conclusion

This report identified the two major problems at LaGuardia Airport in New York. The airport is extremely constrained by area and needs to replace an ageing, inefficient Central Terminal Building, and the airport needs to become better connected to the public transportation system to ease roadway congestion. The port Authority of New York and New Jersey have identified the construction of a new Central Terminal building as the most pressing issue to improve overall passenger satisfaction and level of service and have taken the steps necessary to start construction in 2014.
References

A. Odoni, Lecture notes of the MIT course of 1.231: Planning and Design of Airport System (Fall 2013).


Note: Much of the analysis relied on data originating from a wide array of data sources; airport websites, operator websites and annual reports, press releases, reports etc.