



## Chapter 1 **INTRODUCTION AND BACKGROUND**

This chapter presents an overview of the airport setting, as well as the vision, goals and objectives for the Master Plan.

### **1.1 AIRPORT SETTING**

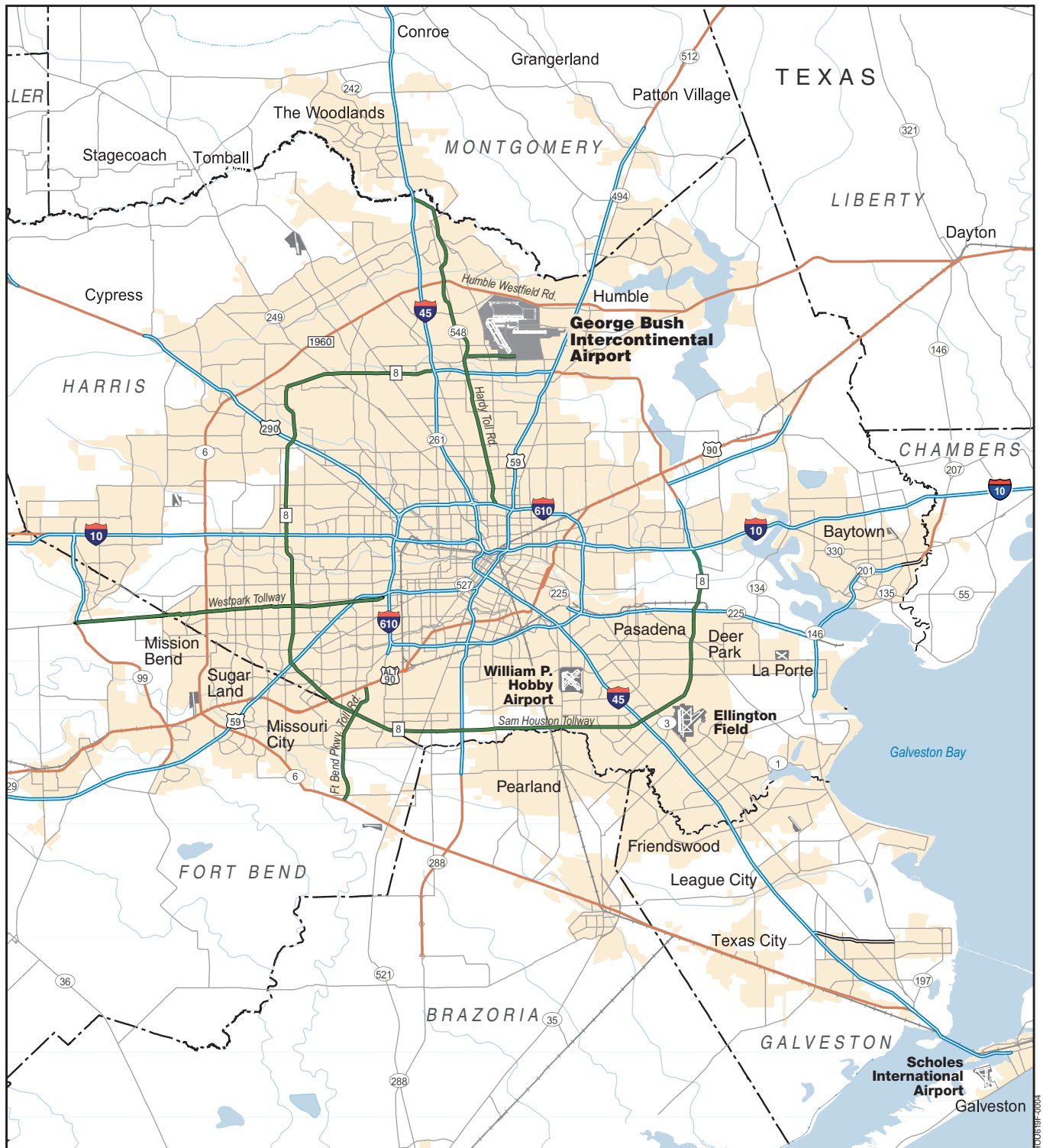
George Bush Intercontinental Airport/Houston opened in 1969 to provide airline service for residents and visitors to the City of Houston and the Western Gulf Coast region. The Airport is owned by the City of Houston and operated by the Houston Airport System (HAS). As shown on Figure 1-1, the Airport is located about 23 miles north of downtown Houston. As of 2014, the Houston-Sugar Land-Baytown Metropolitan Statistical Area (MSA) had an estimated population of nearly 6.5 million people, making it the 5th largest metropolitan area in the United States. The Airport is classified as a large hub Commercial Service Primary Airport in the National Plan of Integrated Airport Systems, serving origin-destination passengers (i.e., passengers beginning or ending their air journeys in Houston) and connecting passengers transferring from one flight to another. According to 2013 data published by Airports Council International-North America, the Airport is the nation's 12th busiest airport in terms of passenger traffic; 8th busiest in terms of total aircraft operations; and 14th busiest in terms of air cargo tonnage. The Airport is home to United Airlines' largest passenger hub.

### **1.2 AIRPORT SITE**

The Airport occupies over 11,000 acres that are roughly bounded by Humble Westfield Road (FM 1960) to the north; Lee Road to the east; Greens Road to the south; and Aldine Westfield and Farrel Roads to the west. Interstate 45, U.S. Highway 59, the Hardy Toll Road, and the Sam Houston Toll Road (Beltway 8) provide primary access to the Airport. The two main entrances to the passenger terminal complex are Will Clayton Parkway from U.S. Highway 59 and John F. Kennedy Boulevard from the Sam Houston Toll Road.

Figure 1-2 presents the overall Airport site, which consists of the following primary components:

- Airfield – The airfield occupies about 49% of the total Airport land area, and includes five runways and associated taxiways, aprons, hold pads, and other safety-related protection zones.
- Passenger terminal complex – The passenger terminal complex includes five terminals accommodating approximately 130 aircraft gates; each terminal has its own passenger processing facility that accommodates ticketing, baggage claim, and security screening functions. The passenger terminal complex also includes three parking garages and a hotel.
- Air cargo – The IAH Central Cargo Facility and IAH Cargo Center are two distinct cargo areas located on the Airport. The IAH Central Cargo Facility is adjacent to the east side of Runway 15L/33R and south of the passenger terminal complex. The IAH Cargo Center is located east of Runway 8R-26L and Northeast of the passenger terminal complex.
- General aviation – Two Fixed Base Operators (FBOs)—Landmark Aviation and Atlantic Aviation—are located on the western side of the Airport and provide a wide-range of services to general aviation and corporate users.



Source: Leigh|Fisher, December 2012  
 Prepared by: Leigh|Fisher, December 2012

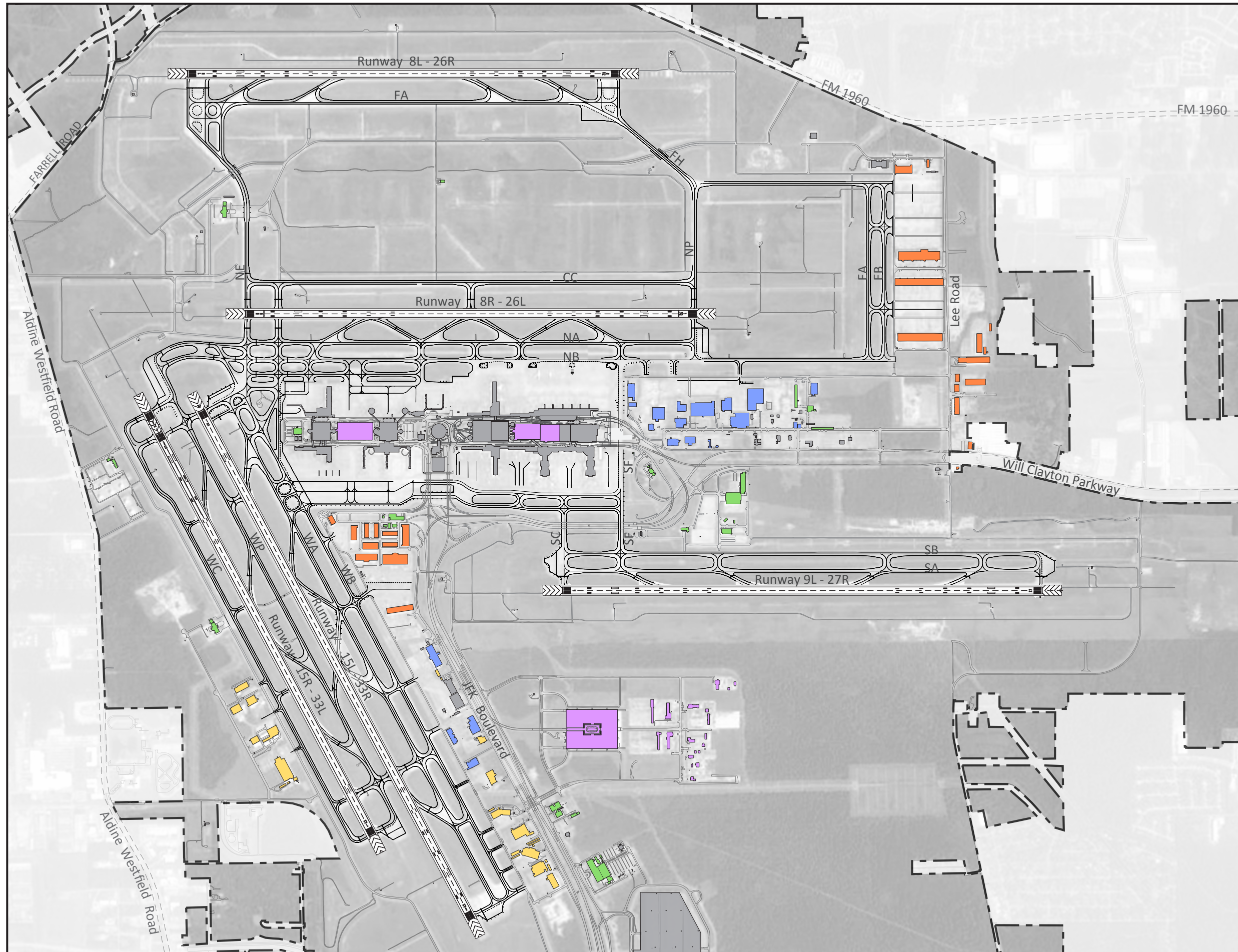
**Leigh|Fisher**

**LEGEND**

- Urban areas
- County boundary
- Major highway
- Toll highway



Figure 1-1  
**Airport Vicinity Map**



LEGEND

- Airport property line
- Air cargo
- Airline maintenance and support
- Airport support
- General aviation
- Ground transportation and parking
- Terminal

Leigh | Fisher



Source: Source: HAS Records &  
 IAH Airport Layout Plan, August 2006  
 Prepared by: Leigh | Fisher  
 December 21, 2012

Figure 1-2  
 Airport Site

- Parking and ground transportation — Three on-Airport parking garages are located within the passenger terminal complex, one immediately east of Terminal A, one west of Terminal C, and the other immediately east of Terminal C. The Consolidated Rental Car Facility (CRCF) is located on the east side of John F. Kennedy Boulevard, south of the Runway 9 end. Customers are transported to and from the terminal via a shuttle bus system used by all on-site rental car companies. A large remote auto parking surface lot is located at Greens Road and John F. Kennedy Boulevard.
- Support facilities – Primary support facilities include: airline maintenance facilities; fuel farm; Federal Aviation Administration (FAA) air traffic control facilities; employee parking; Aircraft Rescue and Fire Fighting (ARFF); and airfield maintenance and support facilities.

### 1.3 PLANNED AIRPORT IMPROVEMENTS

Taxiway NB is programmed for reconstruction and realignment in the near-term, and this project will be considered a baseline airfield condition for the Master Plan. The centerline of Taxiway NB is currently 362 feet from the centerline of Taxiway NA and 300 feet from the centerline of Taxiway NC. It will be relocated to the north and parallel to its current alignment by 38 feet so that its centerline is at least 324 feet from the centerlines of Taxiways NA and NC, meeting the ADG VI standard for taxiway separation. The width of the reconstructed taxiway and shoulders will also meet the standard for ADG VI aircraft.

In addition, planning for improvements to Terminal D are underway with design expected to be completed in 2013, with the improvements anticipated to come online in 2016. The design for the improvements will also be considered a baseline condition for the Master Plan.

### 1.4 VISION, GOALS, AND OBJECTIVES

For the purpose of the Master Plan, these foundational elements are defined as follows:

- **Vision:** An aspirational statement defining the strategy of the master plan and its overall objective.
- **Goal:** An overarching principle that expresses the desired state for individual functional components of the airport. Goals provide a qualitative expression that can be particularly instructive in public outreach to communicate what the master plan process is attempting to achieve. Each goal can have a number of objectives associated with it.
- **Objective:** A measurable aspect or component of a goal that determines the extent to which a solution meets the goal.

Early in the master planning process, the consultant team met with each of the HAS departments with the purpose of obtaining their input with regard to issues they are facing that the master plan could potentially address. From that input, we refined a preliminary “issues matrix” that identifies various near-, mid-, and long-term issues across the functional areas of the airport (e.g. terminal, airfield). Using the issues matrix, the team drafted the goals and objectives and discussed these with the master plan committees which are comprised of HAS, FAA, airline representatives, and community stakeholders. The issues matrix is shown on the following page in Table 1-1.

Table 1-1  
**MASTER PLAN ISSUES MATRIX**

| Category / Timeframe | Airfield  | Terminal  | Landside / Access   | Other  |
|----------------------|---|---|---|--|
| Near-Term            | <ul style="list-style-type: none"> <li>• Cross-field taxiways</li> <li>• A380 / B747-8i</li> <li>• Modifications to standards</li> <li>• Hold pad for aircraft awaiting gate</li> </ul> | <ul style="list-style-type: none"> <li>• Consistent customer experience</li> <li>• Terminals A, B and D</li> <li>• RON aircraft parking</li> <li>• Concessions</li> </ul> | <ul style="list-style-type: none"> <li>• Cut-through traffic</li> <li>• Curbside issues</li> <li>• Parking imbalance</li> </ul>                 | <ul style="list-style-type: none"> <li>• Cargo area expansion</li> <li>• Re-use of FAA TRACON and former rental car areas</li> <li>• Corporate GA</li> </ul>                             |
| Mid-Term             | <ul style="list-style-type: none"> <li>• Location of next runway</li> <li>• Metroplex Airspace Redesign</li> <li>• NextGen</li> </ul>   | <ul style="list-style-type: none"> <li>• Consistent customer experience</li> <li>• RON aircraft parking</li> <li>• Hotel</li> </ul>                                       | <ul style="list-style-type: none"> <li>• Inter-terminal train (ITT)</li> <li>• Parking capacity</li> <li>• Access roadways (JFK/WCB)</li> </ul> | <ul style="list-style-type: none"> <li>• Highest and best use of available airport property</li> <li>• Designation of leasable areas by type</li> <li>• Centralized receiving</li> </ul> |
| Long-Term            | <ul style="list-style-type: none"> <li>• All east-west configuration</li> <li>• Ultimate airfield layout</li> <li>• NextGen</li> </ul>  | <ul style="list-style-type: none"> <li>• RON aircraft parking</li> <li>• Ultimate terminal complex envelope</li> <li>• Centralized terminal concept</li> </ul>            | <ul style="list-style-type: none"> <li>• Campus-wide roadways</li> <li>• METRORail station and ROW</li> </ul>                                   | <ul style="list-style-type: none"> <li>• Commercial dev't</li> <li>• Revenue enhancement</li> <li>• Environmental mitigation</li> </ul>  |

In addition to the information obtained from the meetings conducted with the master plan committees, the team also developed the following set of guiding principles based on meetings with the Director of Aviation in 2012.

- The plan should be affordable
  - Inject financial realities into the planning process at the outset
  - Model the financial impacts of potential improvements
- The master plan should identify a recommended plan
  - Previous master plan provided end result without roadmap to get there
  - Identify activity triggers for each major phase of development
- Use a common sense approach
  - Optimize the facilities
  - Foster a consistent customer experience across the airport campus
- Don't playback our own ideas – be innovative
- Be careful not to preclude the future by implementing near-term plans

#### 1.4.1 Master Plan 2035 Vision

Master Plan 2035 will provide an airport that is safe and efficient, increasingly cost-competitive, aesthetically pleasing, and highly effective in serving the greater Houston community.

#### 1.4.2 Goals and Objectives

These goals and objectives will be used in the alternatives evaluation to screen alternatives in an effort to identify the preferred alternative. The goals are shown in bold text below, and the objectives are the bullets below each goal.

**Airfield: plan for a safe and operationally efficient airfield by meeting the following potential objectives:**

- Provide sufficient airfield capacity to meet demand
- Minimize airfield delays
- Provide taxiways for optimal flow on the ground, including crossfield taxiways and circular flow around terminal complex
- Continue to plan for NextGen technological improvements
- Determine the ultimate airport layout
- Reduce or eliminate need for Modifications of Standards

**Passenger Terminal: provide needed gate capacity and a consistent customer experience throughout the terminal complex by meeting the following potential objectives:**

- Plan for high levels of service for the entire customer experience
- Provide sufficient aircraft gates to accommodate existing and prospective carriers

- Provide excellent concessions to delight the passenger
- Provide sufficient parking for remain-overnight aircraft
- Reflect Houston culture in the plan
- Leverage technology for improved passenger experience

**Landside/Access: provide efficient airport access by meeting the following potential objectives:**

- Provide for an appropriate level of service on access roadways and terminal curbsides during peak hour
- Plan for the link to METRORail
- Plan for the replacement of the Inter-Terminal Train (ITT)
- Address the parking imbalance between facilities
- Provide sufficient parking capacity to maintain or improve market share
- Provide for centralized receiving dock

**Environment and City: provide an airport befitting the fourth largest city in the nation by meeting the following potential objectives:**

- Optimize existing facilities through renewal or modernization where practical
- Minimize adverse environmental impacts of future development
- Seek input and address the concerns of stakeholders and users of the airport

**Financial: provide an affordable plan by meeting the following potential objectives:**

- Maintain a competitive cost structure that is attractive to airlines and other tenants
- Establish land use parameters to guide future developable property
- Plan for growth in non-aeronautical revenues including commercial development and concessions