

# LaGuardia Airport Central Terminal Building Replacement Project



**Project Briefing Book for RFQ #31224**

**October 26, 2012**

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## 1.0 INTRODUCTION

### 1.1 PURPOSE OF THE PROJECT BRIEFING BOOK

The Port Authority of New York and New Jersey (Authority) has released this Project Briefing Book (PBB) as part of its Request for Qualifications (RFQ) (#31224) for the LaGuardia Airport Central Terminal Building Replacement Project (Project). The PBB is for use by entities considering submitting a Statement of Qualifications (SOQ) in response to the RFQ. Terms not otherwise defined herein shall have the same meaning as set forth in Section 1.2 (*Definitions*) of the RFQ.

The PBB provides information on the overall LGA Redevelopment Program (Program), as described herein.

### 1.2 PROGRAM SUMMARY

The Program consists of two major components as listed below.

1. The Project:
  - a. Demolition of the existing Central Terminal Building (CTB) with its four concourses and its garage (P2), Hangar 1, and Frontage Roads;
  - b. Construction of temporary facilities to support passenger services during construction of the replacement CTB (New CTB);
  - c. Completion of design and construction of a New CTB, including new contiguous aircraft ramp areas, new contiguous Frontage Roads and supporting building and site utilities;
  - d. Construction of a new Central Heating and Refrigeration Plant (CHRP);
  - e. Construction of utilities for the New CTB;
  - f. Construction of hydrant fueling infrastructure within the Project site limits; and
  - g. Operation, maintenance and management of the existing CTB and temporary facilities during construction, the New CTB and CHRP.

2. Certain elements undertaken concurrently by the Authority to support the New CTB (Supporting Projects) include:
  - a. Demolition of Hangars 2 and 4;
  - b. Improvements to the public airport roads (excluding New CTB Frontage Roads) and utilities;
  - c. Construction of a new East End Substation (EES) serving the New CTB and Terminals C and D;
  - d. Construction of airfield modifications to support the New CTB ramp configuration; and
  - e. Construction of a new East Garage serving Terminals C and D, and a new West Garage serving the New CTB.

This PBB contains descriptions of the Program and Project.

The Authority is commencing a procurement to prequalify Respondents in the expectation of issuing a Request for Proposals (RFP). The Authority expects to enter into a contractual arrangement with the entity selected through the RFP (Project Company) to design, build, finance, operate and maintain the Project as described herein and in the RFQ.

The opportunity presented in the RFQ relates to the lease of the existing and the New CTB only, and does not include the lease of the airfield and other LGA terminals and facilities.

## 2.0 THE PORT AUTHORITY OF NY & NJ

### 2.1 ORIGINS AND MANDATE

The Authority is a bi-state agency created by a Compact between the States of New York and New Jersey, consented to by the Congress of the United States in 1921. The Compact has been amended and supplemented periodically by legislation adopted by the two States.

The Compact created the Port District, which comprises an area of about 1,500 square miles in both States, centering around New York Harbor, and includes the Cities of New York and Yonkers in New York State, and the Cities of Newark, Jersey City, Bayonne, Hoboken, and Elizabeth in the State of New Jersey, and over 200 other municipalities, including all or part of 17 counties, in the two States. The Authority provides transportation, terminal, and other facilities of commerce within the Port District, and, for such purposes, the States have from time to time authorized specific transportation and terminal, facilities and facilities of commerce and economic development.

### 2.2 GOVERNANCE

The Authority is governed by a Board of Commissioners comprised of 12 members, six from each state, appointed by the respective Governor thereof with the advice and consent of the respective State Senate. The actions taken by the Commissioners at Authority Board meetings are subject to gubernatorial review for a period of 10 business days and may be vetoed by the Governor of their respective State during such period.

### 2.3 ORGANIZATION AND BUSINESS LINES

The Authority is organized around five lines of business: Aviation, PATH (Rail), Port Commerce, Tunnels-Bridges-Terminals, and the World Trade Center. These lines of business control approximately 30 Authority facilities handling millions of customers annually as well

as millions of tons of cargo via air, marine, rail, or truck. Multi-modal transportation and economic development are at the core of these business areas. The Authority's focus is on maintaining and improving service levels so that the overall regional transportation network can operate as effectively as possible. The network moves passengers and goods within the region, and in and out of the region.

The five business lines have their own dedicated staff, and along with the Executive Offices, are aided by support staff functions including but not limited to: Engineering, Financial, Legal, Procurement, Public Safety, Real Estate and Development, and Technology.

The Authority's Aviation Department is responsible for operating five airports within the NY/NJ region, including LGA, John F. Kennedy International Airport (JFK), Newark Liberty International Airport (EWR), Stewart International Airport (SWF), and Teterboro Airport (TEB). These five airports are nationally significant to mobility and commerce, linking the goods and people of the NY/NJ region with the nation and world.

### 2.4 FINANCIAL OVERVIEW

The Authority raises the funds necessary for the acquisition, improvement, construction of its facilities generally upon the basis of its own credit. The Authority has no power to levy taxes or assessments. Its bonds, notes, and other obligation(s) are not obligations of the two States or of either of them.

The revenues of the Authority are derived principally from the tolls, fares, landing and dockage fees, rentals, and other charges for the use of, and privileges at, certain of the Authority facilities. The Authority reports its financial results on a consolidated basis. Financial statements and appended notes for the year ended December 31, 2011 can be found at:

<http://www.panynj.gov/corporate-information/pdf/financial-statement-2011.pdf>.

The Authority's primary financing instrument is the Consolidated Bond, which was established by the Consolidated Bond Resolution adopted by the Board of Commissioners on October 9, 1952. The purposes for which the Authority's various funds, including revenues, may be applied are set forth in statutes and agreements with the holders of its obligations. Such statutes and agreements can be found in Section V of the Authority's Official Statement, issued in connection with its offerings of Consolidated Bonds. More information about the Consolidated Bond Resolution and the Authority's other financing instruments can be found in a recent Official Statement (<http://emma.msrb.org/EA480173-EA372531-EA769316.pdf>).

## 3.0 LGA BACKGROUND

### 3.1 GENERAL DESCRIPTION

LGA is vital to the regional economy, employing approximately 10,000 people on-airport. In CY 2011, the airport contributed more than \$13.6 billion in economic activity to the region, generating 103,000 jobs and \$4.9 billion in annual wages and salaries.

Encompassing 680 acres in the New York City Borough of Queens, LGA is a large hub commercial airport primarily serving domestic markets. Located just minutes from Manhattan, the nation's financial center, LGA serves a metropolitan area of approximately 19 million people. It is an integral part of this region's economic activity and serves a key role in the transportation of people and goods.

The site of LGA was established in 1920 as a 105-acre private flying field. On December 2, 1939, New York Municipal Airport-LaGuardia Field opened to commercial traffic. It soon became known simply as LaGuardia Airport.

The Authority commenced the lease of LGA from the City of New York ("City") in 1947. In 2004, the Authority and the City entered into an amended and restated Lease Agreement (City Lease) that ensures the Authority's continued operation of LGA and JFK through 2050. The City Lease limits use of LGA to Municipal Airport Purposes as defined therein.

#### 3.1.1 MAJOR FACILITIES

##### Runways

There are two main runways, 4-22 and 13-31. Each is 7,000 feet long by 150 feet wide. In 1967, the Authority extended both runways over water 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.

Air Traffic Control Tower

The Federal Aviation Administration (FAA) commissioned a new 233 foot tall, state-of-the-art air traffic control tower 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.

Passenger Terminals

In addition to the CTB (Terminal B), LGA has three other passenger terminals.

**Terminal A (Marine Air Terminal)**

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. In 1995, the Marine Air Terminal was designated a historic landmark. 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.

**Terminal C**

Terminal C 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.

**Terminal D**

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.

Parking

LGA provides nearly 6,800 public parking spaces in seven parking lots. The inventory of parking spaces by Lot is as follows:

Lot	Spaces	Lot	Spaces
P1	430	P4	1,440
P2	2,700 (five-level garage)	P5	850
		P6	180
P3	920	P7	260

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.

Hangars

There are five hangars in the central terminal area. Under the Program, Hangars 1, 2 and 4 are scheduled to be demolished.

**3.1.2 AIRLINES SERVING LGA**

LGA is currently served by the following airlines (not including numerous regional and affiliate carriers) providing scheduled passenger flight services:

Airline	Terminal
Air Canada	CTB – Concourse A
AirTran	CTB – Concourse B
American	CTB – Concourse C&D
Delta	Terminals A, C & D
Frontier	CTB– Concourse B
JetBlue	CTB – Concourse A&B
Southwest	CTB– Concourse B
Spirit	CTB – Concourse B
United	CTB – Concourse A&C
US Airways	Terminal C
Westjet	Terminal C

As of July 2012, based upon OAG (Official Airline Guide) data, LGA accommodated the following service:

Region	Average Daily Flights	Non-Stop Cities Served
United States	482.0	64
Canada	66.5	7
Caribbean & Bermuda	1.1	2
Total	549.6	73

### 3.1.3 LGA PASSENGER AND OPERATING STATISTICS

Activity levels by year were as follows:

Calendar Year	Aircraft Operations	Passengers	Air Cargo (tons)	Air Mail (tons)
2011	365,870	24,122,478	7,292	643
2010	361,616	23,983,082	7,516	585
2009	354,048	22,142,336	6,712	1,349
2008	378,908	23,076,903	8,889	2,635
2007	391,547	24,985,264	9,595	2,087
2006	399,827	25,810,603	13,998	5,718
2005	405,175	25,889,390	16,006	10,296
2004	398,957	24,435,619	14,096	15,219
2003	374,952	22,482,770	12,333	18,981
2002	362,649	21,986,679	11,709	23,818
2001	367,871	22,519,874	16,474	43,771
2000	384,554	25,360,034	20,195	58,254
1990	356,358	22,764,604	70,792	58,033
1980	317,633	17,467,962	35,257	47,654
1970	297,652	11,845,141	39,815	24,119
1960	191,736	2,935,613	58,313	10,557
1949	159,465	3,284,213	36,061	13,585

Passenger activity by airline in CY 2011 consisted of:

Rank	Airline	Domestic Passengers	International Passengers	Total Passengers	Cum. %
1	Delta	7,148,308	4,414	7,150,722	29.6
2	American	4,792,050	235,025	5,027,075	50.5
3	US Airways	4,236,270	--	4,236,270	68.0
4	United	1,635,804	--	1,635,804	74.8
5	AirTran	1,230,040	--	1,230,040	79.9
6	Spirit	1,161,602	--	1,161,602	84.7
7	United	840,116	--	840,116	88.2
8	Jetblue	838,733	--	838,733	91.7
9	Air Canada	--	794,609	794,609	95.0
10	Southwest	627,609	--	627,766	97.6
11	Frontier	579,838	--	579,838	100.0

## 3.2 LGA CHARACTERISTICS AND CONSTRAINTS

### 3.2.1 FAA CONGESTION MANAGEMENT

Congestion and delay at LGA and JFK had been managed by the FAA by means of the High Density Rule (HDR), which capped the number of take-offs and landings during certain hours.

In 2005, Federal legislation known as the “Wendell H. Ford Aviation Investment and Reform Act of the 21st Century” (AIR-21) provided for the termination of the HDR at JFK and LGA on January 1, 2007, and directed the Department of Transportation to grant exemptions for certain flights from the HDR’s operation limits prior to its termination.

In an effort to deal with over scheduling and flight delays during peak hours of operation at JFK, LGA and EWR, the FAA has subsequently published a series of rulemaking to establish caps on operations (“slots”) at each airport, which restrict the number of scheduled operations per hour during peak hours.

On December 13, 2006, the FAA issued a Final Order for LGA, maintaining a cap of 75 commercial aviation slots (arrivals and

departures) per hour for certain hours, to expire no less than 90 days after issuance of a final rule regulating 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.

On April 4, 2011, the FAA published a Notice of Extension to Order for each of JFK, EWR and LGA, extending the dates of the existing orders limiting hourly operations at each of the airports until the Final Congestion Management Rule for the airports becomes effective, but not later than October 26, 2013. Throughout this process, the 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.

### **3.2.2 OTHER LIMITATIONS**

In order to accommodate airfield construction and maintenance, LGA closes to 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, the Authority requests that air carriers avoid scheduling flights between midnight and 6:00 a.m. year-round.

LGA also operates under an Authority-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 does not apply to general aviation operations.

## **3.3 CENTRAL TERMINAL BUILDING**

### **3.3.1 GENERAL DESCRIPTION**

The existing CTB opened to the public in 1964 with a design capacity of 8 million annual air passengers (enplaned and deplaned). Expanded from 750,000 to 835,000 s.f. and 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.

The Authority forecasts that LGA's passenger traffic will reach 34 million passengers by 2030, with 17.5 million passengers using the CTB.

### **3.3.2 CTB 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. Inadequacies include, but are not limited to, the following areas:

#### **UTILITIES**

Some of the utilities infrastructure dates back to LGA'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.

#### **PARKING GARAGE**

Constructed in the 1970s, the existing CTB parking garage (P2) is approaching the end of its useful life. Further major investment in the garage will merely provide state of good repair.

#### **TERMINAL ROADS**

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.

#### **CTB RAMP**

The CTB's aircraft ramp, which is constrained by the four concourses, inhibits the maneuverability of aircraft. 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 taxiways 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, and there is insufficient space to start up engines independently of adjacent aircraft. These ramp constraints also contribute to higher airline operating costs, including labor and fuel.

### TERMINAL BUILDING

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. 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.

### 3.4 NEW CTB OBJECTIVES

The Authority's objectives for the New CTB include:

- Balanced terminal, airside and landside capacity to meet current and projected demand with optimal levels of service;
- Enduring design that:
  - Is innovative and efficient,
  - Can be easily adapted to changing needs and standards, and
  - 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; and
- A common use platform, meeting the operational requirements of the airlines and other stakeholders.

### 3.5 PROGRAM AND PROJECT AREA

As shown in Figure 3-1, the Program area measures approximately 140 acres and extends from the taxiway system to the airport boundary along the Grand Central Parkway (GCP). It includes the area of the existing CTB airside, landside areas, as well as the footprints and aprons of Hangars 1, 2, and 4, and Parking Lots 1, 2, 3, 4, and 5.

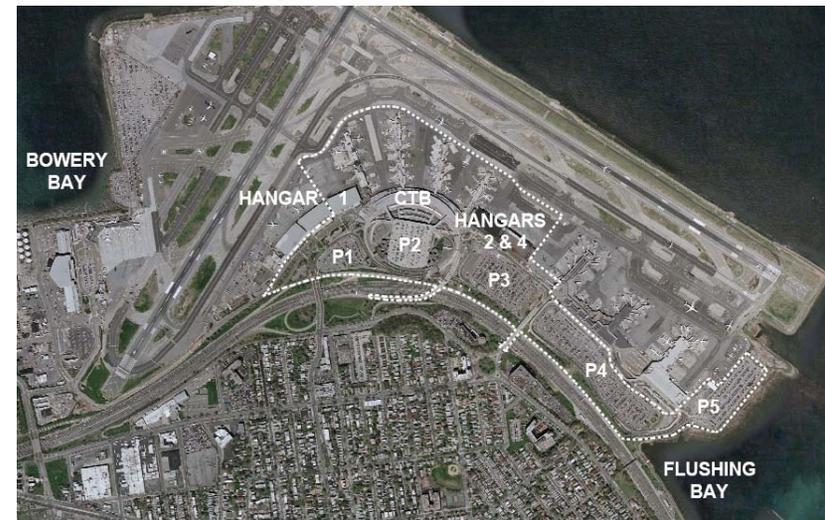


Figure 3-1 Program Area

The Project area as shown in Figure 3-2, encompassing the New CTB and support facilities, measures approximately 97 acres of leasable area. The footprint and apron areas of Hangars 3 and 5 may be considered a part of the Project at a future date.



Figure 3-2 Project Area

## 4.0 PROGRAM PLANNING OVERVIEW

### 4.1 INTRODUCTION

As described below, Program requirements and planning are informed by the Design Day Flight Schedule (DDFS), the Passenger Activity Forecast, a common use basis of planning and operations, and several major airside and landside planning constraints.

### 4.2 LGA DESIGN DAY FLIGHT SCHEDULE

The DDFS was prepared for the full airport based on an activity level of 34 million annual air passengers (MAAP). This level of activity is forecast to occur approximately in 2030. Of the 34 MAAP, 17.5 MAAP is expected to be generated by airlines operating in the CTB.

CTB 2030: 17.5 MAAP

- Projected gate utilization forecast assumption: 8-10 airlines
- Peak day arriving/departing passengers: 58,116 passengers
- Peak hour passenger loads:
  - Departures: 3,450 passengers
  - Arrivals: 2,790 passengers
  - Total: 4,500 passengers

The following assumptions underpin the development of the DDFS:

- LGA is slot constrained;
- Future schedule has no more than 75 scheduled aircraft operations per hour (plus 3 GA);
- Current 1,500 mile Perimeter Rule remains in place
- International destinations served have pre-clearance facilities;
- Delta has its own terminals and subleases space to US Airways and West Jet;
- 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);

- Aircraft wingspans are limited to no larger than Aircraft Design Group (Group) IV and represent 5% to 10% of the total fleet mix;
- Design aircraft for Group III is the B737-900W; design aircraft for Group IV is the B767-400;
- General Aviation activity reflects activity of summer 2010 with not more than three movements per hour and around the clock; and
- No freight aircraft (cargo is accommodated in the belly of passenger aircraft).

The primary peak for departing flights is between 6 a.m. and 8 a.m., and the primary peak for arriving flights is between 8 p.m. and 10 p.m. Although there are secondary peaks during the day for both arrivals and departures, flight activity at LGA remains fairly constant from 6 a.m. through 10 p.m. Barring system-wide delays, flight operations substantially cease by midnight.

### **4.3 PLANNING AND COMMON USE FACILITIES APPROACH**

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 terminal operator is expected to manage, operate, and maintain the terminal.

It is intended that the common use concept of operations will:

- Allow for the planning and construction of a more efficient set of facilities;
- Permit a more intensive and flexible utilization of these facilities;
- Make possible the maintenance of the facilities at a higher and more uniform standard; and
- Allow tenants – especially airlines – to 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. It is also anticipated that tenants (airlines and others) will have exclusive use of – and responsibility for the maintenance of – limited areas of the facility, such as premium passenger lounges, offices and ramp operations spaces, but will not be responsible for public areas, building mechanical, electrical, and other systems, and entrance vestibules.

### **4.4 PROGRAM CONSTRAINTS**

LGA is constrained from the landside by the airport property line along the GCP, and on the airside by Bowery Bay, Flushing Bay and by various airfield Modifications of Standards (MOS). Specifically, the Program site is constrained by a federal requirement that the FAA review and assess all potential aviation obstructions, both temporary and permanent. Construction equipment, such as crane booms and pile driving leads, or permanent installations of material or equipment at an elevation higher than the surrounding landscape must be submitted to the FAA for a ruling using FAA Form 7460. Visit the FAA website at [www.faa.gov](http://www.faa.gov) for complete details. See Figure 4-1 for constraints.

#### **4.4.1 AIRSIDE – MODIFICATION OF STANDARDS (MOS) CORRECTION**

The FAA may mandate that all, or some, of the existing MOS listed below will be corrected in conjunction with the Program:

- Runway 4-22 and Runway 13-31 to Taxiway B Separation: 50-foot deficiency;
- Taxiway A to Taxiway B separation: 15-foot deficiency; and
- Taxiway A to Restricted Vehicle Service Road (RVSR) separation, 29.5-foot deficiency.

The Project is based on provision of adequate space to achieve the full corrections of the MOS; no permanent facilities (buildings) will be constructed in areas that would prevent the correction of the MOS.

The Supporting Projects scope includes only the reconstruction of the RVSR south and east of Taxiway A to achieve the separation distance required.

#### **4.4.2 LANDSIDE – GRAND CENTRAL PARKWAY**

The Program is constrained by the property line to the south along the GCP. The development by the Authority of a roadway system within the remaining site will provide connections from the GCP to the new terminal as well to Terminals C and D.

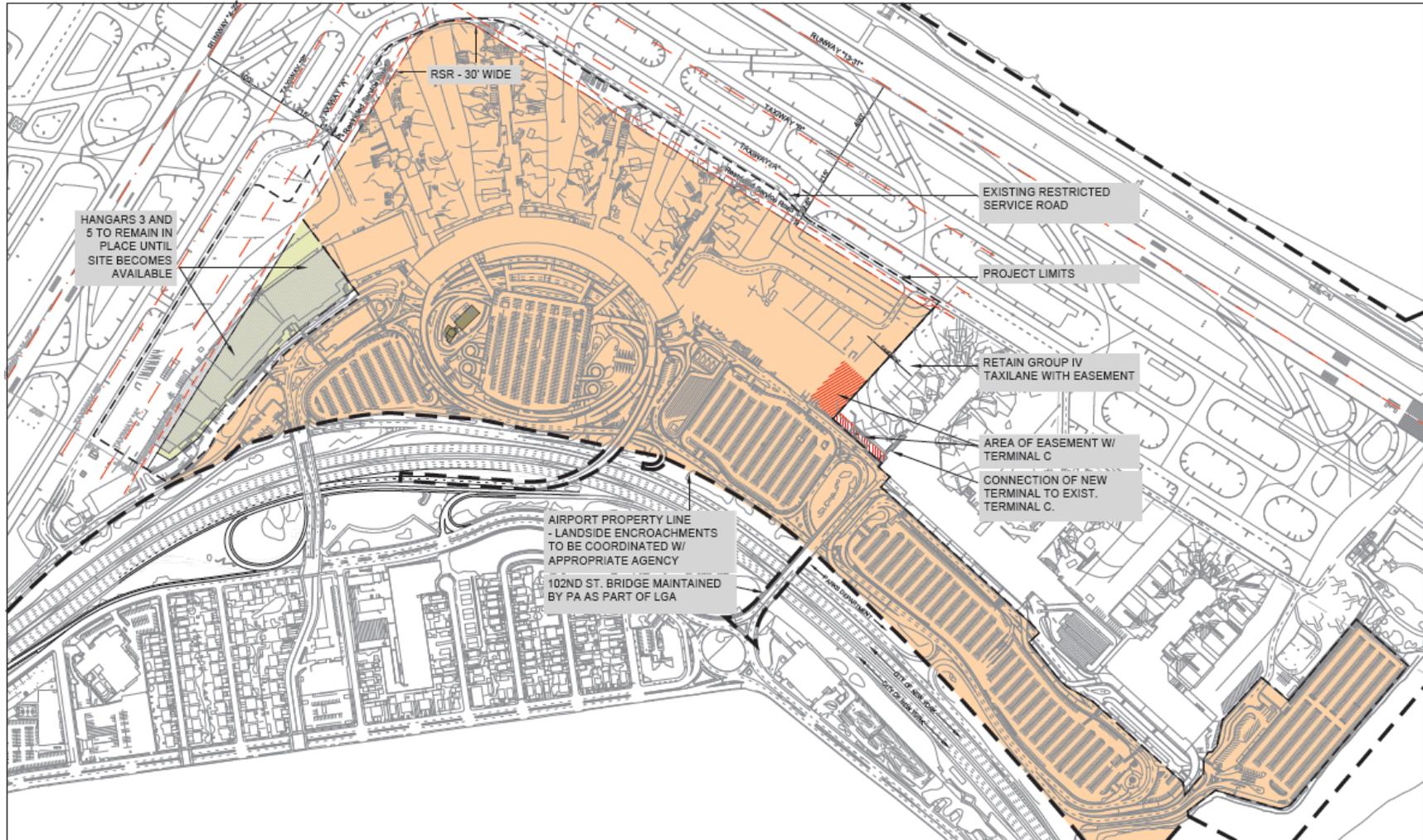


Figure 4-1 Site Constraints and Opportunities w/ Property Line and Conditions

#### 4.4.3 AREA OF HANGARS 3 AND 5 – 35 GATES/ 38 GATES SCENARIOS

After the completion of the Project and when and if Hangars 3 and 5 are removed, the Authority may contemplate an extension of Taxiway A (distance to be determined) southward toward the end of Runway 4. No decision has been made regarding Hangars 3 and 5, or the subsequent use of, or responsibility for, the area created.

Planning for the Program takes into consideration various alternatives for extending Taxiway A as well as the potential construction of some or all of the high speed exits from the runway onto the taxiways.

If the area of Hangars 3 and 5 is subsequently added to the Project area, the New CTB can be expanded to accommodate three additional Group III contact gates. See Figures 4-2 and 4-3 for site plans with 35 gates and 38 gates scenarios.

#### 4.5 PROGRAM ELEMENTS

The Authority's planning process made use of the DDFS. This process also led to a preferred layout, or general arrangement, of Program elements that meets the Authority's goals and objectives.

As noted in Section 1.2, the Program consists of the Project and the Supporting Projects.

The Project includes the following elements:

- Structural Demolition – Abatement, deconstruction and removal of the following structures is necessary to make way for the New CTB: Existing CTB, Hangar 1 (approximately 70,000 s.f.), existing CTB parking garage (2,800 spaces), departures level roadway bridge structures (approximately 2,000 linear feet of elevated roadway bridge structure) and the decommissioned Central Electric Substation (approximately 5,000 s.f.);

- CTB Replacement – Approximately 1.3 million square foot terminal with 35 building contact gates, expandable to 38 gates and associated aircraft apron and Frontage Roads;
- CTB Apron Modifications – 35 new aircraft apron gates, supported by a taxi lane system with multiple startup positions and overnight parking accommodations for aircraft, adjacent to the new terminal and integrated with the existing taxiway configuration;
- Frontage Roads – Includes a multilevel bridge for departures and arrivals traffic, adjacent to the New CTB, with a high occupancy vehicle (HOV) lane at grade roadway below;
- Utilities Within the Project Site – Telecommunications, Water, Natural Gas, Sewer, Storm and Electric service connections into the New CTB;
- Central Heating & Refrigeration Plant (CHRP) – A new three story stand-alone structure that will house chillers, hot water generators and other equipment to replace and upgrade the current plant that serves the existing CTB; and
- Hydrant Fueling – Includes the installation of underground fueling infrastructure within the New CTB ramp area in order to support the implementation of a future hydrant fueling system at LGA.

The Supporting Projects include construction of the East End Substation (EES) serving the New CTB and Terminals C and D, and a new East Garage primarily serving Terminals C and D. Additionally, the Authority expects to construct a West Garage serving the New CTB; certain roads including all or most of the connections to GCP and the public airport roads linking to and from Terminals C and D, airfield modifications to support the New CTB ramp areas, and the demolition of Hangars 2 and 4.

The New CTB design plan includes two primary double-loaded piers and two smaller single loaded piers to optimize the use of the site footprint. While the New CTB plan retains the air traffic control tower (ATCT) and its support building, the entry vestibule may be modified. Any modification to the support building, ATCT or associated infrastructure will be the responsibility of the Project.

The West Garage will be located south of Hangars 3 and 5 and outside of the existing ellipse road, to the west of the New CTB. The West Garage will serve the New CTB and will be connected to the headhouse by a pedestrian connector.

The East Garage will be sited within the new collector-distributor loop roadway on the west half of existing Lot P4, to the east of the New CTB and south of Terminal C. The location of the East Garage in front of Terminal C, along with the continued use of at-grade parking in P4 and P5 will provide adequate distribution of parking for Terminals C and D.

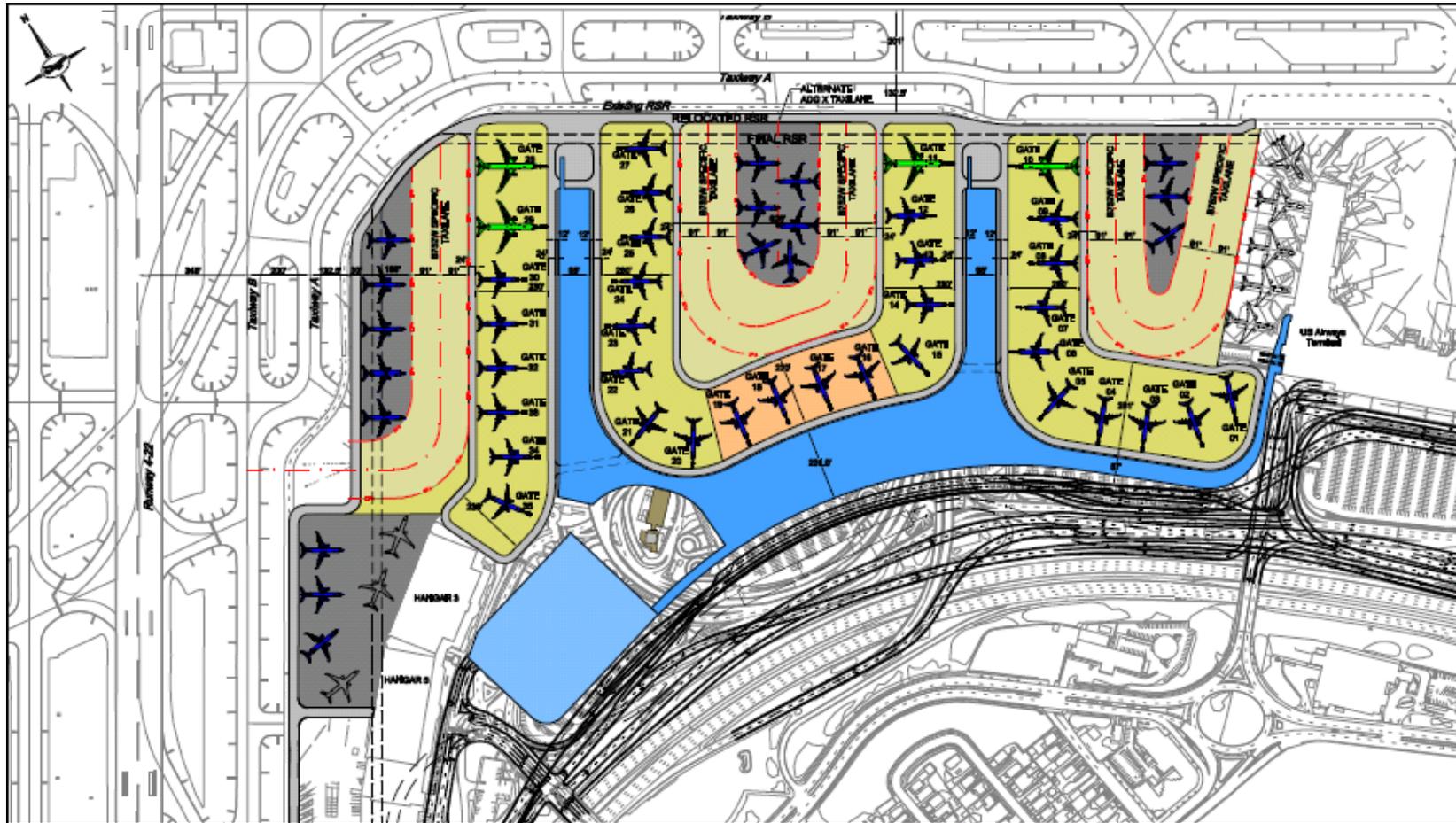


Figure 4-2 Site Plan – 35 Gates



## 5.0 AIRSIDE

### 5.1 INTRODUCTION

Project requirements on the airside support the anticipated flight schedule. All Project requirements can be accommodated within the proposed development area with safe, efficient, and flexible airside operations that are consistent with the goals and objectives of the Project, and meet operational requirements of contact gates and overnight aircraft parking (RON) positions.

### 5.2 AIRSIDE PROJECT REQUIREMENTS

The Project's overall airside requirements aim to maximize future flexibility of the apron for Group II to Group IV aircraft.

The key airside Project requirements are as follows:

- Design Aircraft
  - B737-900W – Group III
  - B767-400 – Group IV;
- Operational Gate Requirements
  - 31 Group III and 4 Group IV contact gates until the need for expansion is triggered and the Hangar 3 and 5 site is available (35 gates)
  - 34 Group III and 4 Group IV contact gates for final configuration (38 gates)
  - 20 RON positions – approximately 20 Group III within or in close proximity to the terminal ramp area;
- Provide dual taxilanes or two points of entry for contact gates where possible; no single taxilane to serve more than 7 aircraft;
- Provide 24-foot wide Head-of-Stand (HOS) roads and Tail-of-Stand (TOS) roads;
- Provide a dedicated 30-foot wide RVSR shared by all airport vehicles with convenient access to baggage processing areas;
- Aircraft Clearances

- 25-foot wingtip clearance between all aircraft
- 5-foot wingtip clearance to service roads
- 5-foot tail clearance to service roads
- 30-foot nose clearance to face of building
- 45-foot wingtip clearance to face of building;
- Aircraft Maneuvering
  - Power-in/push-back operations to all gates
  - No push-backs directly onto Taxiway A;
- Passenger Boarding Bridges
  - Ground Power
  - Preconditioned Air
  - Potable Water
  - Docking Guidance System
  - Positive Pressure System; and
- Airside coordination with the new connection to Terminal C.

### 5.3 GROUND SERVICE EQUIPMENT AND OTHER SUPPORT FACILITIES

#### Ground Service Equipment (GSE) Storage

The Project estimates approximately 300,000 s.f. of GSE storage. The approximate GSE storage area was determined by calculating the open apron area between the aircraft safety envelope markings and the HOS road, minus the passenger boarding bridges, operating area, and pushback tractor parking.

In keeping with the recent transition of the aviation industry to more environmentally friendly electric GSE vehicles, the Project accommodates 17 4-port charging stations supporting six electric vehicles, two 10-port charging stations supporting 15 electric vehicles, and 132 20-foot charging cables.

#### Snow Melting Equipment

Within the Project area, New CTB operations will require total snow melting capacity of approximately 2,580 tons per hour. This requirement can be achieved as follows:

- Existing Hangars 3 and 5 Site – three fixed units with a capacity of 300 tons/hour each
  - Not available until Hangars 3 and 5 are demolished under a future redevelopment program
  - three mobile units with a capacity of 180 tons/hour each are recommended until Hangars 3 and 5 are demolished; to be staged between the interim and final RVSR alignments adjacent to the west RON apron;
- End of West Pier – one fixed unit with a capacity of 300 tons/hour;
- End of East Pier – one fixed unit with a capacity of 300 tons/hour;
- Central RON Apron – three mobile units with a capacity of 180 tons/hour each; and
- East RON Apron – three mobile units with a capacity of 180 tons/hour each.

At present, tenant leasehold areas (around the gates) as well as Authority common use areas (in the taxi lanes) are plowed by a contractor, Aero Snow, under two separate agreements. One agreement is held by the Authority and the other by the airlines. Snow melters for the existing CTB are operated by Authority staff at the CHRP.

Upon lease signing and transfer of terminal operations, the Project Company will be responsible for all snow removal and melting within its leasehold.

#### Triturator Locations

Two locations have been identified at the north end of the Piers 2 and 3 to facilitate triturator operations.

### 5.4 AIRSIDE PLAN

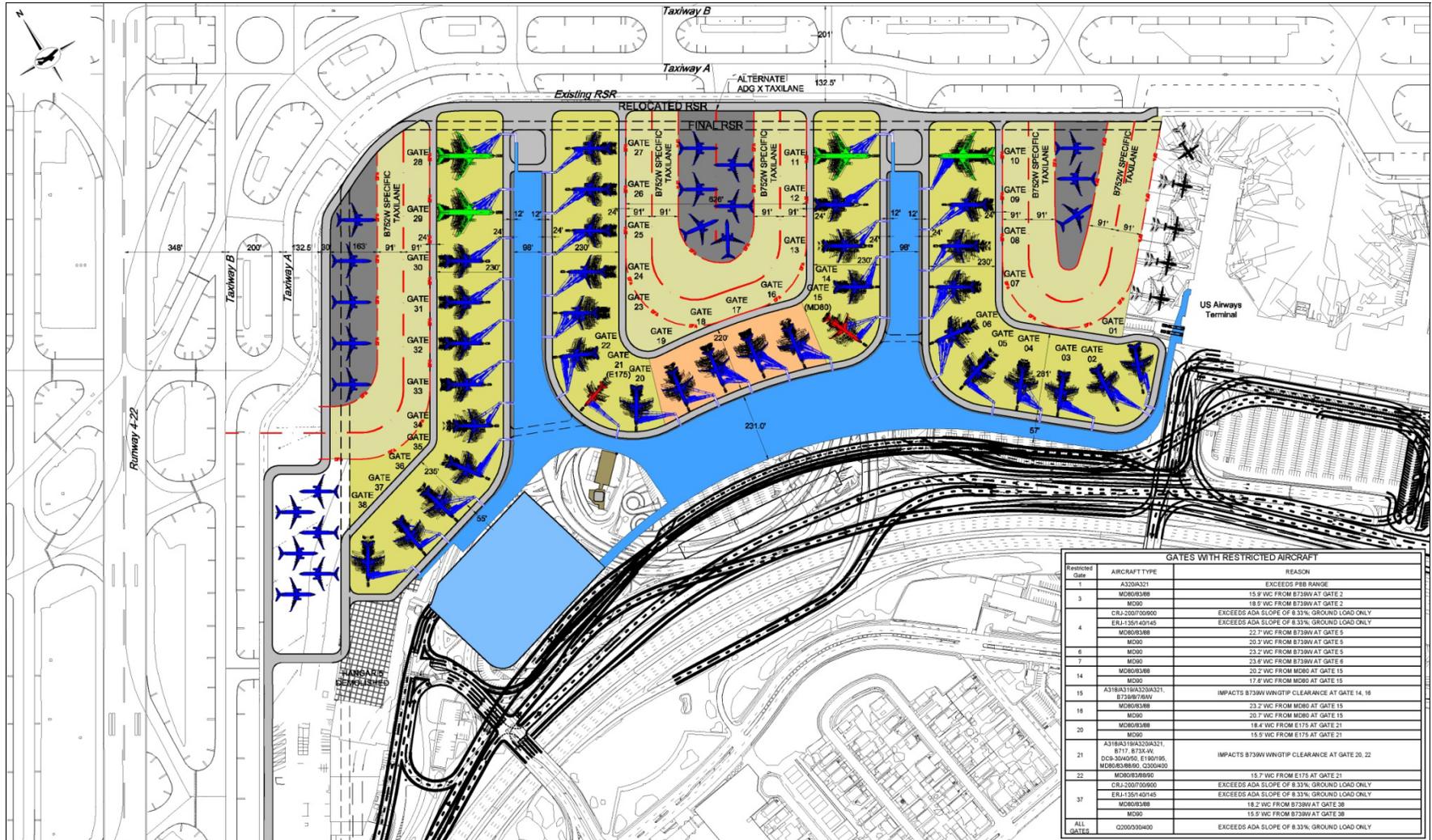


Figure 5-1 Proposed Airside Plan

## 5.5 HYDRANT FUELING

Currently, refueler trucks requiring access to the existing CTB airside from the fuel farm to the east travel by public roads. The construction of a hydrant fueling system, in any phased fashion, presents an opportunity to improve aircraft operations and ramp congestion at the New CTB. At the same time, the reduction of refueler traffic along the airport's western perimeter will alleviate congestion on public roads.

In order to serve the New CTB and other terminals with a hydrant system, modifications to the existing LGA fuel facility will be required, in addition to the installation of a new underground fuel supply infrastructure.

The portion of the hydrant infrastructure contained within the New CTB ramp will be constructed as a part of the Project. The remaining portion of the new hydrant fueling system will be constructed as a separate project.

## 6.0 TERMINAL

### 6.1 INTRODUCTION

The design for the New CTB considers various factors, including external constraints on development and optimization of airside and landside functions, as well as internal constraints on planning principles and functional requirements. The terminal design is also influenced by construction phasing requirements, as outlined in Section 15.0.

### 6.2 IMPACT OF AIRSIDE AND LANDSIDE PLANNING

Impact of airside and landside planning informed the three levels of the terminal – departures, arrivals (and slightly lower concourse level), and ground transportation levels. In addition, the general arrangement of the terminal is characterized by an arc-shaped terminal headhouse with projecting attached piers.

A minimum depth of approximately 235 feet for the terminal headhouse was maintained. The alternatives for roads and landside facilities were developed along the south side of the site, adjacent to the GCP and the bridges connecting the airport site to the residential and commercial districts south of the GCP. The airside was likewise developed through a series of alternative studies within the general arrangement of the piers concept. The terminal fills much of the area between the expanded airside and landside zones.

### 6.3 INTERNAL PLANNING PRINCIPLES

The internal layout of the terminal was influenced by the following key criteria:

- Facilities requirements, including core passenger (TSA security screening check points) and baggage processing facilities, as well as support facilities (concessions, offices, operations, MEP, etc.);
- Unobstructed departing passenger flows through the building from the access points (roadway frontages and parking

- garage) through departing passenger processing to the holdrooms and gates;
- Unobstructed and direct arriving passenger flows through the building from the gate to baggage claim, and to the various modes of ground transportation or parking;
- Secure connections from one pier to another and to Terminal C;
- Unobstructed lines of sight providing passenger wayfinding and comfort; and
- Flexibility and adaptability of key passenger processing areas.

## 6.4 TERMINAL PLANNING

### 6.4.1 TERMINAL REQUIREMENTS

The terminal includes the following key programmatic requirements:

- 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;
- Two passenger Security Screening Check-Points (SSCP) with a total of 22 lanes, consistent with TSA specifications;
- Concessions, airline lounges, passenger amenities;
- Operations and support space; and
- Airside holdrooms, secure circulation and bridge gates to serve aircraft stands.

### 6.4.2 TERMINAL COMPONENTS AND PASSENGER CIRCULATION

From the frontage curb, departing passengers arrive at Level 3 or Level 1 (for ground transportation) and transfer to gates on Level 2. Arriving passengers move from gates on Level 2 through baggage claim and exit on Level 2 or circulate down to Level 1 for ground transportation access. See Figure 6-1 for main passenger circulation for both departures and arrivals.

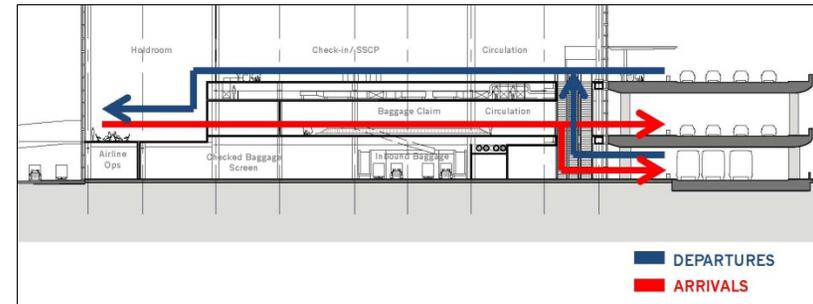


Figure 6-1 Passenger Circulation

As illustrated in Figure 6-2, the terminal headhouse is connected to piers by nodes, which house airline clubs and concessions. There are two double-loaded piers (Piers 2 and 3), two single-loaded piers (Piers 1 and 4) and a central concourse. A bridge provides connection between the headhouse and the West Garage.

### 6.4.3 HEADHOUSE

The following headhouse descriptions are illustrated in Figures 6-3 to 6-10.

#### LEVEL 3 (DEPARTURES)

Level 3, which houses the check-in hall and passenger SSCP, is served by an elevated roadway at the departures level. Curbside check-in positions are provided along a 38-foot wide sidewalk for departures drop-off. Multiple entrance vestibules give access to the check-in hall and a large open space with a flexible and adaptable layout. Access from ground transportation on Level 1 is provided by vertical circulation located in the multi-story space at the south side of the headhouse.

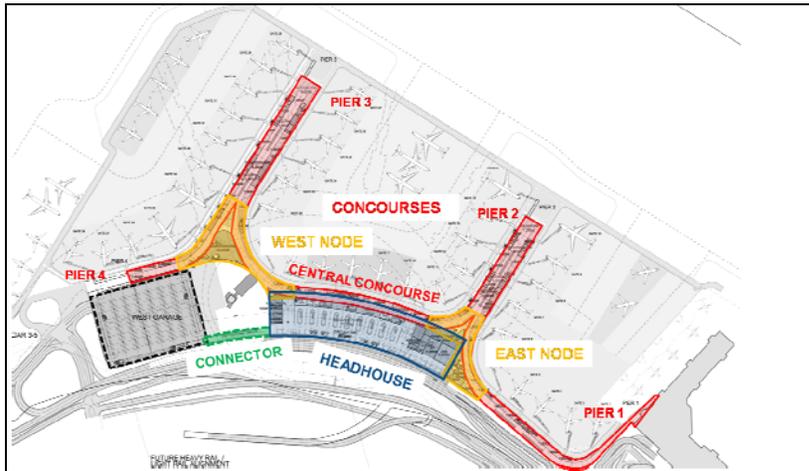


Figure 6-2 Terminal Components

The check-in hall has glass along its north wall in order to provide views to the airside. Multiple common use self-service (CUSS) kiosks, in addition to bag drops and full service check-in counters, are provided.

Two passenger SSCPs are located, one at the east end and the west end of the terminal. Passengers move down to Level 2 by way of escalators, elevators or stairs.

### LEVEL 2 (ARRIVALS)

Once at Level 2, passengers follow signage to their departure gates, most of which are located on one of the four piers.

Arriving passengers move from their gates to headhouse, which contains the baggage claim hall. Restrooms, concessions and airline service offices flank the baggage claim device area. Multiple vestibules provide access to the arrivals curb, with two taxi pick-up zones located at each end of the curb. Taxis will be readily available to join the taxi queue at the frontage. The full taxi holding area for the New CTB is located close to the terminal in P4 with direct access to the arrivals curb.

Access to ground transportation on Level 1 for arriving passengers is provided via multi-story vertical circulation at the south side of the headhouse.

### LEVEL 1 (GROUND TRANSPORTATION)

Level 1 of the headhouse houses contains baggage screening, major mechanical/electrical/plumbing (MEP) spaces, and operations and airline support spaces. The headhouse is fronted by the ground transportation lobby and curb, where access is provided for both departing and arriving passengers.

### NODES

Most passengers move through nodes, which connect the headhouse and piers. Nodes contain airline clubs at Level 3, connected by vertical circulation from Level 2, and a mix of retail and food and beverage concessions at Level 2.

### PIERS

There are two types of piers:

- 98-foot wide double-loaded piers ( Piers 2 and 3), and
- 55-foot wide single-loaded piers (Piers 1 and 4).

The piers consist of two principle levels. Holdrooms, concessions, restrooms, and other passenger spaces are located on Level 2, connected by central circulation corridors. Circulation spaces have moving walkways in both directions. Gate holdrooms are paired wherever possible. Passenger amenities are distributed throughout the piers.

Level 1 of the piers contains the baggage makeup areas and the main MEP spaces serving all piers, as well as airline and ground handling support spaces.

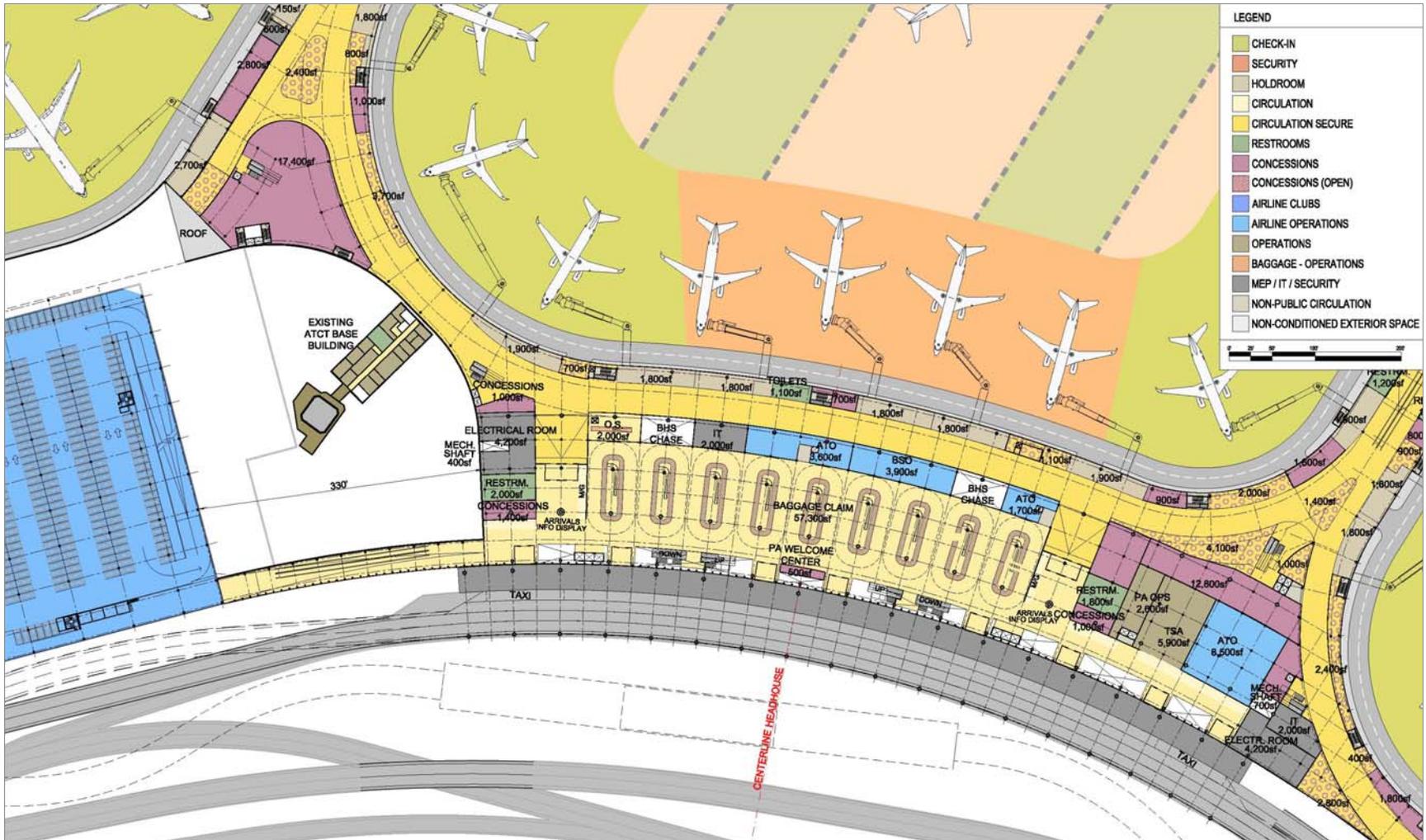
### CONNECTOR TO WEST GARAGE

The West Garage is located to the west of the terminal building and is connected at arrivals and departure levels by connecting corridor.

### 6.5 TERMINAL PLANS AND SECTIONS



Figure 6-3 Level 3 - Headhouse



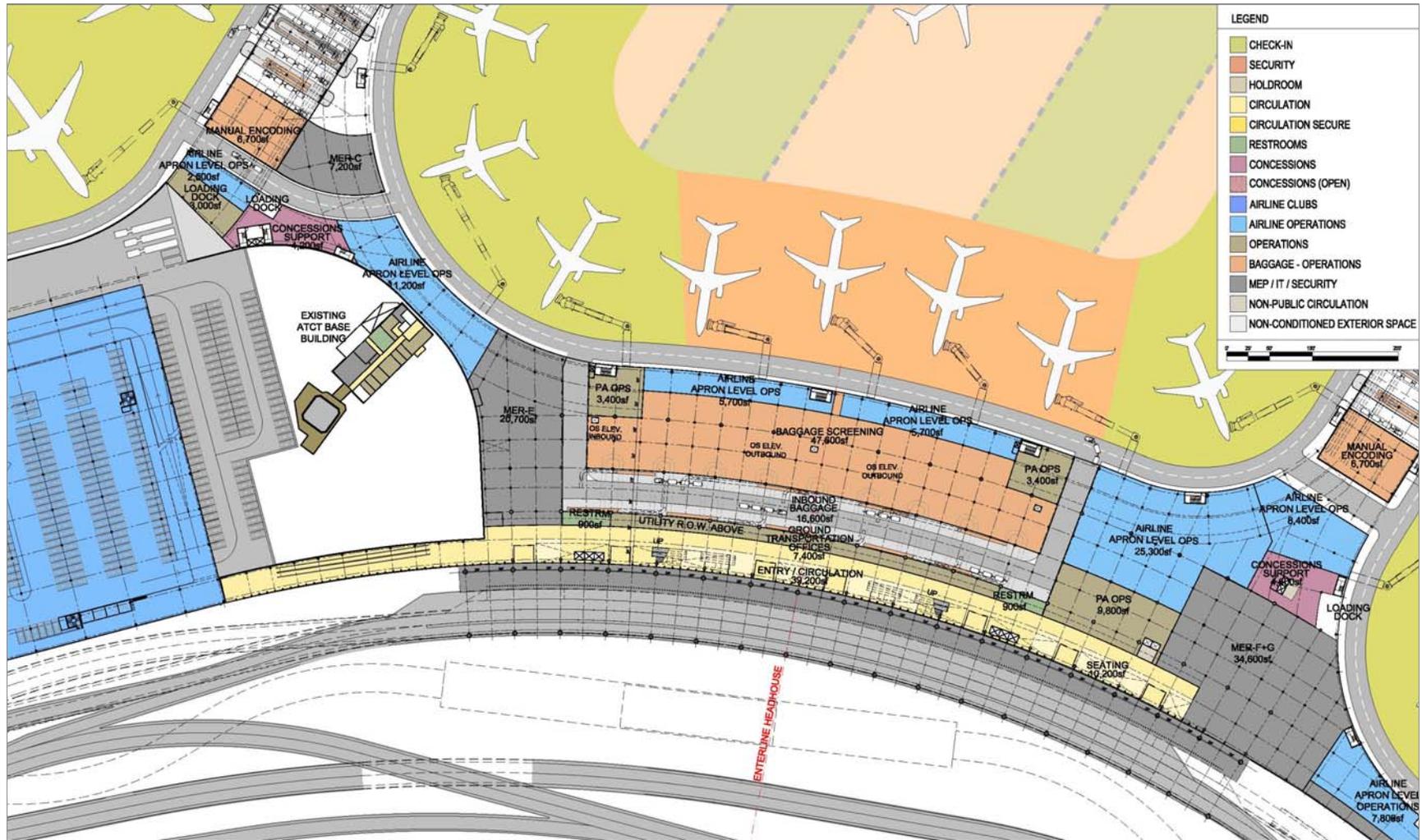


Figure 6-5 Level 1 – Headhouse

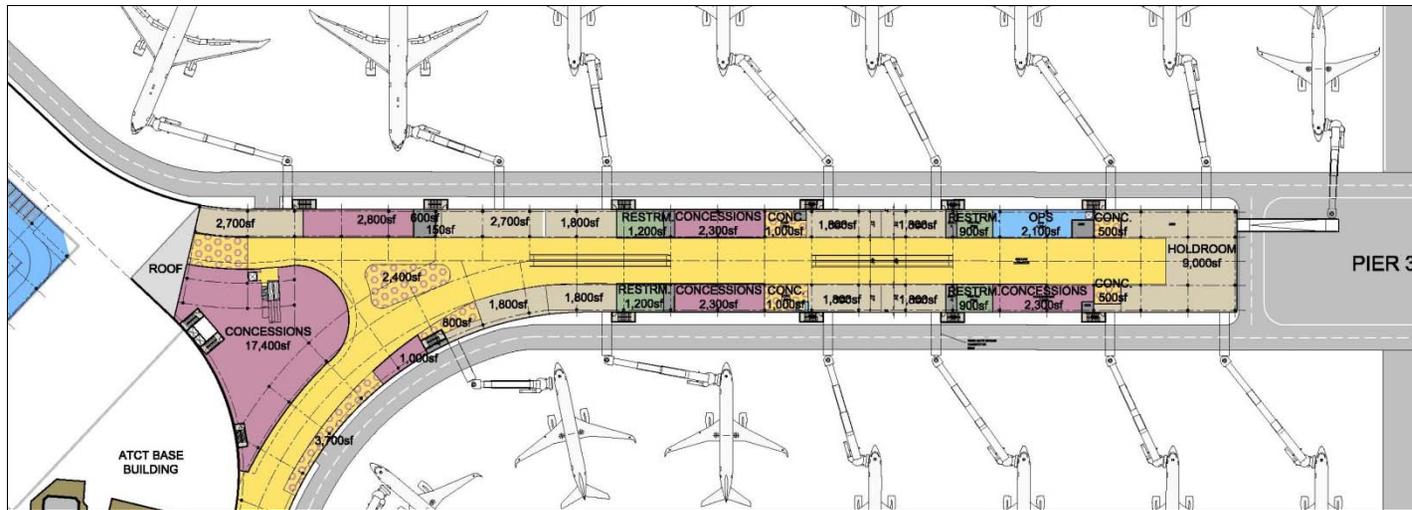


Figure 6.6 Level 2 – Pier 3

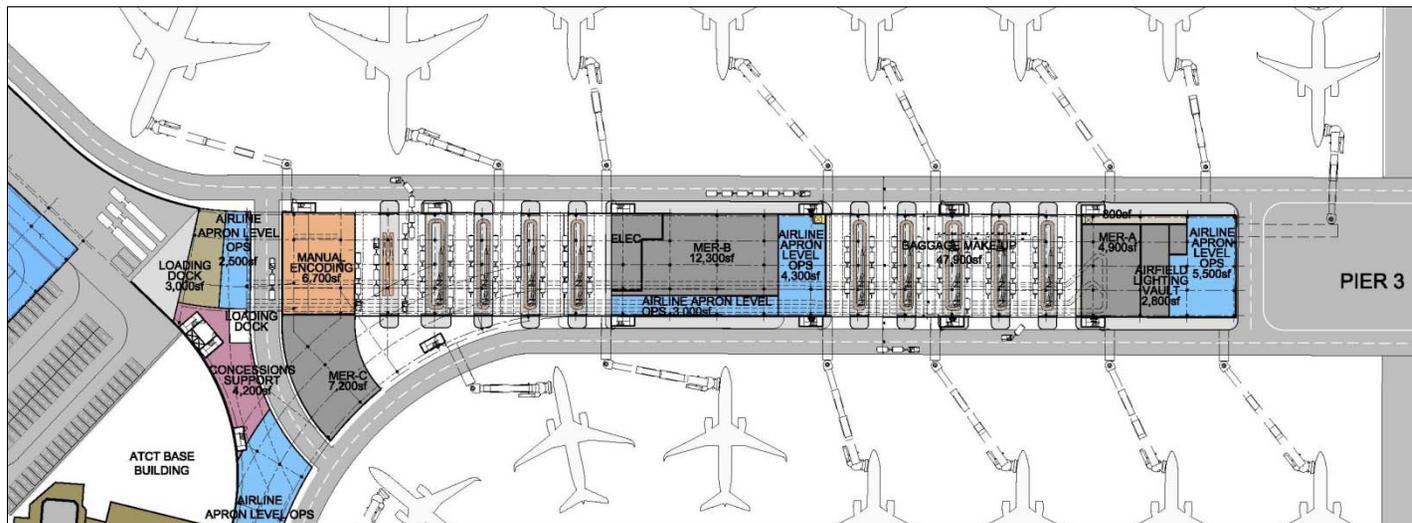


Figure 6-7 Level 1 – Pier 3

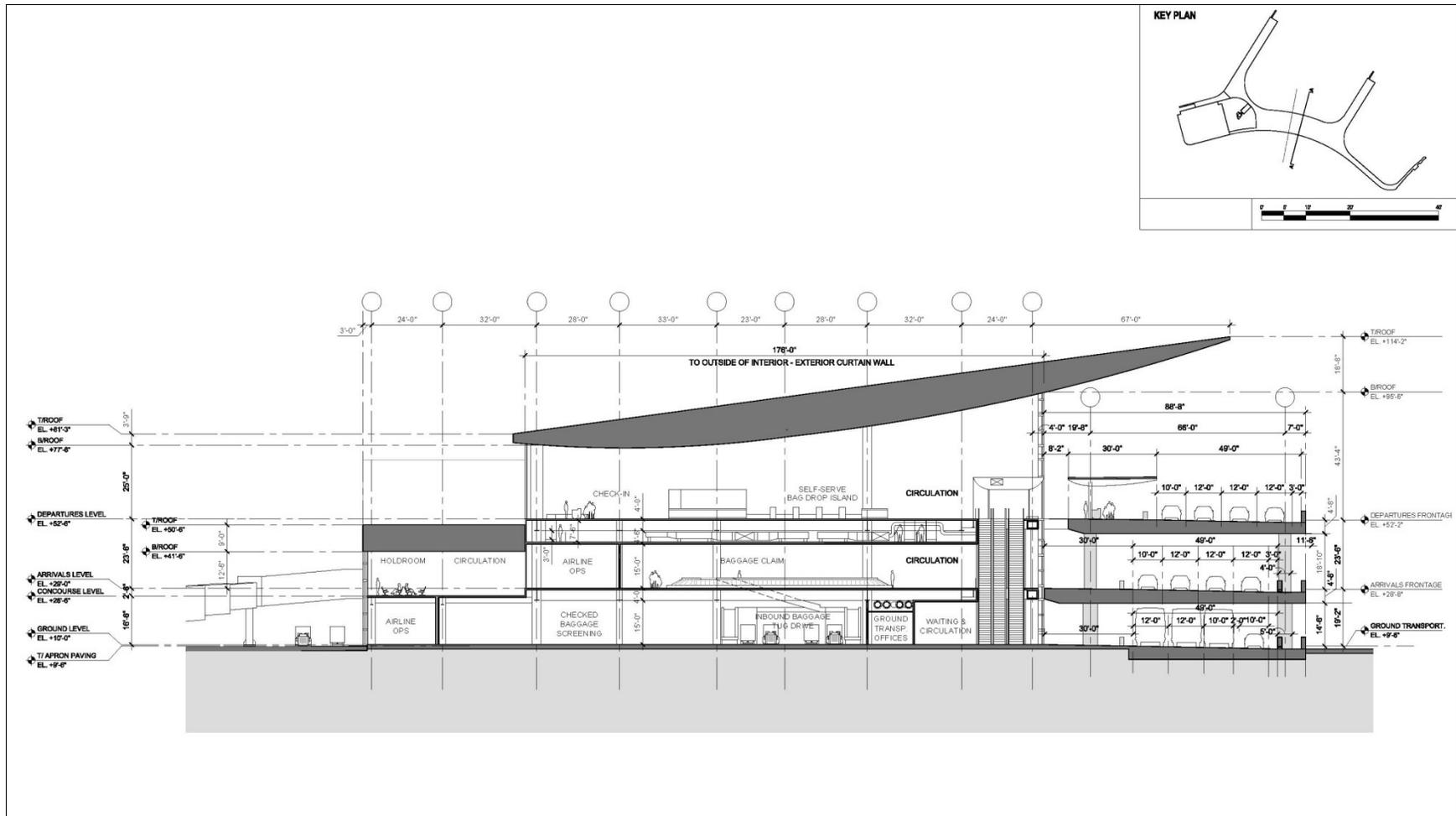


Figure 6-8 Section through Headhouse (at High Point) & Frontages

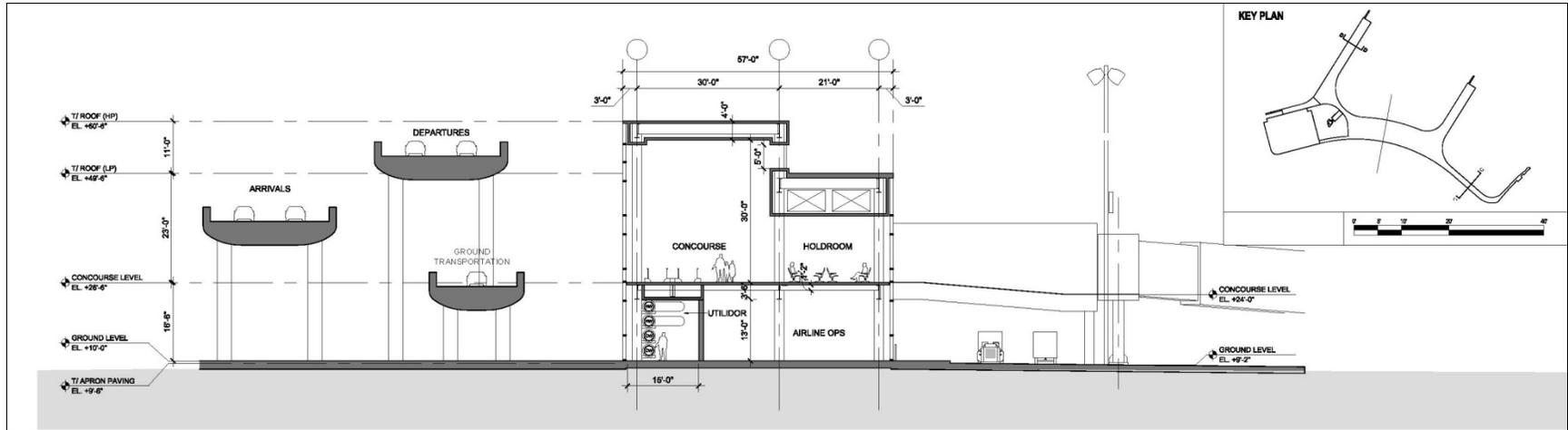


Figure 6-9 Section through Single Loaded Concourse

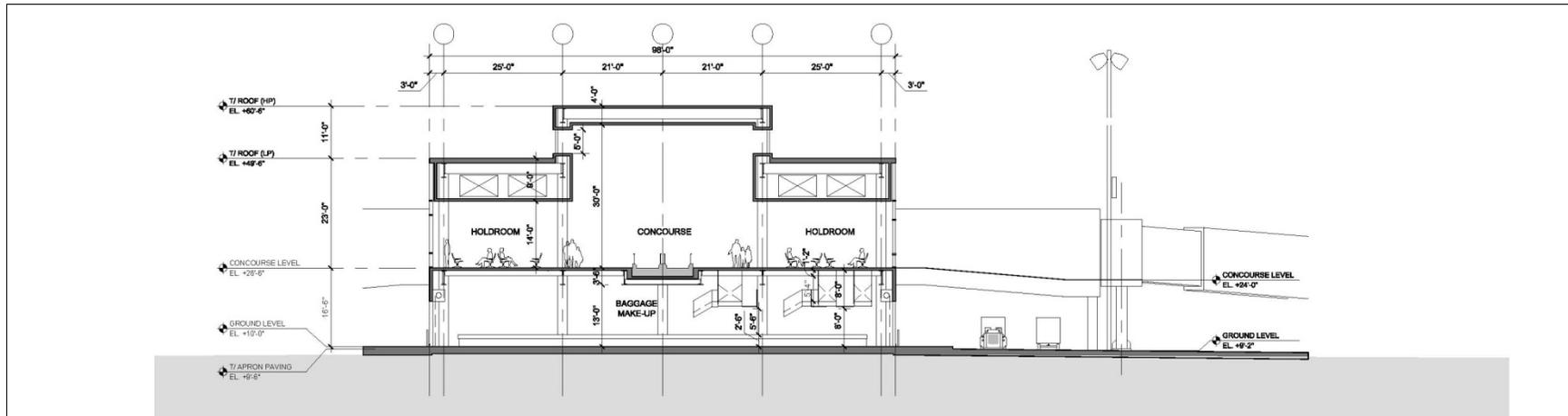


Figure 6-10 Section through Typical Double Loaded Concourse

## **7.0 LANDSIDE**

### **7.1 INTRODUCTION**

The Program's landside elements include roads designed to meet traffic volumes for the New CTB and Terminals C & D under a 34 MAAP demand forecast. Along with other landside program elements, such as taxiholds and parking facilities, roads provide clear and free-flowing access from the GCP to the terminals, and optimize free-flowing traffic movements along the terminal roads, where possible.

In addition, the landside components provide future rail access, taxi hold areas, central receiving and distribution, and a continuously operational air traffic control tower.

### **7.2 TRAFFIC PLANNING AND DESIGN CRITERIA**

#### **FUTURE 34 MAAP TRAFFIC VOLUMES**

The LGA 34 MAAP A.M. and P.M. peak hour traffic volumes within the study area are being developed based on projected peak hour frontage vehicular volumes and a 2010 origin-destination (O-D) traffic survey. The A.M. peak hour is 9:15 a.m. to 10:15 a.m., and the P.M. peak hour is 5:15 p.m. to 6:15 p.m.

#### **TRAFFIC CIRCULATIONS**

For proposed traffic circulation routes to the terminal from GCP Eastbound and Westbound, see Figures 7-1 to 7-2.

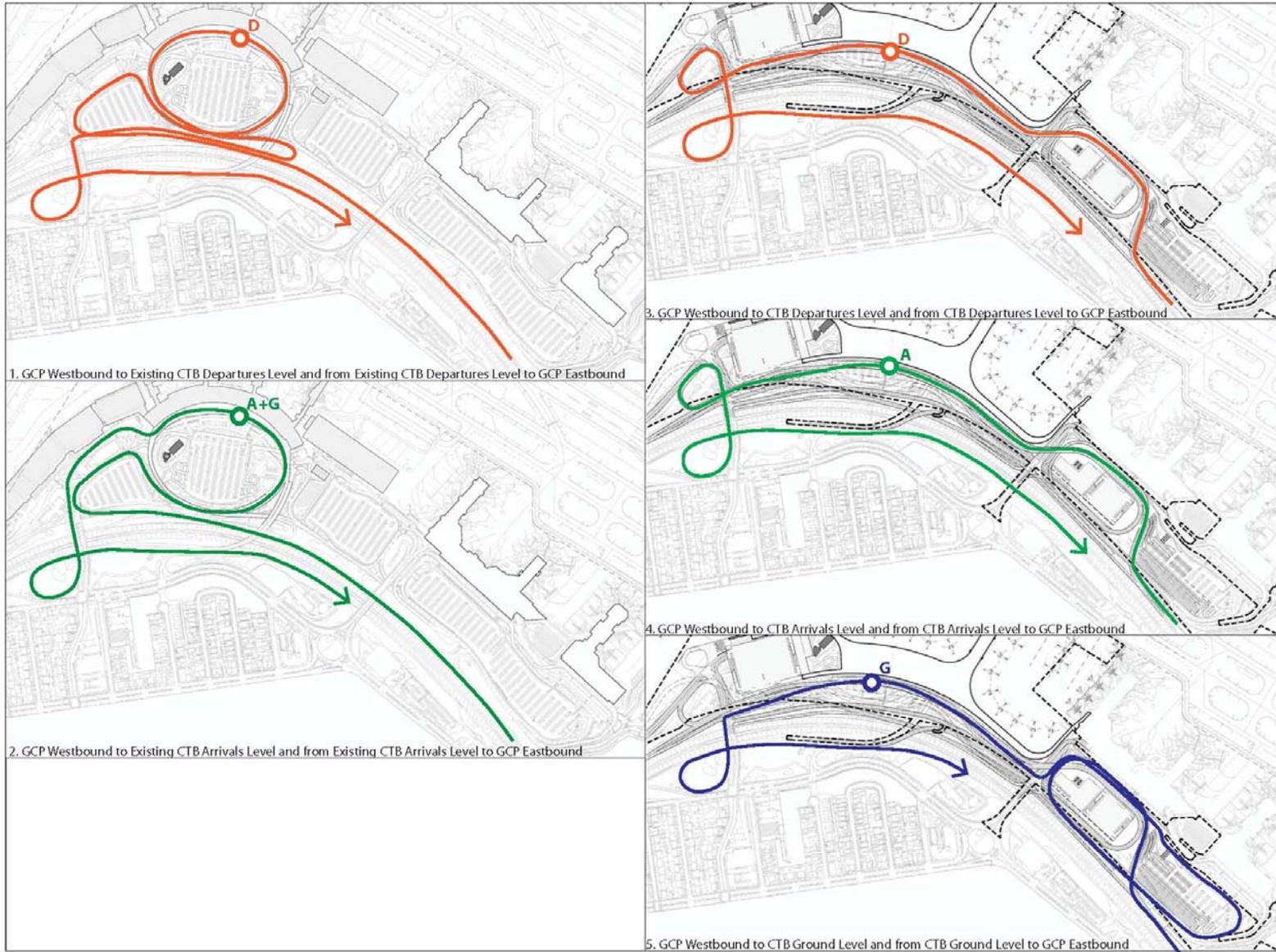


Figure 7-1 Roadway Circulation Diagrams – GCP Westbound to Terminal

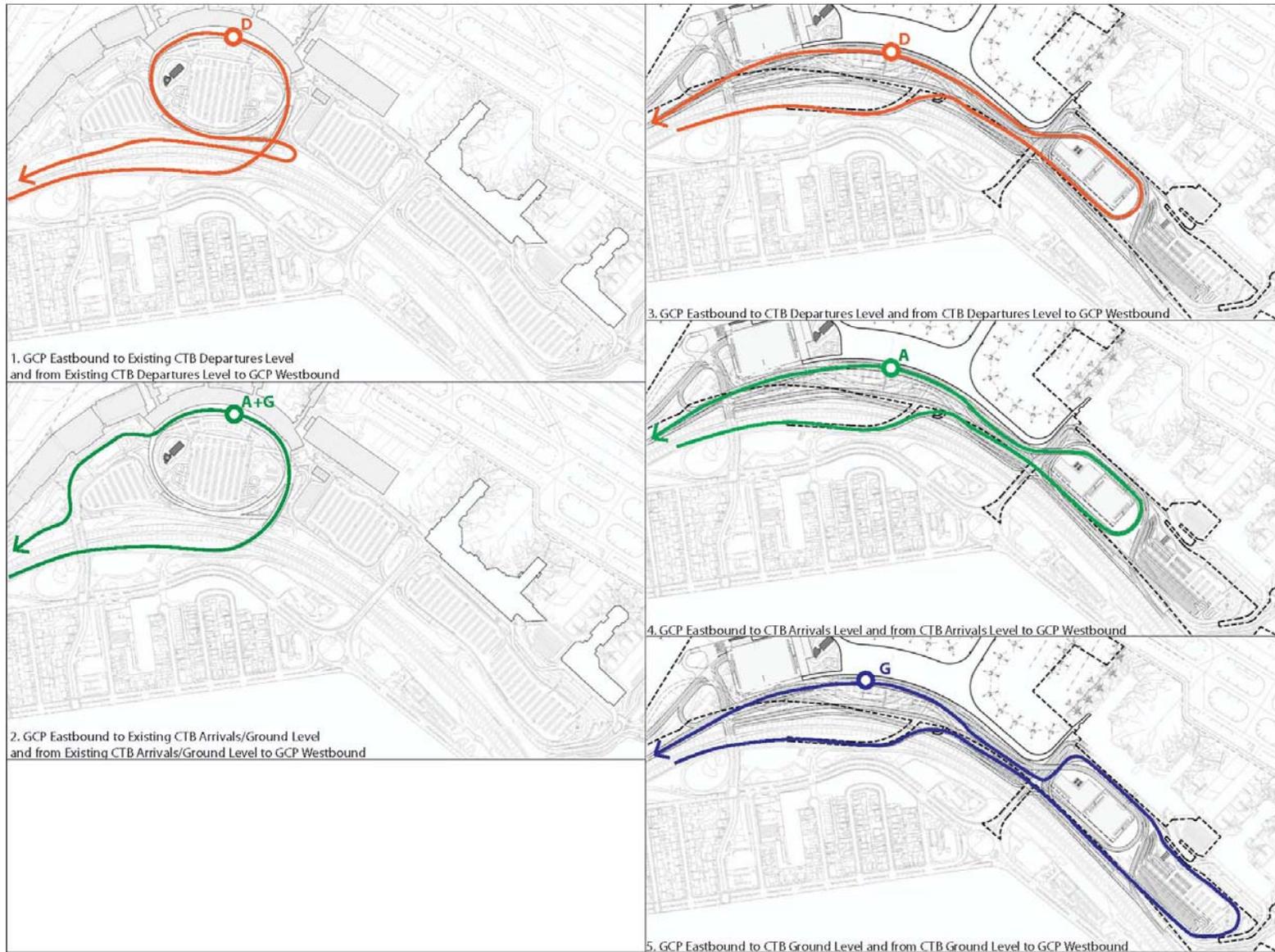


Figure 7-2 Roadway Circulation Diagrams – GCP Eastbound to Terminal

## 7.3 ROADS

### 7.3.1 SCOPE

The Program's roads include the following components:

- At-grade Frontage Roads and ramps;
- Elevated arrival and departure roads and ramps;
- At-grade loading dock and connecting roads to the West Garage;
- Connecting roads to Marine Air Terminal and GCP (East and West);
- Reconstruction of portions of the 94<sup>th</sup> Street and 102<sup>nd</sup> Street bridges; and
- No preclusion of heavy/light rail alignment.

### 7.3.2 FRONTAGE ROAD LAYOUT

Arrivals and departures Frontage Roads consist of one 10-foot drop off/pick up lane, one 12-foot maneuvering lane, two 12-foot bypass lanes, and a 3-foot outer shoulder. The ground level frontage consists of one 10-foot drop off/pick up lane, two 12-foot bypass lanes, a striped 3-foot median, one 12-foot HOV/bypass lane, and a 3-foot outer shoulder. All frontages are 900 feet long.

### 7.3.3 ACCESS ROADWAY

Connecting to the New CTB Frontage Roads are access roadways providing circulation within the airport and to the off-airport roadway system (GCP, 94<sup>th</sup> Street, and 102<sup>nd</sup> Street).

The following are typical access roadway widths:

- Three Lanes = 42 ft (three 12 ft lanes; two 3 ft shoulders)
- Two Lanes = 30 ft (two 12 ft lanes; two 3 ft shoulders)

- One Lane = 21 ft (one 15 ft lane; two 3 ft shoulders)

### 7.3.4 VERTICAL CLEARANCE

The following minimum clearances will be provided:

Item	Minimum Vertical Clearance
Roadway	14.5 ft
Overhead Sign Structure	15.5 ft
Overhead Traffic Signal	15.5 ft; 17.5 ft (maximum)
Above Heavy/ Light Rail	13.0 ft

## 7.4 FUTURE RAIL RIGHT OF WAY

The planning for future rail right-of-way is intended to accommodate either heavy or light rail. The Program design preserves the right-of-way for future rail and is designed to meet heavy rail geometric requirements, with an elevated station located in front of the New CTB and a second station located across from Terminals C and D.

The station at the New CTB will be located directly in front of the headhouse in the center of the landscape zone between the terminal frontage and the eastbound circulation road. See Figure 7-3 for passenger access.

The future station at the east end will be located between Terminals C and D at the south side of parking P4. Passengers would circulate down and access the site by crossing P4.

The Program does not include pre-investment in infrastructure. See Figure 7-4 for proposed light rail – heavy rail alignment.

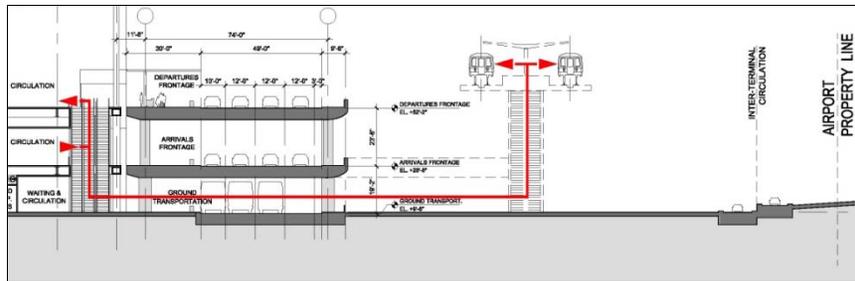


Figure 7-3 Potential Future Train Station Access

## 7.5 TAXI HOLD AREAS

Based on the 34 MAAP flight schedule, the Program aims to meet the following operational requirements to achieve a high level of passenger service:

- Terminals C and D taxi hold to remain in its current location; and
- New taxi hold with 300 spaces for the New CTB to provide quick access for taxis to reach arriving passengers at the curbside.

The new taxi hold is located along the southeast side of P4. A dedicated road is provided for access to the taxi hold and brings taxis directly to the taxi hold area without requiring them to circulate through the east end of the airport, thereby alleviating congestion. Direct access is also provided from the taxi hold to the New CTB arrivals frontage. A ramp to the arrivals frontage is provided for access from the taxi hold. This ramp is designed with two lanes allowing taxis to queue in the ramp while maintaining bypass and provides a holding pocket with direct access to the terminal frontage without using the frontage parking area.

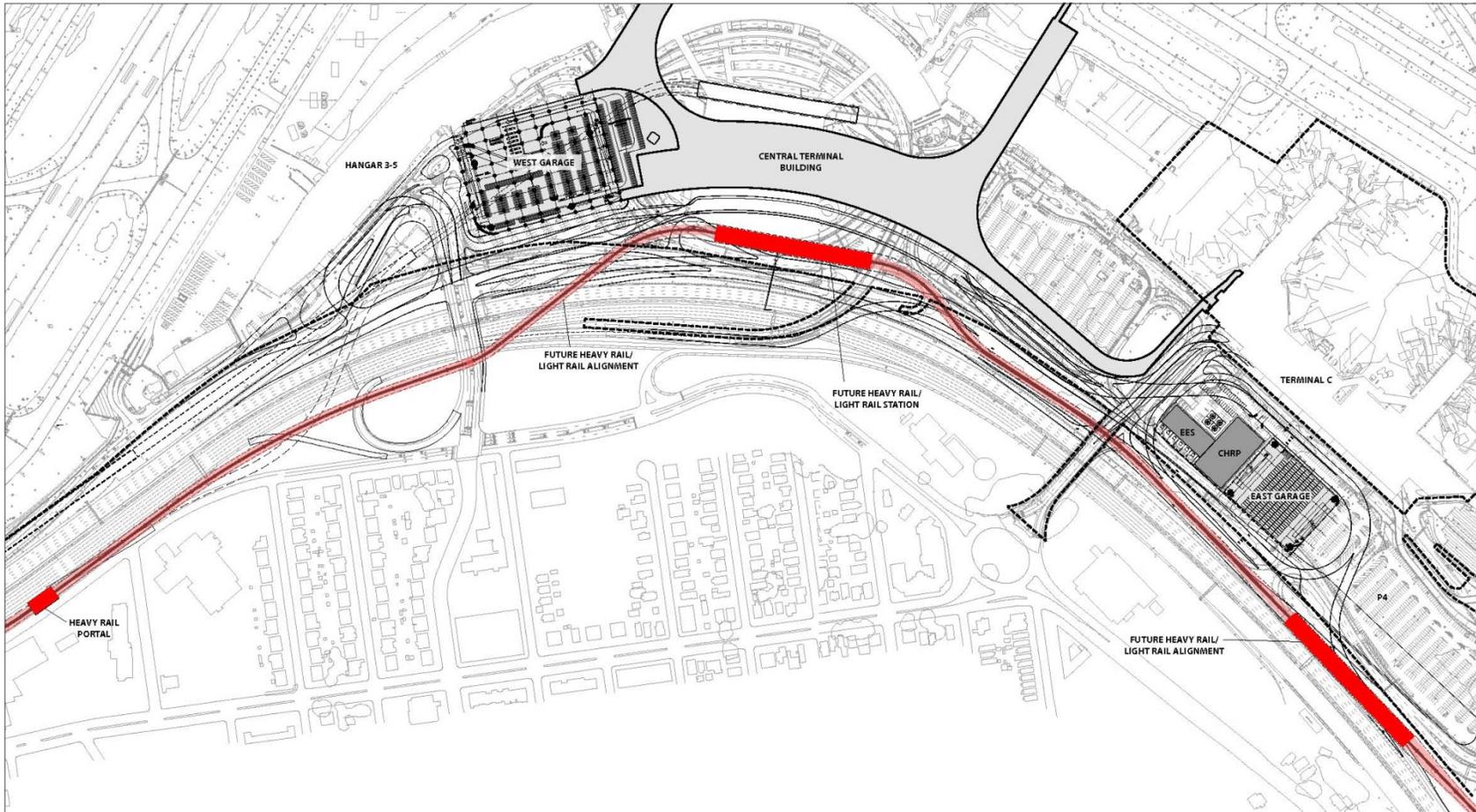


Figure 7-4 Light Rail - Heavy Rail Alignment

## 7.6 PARKING GARAGES

### 7.6.1 OVERALL CAPACITY AND PROGRAM DEMAND

The Authority seeks to maximize the number of available on-Airport public parking spaces throughout the construction period. There are currently approximately 6,800 public spaces at LGA, which includes approximately 2,700 in the existing CTB Garage.

Based on the annual air passenger forecast, a total of 5,200 spaces are required in the central terminal area, split between 2,800 spaces for the west end (near the existing CTB) and 2,400 spaces for the east end, including the East Garage, P4, and P5 (near Terminals C and D).

The Authority is considering the potential of parking optimization techniques to minimize the parking deficit during construction. Respondents should note that the existing CTB garage may not be demolished until the Authority completes construction of the East Garage.

### 7.6.2 WEST GARAGE

The West Garage is located on the current P1 lot, west of the New CTB. The West Garage consists of a grade level plus five elevated levels of parking for approximately 2,800 spaces.

The grade level of the parking structure consists of four entry lanes and eight exit payment islands, at-grade parking, access to and from reserved parking for the FAA, staff office and facilities, and a power sub-station serving the garage.

Access to five upper parking levels is provided by an external speed ramp system located on the west end of the structure for entering vehicles and a ramp system located on the east end of the structure for exiting vehicles. All parking levels are flat floors for ease of circulation and wayfinding. The structure connects directly to the New CTB at three levels: grade, arrivals, and departures. The West Garage is served by four stair towers and an elevator core with four elevators.

Typical height for the garage is 11'-6" floor to floor with 8'-6" clear height. The grade floor is approximately 15'-6" with a clear height of approximately 12'-6". See Figure 7-5 for more details.

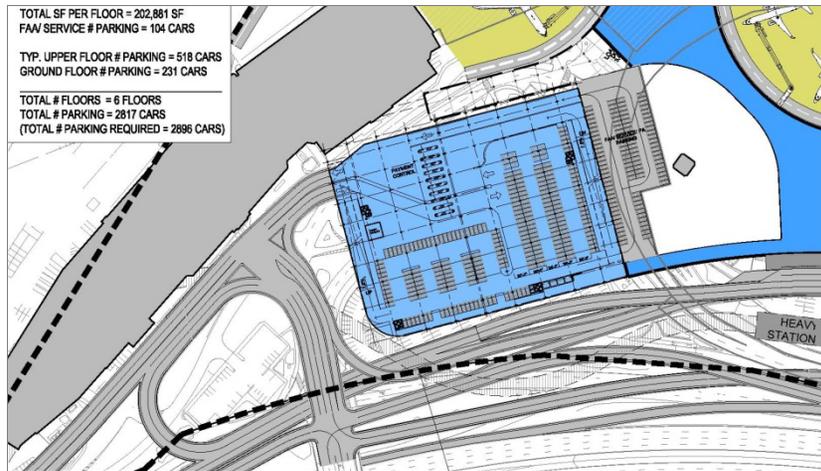
### 7.6.3 EAST GARAGE

The East Garage is located on the east side of the New CTB, south of Terminal C on the current P4 lot, and adjacent to the proposed EES and CRRP facilities. The East Garage will consist of a grade level plus five elevated levels of parking for approximately 1,100 spaces.

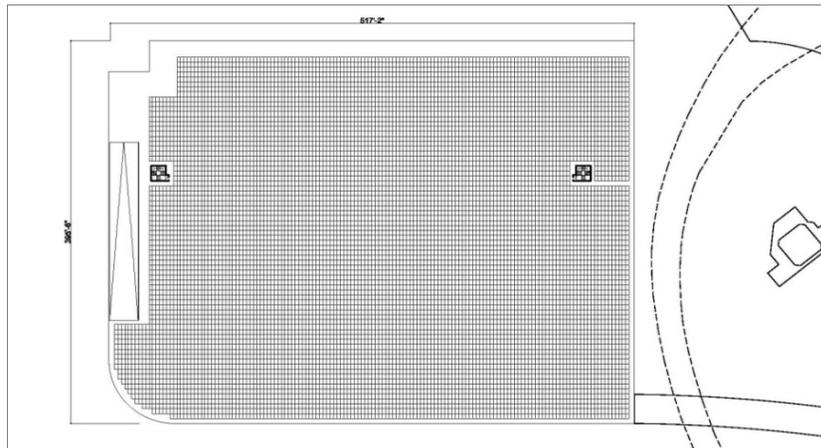
The East Garage is accessed through an entry plaza for P4. The exit plaza for both the surface parking on P4 and the East Garage is located at the west end of P4, east of the East Garage. The entry and exit points of the East Garage are located along the east wall.

Access to five upper parking levels is provided by a ramped parking section along the south end, which accommodates two-way circulation. The remaining parking on the north side of the structure is flat floors. The structure connects via a pedestrian bridge at Level 4 to the Terminal C, and elevators serve passenger vertical circulation within the East Garage to connect to the connector level and other vertical circulation back down in Terminal C. The East Garage is served by four stair towers and a three-elevator core.

Typical height for the garage is 11'-6" floor to floor with 8'-6" clear height. The grade floor is approximately 12'-6" with a clear height of 9'-6". See Figure 7-6 for more details.

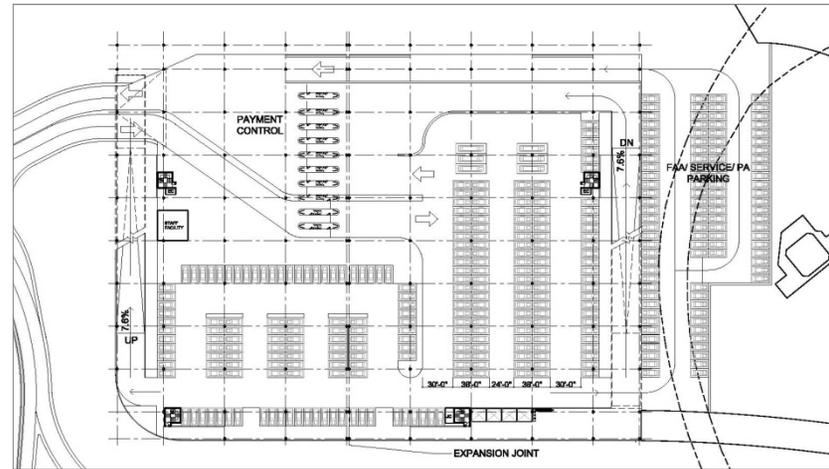


A. Site Context

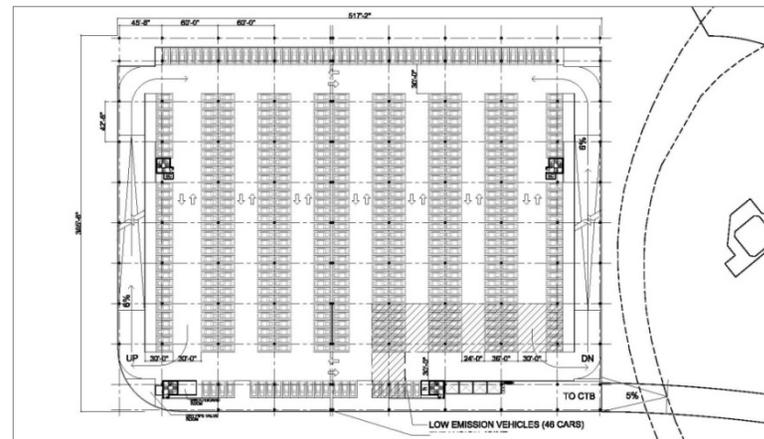


B. Roof Plan

Figure 7-5 West Garage

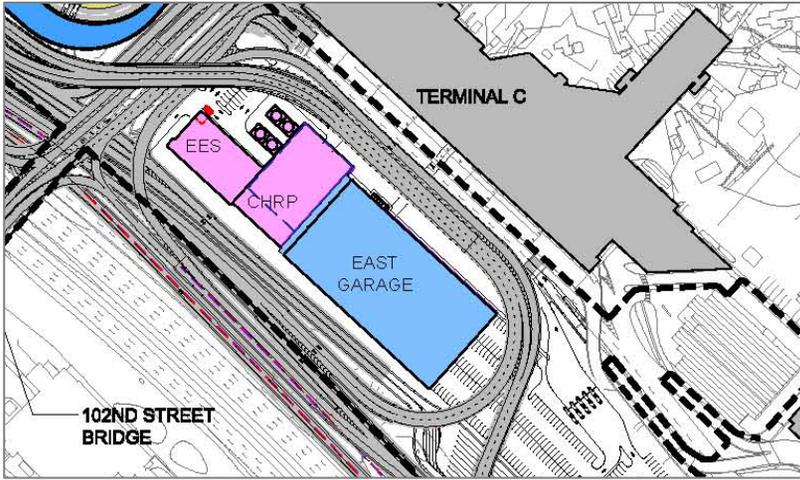


C. Ground Floor Plan

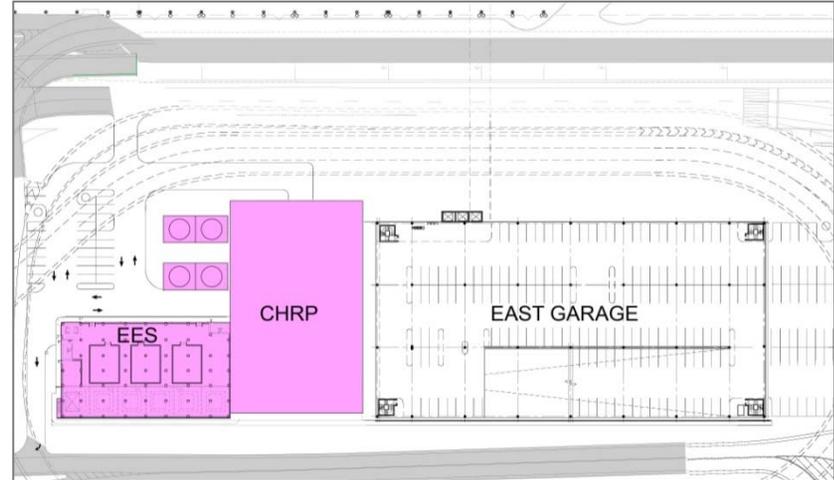


D. Typical Upper Floor Plan

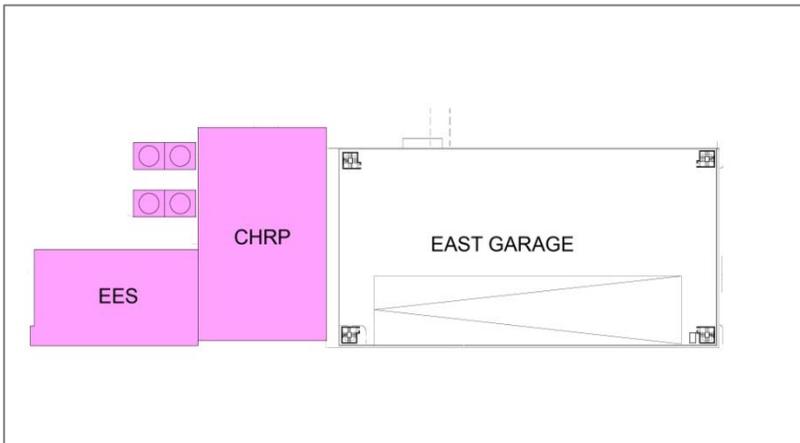
Figure 7-6 East Garage



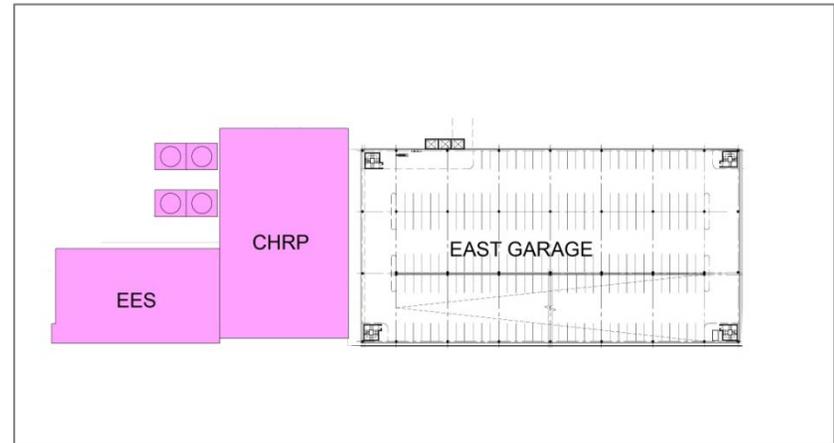
A. Site Context



C. Ground Floor Plan



B. Roof Plan



D. Typical Upper Floor Plan

## 7.7 CONSOLIDATED RECEIVING WAREHOUSE AND DISTRIBUTION (CRWD) FACILITY

### 7.7.1 GENERAL DESCRIPTION

Outside the confines of the Program, the Authority is planning a Consolidated Receiving Warehouse and Distribution (CRWD) facility in order to perform security screening of deliveries at a level consistent with the Design Basis Threat (see Section 9) and to improve the level of service for secure deliveries under centralized operations.

The CRWD site is planned for a remote location, either on or off airport. The facility will require landside access for all deliveries and provide truck screening, a receiving dock, screening and inspection of goods, short-term storage, and reloading onto airside vehicles for delivery to the terminals.

Receiving areas are required to accept the transfer of goods into the terminals. These facilities are expected to be located at-grade in the general vicinity of concentrated concessions or other facilities likely to receive significant deliveries of goods.

### 7.7.2 LOCATION

#### 35 NEW CTB GATES

Access for screened goods to the New CTB is provided through a landside loading dock located on the west end of the terminal. Airside access is anticipated for deliveries to Terminals A, C and D.

#### 38 NEW CTB GATES

In the future, the CRWD may be located at the New CTB with a screening roadway loop north of the proposed West Garage. The roadway configuration remains the same as in the 35-gate scenario with the addition of a screening roadway loop. Full length of the loading dock area is dictated by maneuvering on a WB-62 design vehicle truck.

## 7.8 AIR TRAFFIC CONTROL TOWER (ATCT)

The ATCT and support facilities are currently operational and must remain fully and continuously operational throughout Program construction.

The layout of the terminal and the West Garage provides an open courtyard around the existing ATCT. The current electrical and mechanical equipment within the building remains operational, while retaining the functional and equipment spaces located in the support building. The small entry at the north end of the support building is replaced and relocated to allow for the construction of the west node connection from the headhouse to pier 3. See Figure 7-7.

The tower remains in its current landside location, in a controlled environment within the courtyard at a greater distance from the Frontage Roads. Parking and the ATCT are accessed through the West Garage with the requisite security arrangements at the access point. A new vestibule attached to the modified ATCT will provide a new entrance to the building. Modifications to the support building, ATCT or associated infrastructure will be the responsibility of the Project.

As the manager and operator of the ATCT, the FAA has established noise, HVAC intake, courtyard access and tower maintenance equipment requirements that need to be adhered to during and after construction of the Program.

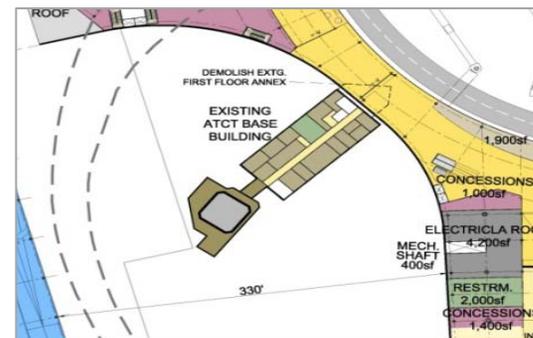


Figure 7-7 ATCT

## 8.0 INFRASTRUCTURE AND UTILITIES

### 8.1 INTRODUCTION

There are several infrastructure upgrades to the airside, which include MOS for Taxiways A and B, future extension of Taxiway A, and a hydrant fueling system. In addition, the Program requires substantial work on new in-ground landside and airside utilities, EES, and a new CHRP serving the New CTB.

### 8.2 EAST END SUBSTATION (EES)

The EES facility will eventually serve the New CTB as well as Terminals C and D, the CHRP, and the East and West Garage. As a part of the development of the new EES, a dual/ redundant ductbank may be installed connecting the existing West Electrical Substation (WES) with the new EES.

Currently, power to the existing substation is provided by Consolidated Edison (Con Ed) through four shared 27KVA feeders. Power to the EES will be provided by six shared feeders.

The EES shares parking facilities with the CHRP as well as clearance for vehicular access for maintenance and equipment replacement. The EES also requires an emergency power generator for its own power backup. In order to protect the EES from potential flooding, the main level of the facility is raised approximately 9 feet above the surrounding grade elevation. See Figures 8-1 for the EES site plan.

### 8.3 CENTRAL HEATING AND REFRIGERATION PLANT (CHRP)

The new CHRP serves the New CTB and is located adjacent to the EES. Preliminarily, the CHRP requires four cooling tower cells as part of the overall plant facility. Locating the cooling towers away from the area of the ATCT is important in order to avoid any potential for a plume to impede sight lines from the tower.

Adequate space for truck maneuvering is required for the servicing of boilers and chillers and access to the building for large equipment and future maintenance or replacement.

The CHRP is occupied around the clock. Therefore, offices, circulation, egress, storage, support space, and visitor and staff parking are included.

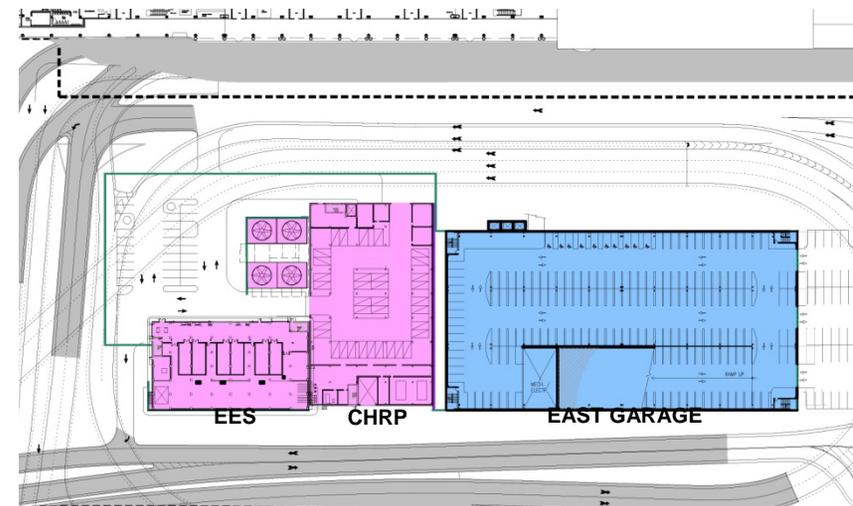


Figure 8-1 EES Site Plan

### 8.4 LANDSIDE AND AIRSIDE UTILITIES

The Program requires that existing utilities be relocated outside the footprint of new structures. In addition, the Program addresses the following functional requirements:

- Utilities are located to be accessible for maintenance and repairs;
- Trunk-line capacity of existing utilities is assumed to be adequate, although further assessment of the capacity of all utilities is required;
- Storm drains with a minimum 12-inch diameter;

- All pipes larger than 24-inch diameter to be pile supported; and
- Landside snow melting equipment to be mobile, with drainage provided in parking lots.

## **8.5 AIRFIELD LIGHTING VAULTS**

The airfield lighting vaults are critical to the operations of LGA, as they provide electric power to circuits serving runway and taxiway lighting, guidance signs, hold lights, and navigational and visual aid facilities, as needed.

LGA is currently served by two lighting vaults. The West Field Lighting Vault is located in a stand-alone building on the west of the airfield and serves Runway 4-22. The East Field Lighting Vault is located within Concourse D of the current CTB and serves Runway 13-31. The Program requires the construction of a new East Field Lighting Vault in order to maintain service. The Authority has determined that the preferred location for the new vault is on the airside at the east end of the airport, near pump house #4.

## 9.0 SECURITY DESIGN

The Authority has identified a series of design basis threats (DBT) and vulnerabilities for specific asset types within the Project. Performance criteria are also established for each asset type. It is anticipated that, as part of the Project's design and construction, the DBTs and vulnerabilities will be mitigated to satisfy targeted performance criteria.

Additional information will be made available through the Program's Security Information Manager (SIM) during the RFP.

## 10.0 SUSTAINABILITY

The sustainability assessment of the Project takes a multidisciplinary approach and aims to incorporate sustainable strategies into high performance design.

The New CTB will be designed in accordance with the Authority's [Sustainable Building Guidelines](#), as mandated by the [Authority's Sustainability Policy](#). Additionally, the project will be designed to achieve a minimum requirement of Silver under the LEED 2009 rating system, with a target rating of Gold. The following Authority policies are incorporated:

- Sustainability Policy;
- Sustainable Design Policy; and
- Bicycle Policy.

The Project will address the following Agency-wide priorities:

- Climate Change Adaptation; and
- Greenhouse Gas (GHG) Reduction.

The Program will integrate the following environmental permits and Approvals into the sustainability plans:

- Storm Water Pollution Prevention Plan;
- State Environmental Quality Review;
- Management of Subsurface Soil/Groundwater Contamination;
- Asbestos/Lead;
- National Environmental Protection Policy Act (NEPA) – FAA; and
- New York State Department of State Coastal Zone Management Program.

In addition, the Project will incorporate innovative strategies to address aircraft de-icing fluid through the FAA Voluntary Pollution Reduction program, as well as petroleum storage and conveyance systems (Hydrant Fuel Line System).

Requirements of the New York State Climate Action Plan (NY Executive Order No. 111) on energy use, GHG reduction and mitigation of environmental impacts have been included as additional Project goals.

The design adopts the [Authority's Sustainable Building Guidelines](#), its [Infrastructure Guidelines](#), and the [LEED 2009 Reference Guide for Green Building Design and Construction](#) to assist with the selection of the most appropriate energy efficiency and water conservation measures. The Authority's sustainable design requirements are more stringent than the prerequisites of LEED 2009 requirements, and compliance may achieve the targeted LEED Gold rating. The selected design strategies include, but are not limited to the following targets:

- Optimized building envelope components, high performance HVAC systems, and buildings automation and control systems partnered to meet a 30% reduction in energy cost above the ASHRAE 90.1-2007 Baseline;
- Renewable energy, such as a photovoltaic system in order to generate 3% of the Project's annual energy requirements, consistent with the NY Executive Order No. 111 and the Authority's requirements;
- Purchase of green power through Renewable Energy Certificates (RECs) to meet the LEED goal of providing 35% of the Project's electricity from renewable sources; and
- Water efficient plumbing fixtures, storm water harvesting and reuse to meet and exceed the LEED requirement of 40% reduction in water use. The Project targets a total reduction in water use of 45% which would award an additional LEED point under the "Exemplary Performance" category.

Links to the following Authority documents are embedded in this section:

Authority Sustainability Policy – <http://www.panynj.gov/about/pdf/PA-Sustainability-Policy.pdf>

Sustainable Building Guidelines – <http://www.panynj.gov/about/pdf/Sustainable-building-guidelines.pdf>

Authority Sustainable Infrastructure Guidelines – <http://www.panynj.gov/about/pdf/Sustainable-infrastructure-guidelines.pdf>

## 11.0 ENVIRONMENTAL ASSESSMENT

Consistent with FAA policies and procedures for compliance with NEPA, the Authority is preparing an environmental assessment (EA) for the implementation of the LaGuardia Airport Central Terminal Building Replacement Program (CTB Replacement Program). The CTB Replacement Program EA, as described herein, does not address certain Program elements (East End Substation and East Garage) which are undergoing a separate EA submitted prior to the EA described herein. Together, the EA for the East End Substation and East Garage and the EA for the Replacement Program address the environmental review requirements for all Program elements. See Figure 11-1.

With the FAA acting as the Lead Agency, the CTB Replacement EA is currently underway.

### Environmental Review Documentation and Scope

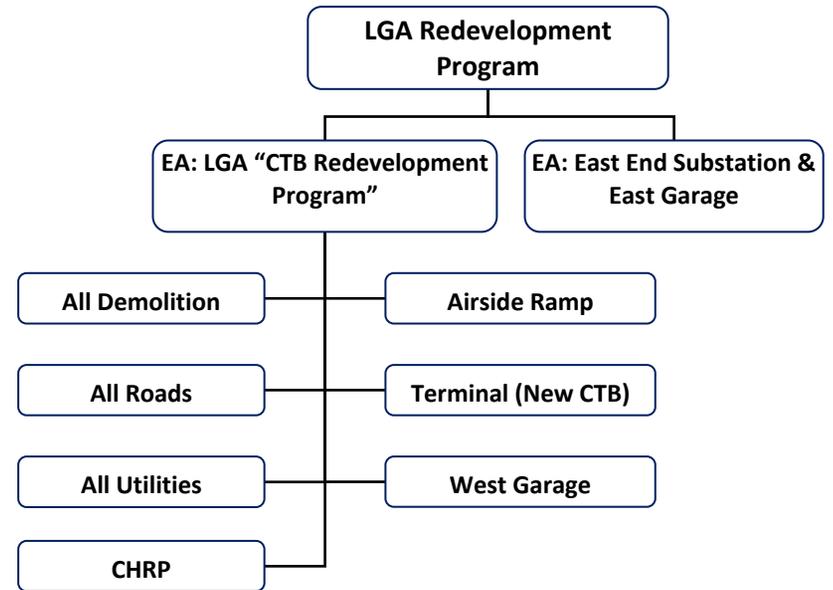


Figure 11-1

## 12.0 CONSTRUCTION COST ESTIMATE

The Authority’s total cost estimate for the Program is \$3.6 billion, including an estimated construction cost of \$2.595 billion. Figure 12-1 summarizes construction costs by Program element.

The cost estimate was developed by applying Authority pro forma factors for project delivery costs. Included in the Program cost estimate are construction costs, soft costs, and markups such as design and construction contingency, general conditions, overhead, performance/payment bond costs, and fees. Financing costs are excluded.

This cost estimate assumes a traditional project delivery method. These costs assume that all Program elements will be procured via a design-bid-build format with no fast track packaging. The construction cost estimate for each of the items listed is based on historical cost data, best practices and with consideration of the size and complexity of the Program.

Construction of the Program is assumed to start in the First Quarter of 2014 with escalation of costs at 3.25 percent per annum, compounded through the mid-point of construction of each sub-project element and is based on preliminary phasing plans.

The decision to procure the Project using a design, build, finance, operate and maintain method was made with the expectation that this delivery approach would engender cost and schedule efficiencies that would ultimately reduce the construction cost estimate significantly. See Section 14 regarding Project Delivery.

### Construction Cost Summary

<b>Construction Cost Estimate Summary</b> (in millions)			
<b>Program Element</b>	<b>Delivery Responsibility</b>		
	<b>Project Company (Project)</b>	<b>Port Authority (Supporting)</b>	<b>Total Cost</b>
Terminal - 35 gates (Demo. Existing)	1,500		1,500
Aeronautical Ramp within Leasehold	100		100
Airside Utilities	20	10	30
Hydrant Fueling Infrastructure	30		
Terminal Frontage Roads	100		100
Demolition: Hangar 1, CTB Garage	20		20
Airfield Modifications		60	60
Roads & Parking Garages/Lots		530	530
Central Heating & Refrigeration Plant	95		95
East End Substation		55	55
Landside Utilities		50	50
Demolition: Hangars 2 and 4		25	25
<b>Total</b>	<b>\$1,865</b>	<b>\$730</b>	<b>\$2,595</b>

Figure 12-1

## 13.0 CURRENT LGA LEASES AND OPERATIONAL STRUCTURE

### 13.1 CITY LEASE

The Authority operates LGA and JFK under a City Lease which expires on December 31, 2050.

### 13.2 RELEVANT LGA AGREEMENTS

The Authority has entered into various agreements with airlines, other tenants and service providers at LGA as listed below.

#### 13.2.1 AIRLINE LEASE AGREEMENTS

The Authority is party to the following major agreements with the airlines at LGA:

- Freedom Agreement – The Freedom Agreement covers the use of the public aeronautical areas, known as Public Aircraft Facility (PAF) at LGA and establishes the cost recovery formula, which determines the landing fee, also known as the Flight Fee, through 2023. In 2011, the Flight Fee was \$7.39 per 1,000 pounds.
- Delta Air Lines Passenger Terminal Leases – These are exclusive area agreements for Terminal A, Terminal C (formerly US Airways) and Terminal D and cover basic airport related requirements and rentals. Delta Air Lines Leases extend through 2015, which are subject to mutual termination without cause.
- CTB Leases - The existing CTB airline and other tenant agreements cover basic terminal related requirements, exclusive area leaseholds, common area leaseholds, rentals, and various cost recoveries specific to the existing building. See Section 13.2.4 for a list of existing CTB airline and other agreements, which are subject to mutual termination without cause.

#### 13.2.2 CTB TERMINAL CONCESSIONS

The Authority has authorized the extension of its concessions management lease agreement with MarketPlace LaGuardia Limited Partnership (MarketPlace) for the existing CTB to ensure continuation of management services while the Project advances. Although the lease will be extended through August 2018, the Authority will have flexibility with respect to early termination and renewal options. Under this agreement, MarketPlace has the right to manage all retail, food and beverage and duty free sub-tenants in the existing CTB. Revenues from these concession subtenants are shared between the Authority and MarketPlace, with certain additional revenue sharing arrangements with the airlines. The agreement may be terminated according to its terms prior to its expiration.

#### 13.2.3 OTHER RELEVANT NON-AIRLINE AGREEMENTS

The Authority expects to retain responsibility for the following services provided under third-party contracts:

- The Authority currently contracts with JC Decaux Airports for advertising throughout LGA and other Authority facilities through August 2020.
- The Authority currently has a telecommunications access contract with New York Telecom Partners for Wi-Fi and cellular services at all its airports. The contract base term ends August 2014 and includes a 10-year renewal period at the contractor's option.
- The Authority will continue to provide certain third-party operating permits for such services as ramp, in-terminal passenger and in-flight catering, GSE maintenance, and other related services.

**13.2.4 List of Agreements: Existing CTB**

The Authority is party to the following leases and agreements:

Airline Agreements		
TENANT	TYPE	EXP DATE
Air Canada	Lease Agreement	Dec. 2015
AirTran	Gate Use Agreement	Dec. 2015
American Airlines	Lease Agreement	Dec. 2015
Frontier	Gate Use Agreement	Dec. 2015
JetBlue	Gate Use Agreement	Dec. 2015
JetBlue	Lease Agreement	Dec. 2015
Southwest	Gate Use Agreement	Dec. 2015
Southwest	Basic Airport Lease	Dec. 2015
Spirit	Gate Use Agreement	Dec. 2015
Spirit	Lease Agreement	Dec. 2015
United	Gate Use Agreement	Dec. 2015
United	Lease Agreements (2)	Dec. 2015
US Airways	Lease Agreement	Dec. 2015

Other Agreements		
TENANT	TYPE	EXP DATE
Allied Aviation Holdings	Space Permit	Dec. 2015
ARINC Inc.	Space Permit	Dec. 2013
Certified Aviation Svcs.	Space Permit	Dec. 2015
JetBlue	Space Permit - Baggage	Dec. 2015
Oxford Electronics	Space Permit	Dec. 2015
Servisair	Office Space Permit	Dec. 2015
Swissport USA	Space Permit	Dec. 2015
TSA	Office Space Permit	Dec. 2015
Delta	Privilege Permit - Ramp	Dec. 2015
American, United and the Authority	Airport Security Program (ASP) Exclusive Area Agreements	N/A

**13.3 TERMINAL OPERATIONS AND MAINTENANCE**

The Authority operates the existing CTB with its own staff and with outsourced labor pursuant to certain operations and maintenance contracts. Tenant airlines assume operational and maintenance responsibilities for their exclusive area leaseholds including, but not limited to, airline ticket offices, holdrooms, lounges, office areas, loading bridges, and baggage make-up areas. The Authority does not have financial information on the airlines' costs related to their operation and maintenance responsibilities.

The Authority has entered into the following operation and maintenance contracts for the existing CTB:

O&M Contracts		
CONTRACTOR	SERVICE	EXP DATE
Aviation Safeguards via United*	Secure Access Doors - Alarm Monitoring & Response	Aug. 2013
Guardian	Cleaning	Jul.2013
Henry Brothers Electronics	Access Control System Maint.	Apr. 2013
Oxford	Baggage Belt Maint., Vehicle Arrest System	Nov. 2012
Aero Snow Removal	Snow Melting and Removal	Oct. 2014
Oxford	Loading Bridge	Nov. 2012
Schindler	Elevator/ Escalator Maint.	Sept. 2014
Signature Technologies	Flight Information Display System Maint.	Oct. 2013
*United is the signatory to a contract with Aviation Safeguards. The Authority reimburses United for its pro-rata share of the CTB.		

### 13.4 HISTORICAL FINANCIAL PERFORMANCE OF THE EXISTING CTB

Figure 13-1 summarizes operating revenues and direct operating expenses for the existing CTB for 2007 to 2011.

The historical financial results presented are not indicative of the potential financial performance of a New CTB. The age and condition of the existing CTB limits the amount of revenues generated from the terminal. In particular, terminal concession revenues are impacted by space limitations, location (a majority of concessions are located before security checkpoints) and other physical constraints in the terminal.

As noted, the table does not include the Authority's indirect and administrative costs or its capital charges. As discussed in the prior section, the airlines and other CTB tenants directly pay for certain operating and capital expenses they incur. Those amounts are not reflected in the table.

In addition, the Authority receives approximately \$2 million annually of permit fees associated with the existing CTB that are not included in Figure 13-1 table. These revenues would be made available to support the Project.

<b>Existing CTB - Operating Revenues and Direct Expenses</b> (\$'s in '000s)					
	2007	2008	2009	2010	2011
<b>Operating Revenues:</b>					
Airline Rents & Charges	\$ 28,901	\$ 29,505	\$ 30,797	\$ 34,029	\$ 33,747
Terminal Concessions	8,571	8,564	7,683	8,141	8,743
Advertising & Telecommunications	4,716	3,713	3,076	3,720	3,763
Other	<u>264</u>	<u>298</u>	<u>408</u>	<u>404</u>	<u>324</u>
<b>Total</b>	<b>\$ 42,451</b>	<b>\$ 42,081</b>	<b>\$ 41,964</b>	<b>\$ 46,294</b>	<b>\$ 46,577</b>
<b>Direct Operating Expenses:</b>					
Labor	1,394	1,653	1,536	1,440	1,433
Contractual Services	5,347	5,589	5,886	5,223	5,879
Utilities	2,534	2,468	2,826	2,785	2,745
Other	<u>723</u>	<u>2,234</u>	<u>647</u>	<u>430</u>	<u>516</u>
<b>Total</b>	<b>\$ 9,998</b>	<b>\$ 11,944</b>	<b>\$ 10,895</b>	<b>\$ 9,878</b>	<b>\$ 10,572</b>
<b>Net Operating Income*</b>	<b>\$ 32,453</b>	<b>\$ 30,137</b>	<b>\$ 31,069</b>	<b>\$ 36,416</b>	<b>\$ 36,005</b>

\* Net Operating Income excludes indirect operating expenses (e.g., insurance, airport administrative, Authority allocated and other expenses) and capital charges (e.g., amortization and depreciation).

Figure 13-1

## 13.5 FEDERAL REGULATION OF BUSINESS AND FINANCIAL PRACTICES

Federal regulations impose various legal requirements on business and financial practices at LGA. Those requirements include, but are not limited to, a prohibition on the granting of exclusive rights to aeronautical users and a prohibition against discrimination with respect to aeronautical users. Federal regulations also impose legal requirements for airport operation of concessions related to disadvantaged business enterprises (ACDBEs), including but not limited to reporting and participation requirements. See [Section 3.2](#) of the RFQ (*Procurement Considerations for Prequalified Respondents*) specifically [Section 3.2.6](#) and [3.2.7](#) therein.

## 14.0 PROJECT DELIVERY

### 14.1 INTRODUCTION

The Authority has identified the "Design Build Finance Operate and Maintain" (DBFOM) project delivery method as the best means to achieve its objectives for the Project. The DBFOM methodology is intended to transfer the responsibility and risk of delivering the Project on-time and within budget from the Authority to a third-party entity under a long term lease.

The Authority is preparing conceptual design documents that will further define the scope of construction that will meet the needs of LGA over the life of the Project. These documents will be available to Prequalified Respondents during the RFP. The drawings and other information in this PBB are provided for the purposes of illustrating the magnitude and complexity of the Project as they prepare their SOQs.

### 14.2 ANTICIPATED CONTRACTUAL STRUCTURE

With the issuance of the RFQ, the Authority commences a procurement process, which is expected to culminate in the selection of a Project Company through an RFP process. The Authority expects to enter into Project Documents, which may include a lease and various agreements with the Project Company for the right to design, build, finance, operate and maintain the Project.

The Authority expects that the selected Project Company will fund its share of the capital required for the Project. 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 Authority also anticipates sharing with the selected Project Company a portion of the in-terminal advertising and telecommunications revenues it collects from the New CTB. In addition, permit fees in the existing CTB will be made available to the Project.

Revenues from other facilities and activities at LGA are not available to the Project Company. These other revenues include but are not limited to flight fees and other aeronautical revenues, ground transportation revenues (including parking and rental car revenues), rents and other revenues associated with Terminals A, C and D, and other LGA revenues from facilities not included in the Project leasehold.

The Authority anticipates a lease for the existing CTB and New CTB would be effective from the date of lease execution through December 30, 2050.

Specific financial terms will be solicited during the RFP process. However, in addition to other financial provisions the Authority anticipates the annual payment of ground rent on a preferential basis equivalent to \$130,000 per acre in 2012 dollars with annual escalations, and a sharing of net revenues generated by the New CTB in a manner to be negotiated.

## **14.3 PRELIMINARY PARAMETERS FOR PROJECT FUNDING**

The Authority will request detailed proposals for the funding of the Project in the RFP process.

### **14.3.1 AUTHORITY FUNDING OF CERTAIN PORTIONS OF THE PROJECT**

The Authority anticipates funding a portion of the Project with Authority funds, and with Passenger Facility Charges (PFC) for certain elements of the Project that meet statutory and regulatory requirements.

At this time, the Authority anticipates the use of up to \$1.5 billion of PFC funding for the Program. Currently, the Authority anticipates allocating approximately \$1 billion of PFC funds to the Project, with the balance allocated to Supporting Projects.

PFC funding of any capital project is contingent upon FAA approval and the Authority has not at this time secured such FAA approval.

### **14.3.2 PROJECT EQUITY**

The Project Company will contribute Equity currently estimated to be at least \$200 million to the Project. The timing, amount, and conditions associated with this Equity will be set forth in the RFP.

### **14.3.3 SPECIAL PROJECT BONDS**

The Authority may provide the Project Company with access to Special Project Bond financing to enable the Project Company, if it deems it desirable, to fund a portion of the Project cost. Special Project Bonds were established by a resolution adopted by the Authority on June 9, 1983 (the “**Special Project Bond Resolution**”), and are special limited obligations of the Authority, secured solely by a mortgage by the Authority, in favor of the holders of such bonds, of facility rental as set forth in a lease with respect to a project to be financed with the proceeds of such bonds, by a mortgage by the lessee of its leasehold interest under the lease and by a security interest granted by the lessee to the Authority and mortgaged by the Authority in certain items of the lessee’s personal property to be located at the project, and such other security in addition to the foregoing as may be required by the Authority from time to time, as appropriate to the particular project. Neither the full faith and credit of the Authority, nor its reserve funds, are pledged to the payment of principal and interest on the Special Project Bonds.

The Special Project Bond Resolution contains certain requirements for the issuance of such bonds, which would need to be satisfied in order for the Project to be eligible. Such requirements include, but are not limited to, the following:

- No pledge of any general revenues of the Authority;
- No pledge of the general credit of the Authority or any of its reserve funds;
- Financing of a single project (as defined in the Special Project Bond Resolution) in one or more installments as the Authority may determine;

- Issued in a principal amount no greater than the amount determined by the Authority to be necessary to accomplish the purpose for which such Special Project Bonds are issued; and
- Secured in the manner defined in the Special Project Bond Resolution.

Prior to the issuance of Special Project Bonds, the Authority and the Project Company must enter into a lease for the premises that is the subject of the Special Project Bond financing, which would, among other things:

- Require the Project Company to agree to maintain and keep the premises in good condition at its own expense; and
- Establish a facility rental which will be sufficient to pay debt services on the Special Project Bonds.

More information about Special Project Bonds can be found in the Authority's Official Statement, which is located at: (<http://emma.msrb.org/EA446287-EA346315-EA742216.pdf>)

#### **14.3.4 CITY OF NEW YORK FINANCING**

Under the lease agreement with the City of New York, the City, including the New York City Industrial Development Agency, has also agreed that it will not finance any projects at LGA or JFK during the term of such lease agreement.

#### **14.4 MANAGEMENT & OPERATIONS: EXISTING AND NEW CTB**

The Project Company will be responsible for the ongoing operations, maintenance, management and strategic development of activities in both the existing and the New CTB, including the attraction and retention of airline service, the negotiation of all airline and non-airline tenant agreements, and procurement of applicable operational contracts.

The Authority expects to transfer operations and management of the existing CTB to the Project Company upon commencement of the lease. The Project Company will be responsible for the relocation of airlines and their services from the existing to the New CTB.

The Authority has engaged in preliminary discussions with the airlines at LGA about the Project. Formal business negotiations will not commence until a Project Company has been selected through the RFP process. The Authority anticipates that current airline leases in the existing CTB and New CTB will be negotiated by the Project Company.

In addition, the Authority anticipates that it will transfer all current terminal concession agreements for the existing CTB (other than those cited in the Current LGA Leases & Operational Structure) to the Project Company.

Various operational and maintenance activities in both the existing CTB and the New CTB are subject to Authority-established service and performance standards. These activities including the following:

- Terminal janitorial services;
- Equipment and systems maintenance, including baggage systems, loading bridges, HVAC, plumbing, Display Systems for flight, baggage and gate, Public Announcement system;
- Common Use Terminal Equipment / CUSS systems, etc;
- Terminal operations, including but not limited to passenger service functions such as skycaps/porters, and wheelchair services; and
- Gate scheduling and ramp control, consistent with Authority policies.

The Authority's standards for the management and operation of the New CTB will be set forth in the Project Documents.

## 15.0 CONSTRUCTION PHASING AND SCHEDULE

### 15.1 INTRODUCTION

The functionality of the existing CTB and its supporting infrastructure and facilities must be preserved throughout construction. Consequently, construction phasing is critical to the success of the entire Program given the extremely constrained site and limited staging resources.

Plans have been developed around established Program goals to assess the various elements that relate to construction phasing, including operational issues and detailed interfaces with the existing terminal and airside. Phasing has been divided into three major areas (landside, terminal and airside), each of which have a significant impact on the configuration of the existing and New CTB.

Phasing plans provided at the end of this section incorporate the following information:

- Phasing Plans
  - Overall Phasing
  - Roads and Utilities Phasing
- Operational Diagrams
  - Baggage Circulation by Phase
  - Passenger Circulation by Phase
  - Concessions by Phase
  - Parking During Construction
  - Terminal C Loading Dock Phasing
- Connector and Structural Details
  - Elevated Construction Details
  - Temporary Connector Details
  - Temporary Connector Sections

See the preliminary phasing plans in Section 15.4.4.

### 15.2 CONSTRUCTION STAGING

It is anticipated that portions of Employee Parking Lot 10E, located on the west side of the airport, will be made available for contractor staging. This area may be used for office trailers, sea containers, material lay down, equipment storage and some employee parking. LGA's Resident Engineer will manage this construction staging area. Space will be distributed between the Project Company and the Authority, as needed. Equipment and material must be set at least 10 feet from the airfield security fence. To the extent possible, contractor vehicles must use on-airport roads to travel between work sites and this staging area. Other small contractor staging areas will be made available within and adjacent to work sites, as needed and to the extent feasible. A new surface parking facility is under design in order to relocate employees from Lot 10E.

#### Traffic Flow Management During Construction

Security and traffic law enforcement on LGA's public airport roads is the responsibility of the Authority Police. Similarly, maintenance of these public airport roads (snow removal, non-construction related maintenance, etc.) is the responsibility of the Authority. Authority staff manage traffic flow and incident records throughout the airport and its parking areas. Contractors working on public airport roads will be required to follow the maintenance and protection of traffic requirements stipulated in the Project Documents, to help ensure a safe and uninterrupted flow of traffic on airport. Contractors will also be responsible for maintaining their work sites, implementing soil erosion and sediment control measures and keeping all public roads and adjoining areas free of dust, construction debris, equipment and material that could impact traffic flow. Daily lane closures are anticipated during permissible hours and nighttime construction operations will be needed for many aspects of the work including all lifting operations over active roads. Throughout redevelopment construction, all terminals must remain open and there will be no reduction in gate operations or flights without pre-planning with and concurrence by the affected airline.

### 15.3 ANTICIPATED PROGRAM SCHEDULE

<b>Project RFQ Process</b>	<b>4Q 2012 – 1Q 2013</b>
EES	4Q 2012 – 1Q 2015
<b>CTB Conceptual Design Completion</b>	<b>1Q 2013</b>
CTB Redevelopment Program Draft EA	1Q 2013
<b>Project RFP Process</b>	<b>2Q 2013 – 4Q 2013</b>
<b>CTB Preliminary Design</b>	<b>2Q 2013 – 3Q 2014</b>
East Garage Construction	2Q 2013 – 1Q 2015
West Garage Construction	3Q 2014 – 1Q 2016
Hangars 2&4 Demolition	1Q 2014 – 2Q 2014
<b>Project Construction/Demolition</b>	<b>3Q 2014 – 4Q 2021</b>
CTB:	
Piers Construction	2Q 2015 – 4Q 2020
Frontage Roads Construction	3Q 2015 – 3Q 2018
Headhouse Construction	3Q 2015 – 1Q 2019
CTB Garage Demolition	1Q 2015 – 3Q 2015
Hangar 1 Demolition	1Q 2019 – 3Q 2019
CHRP Construction	4Q 2015 – 3Q 2018
Apron Paving Construction	4Q 2015 – 3Q 2021
Piers Demolition	4Q 2016 – 2Q 2021
Headhouse Demolition	1Q 2019 – 2Q 2021

### 15.4 PHASING

The phasing alternatives analysis reflect the following assumptions which will be revised as the design of the New CTB is further defined:

- Maintain the minimum number of operating positions to support flight activity levels for air carriers in order to maintain adequate levels of service throughout each phase of construction;
- Maximize terminal and pier construction during initial construction phases;
- Minimize the need for temporary facilities;
- Maintain functionality of ATCT throughout construction;
- Minimize adverse impact to GCP traffic;

- Minimize impact to State Environmental Quality Review Act/NEPA processing/Environmental Permitting;
- Minimize overall construction durations; and
- For phasing purposes, assume the following construction durations:
 

Headhouse Construction	36 months
Pier Construction	15-18 months (each)
West Garage Construction	19 months
East Garage Construction	16 months
EES	21 months
CHRP	33.5 months
Headhouse Demolition	9 months
Garage Demolition	4 months
Pier Demolition	1.5-3 months (each)
Apron Paving	3 months (each)
Hangar Demolition	3 months (each)

#### 15.4.1 LANDSIDE PHASING

Landside construction phasing includes the following assumptions:

- Maximize parking in the terminal area;
- Provide all required vehicular circulation movements;
- Provide alternative means of terminal access for passengers and meeter/greeters (i.e. shuttle services) if pedestrian access from parking is not available during any phase of construction;
- Minimize the extent of landside operational impact during construction; and
- Minimize impact on CHRP and electrical substations, while maintaining service.

#### 15.4.2 TERMINAL PHASING

Terminal construction phasing includes the following assumptions:

- Maintain all operations and functions commensurate with air carrier demand and FAA operating caps;
- Minimize adverse impact to passenger levels of service during construction (i.e. passage circulation through

construction areas, provision of concessions, temporary processing areas for check-in, screening, etc.); and

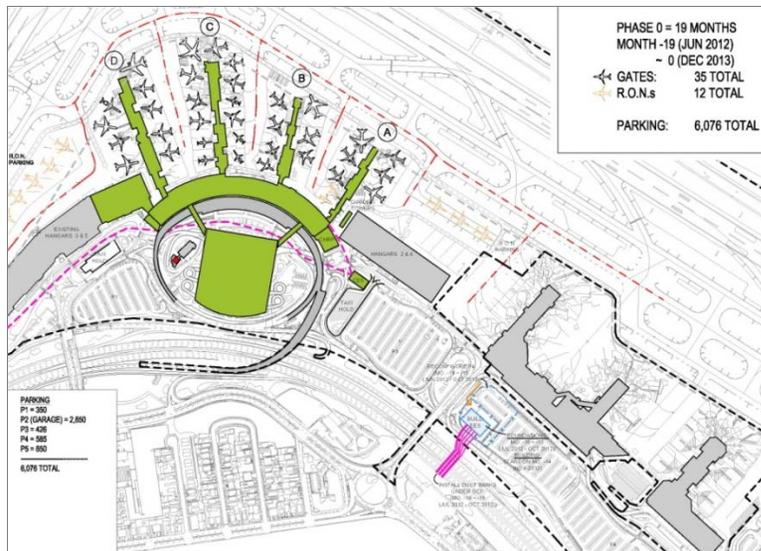
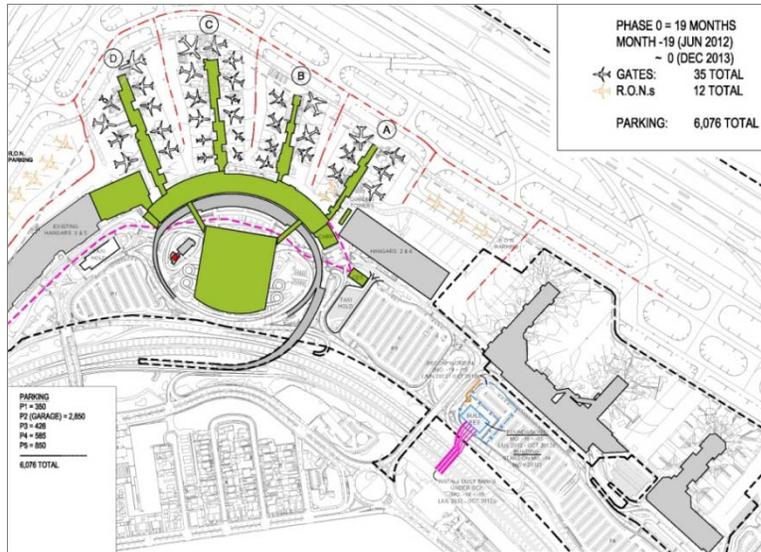
- Minimize impact to airline operations (i.e. multiple moves, temporary baggage facilities, temporary gates and hold rooms, etc.).

### **15.4.3 AIRSIDE PHASING**

Airside construction phasing includes the following assumptions:

- Maintain FAA-approved levels of flight operations and all facilities required to maintain adequate level of service for required gates throughout duration of construction; and
- Minimize extent of impact on airside operations, including baggage handling during construction.

15.4.4 PRELIMINARY PHASING PLANS



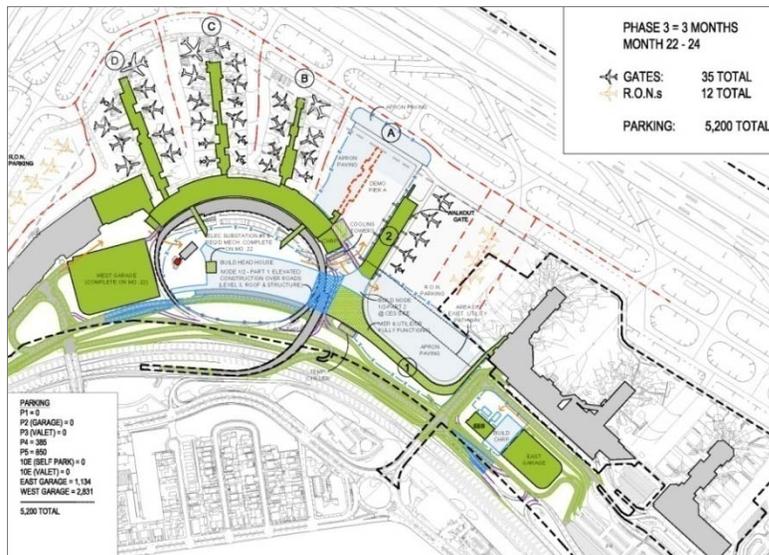
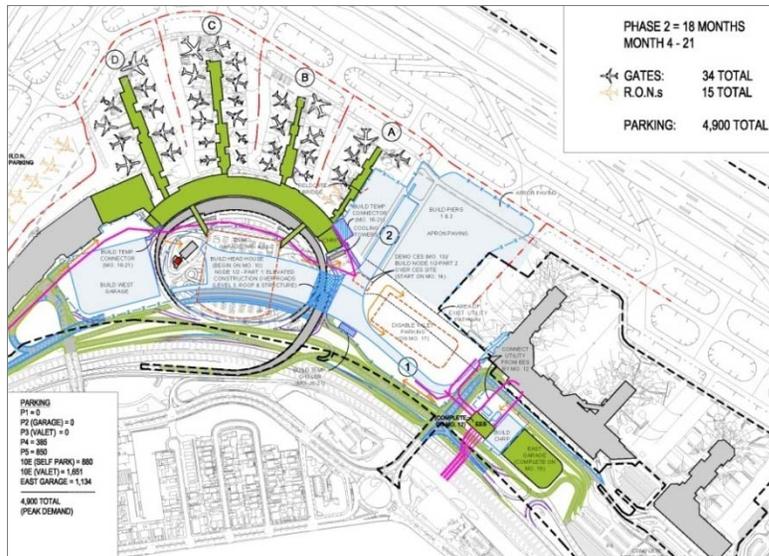
Phase 0 – Month -19-0

SUB PROJECT CATEGORY	ELEMENT	ACTIVITY
PARKING	P4	Reconfiguration
EES /CHRP/ UTILITIES	EES / Utilities	Construction

Phase 1 – Month 1-3

SUB PROJECT CATEGORY	ELEMENT	ACTIVITY
PARKING	Valet Parking and Temporary Taxi Hold	Preparation
	East Garage	Construction
DEMOLITION	Hangars 2 & 4	Demolition
EES /CHRP/ UTILITIES	EES /CHRP/ Utilities	Construction
TEMPORARY FACILITIES	Cooling Towers	Relocation
ROADS	New Roads/ Temp. Roads	Construction





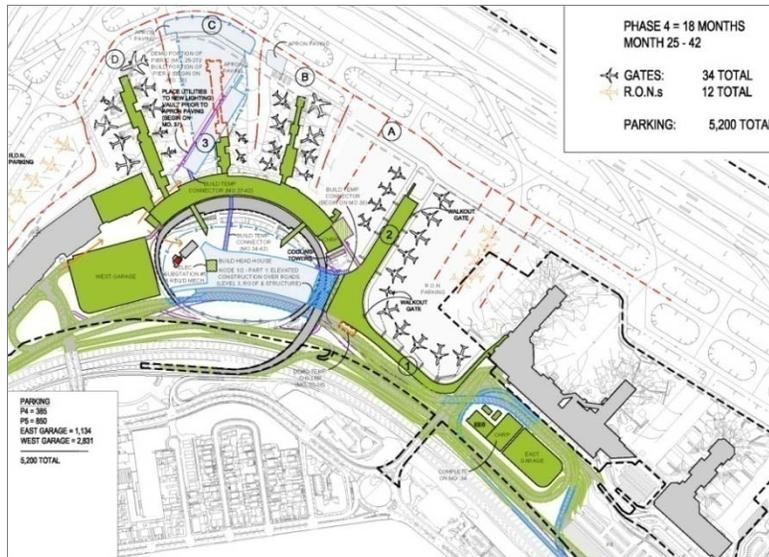
### Phase 2 – Month 4-21

SUB PROJECT CATEGORY	ELEMENT	ACTIVITY
TERMINAL	Piers 1 & 2; Pier 1 – US Airways Connector; Headhouse (upon completion of P2 demolition); Node 1/2 (Elevated); Node 1/2 (at CES) (upon completion of CES demolition)	Construction
PARKING	Valet Parking and Temporary Taxi Hold	Operational
	East Garage	Operational
	West Garage	Construction
DEMOLITION	Garage – P2; CES	Demolition
EES /CHRP/ UTILITIES	EES	Operational
	CHRP/ Utilities	Construction
TEMPORARY FACILITIES	Temp. Chiller; Temp. Connector – Existing Headhouse/ Pier 2; Temp. Connector – Existing Headhouse/ West Garage	Construction
AIRSIDE	East & West of Pier 2	Apron Paving
ROADS	New Roads/ Temp. Roads	Construction

### Phase 3 – Month 22-24

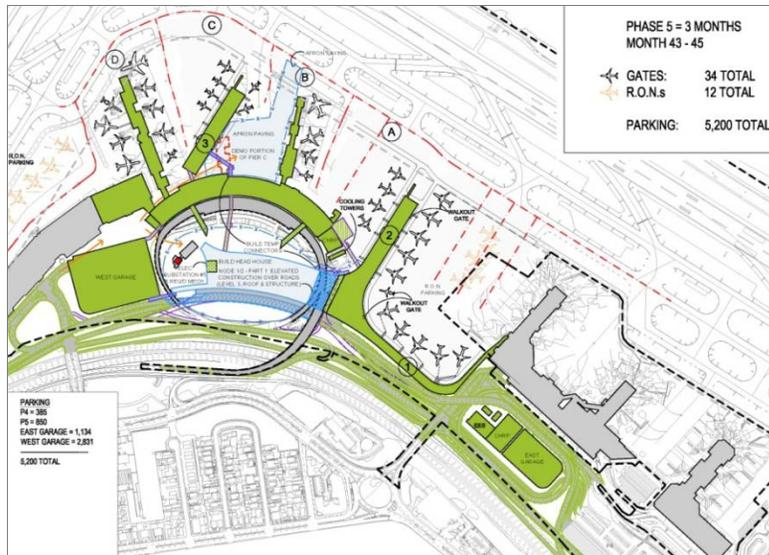
SUB PROJECT CATEGORY	ELEMENT	ACTIVITY	
TERMINAL	Piers 1 & 2; Pier 1 – US Airways Connector; Headhouse; Node 1/2 (Elevated); Node 1/2 (at CES)	Construction	Partially Operational Pier 1; Pier 1 - US Airways Connector (Non-operational); Pier 2
PARKING	Valet Parking & Temporary Taxi Hold	Operational	
	East & West Garages	Operational	
DEMOLITION	Pier A –Part 1	Demolition	
EES /CHRP/ UTILITIES	EES /CHRP/ Utilities	Construction	Operational
		CHRP/ Utilities	EES
TEMPORARY FACILITIES	Temp. Chiller; Temp. Connector – Existing Headhouse/ Pier 2; Temp. Connector – Existing Headhouse/ West Garage	Operational	
AIRSIDE	North of Pier 1	Apron Paving	
ROADS	New Roads	Construction	

Phase 4 – Month 25-42

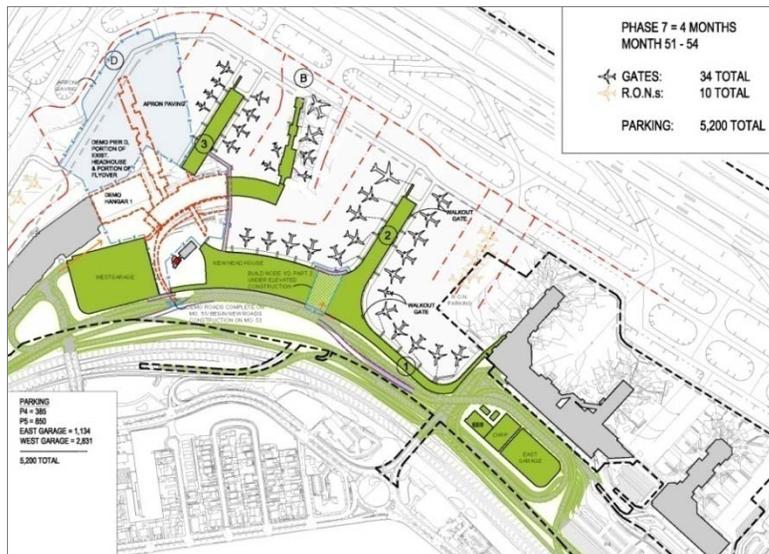
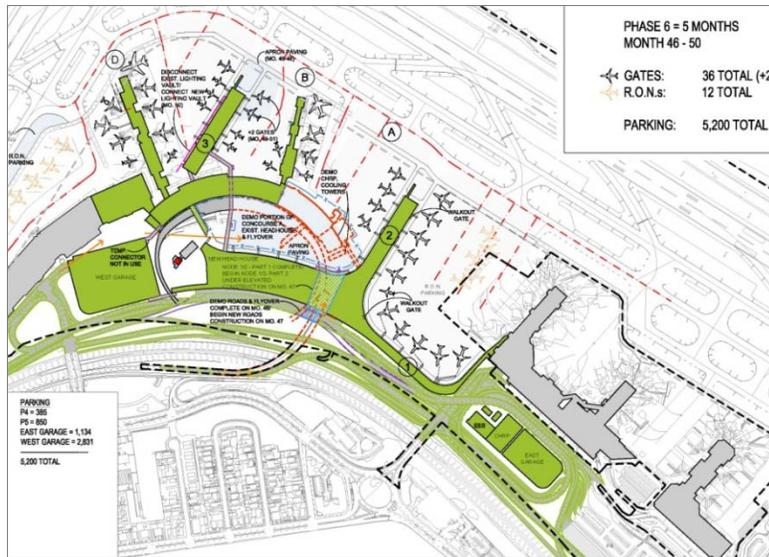


SUB PROJECT CATEGORY	ELEMENT	ACTIVITY	
		Construction	Operational
TERMINAL	Piers 1, 2 & 3; Pier 1 – US Airways Connector; Headhouse; Node 1/2 (Elevated); Node 1/2 (at CES)	Pier 3; Headhouse; Node 1/2 (Elevated)	Piers 1 & 2; Pier 1–US Airways Connector; Node 1/2 (at CES)
		Operational	
PARKING	East & West Garages	Operational	
DEMOLITION	Pier C –Part 1	Demolition	
EES /CHRP/ UTILITIES	EES /CHRP/ Utilities	Construction	Operational
		Utilities	EES/ CHRP
TEMPORARY FACILITIES	Temp. Connector – Existing Headhouse/ Pier 2; Temp. Connector – Existing Headhouse/ West Garage; Temp. Connector – Existing Headhouse/ Pier 3; Temp. Connector - New/Exist Headhouses	Construction	Operational
		Temp. Connector – Existing Headhouse/ Pier 3; Temp. Connector - New/Exist Headhouses	Temp. Connector – Existing Headhouse/ Pier 2; Temp. Connector – Existing Headhouse/ West Garage
AIRSIDE	West of Pier C & Throat North of Pier B	Apron Paving	
ROADS	New Roads/ Temporary Roads	Construction	

Phase 5 – Month 43-45



SUB PROJECT CATEGORY	ELEMENT	ACTIVITY	
		Construction	Operational
TERMINAL	Piers 1, 2 & 3; Pier 1 – US Airways Connector; Headhouse; Node 1/2 (Elevated); Node 1/2 (at CES)	Headhouse; Node 1/2 (Elevated)	Piers 1, 2 & 3; Pier 1–US Airways Connector; Node 1/2 (at CES)
		Operational	
PARKING	East & West Garages	Operational	
DEMOLITION	Pier C –Part 2	Demolition	
EES /CHRP/ UTILITIES	EES /CHRP/ Utilities	Construction	Operational
		Utilities	EES/ CHRP
TEMPORARY FACILITIES	Temp. Connector – Existing Headhouse Pier 2; Temp. Connector – Existing Headhouse/ West Garage; Temp. Connector - Existing Headhouse/ Pier 3(A); Temp. Connector- New/Exist Headhouses; Temp. Connector – Existing Headhouse/ Pier 3(B); Temp. Connector – New Headhouse/Pier 2; Temp. Connector – New Headhouse/ West Garage	Construction	Operational
		Temp. Connector – Existing Headhouse/ Pier 2; Temp. Connector – Existing Headhouse/ West Garage; Temp. Connector - Existing Headhouse/ Pier 3(A); Temp. Connector- New/Exist Headhouses	Temp. Connector – Existing Headhouse/ Pier 3(B); Temp. Connector – New Headhouse/Pier 2; Temp. Connector – New Headhouse/ West Garage
AIRSIDE	East of Pier 3	Apron Paving	
ROADS	New Roads/ Temporary Roads	Construction	



### Phase 6 – Month 46-50

SUB PROJECT CATEGORY	ELEMENT	ACTIVITY	
		Construction	Operational
TERMINAL	Piers 1, 2 & 3; Pier 1 – US Airways Connector; Headhouse; Node 1/2 (Elevated/ at CES); Node 1/2 (under Elevated)	Node 1/2 (under Elevated)	Piers 1, 2 & 3; Pier 1–US Airways Connector; Headhouse; Node 1/2(Elevated/CES)
PARKING	East & West Garages	Operational	
DEMOLITION	Headhouse Part 1; Pier A- Part 2; Garage Connector A; CHRP & Cooling Towers; Flyover Part 1	Demolition	
EES /CHRP/ UTILITIES	EES /CHRP/ Utilities	Operational	
TEMPORARY FACILITIES	Temp. Connector – Existing Headhouse/ Pier 2; Temp. Connector – Existing Headhouse/ West Garage; Temp. Connector – Existing Headhouse/ Pier 3 (A); Temp. Connector – Existing Headhouse/ Pier 3(B); Temp. Connector – New Headhouse/ Pier 2; Temp. Connector – New Headhouse/ West Garage	Demolition	Operational
		Temp. Connector – Existing Headhouse/ Pier 2; Temp. Connector – Existing Headhouse/ West Garage (NOT IN USE)	Temp. Connector - Existing Headhouse/ Pier 3 (A); Temp. Connector - Existing Headhouse/ Pier 3(B); Temp. Connector – New Headhouse/ Pier 2; Temp. Connector – New Headhouse/ West Garage
AIRSIDE	North of New Headhouse & East of Pier 3	Apron Paving	
ROADS	New Roads	Mostly Complete; partial construction	

### Phase 7 – Month 51-54

SUB PROJECT CATEGORY	ELEMENT/ACTIVITY	ACTIVITY	
		Construction	Operational
TERMINAL	Piers 1, 2 & 3; Pier 1 – US Airways Connector; Headhouse; Node 1/2 (Elevated/ at CES); Node 1/2 (under Elevated)	Node 1/2 (under Elevated)	Piers 1, 2 & 3; Pier 1 – US Airways Connector; Headhouse; Node 1/2 (Elevated/ CES)
PARKING	East & West Garages	Operational	
DEMOLITION	Headhouse Part 2; Pier D; Hangar 1; Garage Connector B; Flyover Part 2	Demolition	
EES /CHRP/ UTILITIES	EES /CHRP/ Utilities	Operational	
TEMPORARY FACILITIES	Temp. Connector – Existing Headhouse/ West Garage; Temp. Connector – Existing Headhouse/ Pier 3 (A); Temp. Connector – New/ Existing Headhouses; Temp. Connector – Existing Headhouse / Pier 3(B); Temp. Connector – New Headhouse/ Pier 2; Temp. Connector – New Headhouse/ West Garage	Demolition	Operational
		Temp. Connector – Existing Headhouse/ West Garage; Temp. Connector – Existing Headhouse/ Pier 3 (A)	Temp. Connector – New/ Existing Headhouses; Temp. Connector – Existing Headhouse / Pier 3(B); Temp. Connector – New Headhouse/ Pier 2; Temp. Connector – New Headhouse/ West Garage
AIRSIDE	West of Pier 3	Apron Paving	
ROADS	New Roads	Complete	

Phase 8 – Month 55-59



SUB PROJECT CATEGORY	ELEMENT	ACTIVITY	
		Construction	Operational
TERMINAL	Piers 1, 2 & 3; Pier 1 – US Airways Connector; Headhouse; Node 1/2; West Garage Connector; Node 3/4	Node 3/4	Piers 1, 2 & 3; Pier 1 – US Airways Connector; Headhouse; Node 1/2; West Garage Connector
PARKING	East & West Garages	Operational	
EES /CHRP/ UTILITIES	EES /CHRP/ Utilities	Operational	
TEMPORARY FACILITIES	Temp. Connector – New/ Existing Headhouses; Temp. Connector – Existing Headhouse / Pier 3(B); Temp. Connector – New Headhouse/ Pier 2; Temp. Connector – New Headhouse/ West Garage	Demolition	Operational
		Temp. Connector – New Headhouse/ Pier 2; Temp. Connector – New Headhouse/ West Garage	Temp. Connector – New/ Existing Headhouses; Temp. Connector – Existing Headhouse / Pier 3(B)
ROADS	New Roads	Operational	

Phase 9 – Month 73-78



SUB PROJECT CATEGORY	ELEMENT	ACTIVITY
TERMINAL	Piers 1, 2 & 3; Pier 1 – US Airways Connector; Headhouse; Node 1/2; West Garage Connector; Node 3/4	Operational
PARKING	East & West Garages	Operational
DEMOLITION	Headhouse – Part 3; Pier B	Demolition
EES /CHRP/ UTILITIES	EES /CHRP/ Utilities	Operational
TEMPORARY FACILITIES	Temp. Connector – New/ Existing Headhouses; Temp. Connector – Existing Headhouse/ Pier 3 (B)	Demolition
AIRSIDE	East of Pier 3	Apron Paving
ROADS	New Roads	Operational

### 35 Gates Completion – Month 78



SUB PROJECT CATEGORY	ELEMENT	ACTIVITY
TERMINAL	Piers 1, 2 & 3; Pier 1 – US Airways Connector; Headhouse; Node 1/2; West Garage Connector; Node 3/4	Operational
PARKING	East & West Garages	Operational
EES /CHRP/ UTILITIES	EES /CHRP/ Utilities	Operational
ROADS	New Roads	Operational

### Post Completion (38 Gates) – 24 months



SUB PROJECT CATEGORY	ELEMENT	ACTIVITY
TERMINAL	Piers 4; CRWD	Construction
DEMOLITION	Hangars 3 & 5	Demolition
AIRSIDE	North of Pier 4; Hangars 3 & 5 Site	Apron Paving
ROADS	CRWD Loop	Construction