



3 ACCOMODATING THE FORECAST

One of the primary functions of an airport master plan is to define the mix of facilities to best accommodate various categories of forecast activity, including enplaned and deplaned passengers, freight volume, and aircraft movements. A master plan should also aim to balance the capacity of various elements so that the airport operates in an integrated and efficient manner over time. For example, the benefits of an investment in improved and/or expanded passenger terminal facilities would not be realized if the capacity of the airfield were not sufficient to accommodate the number of flights that the terminal complex could potentially handle during a busy period. The converse is equally true.

The Master Plan Update was focused on defining development opportunities among and between the airfield, the terminal complex, and the supporting areas at FLL. This section provides an overview of the factors considered when estimating the facility development needs for each of these areas.

Planning Horizon – The planning horizon establishes the outer year for which particular forecast activity levels are to be accommodated in a master plan. (It is also critical that the potential for accommodating activity levels beyond the planning horizon in regard to land use and facility configuration, at a minimum, should also be considered.)

In October 2004, the Board adopted the County Objective Statement, which established that airfield improvements shall “enhance FLL’s capacity to accommodate forecast traffic through the year 2020.” As the EIS and subsequently the Master Plan Update schedule were extended, to ensure that planning for Airport facilities and the endorsed airfield improvements are in balance, forecast activity in 2025 was used as the basis for defining long-term facility needs.

Demand Forecast – As noted earlier in this document, to ensure consistency with the ongoing Proposed South Runway EIS process, a synthesis of FAA TAFs, issued in January 2005, 2006 and 2007, were used as the source forecasts for the Master Plan Update. The TAF provides forecasts for various categories of aircraft operations and for domestic and international enplaned passengers.

Facilities Assessment – The findings to date regarding facility needs to accommodate forecast demand through 2025 are summarized below.

3.1 AIRFIELD DEVELOPMENT

The FAA’s preliminary Purpose and Need statement for the Proposed South Runway Extension EIS, issued in January 2006, established a goal of improving the airfield at FLL so as to accommodate forecast demand through 2020 without unreasonable levels of aircraft delay. This goal is consistent with the County Objective Statement referenced earlier. Previous FLL airfield studies indicated that the goal of accommodating 2020 demand while minimizing delay is achievable within the set of airfield alternatives considered in the Proposed South Runway Extension EIS process. As noted previously, as the EIS process and the Master Plan Update progressed, more recent FAA TAFs resulted in forecast activity extensions of about 5 years for the level of activity originally forecast for 2020, or to about 2025. For master planning purposes, an assumption, or a “given,” was that the preferred airfield alternative that emerges from the FAA’s EIS process will provide the necessary capacity through the planning horizon, thereby confirming a work scope assumption that additional areas for airfield expansion beyond those under study in the FAA’s EIS process need not be considered in the Master Plan Update. Therefore, a central challenge for the master planning process was to define, in parallel with the EIS process, a series of flexible non-airfield development options for the Airport that are compatible with the multiple airfield alternatives being reviewed by the FAA. (See Section 5, Airfield Development, Land Use Issues, and Opportunities.)

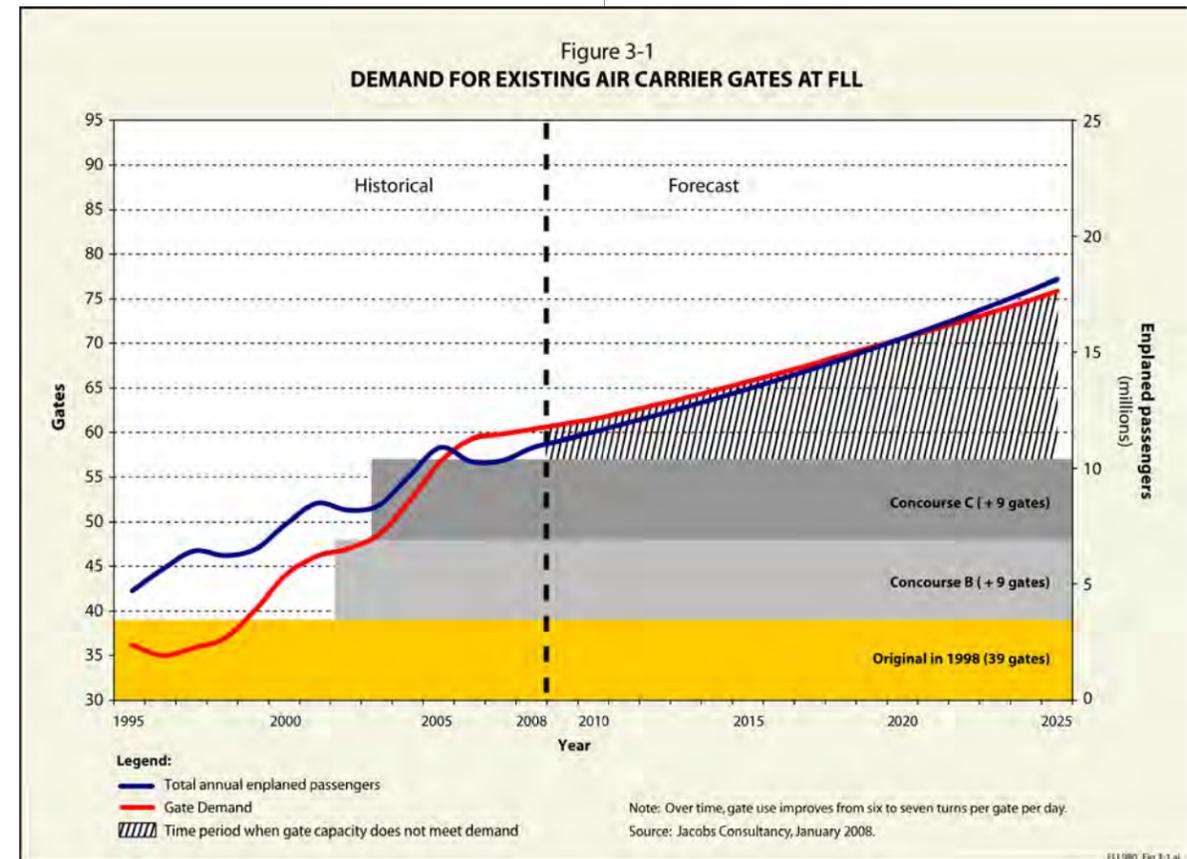
3.2 TERMINAL COMPLEX

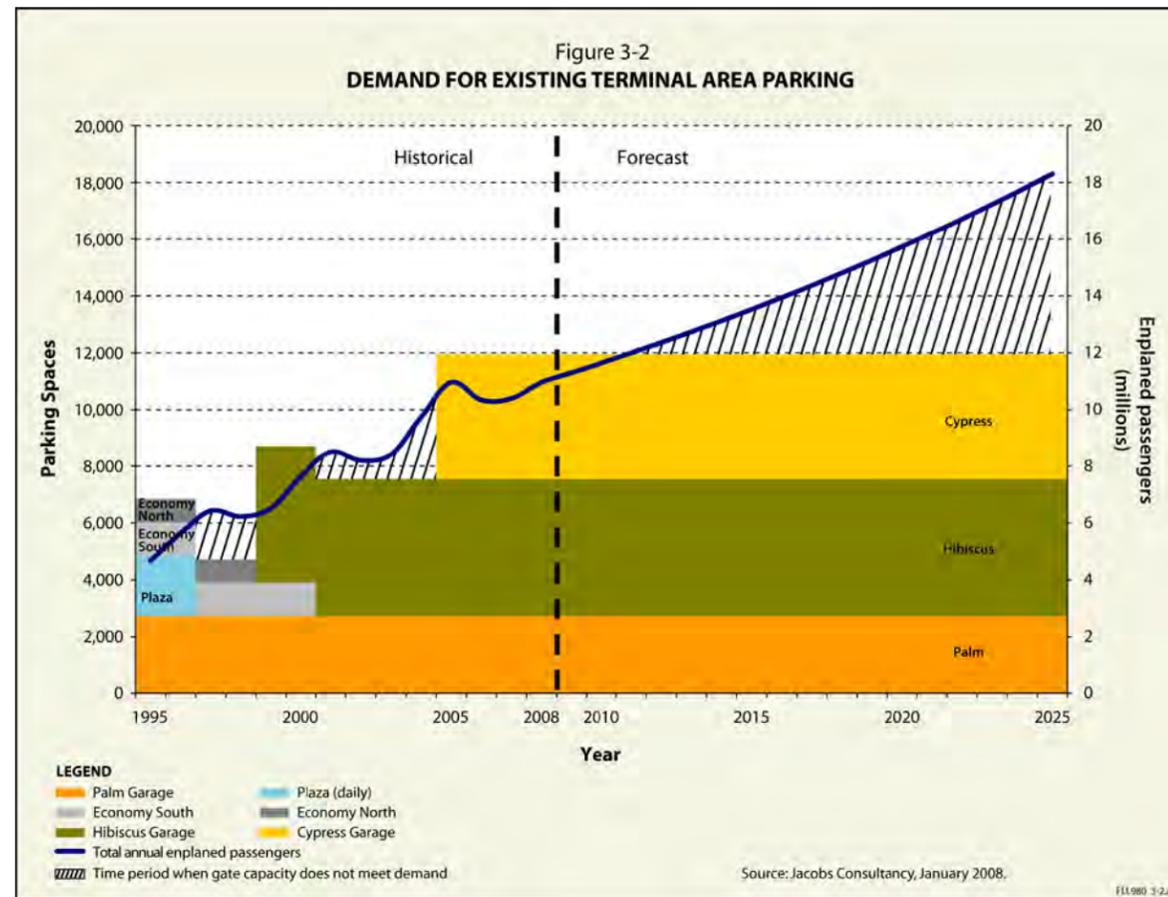
Various planning metrics are typically used to establish the size or quantity of elements that would be needed within the terminal complex to accommodate forecast levels of activity at reasonable service levels. Certain types of “industry standard” planning metrics are adapted based on the unique character of a specific airport when initiating a master plan, while others are based on the observed use patterns at the airport. For FLL, one metric was based on activity patterns at other U.S. airports similar in character to FLL, a second was based on historical demand patterns at the Airport, and a third followed standard industry practices. The results for each example are presented in the

following paragraphs. Regarding an anticipated level of service (LOS), the LOS for the terminal facilities will diminish over time as passenger traffic increases, with specific LOS improvements occurring as a result of the ongoing Terminal Optimization studies and implementation. Once a decision is made regarding the long-term development of the terminal complex, the Redevelopment Scenario planning is based on a goal of maintaining a LOS B, while the Additive Scenario will result in a continually degrading LOS over time as passenger traffic increases.

- **Aircraft Gates** – A planning metric was developed for FLL that associates forecast levels of passenger aircraft operations with the estimated number of required gates. Based on throughput observed at other U.S. origin-destination airports, industry trends, and potential efficiency benefits arising from improvements to the FLL terminal complex, it was assumed

that FLL will eventually accommodate up to seven passenger aircraft departures per gate per day. In the long-term, this throughput capacity per gate translates to a projected need for approximately 77-79 gates at FLL by the year 2025. (See Figure 3-1). The precise number of aircraft gates required to meet capacity will be determined by the number of gates that are designated for use by multiple airlines, the number of airlines operating at the airport, the size of the aircraft utilized by each carrier, the number of international operations that are realized at the Airport, and the level of flexibility that is planned for the accommodation of aircraft types at the terminal frontage. The current Determination of Regional Impact (DRI) inter-local agreement acknowledges the need to provide airfield and terminal capacity for 79 aircraft gates.





■ **Passenger Vehicle Parking** – No airport industry standard is available or would be useful in planning future parking facilities at FLL. Parking demand at each airport differs based on variations in the resident/non-resident traffic split, the location of an airport relative to the source of a residents’ ground trip, and the availability of convenient and fast public transit, among other things. Based on previous analysis of parking demand patterns at FLL, a ratio of 175-200 parking spaces per gate was determined to be the best means of estimating a reasonable supply of parking spaces within the terminal complex. The previous analysis also established the need for an additional 30% of parking spaces for peak and holiday seasons remote from the terminal complex, most likely in at-

grade parking lots. Therefore, a total of about 18,000 spaces would be needed in the terminal area by 2025 to accommodate demand with service levels roughly similar to those experienced today (see Figure 3-2).

■ **Terminal Roadway Capacity** – A roadway traffic and curbside capacity assessment was conducted in to establish the capacity of the existing terminal complex roadway system and curb frontage. The purposes of this assessment was to (1) estimate vehicle flows and stationary pick-up/drop-off activity at the terminal curbs, and identify the interface between these two activities at forecast traffic levels, and (2) estimate the degradation of service levels in the absence of improvements through 2025. A combination of standard measures of vehicle capacity per lane was used for

roadways and observations regarding curbside activity at FLL. The findings of that assessment indicate that increased capacity and other improvements to the roadway system, particularly in the vicinity of Terminals 2 and 3, will need to be in place within approximately 10 years to avoid significant disruption of through traffic and curbside vehicle traffic flow during peak periods. As might be expected given the known shortfalls of the existing roadway design, these improvements would include, at a minimum, modifications to the roadway geometry and additional vehicle lanes in the vicinity of Terminals 2 and 3, which are discussed in more detail in Section 6.

An inherent shortfall in the existing FLL roadway design is the lack of passenger pick-up/drop-off areas that are physically separated from the roadway, particularly on the upper level roadway. Therefore, either excess through-traffic on the roadway or increased dwell time at the terminal curbs will degrade the roadway system’s performance because the operations “interfere” with one another. For example, while peak hour curbside traffic at Terminal 2 may be limited by the number of gates at the terminal, increased through-traffic generated by expansion elsewhere will increase congestion, bottlenecks, and the potential for gridlock.

■ **Support Functions and Other Activities** – This element includes the facility needs for such activities as general aviation, fixed base operators, air cargo operations, and aircraft maintenance and for support functions such as aircraft rescue and fire fighting, fuel storage, and air traffic control. The work completed has identified land areas on the Airport that should be preserved for such uses in the future and the findings are discussed in more detail in Section 7.