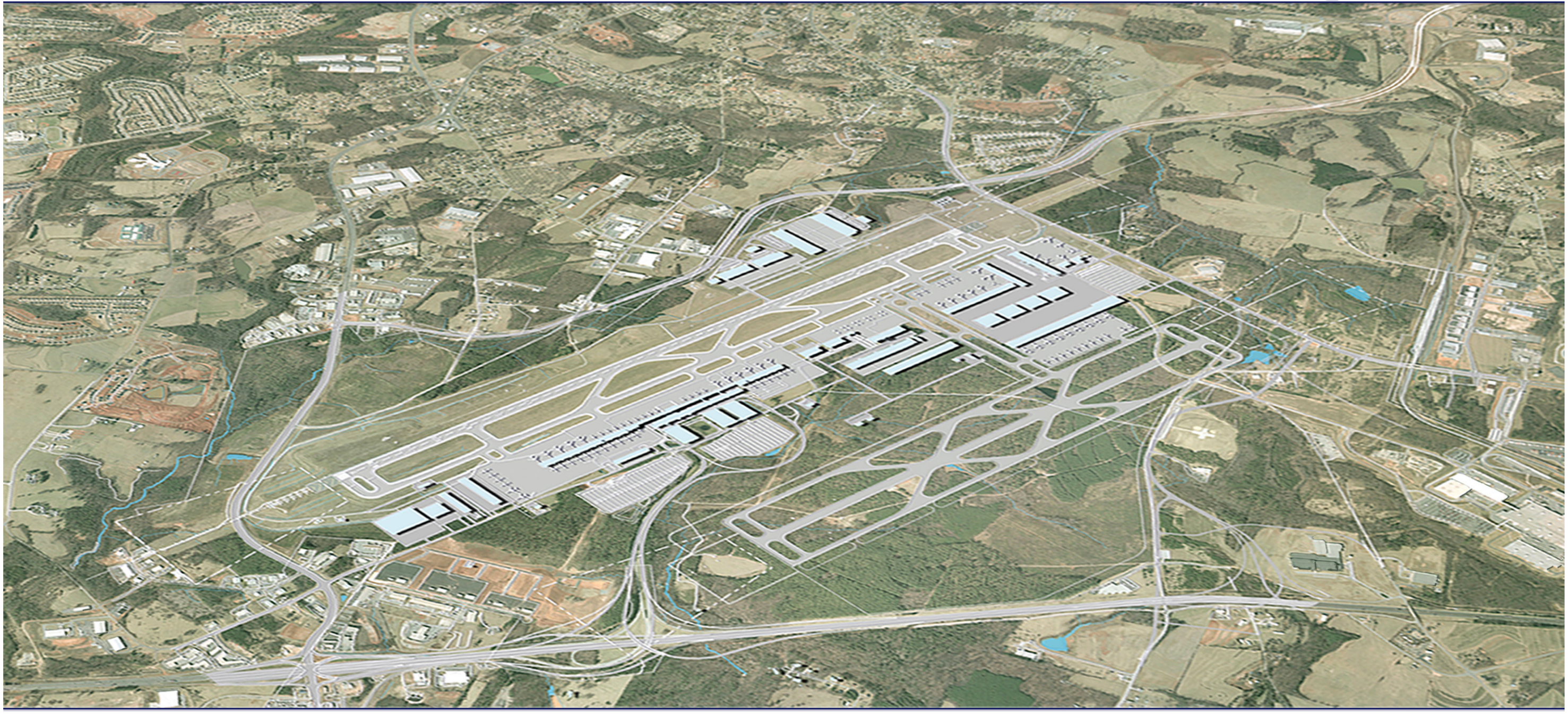


Greenville - Spartanburg International Airport



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Section 1

Introduction

Need for an Updated Airport Master Plan

The Greenville–Spartanburg International Airport (GSP) is a center of transportation for the Upstate of South Carolina. The airport is also a major contributor to the local economy through revenue generation, employment, and enhancement of the competitiveness of local business.

Over the past 20 years, GSP has experienced significant growth in commercial operations. Only during the past two years, following the events of 9/11 and economic slowdown, has traffic declined somewhat. Several developments near the airport, including a new BMW assembly plant, have been completed and may require airport support in the near future. The long-term growth trends are expected to continue and, thus, expansion of GSP’s facilities to meet the Upstate’s future aviation and business demands is critical.

GSP Development Plan

The GSP Airport Commission maintains an updated master plan strategy to guide the near-term development of the airport in the context of a long-term strategy. Key documents include:

- In 1991, a master plan study entitled the “Horizon Plan” was developed for GSP by the LPA Group, Incorporated. The study explored the short-, mid-, and long-term aviation needs and recommended facility configurations to meet those needs. Key recommendations included lengthening of the runway to 11,001 feet and the addition of five gates to the concourse building.
- In March 1996, Bechtel Infrastructure completed a study that investigated the need for land acquisition for additional runway expansion, the adequacy of land use and reservation within the airport property, and the business opportunities near the airport.
- In March of 1997, Bechtel Infrastructure completed an update of the 1991 master plan. This update revised growth strategies for

the airfield, terminal, cargo, ground access, and parking configurations to improve operations and levels of service. The master plan also recommended land acquisition for access improvements and noise mitigation.

The aviation industry has seen significant changes in the past 5 years. New e-ticketing technologies have evolved. Low-cost carriers have thrived. Since the events of September 11, 2001, the Federal Government has mandated new costly security procedures. Travel demands have declined. Several major airlines are facing bankruptcy.

To address these major changes of the aviation industry, the GSP Airport Commission has contracted Bechtel Infrastructure to update the 1997 master plan by reviewing, validating, and revising the original master plan to meet the evolving needs of the Upstate.

This document summarizes the recommendations of the planning effort, the details of which have been developed with GSP Airport management. A systems approach, described below, has been used to define GSP’s requirements and evaluate the alternatives.

Airfield System. Covers all areas where aircraft operate, including runways, taxiways, taxilanes, aprons, ground service equipment, staging and roads, and air traffic control tower.

Passenger System. Covers all facilities associated with passenger use at the airport, including passenger terminal and concourses.

General Aviation System. Covers facilities for based and itinerant general aviation aircraft at GSP.

Cargo System. Covers both freight and belly cargo (space in the “belly” of commercial aircraft) facilities at GSP including terminal buildings, trucking docks, and truck staging areas.

Support Facilities System. Covers airport rescue and fire-fighting facilities, facility maintenance complex, catering facility, ground service equipment maintenance facility, utility plant, triturator/incinerator, public safety and health facility, meteorological facilities, fuel farm, and administration building.

Commercial Development System. Covers any potential commercial opportunities such as aircraft maintenance facility, pilot training center, and business parks.

Ground Access System. Covers roadways, terminal curbs, parking, rental car facilities, and taxi marshaling.

Building layouts are not included in this report and will be examined as part of conceptual design studies performed by others.

Report Organization

This report focuses on the preferred configuration for each system. Documentation for the alternatives analyses was provided to GSP Airport management during the development of the master plan update. The document is organized into the following sections:

- *Section 1, Introduction*, presents the need for an updated master plan and discusses how the report is organized.
- *Section 2, Existing Setting*, describes the existing facilities at the airport.
- *Section 3, Development Concept*, presents the GSP vision and goals, the land use plan, and the preferred ultimate airport layout plan.
- *Section 4, Traffic Projections*, summarizes annual and peak period traffic projections for passengers, cargo, and aircraft operations.
- *Sections 5 through 11* present the preferred configuration for the airfield, passenger, general aviation, cargo, support facilities, commercial development, and ground access systems.
- *Section 12, Phasing*, addresses the phasing strategy for airport development.

Section 2

Existing Setting

The Greenville-Spartanburg International Airport (GSP) is located in South Carolina on the county line separating Greenville and Spartanburg counties, approximately 15 miles southwest of downtown Spartanburg, 12 miles northeast of downtown Greenville, and 2 miles south of the City of Greer. The airport encompasses approximately 3,600 acres and currently has one runway, one passenger terminal, several general aviation facilities, two air cargo terminals, a cargo apron with a customs and immigration building, and numerous support facilities.

Figure 2-1 presents the existing facilities at the airport. A brief description of these facilities follows.

Airfield System

GSP’s runway 04/22 is 11,001-feet long and 150 feet wide. The runway currently accommodates Category IIIB precision approaches to Runway 04 and Category I approaches to Runway 22. East of the existing runway, land has been reserved to build a second parallel runway 8,200 feet long and 150 feet wide.

The airport’s primary taxiways consist of a parallel taxiway located 600 feet east of the runway centerline and an apron edge taxiway in front of the concourse, 300 feet east of the parallel taxiway. These taxiways are wide enough to accommodate the largest operating aircraft today (FAA Group V, B747-400). The 600-foot runway-taxiway separation is sufficient for future FAA Group VI aircraft, like the A380-800 aircraft.

The airport has several aircraft parking aprons that serve the passenger, general aviation, and cargo facilities. The air traffic control tower is located at the north end of Concourse B.

An ASR-8 radar operated by the FAA is located east of the passenger terminal complex. FAA proposes to replace this radar with a state-of-the-art ASR-11 radar at a new site in the near future.

Passenger System

The GSP passenger terminal was constructed in 1962 and expanded in 1989. It contains 13 gates in Concourses A and B, of which nine are currently served by passenger loading bridges. Table 2.1 provides information on aircraft gates at each concourse. The aircraft parking positions at the gates can accommodate a variety of Group II and Group III aircraft; however, the gate spacing requires closing an adjacent parking position when large Group III aircraft are present.

Table 2-1 Existing Aircraft Gates

Concourse	Total Gates	Gates With Loading Bridges
Concourse A	9	5
Concourse B	4	4

The terminal building contains space for ticketing, check-in, baggage claim, security processing, rental car counters, offices, and amenities for passengers. In 2003, airline tenants included American Eagle, Continental, Delta, Northwest, United Express, and US Airways. Two bridges containing concession space and passenger amenities connect the terminal to the concourse.

General Aviation System

The airport has several general aviation tenant facilities operated by one fixed-base operator (FBO) located to the north of the passenger terminal (as shown in Figure 2-2). Facilities include three storage hangars, a maintenance hangar, and a terminal building. In 2003, these facilities accommodated as many as 26 aircraft based at the airport and numerous itinerant aircraft. Based aircraft tenants included the Barnet Company, Executive Aviation Group, Gibbs International, Michelin Tire, and Milliken Company.

Cargo System

The south cargo terminal, with 25 truck loading docks, is located south of the passenger terminal and serves operations for Airborne, Delta, Continental, Northwest, US Airways, UPS, and the US Postal

Service. The north cargo area includes a 120,000 square foot Federal Express cargo terminal, an aircraft-parking apron, and a customs and immigration station. The 325,000-square-foot apron, with 126,400 square feet of adjacent paving for staging, was designed to accommodate two B747s.

Support Facilities System

GSP has several facilities and systems to support building and airfield operations, including the following:

- The airport rescue fire-fighting station with seven truck bays is located next to the air traffic control tower at the north end of Concourse B.
- The south cargo building, in addition to handling air courier freight, serves airline belly cargo and houses a US post office.
- The facilities maintenance and snow removal building is located at the south end of the passenger terminal apron.
- The catering facility is located in the basement of the concourse where the bridges connect to the terminal building.
- The central plant is also in the basement of the concourse adjacent to the catering facility.
- The fuel farm is located near the intersection of GSP Drive and Stevens Road. It is owned by the airport and operated by a FBO who trucks the fuel to the aircraft. The Airport Commission is planning to decommission this fuel farm and build a new one at the northwest corner of the airport property. The new site will have direct access to SC 101; an airside fuel truck service road to the new site has already been constructed.
- The passenger Federal Inspection Services (FIS) facility is located in the south end of Concourse A on the apron level. A separate FIS facility is located in the north cargo area, for processing of import cargo and air cargo crews.
- The National Weather Service facility is located on GSP Drive between SC14 and the passenger terminal, and includes a NEXRAD weather radar system. A six-station LLWAS (low-level wind sheer alert system) is installed at the airport.



FACT SHEET

Airfield

- 11,001 ft runway
- Four separate apron areas that include:
 - Main apron
 - Hold apron
 - GA apron
 - North air cargo apron

Passenger Terminal

- 9 operational contact gates with loading bridges
- 4 additional contact gates without loading bridges

Cargo Terminal

- 42,886 sqft of usable covered space
- Air cargo apron and US Customs office at the north end of airport
- 120,000 sqft FedEx Terminal

General Aviation Terminal

- G/A Terminal Building
- Four hangars that include:
 - Hangar 1 Storage
 - Hangar 2 Maintenance
 - Hangar 3 Storage
 - Hangar 4 Storage

Parking

- Short-term parking spaces:

- Parking Garage A	1,098
- Parking Garage B	1,529
- Short-term open lot	232
- Rental car area in 'A'	270
- Long-term parking spaces:

- Daily open lot	400
- Long-term open lot	1,097
- 214 employee parking spaces

Support Facilities

- See drawing

LEGEND

- Existing Airfield
- Existing Structures
- Existing Parking

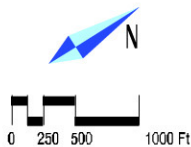


Figure 2-1 Existing Facilities

Commercial Development System

The airport currently has no on-site commercial development. A business park to the south of the airport on SC 14 is being developed and hotel facilities have been constructed several miles south on Interstate 85.

Highway SC80, a limited access four-lane highway running the length of the airport’s northwest property line, is under construction. This road will open the north side of the airport to commercial development, particularly hotels and business parks that accommodate travelers and others who require a convenient airport location for various business functions.

Ground Access System

Interstate 85, a six-lane north-south freeway on the east side of the airport, provides direct access to GSP via a full interchange. Vehicles approach the terminal from the interstate and circulate through a loop system with non-signalized intersections.

The airport can also be accessed at three other points. From the south, GSP Drive, a limited access road, connects to SC14 and runs perpendicular to the loop system to the air cargo and the general aviation areas. From the north, a limited access road connects to SC101 and serves the north cargo apron. From the northeast, Stevens Road provides direct access to the general aviation area from Brockman-McClimon Road. In addition, a dedicated road connects the north cargo apron directly to the BMW assembly plant property.

Access from Interstate 85 will be improved by upgrade of the airport interchange. The improvements will include separation of weaving lanes from the SC14 interchange to the south and the forthcoming interchange at Brockman-McClimon Road to the north.

Two parking garages have been constructed in the passenger terminal area, and surface parking lots have recently been expanded. The parking garages are located within the terminal loop system and provide short-term parking as well as spaces for rental car pickup and drop-off. Large surface lots adjacent to the loop system provide short-term, daily, and long-term parking. Table 2-2 summarizes the number of existing parking stalls.

Table 2-2 Existing Parking Stalls

Parking Facility	Existing Stalls
Short-term	
Parking Garage A	1,098
Parking Garage B	1,529
Short-term open lot	232
Rental car area in “A”	270
Long-term	
Daily open lot	400
Long-term open lot	1,097
Employee Lot	<u>214</u>
Total	4,840

Rental car companies have expanded their operations at GSP in recent years and five major companies have established facilities on the airport in a 35-acre rental car operations area south of the passenger terminal complex. In 2003 the rental car fleet at the airport totaled approximately 2,200 vehicles. The rental car companies at the airport, by decreasing market share, include: Hertz; Avis; Alamo/National; Budget; and Thrifty.

Utilities System

There is no main utility corridor for the airport. Power, gas, telephone, fiber optic cables, water, and sanitary sewer are brought into the airport at different points. The terminal, south cargo, and general aviation facilities are served by utility connections on the south side of the airport; the north cargo area is served by utility connections on the north side of the airport from SC 101.

Duke Energy supplies power from a main line that runs parallel to Interstate 85 and enters the airport parallel to the main access road. Duke Energy has sufficient capacity to meet the future power demand of the airport.

Telephone and fiber optics are under the jurisdiction of the Bell South network. Telephone service is supplied by lines entering the airport from the east along Stevens Road. Fiber optic service is supplied by a line entering the airport from the south along GSP Drive and running the full length of the airport to SC 101 just west of the north cargo apron.

Potable and fire water is supplied by the Greer Commission of Public Works. The main water line enters the airport from the west off Poplar Drive. It is a 12-inch line that reduces to an 8-inch pipe as it feeds the passenger terminal complex and adjacent facilities. The airport also has a 10-inch feed from SC 101 into the north cargo area.

The Greer Commission of Public Works supplies natural gas through lines entering the airport on the east along Stevens Road and from the south by a line entering the airport along GSP Drive.

The sanitary sewerage collection system on the airport is owned by the Airport Commission. The Greer Commission of Public Works has installed a pump station at the end of the collection system and pumps the sewage to their treatment facility.

Section 3

Development Concept

The development concept presents the ultimate GSP airport configuration, designed to meet the growing air transportation needs of the Upstate region of South Carolina. Several principles have guided the preparation of the concept including compliance with FAA guidelines, compatibility with adjacent land uses, and “best aviation industry practices”. Particular attention is given to safety and security, passenger convenience, capacity and level of service, operational efficiency, economic viability, special airline operating requirements, environmental compatibility, and flexibility for change.

This section presents the rationale behind the GSP development concept by outlining the long-term vision for the airport, addressing the immediate challenges facing GSP, and presenting the proposed land use and layout plans that respond to this vision and challenges.

GSP’s Long-Term Vision

Today, GSP is a passenger, corporate aviation, and cargo airport serving the Upstate region of South Carolina, including Greenville, Spartanburg, Anderson, and Pickens counties. In 2003, the airport is predominantly used for domestic flights (non-stop to and from 17 US cities), but also accommodates unscheduled international flights. In addition, GSP is a major contributor to the economy of the Upstate through direct employment and multiplier-effect economic stimulation (See attached economic impact study results).

Looking towards the future, GSP must address the ever-increasing security concerns at airports and technology improvements. The airport must also maintain modern, and highly efficient facilities in order to fulfill four critical roles throughout the 21st century.

GSP as a Gateway to the World. GSP must remain a world-class aviation center that acts as a gateway to the US market place and the rest of the world. The number of city connections and the frequency of domestic flights are expected to increase greatly in the future. Scheduled services to Europe, Canada, and Latin America are also foreseen (Figure 3-1).

GSP as a Cargo Distribution Center. GSP must build upon recent successes and become a cargo distribution center (Figure 3-2) that supports the rapidly growing industries in the Carolinas and leverages its excellent location on the eastern US highway and rail networks. This positioning will drive GSP’s continuing role as an important tool in supporting existing businesses and attracting new ones.

GSP as a Regional Economic Engine. GSP should continue to capitalize on the economic opportunities generated by the movement of people and cargo. Modern facilities and frequent flight schedules will promote the growth of trade, enhance the competitiveness of local business, and attract new manufacturing, distribution, services, and technology (Figure 3-3). For South Carolina and the Upstate, these facilities will ultimately stimulate additional investment, trade, and job growth.

GSP as a Showcase of South Carolina’s Success. GSP acts as a front door for air passengers arriving to, and departing from, the Upstate. Modern, efficient facilities and state-of-the-art passenger processing facilities is key to maintaining the highest service levels. Exhibition space within the airport should continue to be used to highlight the numerous corporate headquarters and multinational firms located in the Upstate, thereby projecting an image of progress and innovation (Figure 3-4).

GSP Immediate Challenges: Short-Term Goals

In addition to the long-term roles of the airport, the master plan addresses GSP’s immediate development needs to make certain that operational efficiency and user convenience are optimized. After considerable study of the existing setting and nearby developments, the airport has adopted several short-term planning goals.

- *Maintain Excellent Service Standards.* This planning goal aims to retain GSP’s current high service standards. High standards shall apply to issues of safety and security, passenger convenience, and airline operational efficiency.
- *Expand Airline Service.* Development plans for GSP should be coordinated with business strategies aimed at attracting additional airline service at GSP, including low-cost carriers, and initiating/expanding international cargo and passenger operations.

- *Comply with TSA Requirements.* Following the events of 9/11, the Transportation Security Administration (TSA) mandated new passenger, baggage, and vehicular screening procedures. As safety and security are a top priority at GSP, the planning process will examine requirements for further safe proofing the terminal building, upgrade of the Explosive Trace Detection (ETD) equipment, and enhancement of airside access security measures.
- *Network the Passenger Terminal for Intelligent Systems.* GSP should adopt plans for upgrading processing, communications, and building management systems. Key goals include installation of self-service ticketing facilities, Explosive Detection Systems (EDS) equipment, and additional passenger screening magnetometers, and wireless or hardwire Internet access.
- *Validate/Enhance Terminal Concessions Program.* Retail and food and beverage concessions in the passenger terminal are an important source of revenue to the airport and convenience to passengers. Substantive recommendations should be provided for improving both the variety and number of concession offerings.
- *Resolve Highway Capacity Constraints at I-85.* The upgrades at the SC14 interchange and the upcoming addition of a Brockman McClimon Road interchange along I-85 pose safety and congestion threats to GSP access. The planning process to alleviate these threats must be closely coordinated with the SC Department of Transportation.
- *Increase Capacity of Auto Parking Facilities.* The airport is quickly approaching saturation levels for long-term and employee parking. The planning process should address expansion strategies.
- *Maintain a “Good Neighbor” Policy.* The Master Plan Update should summarize the impacts of GSP’s growth on the Upstate economy and the surrounding environment.
- *Investigate the Need for Land Acquisition.* The planning process should address any need by the airport to acquire new land in its immediate surroundings. Such land may be required, among other reasons, for ground access improvement, and mitigation of environmental impacts.

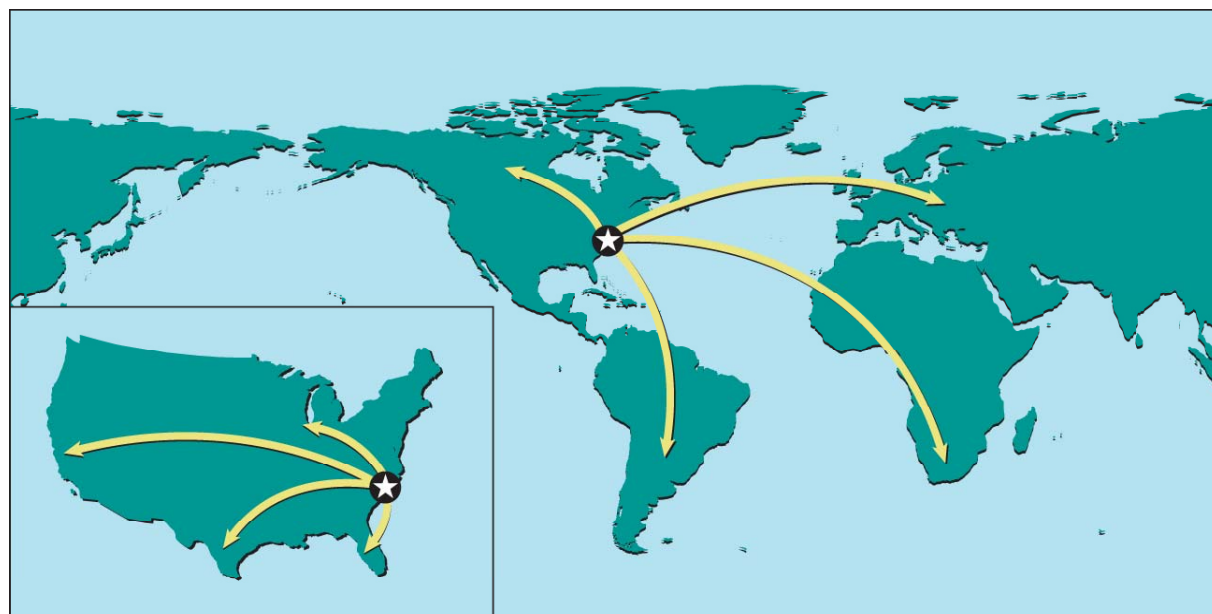


Fig. 3-1 GSP as a Gateway to the World

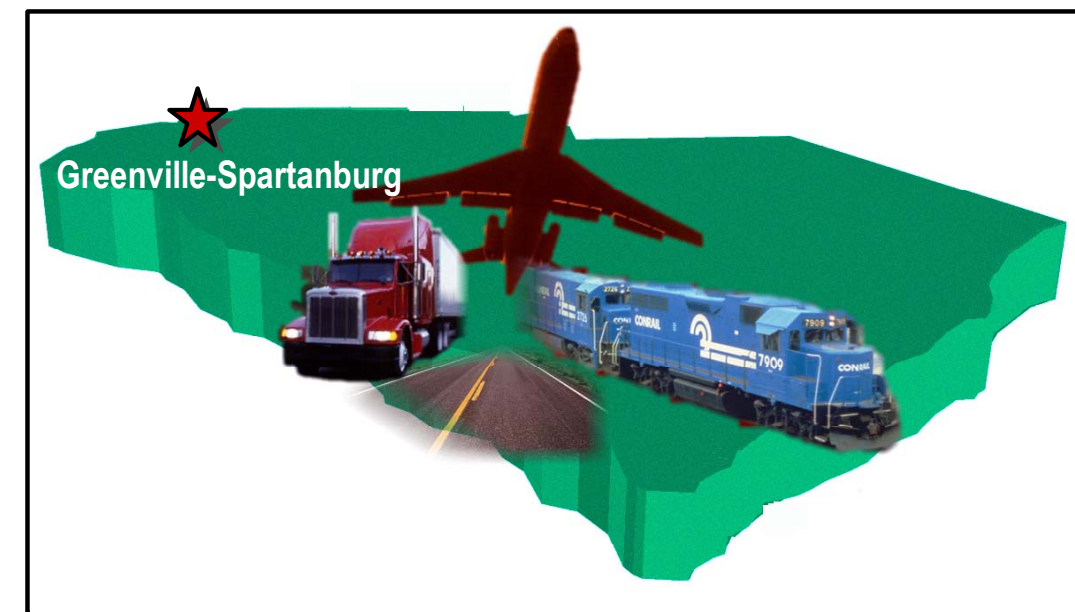


Fig. 3-2 GSP as a Cargo Distribution Center

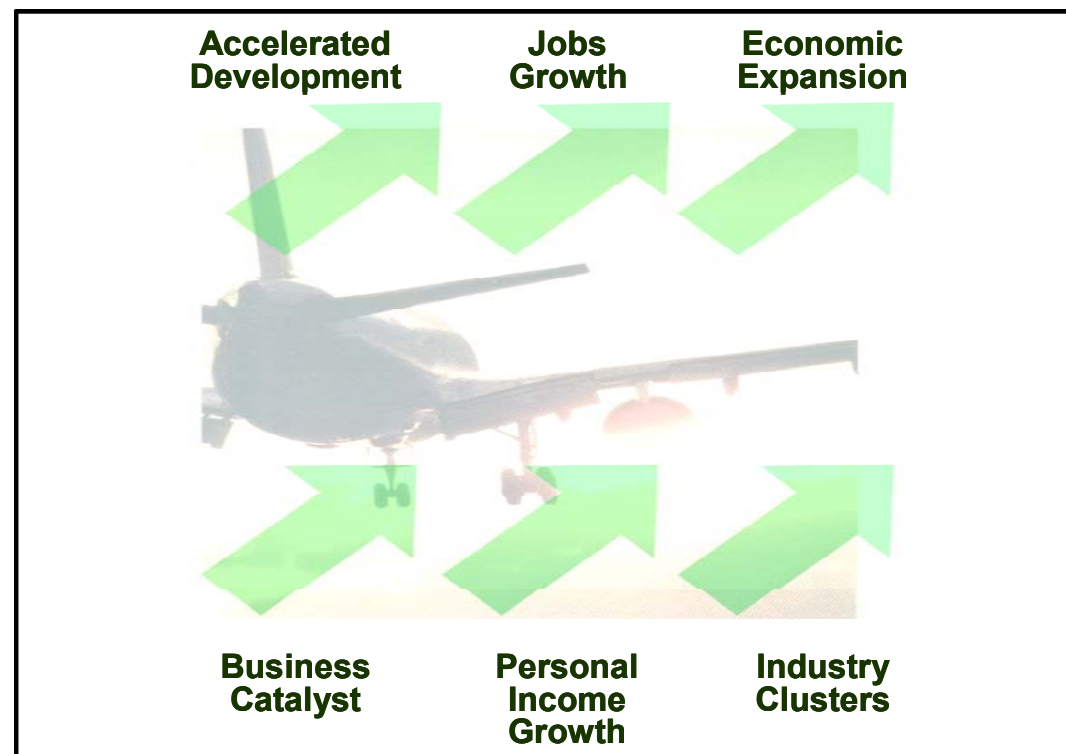


Fig. 3-3 GSP as a Regional Economic Engine



Fig. 3-4 GSP as a Showcase

GSP Development Plan

The GSP development plan addresses internal land uses of the airport and the airport’s relationships with the surrounding environs. A tour of the surrounding development was conducted in the course of this study. Future development plans were also evaluated based on the Appalachian Council of Government’s *Future Land Use Plan by 2015*.

The development plan aims at reserving land areas in appropriate proportions to meet the future aviation needs of the community. Key factors to a successful plan include a thorough understanding of the existing setting, assignment of land uses that respond to the surrounding environment, and proportionate and balanced distribution of land based on projected facility requirements.

Surrounding Development

In examining the general surrounding development, there is an apparent difference between uses to the north and south of the airport (see Figure 3-5).

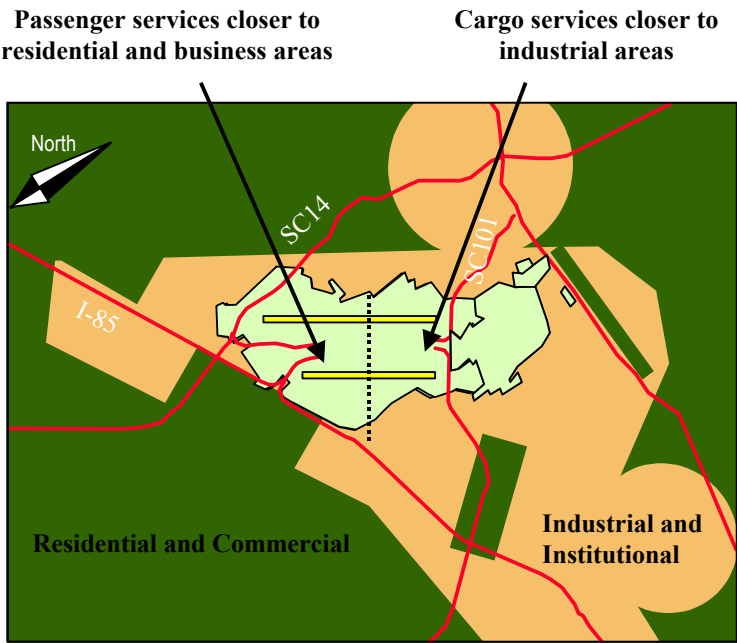


Figure 3-5 GSP’s Response to Surrounding Land Use

To the north, development is primarily industrial and institutional. Industrial traffic in this area is served by SC101, a major trucking route. To the south, development is primarily residential and commercial. Interstate 85 serves as the major route for all types of traffic.

The airport development plan responds to these different land uses by concentrating industrial land use, such as cargo facilities and aircraft maintenance, on the north side of the airport. More public and commercial uses, such as the passenger terminal and general aviation systems, are located on the south side.

West, Midfield, and East Zones

Using the runways as delineators, the airport can be divided into three zones from west to east (see Figure 3-6), which are characterized below.

West Zone. Lies between the existing runway and the western airport boundary. Given its direct ground transportation access to SC14 to the south and SC101 to the north (and J. Verne Smith Parkway in between), this area can best be developed with commercial and industrial uses. The current property boundary constrains contiguous development west of the existing runway. Therefore, in the short term, two distinct development areas are identified: the south will be developed with commercial uses, such as hotels and business parks, and the north with industrial uses, such as aircraft maintenance.

Midfield Zone. Lies between the existing and planned runways. Centrally located within the airport, this zone is ideal for aviation-related development, primarily passenger, general aviation, and cargo operations. These uses are also consistent with the existing facilities in the zone. Within this zone, development will be further designated in a manner consistent with surrounding land uses:

- The southern area will accommodate commercial passenger operations. The current passenger terminal is in this area and has adequate room for future expansion. A terminal access road presently exists which connects the terminal area with Interstate 85.

- The middle area will accommodate general aviation operations. The existing general aviation (G/A) facilities are located in this area with convenient airfield access. There is sufficient space to expand G/A and corporate operations in this area.
- The north area will accommodate cargo operations. Development of cargo facilities has already begun in this area, and there is significant space for future expansion. Cargo-generated ground traffic would have direct access to SC101 (and SC14 via J. Verne Smith Parkway) and the industrial areas north of the airport. This is advantageous because, from an overall perspective, it is especially desirable to separate the cargo traffic from passenger traffic. Land will also be reserved in this zone for airport and airline support facilities.

East Zone. Lies between the future runway and the eastern airport boundary. This zone has the advantage of direct airfield access and considerable frontage along Interstate 85. Although commercial and industrial uses are recommended for this zone, careful selection of the exact types of development is necessary. A high-density development in this area may overload the capacity of Interstate 85. A development with peak hours non-concurrent with the airport and with a low employee population, such as a pilot training center, is recommended.

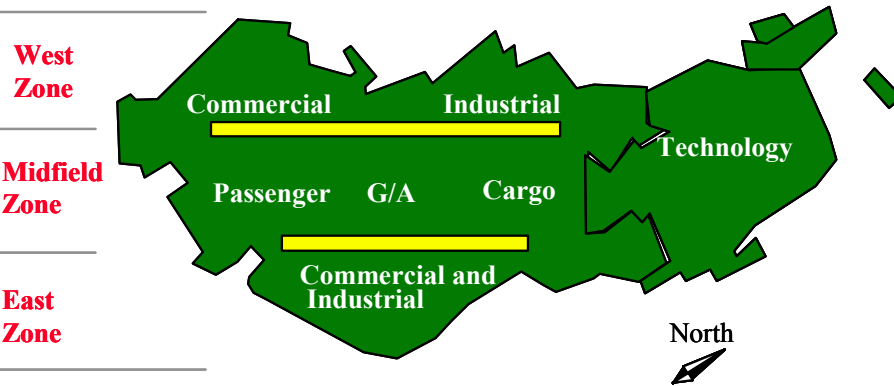


Figure 3-6 GSP Development Zones

To the north of the airport 680 acres have been purchased for the GSP Technology Park. This land has been acquired for both functional and commercial purposes. The functional purpose is to provide a buffer against the encroachment of future incompatible development under the flight path and within the 65 dB noise contours of the existing and future runways. The commercial objective for this property is for uses that would complement the airport’s mission as a community asset serving the entire Upstate region. This is discussed in more detail in Section 10, Commercial Development System.

Land Use Plan

Figure 3-7 presents the land use plan that was developed based on these internal and external land use issues; for reference, the plan is superimposed on the existing airport layout. The Midfield Zone is shown with passenger, general aviation, cargo, and other support facilities. Areas for the existing and future runways flank this midfield development. The outer areas of the airport property are reserved for commercial and industrial uses.

The Airport Environs Area is shown in Figure 3-8. The environs are areas 3,000 ft x 15,000 ft that extend from each end of the existing and of the future runways. They represent approximately the ultimate 65 dB noise footprint, beyond the airport property line, and give the Airport Commission a say in the determination of the zoning of these areas.

GSP Airport Layout Plan

The ultimate development airport layout plan is presented in Figure 3-9, which also shows the wetlands delineation. The major systems are described below.

Airfield

The airfield will consist of two parallel runways:

- Runway 4L/22R will be 11,001 feet long and during peak hours will accommodate the majority of passenger flights leaving from the south concourse gates and the largest cargo aircraft leaving from the air courier cargo apron.
- Runway 4R/22L will be 4,300 feet to the east. It will be 8,200 feet long and during peak hours accommodate the majority

of passenger flights leaving from the north concourse gates. General aviation and cargo aircraft will also use this runway.

Aircraft will circulate via a system of parallel taxiways and cross taxiways. Rapid exit taxiways will be provided in each direction for the planned runway. An apron edge taxiway will run from the concourse to the cross taxiways along the west side of the concourse. Dual taxilanes will accommodate most of the aircraft movement on the east side of the concourse. A total of 43 attached jet gates will be located in the concourse and a transit apron will provide an additional 6 contingency hard stands. Apron control towers on the roof of the concourse will control operations on the passenger apron.

Passenger

The passenger terminal and concourse are located between the two runways. At ultimate development, the existing terminal will be expanded to the north and maintain a single-level configuration. Consistent with the current configuration, escalators and pedestrian bridges will give passengers access to the concourse. At ultimate development, the majority of the concourse will be double-sided and extend linearly both to the north and the south from the existing concourses. Loading bridges will be provided at all gates and, within the concourse, passengers will move via moving walkways.

General Aviation

The general aviation area is defined by the boundaries of the passenger system to the south and the cross taxiways to the north. Facilities will consist of hangars for storage and maintenance of 60 fixed-based aircraft, apron area to accommodate the staging of 12 aircraft at two separate terminals, and 30 transit tie-down stands.

Cargo

Cargo will be handled on two aprons immediately adjacent to the airfield, one adjacent to Runway 4L/22R and one adjacent to Runway 4R/22L. Together, the aprons will provide 44 hard stands with single taxilanes. The landside portion of the cargo complex, including cargo terminals, freight forwarders, and truck staging areas, will be located between the aprons, maximizing terminal building frontage and landside staging. Centralized parking for all cargo-related employees will be adjacent to the complex.

Support Facilities

Support facilities will be located in the south and central areas of the Midfield Zone and in the north area of the West Zone. The following is a description of each area.

- The southern area of the Midfield Zone will contain facilities that require both landside and airside access. Therefore, catering, facility maintenance, auxiliary airport rescue fire-fighting, ground service equipment maintenance, and the belly cargo facilities will be located in this area. Due to its large land area and adequate access, this area will also include the airport administration building, police station, central plant, and rental car facilities.
- The central area of the Midfield Zone, located east of the general aviation complex, will provide restricted access to airside facilities. Facilities in this area will include the air traffic control tower and the primary airport rescue fire-fighting building.
- The northern area of the West Zone will include the fuel farm and aircraft maintenance, which is located west of Runway 4L/22R. This type of use is consistent with the adjacent industrial zone.

Ground Access

Terminal access for passenger-related traffic will be provided via a direct interchange with Interstate 85. In the terminal area, a loop system will provide access and re-circulation to the terminal curbs and parking areas. Service and cargo traffic in the south area of the Midfield Zone will be separated from passenger-related traffic via a service access road from SC 14. Cargo vehicles will access the cargo area in the north via a direct access road from SC 101.

Short-term parking will be provided in three parking garages, which will be located within the loop system and accessed by a dedicated exit lane. A through-traffic lane and bridges on the upper levels will connect the garages. Rental car pickup and drop-off occurs in dedicated spaces in the southernmost garage. Long-term and employee parking will be provided in open lots located outside of the loop road east of the parking garages.

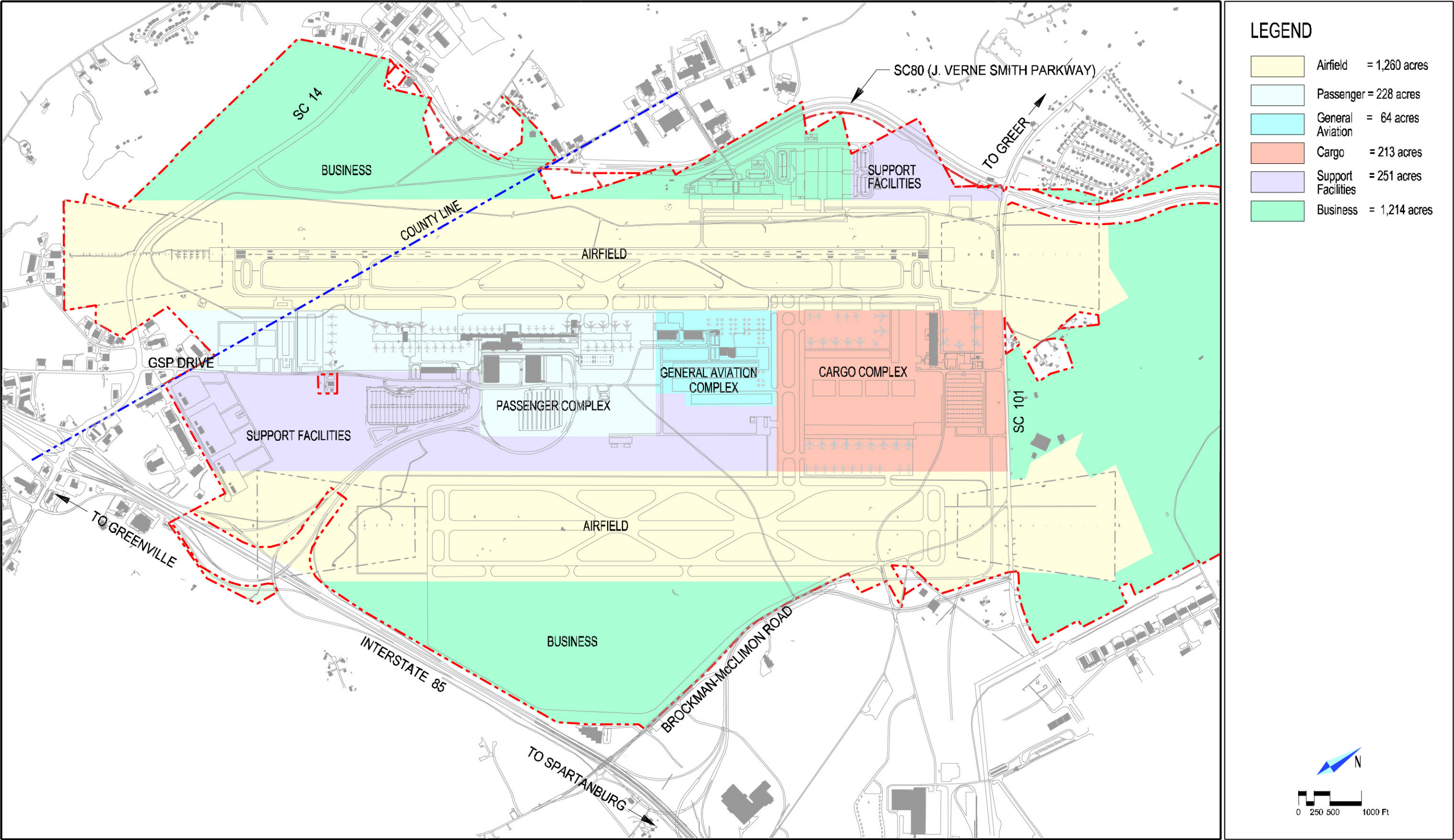


Figure 3-7 Land Use Plan

In the long term, high-speed rail (HSR) access may be required for GSP. The airport is currently trying to better understand the designated HSR alignment to reserve land for future station.

Commercial Development
Land for commercial development is reserved west of Runway 4L/22R and east of Runway 4R/22L. Since this type of development is driven by commercial agreements, only zoning is shown.

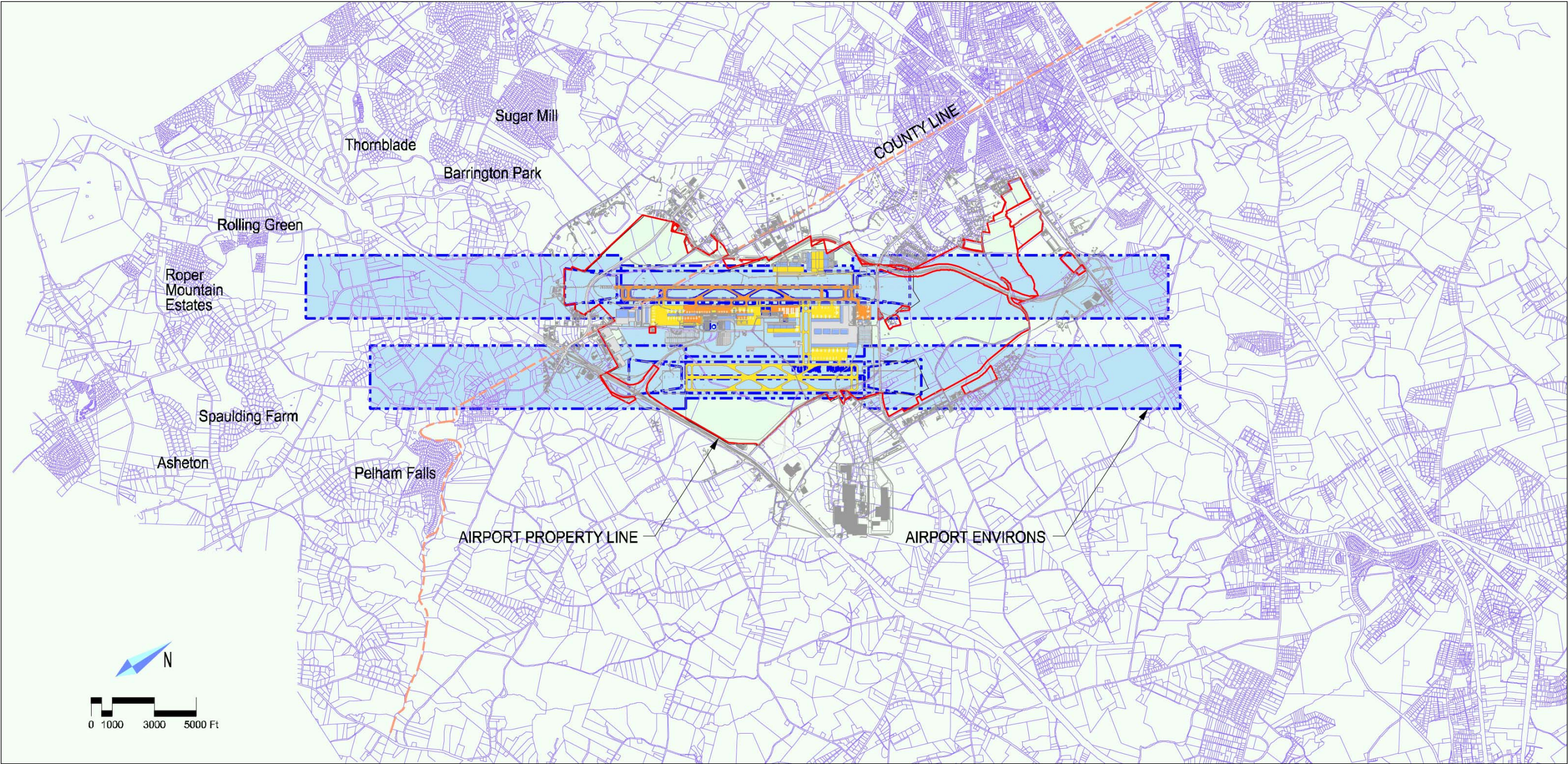
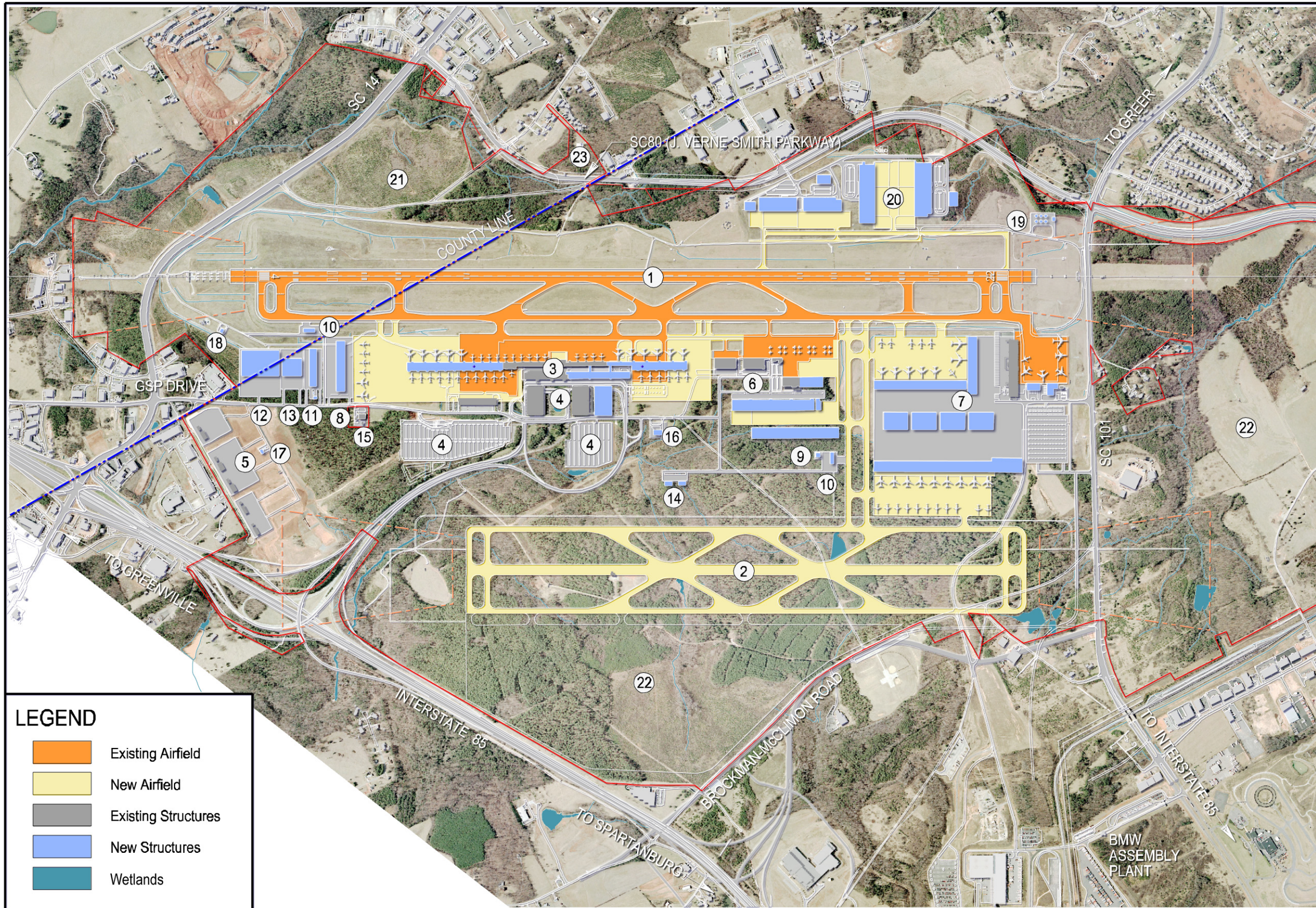


Figure 3-8 GSP Airport Environs



FACT SHEET

- Existing Runway 4L/22R
- New Runway 4R/22L
- Passenger Terminal
- Parking
- Rental Car Service Center
- General Aviation
- Air Courier Cargo
- Belly Cargo
- Air Traffic Control Tower
- ARFF (2 Locations)
- GSE Maintenance
- Facility Maintenance
- Catering Facility
- Administration/Police
- Metereological Facility
- Central Plant (Land Reservation)
- Rental Car Service Station
- Triturator / Incinerator
- Fuel Farm
- Aircraft Maintenance
- Commercial Development Zone
- Industrial / Commercial Development Zone / Technology
- ASR Location

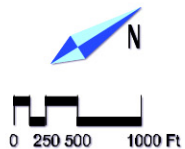


Figure 3-9 Ultimate Airport Layout Plan

Section 4

Traffic Projections

This section covers annual and peak period traffic projections for passengers, cargo, and aircraft movements at GSP. The planning horizon extends through the ultimate development of the GSP site which, based on a two-runway configuration, is projected to occur by 2053.

Traffic projections presented in this report are based on historical trends and expert judgment. These projections have been adjusted for comparisons with Federal Aviation Administration (FAA) and International Air Transport Association (IATA) projections for US domestic traffic. Market studies and airline agreements would be necessary for more detailed forecasts.

Passenger Traffic

Since 1965, the annual growth rate for passenger traffic at GSP has been 5.3 percent. This compares with an annual growth rate of 3.7 percent for US domestic enplanements during the same period. The strength of the Upstate economy has propelled GSP to grow much faster than the average national rate. Historical records and analysis of the 2003 flight schedules for GSP indicated the following statistics:

- Annual passenger traffic reached 1.6 million in year 2000 and has dropped to 1.4 million in 2002, due to the economic slowdown and the effects of the 9-11 events
- Recent average day of the peak month traffic (July 2002) was approximately 4,200 passengers
- Peak hour traffic was 600 passengers, 400-450 of which were either arriving or departing (depending on the hour of the day)

Three traffic growth scenarios have been developed. Their planning horizon extends over 50 years and is characterized by three periods: the short-term (2004-8), the mid-term (2009-23), and the long-term (2024-53). Table 4-1 presents the growth assumptions for each scenario and time period. The principal differences between these scenarios occur in the short-term.

- The low scenario begins with 2002’s actual volume (1.4 million) and its growth rate increases slowly from 1% to 3%
- The moderate scenario is a continuation of the long-term trend line, growing at a historical rate of 5.3% between 2004-2023
- The high scenario is the same as the moderate one, but with the introduction of low-cost carriers that expand their market at the rate of two new cities served each year

In the long-term (2024-2053), the growth rate in each scenario drops to 3.8%, which is a more sustainable rate. For comparison, a recent IATA forecast predicts that US domestic traffic will resume its historical growth trend of 3.8%-4% per annum (pa) after 2003.

Table 4-1 GSP Passenger Growth Scenarios

Growth Scenario	2004 – 2008 Short-term	2009 – 2023 Mid-term	2024 – 2053 Long-term
Low	1 - 3%	4.5%	3.8%
Moderate	5.3%	5.3%	3.8%
High	15.0%	5.3%	3.8%

Figure 4-1 presents annual passenger projections for GSP throughout the planning horizon. For planning purposes, the Airport Commission has selected the moderate growth scenario reflecting continued strong growth through 2023. As Figure 4-1 shows, the total traffic at GSP is projected to reach 5.3 million by 2023. As a reference point, the FAA has previously forecasted, GSP’s annual traffic volume to reach 3.3 million by year 2010. This falls between the moderate scenario (2.7 million) and the high scenario (4.3 million) for that year.

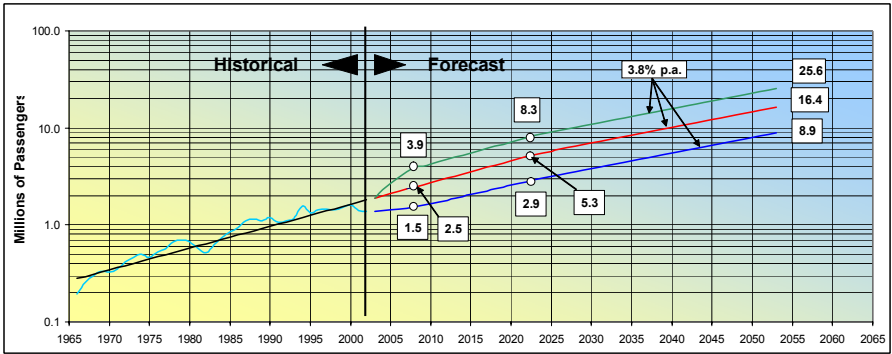


Figure 4-1 GSP Annual Projections for Passenger Traffic

The number of passengers at an airport varies seasonally with changes in business and vacation demands. Designing a facility to accommodate the absolute peak traffic achieves the highest service, but would be too costly. The planning volume most widely accepted by the aviation industry is the peak hour of the average day of the peak month (PH of ADPM). This planning volume should allow the airport to meet more than 95 percent of the design year’s hourly traffic demands at the planned level of service.

Based on patterns observed from the 2003 GSP flight schedule, annual forecasts are converted to peak hour traffic projections as shown in Table 4-2. The enplanement and deplanement peaks occur at different times and are not coincident.

Table 4-2 GSP Peak Hour Passenger Projections

Passenger Type	2003 *	2008	2013	2018	2023	2053
Major Airlines						
Enplanement	146	192	283	417	615	2,458
Deplanement	141	158	237	355	533	2,195
Combined	230	317	475	712	1,066	4,390
Regional Airlines						
Enplanement	258	422	473	530	594	978
Deplanement	217	343	387	436	492	828
Combined	427	686	774	873	984	1,655
Total						
Enplanement	304	528	650	800	984	2,759
Deplanement	250	415	529	675	861	2,508
Combined	428	905	1139	1433	1,803	5,017

* Estimated

Cargo Traffic

Cargo traffic at GSP has had two distinct growth periods. The first growth period was between 1965 and 1992 when the traffic growth trend was 5.1%, comparable to the overall growth rates for North America. Then in 1993, FedEx and Emery introduced all-freight service, which increased the total freight volume by 150% within a year. In the following period from 1993 to 2002, freight traffic grew to reach a peak of 28,645 tons in 1999 and then decreased to 21,997 in 2002.

Historical records and analysis of the 2003 flight schedules for GSP indicate the following statistics:

- Estimated 2003 cargo traffic will reach 21,000 tons
- Estimated average day of the peak month traffic is 61 tons
- Freight carried in bellies is down to 5%, with the remainder carried by Airborne, UPS, FedEx and Emery in DC9s and B727s
- Peak hour traffic was 20 tons, which represents two freighters arriving or leaving in the same hour

As with passenger traffic, three traffic growth scenarios are developed. Their behavior differs mainly in the short-term period.

- The low scenario starts from the volume of 2002 (22,000 tons) and its growth rate increases slowly from 0.5% to 2.5%
- The moderate scenario follows the long-term trend line, growing at its historical rate of 5.1%
- The high scenario is the same as the moderate one, with the introduction of a new all-freight carrier that expands at the rate one new market served each year with a bi-weekly flight

Table 4-3 presents the growth assumptions for each scenario and time period. In the medium and long-term, freight is assumed to keep growing at its historical 5.1% rate. In the low scenario the rate is limited to 3.5%, which is close to the worldwide growth rate of air cargo.

Table 4-3 Cargo Growth Scenarios

Growth Scenario	2004 – 2008 Short-term	2009 – 2023 Mid-term	2024 – 2053 Long-term
Low	0.5-2.5%	3.5%	3.5%
Moderate	5.1%	5.1%	5.1%
High	12.6%	5.1%	5.1%

The Airport Commission selected the moderate growth rate for planning purposes. As may be seen in Figure 4-2, traffic is projected to reach 79,000 tons by 2023 under the selected scenario.

Annual forecasts are converted to peak hour traffic projections based on patterns obtained from the 2003 GSP flight schedule. These projections are presented in Table 4-4.

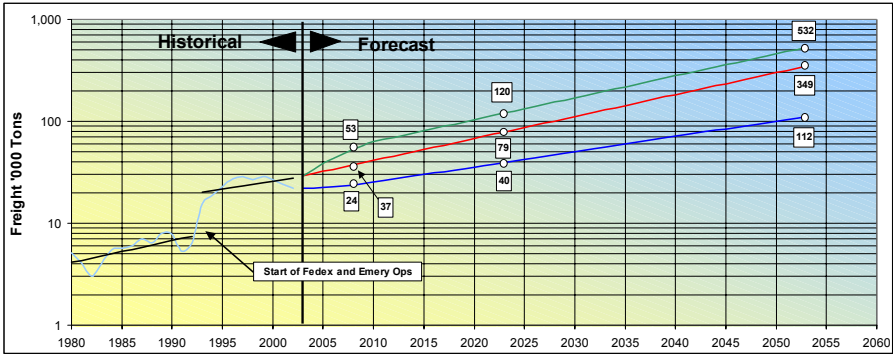


Figure 4-2 GSP Annual Projections for Cargo Traffic

Table 4-4 GSP Peak Hour Cargo Projections (Tons)

Freight Segment	2008	2013	2018	2023	2053
Belly					
Inbound/Outbound	0.6	1.0	1.6	2.6	14.6
Total	1.0	1.6	2.6	4.3	23.8
Freighter					
Inbound/Outbound	31.2	34.1	37.2	40.6	172.6
Total	41.7	47.3	53.7	60.9	258.8
Total					
Inbound/Outbound	31.4	34.4	37.7	41.3	183
Total	43.6	48.7	55.7	63.7	282.4

Aircraft Movements, including General Aviation

Annual passenger and cargo volumes are converted to aircraft movements by considering fleet mix, aircraft configuration, and load factors. These are shown in Table 4-5. Also shown in the same figure are annual general aviation aircraft movements, which are based on the following assumptions:

- Based aircraft are principally corporate aviation using the G/A facilities. For planning purposes, a new tenant is assumed to sign a lease with the fixed-base operator every 5 years. Each of these tenants is assumed to need three covered aircraft parking positions.
- The number of itinerant aircraft that use apron tie-down positions is expected to grow at an annual average of 2.5%. This is equal to

the GDP growth for developed economies as forecasted by Organization for Economic Cooperation and Development.

Table 4-5 GSP Annual Projections for Aircraft Movements

Operation Type	2003 *	2008	2013	2018	2023	2053
Passenger	44,716	84,040	100,627	120,488	144,269	337,955
All Cargo	1,863	3,200	3,810	4,536	5,400	22,000
G/A & Military	16,886	19,200	21,760	24,380	27,180	49,200
Total	63,465	106,440	126,197	149,404	176,849	409,155

* Estimated

Peak hour arrivals and departures are then derived by applying factors obtained from analysis of the GSP 2003 flight schedule. Table 4-6 presents annual and peak hour aircraft movements.

Table 4-6 GSP Peak Hour Projections for Aircraft Movements

Type	2003 *	2008	2013	2018	2023	2053
Non-concurrent						
Major Airlines	3	4	6	8	12	50
Regional Airlines	16	26	29	32	35	59
Freighters	2	4	4	5	5	10
G/A & Military	7	8	9	10	12	18
Concurrent	21	34	39	45	51	107

* Estimated

Section 5

Airfield System

The airfield system consists of runways, taxiways, aprons, and the air traffic control tower and air traffic control radar system.

Figure 5-1 presents the recommended ultimate configuration of the airfield system. Primary facilities include two parallel runways in the 4/22 direction, one cross taxiway pair connecting the two runways, multiple taxiways and taxilanes for aircraft circulation, and aprons to support passenger, general aviation, cargo, and aircraft maintenance facilities.

Runways

Existing land reservations at GSP allow for two parallel runways. Issues of runway capacity and configuration have been addressed to determine when a second runway will be needed, how long each runway should be, and what separation between runways should be used to optimize aircraft operations.

Runway Capacity

A runway demand/capacity analysis was performed to project when the existing runway may reach saturation. Airports are generally permitted to apply for FAA funding for a second runway when the existing runway reaches 60% of its capacity. Another critical issue was the determination of the ultimate GSP airfield capacity so that the airport system could be balanced to optimize capital investment.

Table 5-1 presents the projected runway system capacity and saturation dates for GSP. Peak hour capacities are based on projected fleet mix, distribution of arrivals and departures, and the existing visual flight rule/instrument flight rule (VFR/IFR) conditions. Given the demand projections presented in Section 4, Traffic Projections, for passenger, cargo, and general aviation aircraft movements at GSP, the existing runway is projected to reach 60% of saturation between 2010 and 2015. Ultimate airfield capacity with two runways may be reached between 2040 and 2045.

Table 5-1 Runway Capacity and Saturation (Operations)

	Peak Hour Capacity	Annual Capacity	Saturation Year
One runway	45	156,000	2015 – 2025
Two runways	90	312000	2040 – 2050

Separation Between Runways

Under current FAA regulations, a 4,300-foot runway separation allows independent simultaneous operations under all flight conditions. Given that current site boundaries can accommodate such a separation and additional land is not needed, a 4,300-foot separation is recommended. This separation is sufficient to accommodate all other airport facilities as described in the remainder of this report.

Primary Runway Length

At ultimate development, existing Runway 4/22 will become Runway 4L/22R and will be considered the primary airport runway. This runway’s length is 11,001 feet.

Given the 11,001-foot runway, the operational impacts on aircraft arrivals and departures were determined by using the design flight schedule, and applying such factors as the climate at GSP and the performance of aircraft and their engines.

This analysis determined that the existing 11,001-foot runway length will be able to accommodate, without any restriction, more than 99 % of all aircraft departures and more than 95 % of all cargo departures. The number of cargo operations impacted is considered to be an overstatement considering that the majority of cargo aircraft reach volume capacity before weight capacity.

Commercial factors, in addition to operational adequacy considerations, argue for and support GSP’s 11,001-foot runway. Throughout the US, cargo carriers have invested heavily in airports with runways that are considerably shorter than 11,001 feet.

Secondary Runway Length

At ultimate development, planned Runway 4R/22L will be considered the secondary runway at GSP. With a 4,300-foot separation, the airport currently has land available to build this runway up to a maximum of 8,200 feet in length.

Construction of the secondary runway will be triggered either by capacity constraints of the existing runway or by the decision of the Airport Commission to provide carriers with the added flexibility of simultaneous takeoffs and landings. While a runway longer than 8,200 feet would provide additional operational flexibility, it would result in the following consequences:

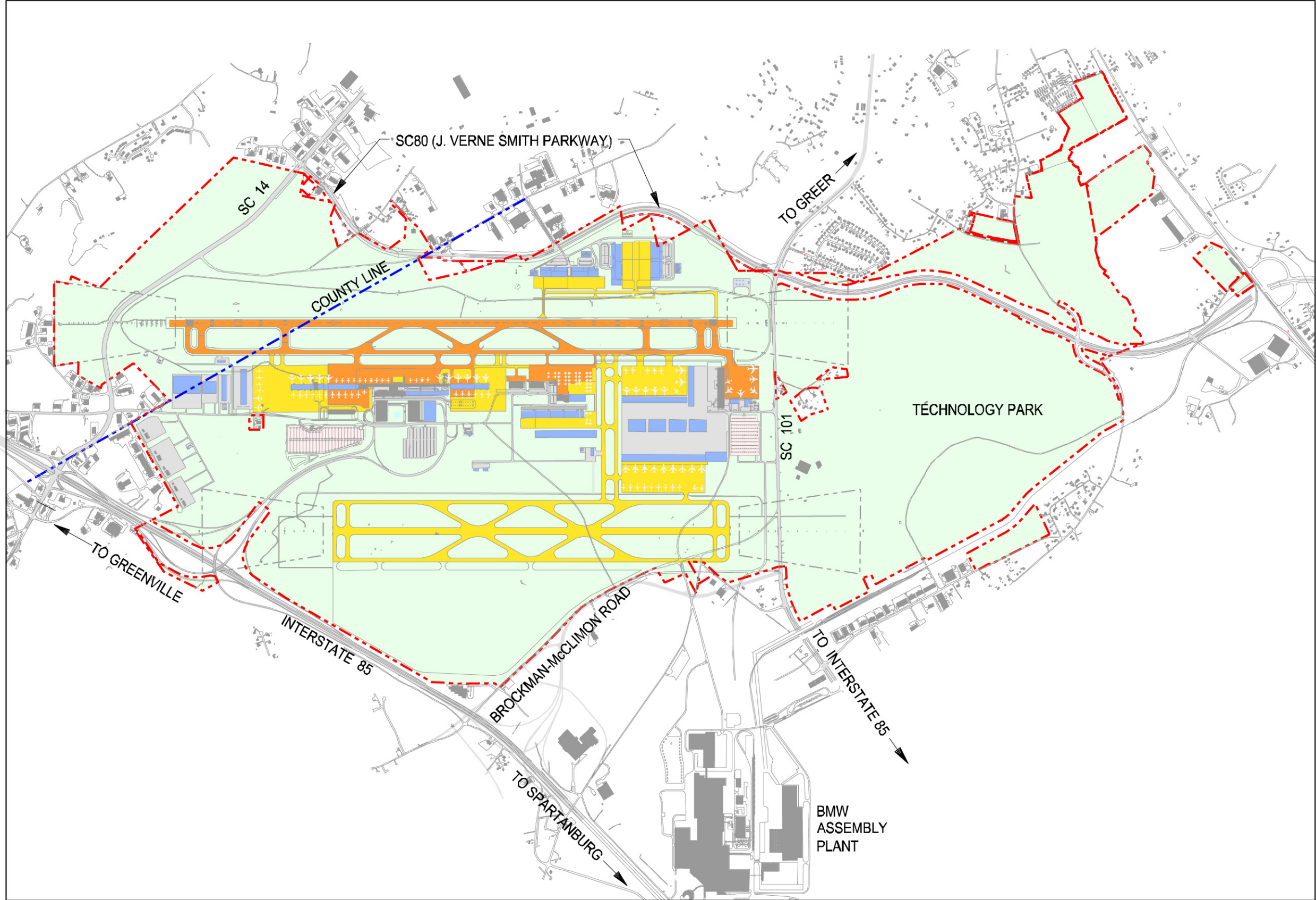
- Higher costs and need for additional land acquisition
- Need to realign Highway SC101
- Significant increase in the off-airport noise profile
- Potential negative community reaction

These issues outweigh the benefit of added flexibility, and it is recommended than an 8,200-foot runway length be adopted for the following scenario:

- For landings, the 8,200-foot runway will be able to accommodate practically all aircraft, thus alleviating pressure on the primary runway.
- For takeoffs, heavier aircraft will be directed to the 11,001-foot runway, while small passenger, commuter, and general aviation aircraft will use both runways.

Taxiways

Figure 5-1 illustrates the taxiing system as planned for ultimate development. Whenever possible, dual taxiways are used and loop systems created to minimize conflicts and provide alternative taxiing routes. Rapid exits, cross taxiways, and aircraft circulation are described below.



FACT SHEET

Runway 4L/22R Length	= 11,001 ft
Runway 4R/22L Length	= 8,200 ft
Passenger Complex Apron	= 4,114,200 ft ²
General Aviation Apron	= 1,026,700 ft ²
Cargo Apron	= 2,963,200 ft ²

LEGEND

	Existing Airfield
	New Airfield

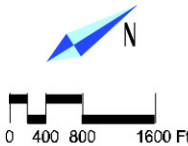


Figure 5-1 Ultimate Airfield Configuration

Rapid Exit Taxiways

To provide adequate capacity and improve runway operations, rapid exit taxiways should be provided for both runways. Runway 4L/22R already has two rapid exit taxiways in each landing direction (north and south) for a total of four rapid exits connecting to its single parallel taxiway. Runway 4R/22L will have at least one parallel taxiway, possibly two. With the first parallel taxiway built to the west, two rapid exit taxiways will be provided in each landing direction (north and south) for a total of four rapid exits. If a second parallel taxiway is built to the east of the runway, a similar configuration of four rapid exits will be provided.

Cross Taxiways

To provide access between the primary and secondary runways, two alternatives for cross taxiways were considered: a single pair of cross taxiways (see Figure 5-2) on the north side or dual pairs on each end. Based on an analysis of impact on aircraft delay, a single pair of cross taxiways is recommended. Only a slight reduction in taxiing delay was achieved when a second pair of cross taxiways were used, as shown in Table 5-2. Such an improvement is not economically justified, especially given the additional capital cost and the need to significantly reconfigure the airport entrance road. At peak period, a 3-minute taxiing departure delay is considered acceptable by the aviation industry standards.

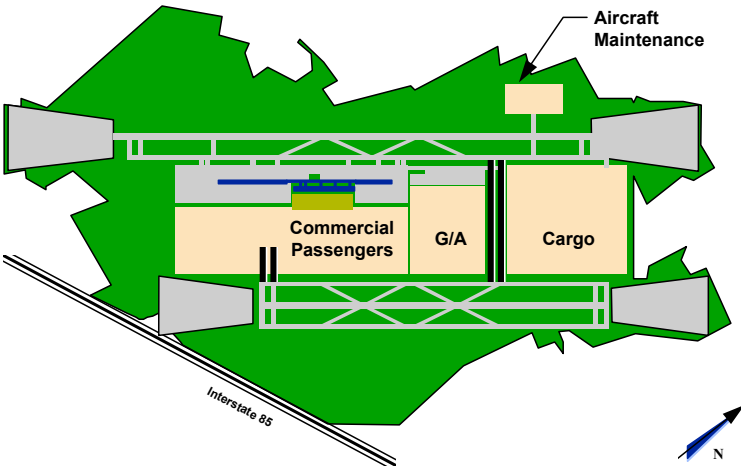


Figure 5-2 Cross Taxiway Alternatives
Table 5-2 Cross Taxiway Impact on Aircraft Delay

	Average Taxiing Delay (minutes)	
	Single Pair	Dual Pair
Arrivals	0.05	0.11
Departures	2.67	1.52

Taxiing Patterns

Figure 5-3 depicts the suggested aircraft circulation routes to accommodate the runway operational scenario during the peak hour of the ultimate development.

During off-peak hours, the air traffic control tower will likely permit aircraft to use circulation patterns that minimize taxiing times and distances.

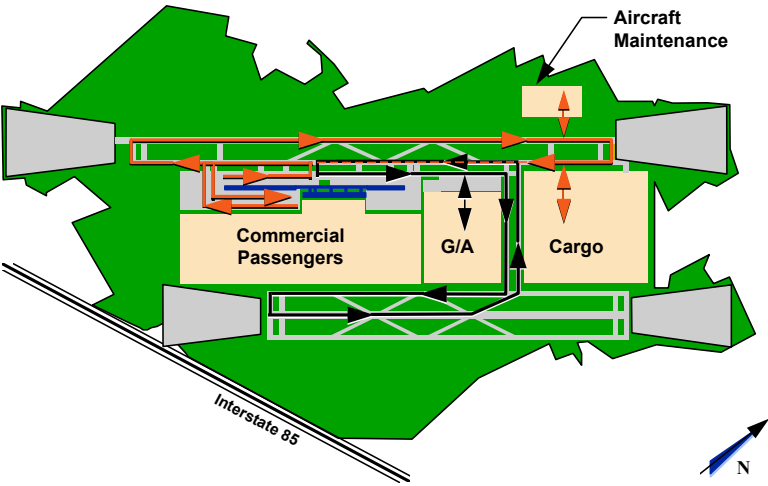


Figure 5-3 Aircraft Circulation during Peak Hour

Aprons

There are a number of aprons at GSP, most of which are located in the midfield area. For passenger operations, a single apron surrounds the concourse building, providing 43 jet gates and six hardstands. On the west side of the concourse, a single Group IV apron edge taxiway provides

circulation on the apron, while on the east side, Group III taxilanes provide access to gates. The total apron area is approximately 4.1 million square feet.

At ultimate development, two general aviation aprons will be provided. The existing apron adjacent to Runway 4L/22R will be maintained and expanded. A new apron will be built to the east of the existing G/A complex. Total G/A apron area will be approximately one million square feet.

Two cargo aprons will be located in the north area of the Midfield Zone, one adjacent to Runway 4L/22R and one adjacent to Runway 4R/22L. A single Group IV taxilane is provided for circulation on the aprons. Each apron is approximately 3 million square feet in area.

An aircraft maintenance apron, sized to accommodate B747s, is located west of the northern end of Runway 4L/22R in the north area of the West Zone. The total apron area, including the run-up pad, is 548,000 ft².

Air Traffic Control Tower

The existing air traffic control tower (ATCT) will be adequate for GSP with a one-runway operation. At the time a second runway is built, a new ATCT will be needed in order to satisfy line-of-sight requirements for controllers.

A location has been identified and land reserved for a new ATCT. A site central to the two runways is located east of the G/A complex and north of the long-term lot. The height and detailed layout of the tower will be the subject of a future study.

Air Traffic Control Radar

The FAA provides and operates air traffic surveillance radar at GSP. This radar is used to monitor and control traffic at GSP and also at other airports within approximately 50 miles of GSP.

The FAA proposes to replace GSP’s existing ASR-8 radar with an upgraded ASR-11. Because the existing ASR-8 site will be displaced when GSP’s second runway is constructed in the future, the new

radar will be installed on a different site that is compatible with the airport master plan.

The FAA has conducted a study of potential locations for the new ASR-11 and has concluded that two locations meet the official criteria of the National Airspace System plan. One of these potential locations is in the east portion of the airport, near Interstate 85 and Brockman-McClimon Road. A radar at this location, however, would adversely impact the optimum commercial or industrial development of this part of the airport east of the future second runway. The second potential location for the new radar is west of the existing runway, on the west side of the new SC80 (J. Verne Smith Parkway). Because this second potential location will not adversely affect any airport development, this location is designated as the site for the future ASR-11 radar.

Section 6

Passenger System

The passenger system occupies most of the central and south area of the Midfield Zone, as delineated in Section 3, Development Concept. The system consists of the concourse, the aprons around the concourse, the terminal, and the bridges connecting the concourse to the terminal.

The existing terminal is a single story, double-height 90,000-square-foot complex with ticketing and commercial space at the north end, and baggage claim and rental car counters at the south end. The Airport Commission has decided to retain the single-story design rather than use multiple levels to separate arrivals and departures.

The airport has 13 jet gates located in a two story, 150,000-square-foot concourse complex; airline support facilities are located at the apron level and passenger arrivals and departures are located on the second level. There are 9 operational gates with loading bridges in a single-sided concourse configuration, which can accommodate a variety of Group II and Group III aircraft. (However, the gate spacing requires closing an adjacent gate when parking large Group III aircraft.) Four additional gates, located in a double-sided concourse at the south end, are built but do not have loading bridges. These can accommodate three Group III aircraft and two Group II aircraft.

To accommodate the projected growth in passenger traffic at GSP while preserving the high standard of service, the following specific planning parameters were addressed:

- Utilize the efficiency of double-sided concourses
- Minimize aircraft taxiing distances and provide efficient aircraft circulation
- Minimize passenger walking distances and provide clear orientation for passenger movement in the terminal and concourse buildings
- Provide an efficient curb area in front of the terminal building

- Provide convenient parking
- Maintain the attractive entrance to the airport
- Phase facility expansions in an orderly manner to minimize cost
- Minimize topographical impact from facility expansion

Forecasts

As detailed in Section 4, Traffic Projections, GSP is projected to serve over 16 million passengers annually within the next 50 years, according to the moderate growth scenario.

Facility Requirements

Ultimate passenger system facility requirements are driven by the ultimate capacity of the airfield to accommodate aircraft operations, which, in turn, determine the required number of gates. At ultimate capacity, GSP will require 43 contact gates and 6 contingent hardstands to accommodate the projected mix of aircraft.

Tables 6-1 and 6-2 summarize the passenger system facility requirements. Using a double-sided concourse design for expansion, 700,000 square feet are required for ultimate development hold rooms, concessions, and other amenities. The surrounding apron will require in excess of 4 million square feet of pavement. The terminal building will require 150,000 square feet for ticketing, baggage claim, car rental, passenger amenities, and 2,300 linear feet of curb frontage. Four bridges are required to connect the terminal building to the concourse.

Table 6-1 Aircraft Parking Facility Requirements

Aircraft Mix	Gates	Hardstands
Large aircraft mix option	43	6
Small aircraft mix option	60	12

Table 6-2 Ultimate Building Facility Requirements

Building	Area (SF)
Concourse	700,000
Terminal	150,000
Connectors	28,300
Total	878,000

Recommended Passenger System Layout

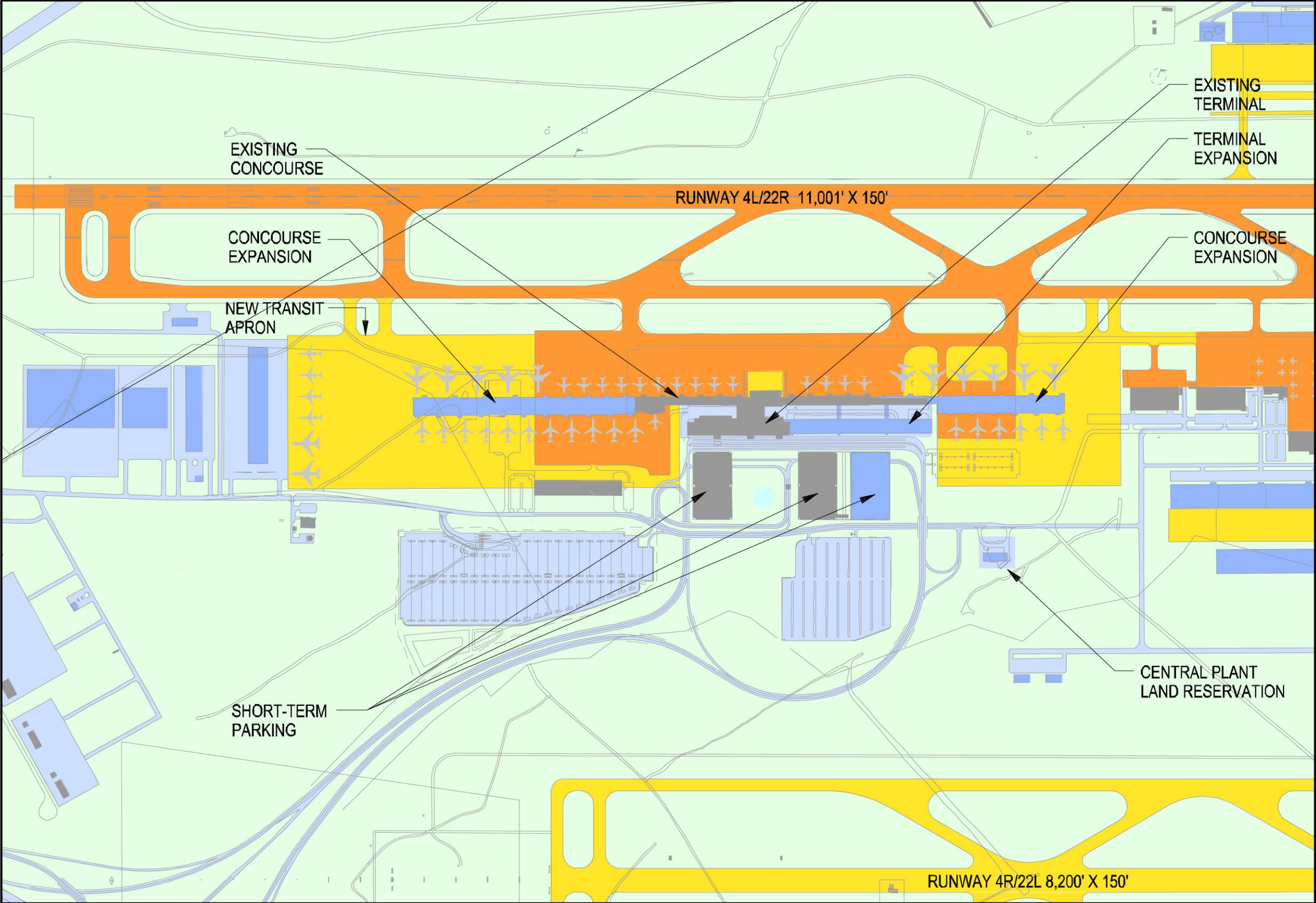
Figure 6-1 presents the recommended passenger system concept.

Concourse

The concourse has been expanded in a linear configuration in both the north and south directions. Expansion to the north is limited by the general aviation system whereas expansion to the south is limited only by the ultimate facility requirements of the passenger system. Expanding in both directions adds balance to the gates relative to the terminal; it not only minimizes walking distances for passengers, but also minimizes taxiing distances for aircraft assigned to use runway 4R/22L.

The linear configuration is very user-friendly in that passengers are always well oriented within the building. Walking distances are relatively short for a linear configuration because the airport is primarily an origin/destination facility, where critical distances are between curb and gates rather than between gates. Where walking distances within the concourse exceed 1,000 feet, moving walkways will be provided.

The north expansion provides for an additional 12 gates consisting of six Group IV aircraft on the west side and six Group III aircraft on the east side. The first gate in the concourse expansion to the north is a single-sided configuration that provides space for the northern expansion of the terminal. The remaining 11 north gates use a double-sided configuration.



FACT SHEET

- Apron Size: 4,114,200 ft²
- Net New Apron Size: 3,109,900 ft²
- Jet Gates: 43
- Terminal: 150,000 ft²
- Concourse: 700,000 ft²
- Ramp Towers: 2
- Structured Parking: 4,500 stalls
- Surface Parking: 3,300 stalls

LEGEND

- Existing Airfield
- New Airfield
- Existing Structures
- New Structures

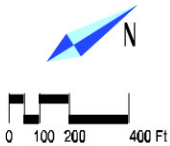


Figure 6-1 Ultimate Passenger Terminal Configuration

The south expansion provides for an additional 18 gates consisting of five Group IV aircraft and three Group II aircraft on the west side and ten Group III aircraft on the east side. All gates utilize a double-sided configuration. Rooftop ramp control towers are positioned at the north and south ends of the concourse to coordinate aircraft circulation at the gates.

The concourse width is related to the size of the aircraft served at the gates: Group III and Group IV aircraft carry more passengers and thus require larger departure lounges. Double-sided concourses must provide for departure lounges on each side, and the circulation space must accommodate the increased passenger traffic. Consequently, smaller Group II aircraft have been assigned to the existing single-sided concourse section, and the larger Group IV and Group III aircraft have been assigned to the expanded double-sided concourse section.

As depicted in Figure 6-2, the concourse width at the double-sided gates is 110 feet, which accommodates 30-foot-wide departure lounges along the exterior walls and two 20-foot-wide circulation halls on the interior. A 10-foot-wide space in the center of the circulation hall has been reserved for moving walkways. Concession space and passenger amenities (such as toilets and telephones) are located along the exterior walls between departure lounges.

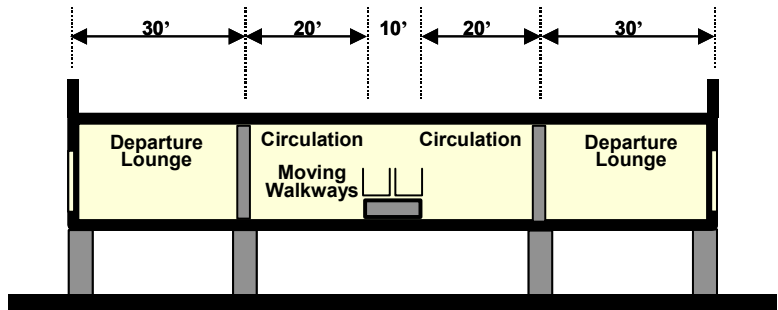


Figure 6-2 Cross Section of Double-Sided Concourse

Great care has been taken in developing the implementation and phasing of this concept. Expanding the concourse first to the north in two phases, with the 12 new gates, will meet demand through the ultimate capacity of the existing runway and defer relocation of existing belly cargo building and facilities maintenance buildings. Because the northern expansion area is already level, earthwork will be minimal. Moreover, in order to defer construction of the new

control tower and fire stations until construction of the second runway, the airport can retain the existing location of these facilities by opting to delay opening one of the 12 new gates.

Expansion to the south will begin after construction of the second runway, and will continue incrementally with the construction of five or six gates at a time. Because construction will occur at the end of the concourse during each expansion, construction integration will be relatively easy and the impact on the current operation of the airport will be minor. Earthwork requirements are relatively minor at the south end of the existing concourse but become more of an issue farther south as the concourse expands across a gently falling terrain.

Figure 6-3 presents cross sections through the passenger system and illustrates the apron configuration. Expansion of the west side apron is possible only to the north and south; separation for the high-speed taxiway serving Runway 4L/22R precludes increasing its width to the west. The present width allows parking for Group IV aircraft at the west gates with a single apron-edge taxilane capable of accommodating Group IV aircraft. Therefore, as mentioned in Section 5, Airfield System, circulation on the apron edge will be one way during peak hours and must be coordinated by the control tower with traffic opposite direction on the high-speed taxiway. Aprons on the east side of the concourse have dual taxilanes to accommodate the Group III aircraft and increase circulation efficiency. Restricting Group IV aircraft from the east gates considerably reduces apron paving requirements relative to parking and taxilane widths.

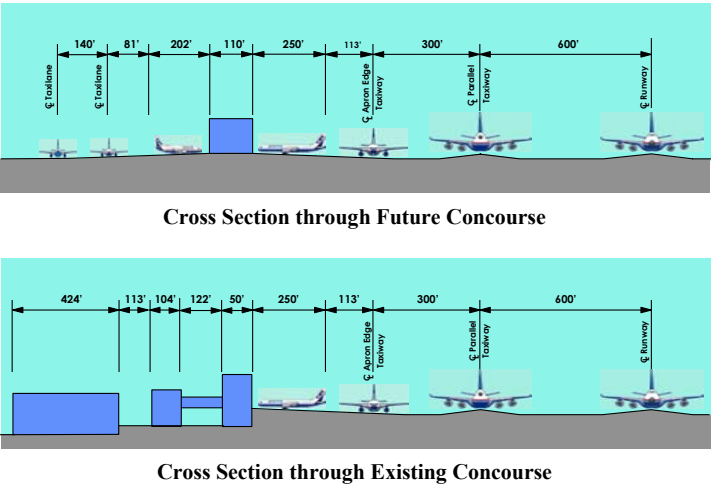


Figure 6-3 Passenger System Cross Sections

Since expansion on the north will dislocate the existing transit apron, the apron at the south end of the concourse can be extended incrementally to accommodate transit aircraft. As the concourse is expanded to the south, a new transit apron is paved forward of the next concourse expansion. The south end of the apron has been reserved for the six contingent hardstands and new transit aircraft at ultimate development. The outside taxilane adjacent to this section of the apron can accommodate Group V aircraft.

Terminal

The terminal has been expanded in a linear configuration to parallel the expansion of the concourse. Expansion occurs to the north to provide balance between the north and south concourse gates and to minimize closing existing aircraft gates or limiting construction of new ones. The unique design elements of the terminal, which were reinforced by the 1989 expansion, allow expansion to occur in modules. An additional three modules, each approximately 300 feet long, may be required.

At the ultimate development, it is recommended that ticketing and baggage claim operations be separated and placed at opposite ends of the terminal. Departure activities (such as ticketing, baggage make-up, retail banking, and air travel services) will occur at the north end, supported by a north end vehicular approach to the departure curb and the proximity of two short-term parking garages. Arrival activities (such as baggage claim, rental car counters, hotel, and limousine service stands) will occur at the south end, supported by the existing baggage claim equipment and the consolidation of the rental car pickup and return in the southernmost parking garage.

The 1997 master plan did not consider the interior function of the terminal, but this update has addressed several such issues, as follows:

Departure Facilities

Self-service Ticketing. The use of E-ticketing and self-service kiosks is quickly becoming a basic requirement for airlines and represents a significant cost savings for airlines over previous ticketing procedures. At GSP, some self-service kiosks have been installed on the wall opposite the counters. However, several airlines have requested installation of self-service equipment in the counters

themselves. As a result, it is recommended that the airport prepare a design standard to accommodate the installation of this equipment. The standard would provide uniformity of appearance and an integrated look to the counters. Once the standard is agreed, it is further recommended that GSP complete the renovation of the existing ticketing counters by installing self-service equipment as requested by the airlines. Conversion to self-service ticketing will also provide some additional capacity since a larger number of counters can be accommodated in the same space and the average time required to process passengers with self-service is decreased. This will extend the life of the existing ticketing lobby and the time until expansion would be required. Figure 6-4 shows the existing counters and an example of a self-service installation.



Figure 6-4 Existing Ticket Lobby and E-ticket Kiosks

Checked Baggage Security. The current bag screening process by the Transportation Security Administration (TSA) includes the use of explosive trace detection (ETD) equipment. The TSA operation is located in the bag make-up area behind the ticketing counter area. Since the TSA operation has been added to an area that was not designed to accommodate the equipment and personnel required, the area is congested at peak periods and access by tugs and bag carts is adversely affected. It is also anticipated that, at some point, the TSA will move from ETD to explosive detection systems (EDS) that require far more space to accommodate.

As traffic at GSP increases or the TSA shifts to EDS, it will be necessary to mitigate the existing space constraints. After reviewing options, it is recommended that operational changes be implemented to locate tugs and carts in the access road for loading and provide roller conveyors (non-mechanized) to tie the TSA processing to this

new location. Since the access road is already covered by a protective roof, all-weather protection will be provided to the loading operation. (see Figure 6-5).



Figure 6-5 Baggage Security Area Enhancement

Passenger Security Check. The current passenger security processing areas operated by the TSA are located in the two wings of the concourse. Each processing area has one channel consisting of an X-ray and a magnetometer. As passenger growth occurs, there is sufficient space in both areas to add a second channel and thereby double the processing capacity of the security areas. In the next 5 years, it will not be necessary to add capacity; however, the forecast suggests that growth will justify expansion in later development.

Concessions. Analysis of retail, and food and beverage revenues at GSP indicates that the airport is below the average returns achieved at airports of a similar size. There is some deficit on landside, but the greatest deficiency is on airside. This airside deficit is exaggerated by the fact that the post 9-11 shift to tighter security is driving people to spend more time airside after passing through security. To enhance customer service and increase revenues, it is recommended that additional retail and F&B be added at the airside A and B concourse levels adjacent to the escalators and in strategic locations adjacent to holding lounges.(see Figure 6-6). This would provide greater choice for passengers, added food options, and greater revenue for the airport. The existing landside art display area could be converted to concession use and the art area moved to another location in the terminal.

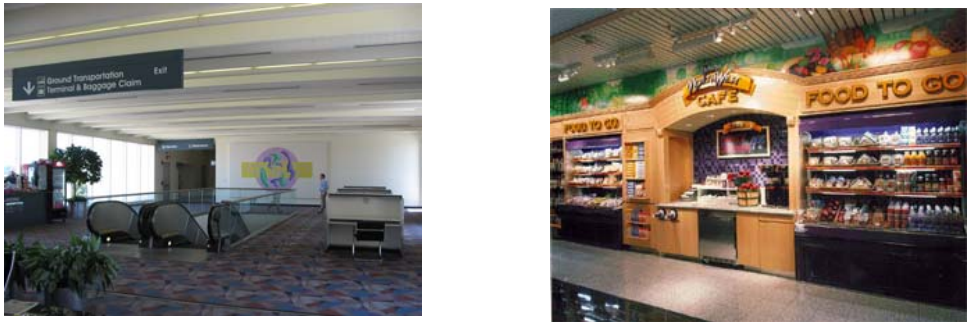


Figure 6-6 Location for Added Concessions at Concourses

For long-term expansion of concessions, a more ambitious plan includes enclosing the space between Concourses A and B to provide an area for additional concessions and a food court (see Figure 6-7). The feasibility of this option would be considered in the future as part of a retail market study defining the specific mix of facilities and cost-benefit advantages.

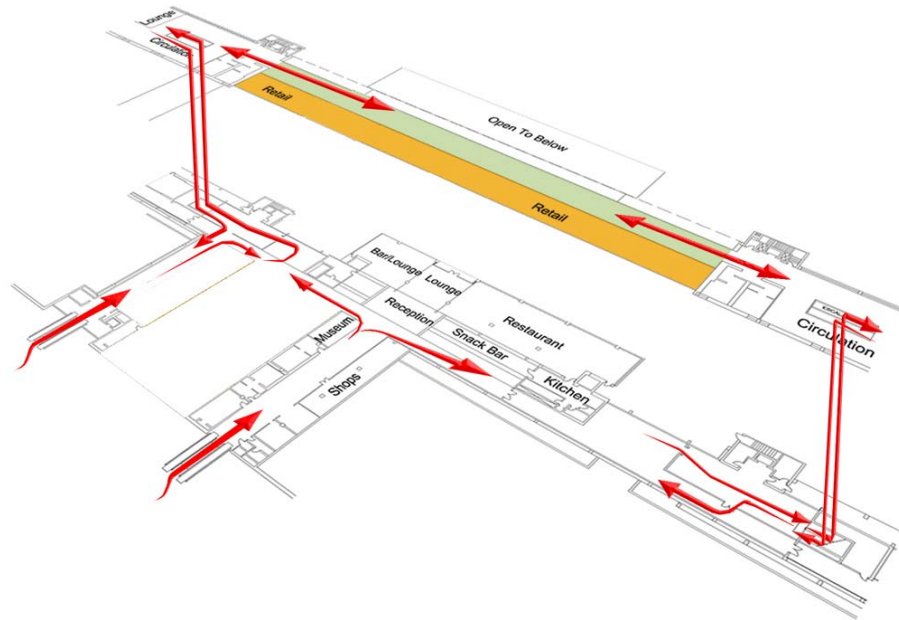


Figure 6-7: Long-term Concession Expansion

Arrival Facilities

Baggage Claim. The existing baggage claim area has two carousels and sufficient space to add a third. This will provide sufficient capacity expansion to handle long-term needs at the airport.

Rental Car Counters. The existing rental car counters are located in the arrivals area. Sufficient space will be provided to accommodate additional counters if necessary. The current procedure whereby the paperwork is executed at the counters and the rental cars are delivered to the ready car parking area, located on the lower level of garage A, should be continued for the foreseeable future.

Connecting Bridges

A minimum of four bridges connecting the terminal to the concourse will be required for ultimate expansion. Bridges are approximately 50 feet wide and span the 122 feet across the baggage service road behind the terminal. A central circulation width of 18 feet has the capacity to accommodate in excess of 550 persons per minute. Sixteen feet on either side of the bridges have been reserved for concessions and passenger amenities.

Section 7

General Aviation System

The general aviation system is located in the center of the Midfield Zone, as delineated in Section 3, Development Concept. Its boundaries are defined by the limits of the passenger system to the south and the cargo system to the north. The system includes terminal buildings, apron for terminal staging, hangars, apron for hangar aircraft pullout, and apron for aircraft tie-down parking.

General aviation operations are conducted by a single fixed-base operator (FBO). The FBO provides aircraft storage, maintenance, and fueling services. In 2003, the FBO has as many as 26-based aircraft at their GSP facilities.

At present, GSP serves primarily the corporate aviation clientele. The following planning parameters were addressed relative to continuing to serve this niche of the general aviation market:

- Provide hangar space for all fixed-based aircraft
- Minimize aircraft taxiing distances
- Utilize existing facilities
- Provide flexibility for multiple fixed-based operators
- Centralize vehicle parking.
- Work with existing topography

Forecasts

Section 4, Traffic Projections, explains the rationale for projecting growth of fixed-base aircraft and itinerant aircraft for general aviation at GSP. As shown in Tables 4-5 and 4-6, annual general aviation and military movements may reach 49,200 operations by 2053. Peak hour movements are projected to be 18.

Facility Requirements

Table 7-1 summarizes the general aviation facility requirements based on the projections above. At ultimate capacity, the general aviation system will require 60 covered positions in approximately 258,000 square feet of hangar space, 30 outside tie-down positions, 12 staging positions, and more than 1,000,000 square feet of apron paving. Area for a second terminal has also been provided. Because the growth of general aviation traffic is not as predictable as commercial passenger traffic, land has been reserved for additional hangars, support facilities (e.g., maintenance hangar, paint hangars, parts warehouse, etc.), and attendant aprons.

Table 7-1 Aircraft Parking Position Facility Requirements

	Hangar Positions	Tie-Downs	Staging
Group I			
Jets	18	-	-
Turboprops	36	30	-
Group II	<u>6</u>	<u>-</u>	<u>12</u>
Total	60	30	12

Recommended General Aviation Layout

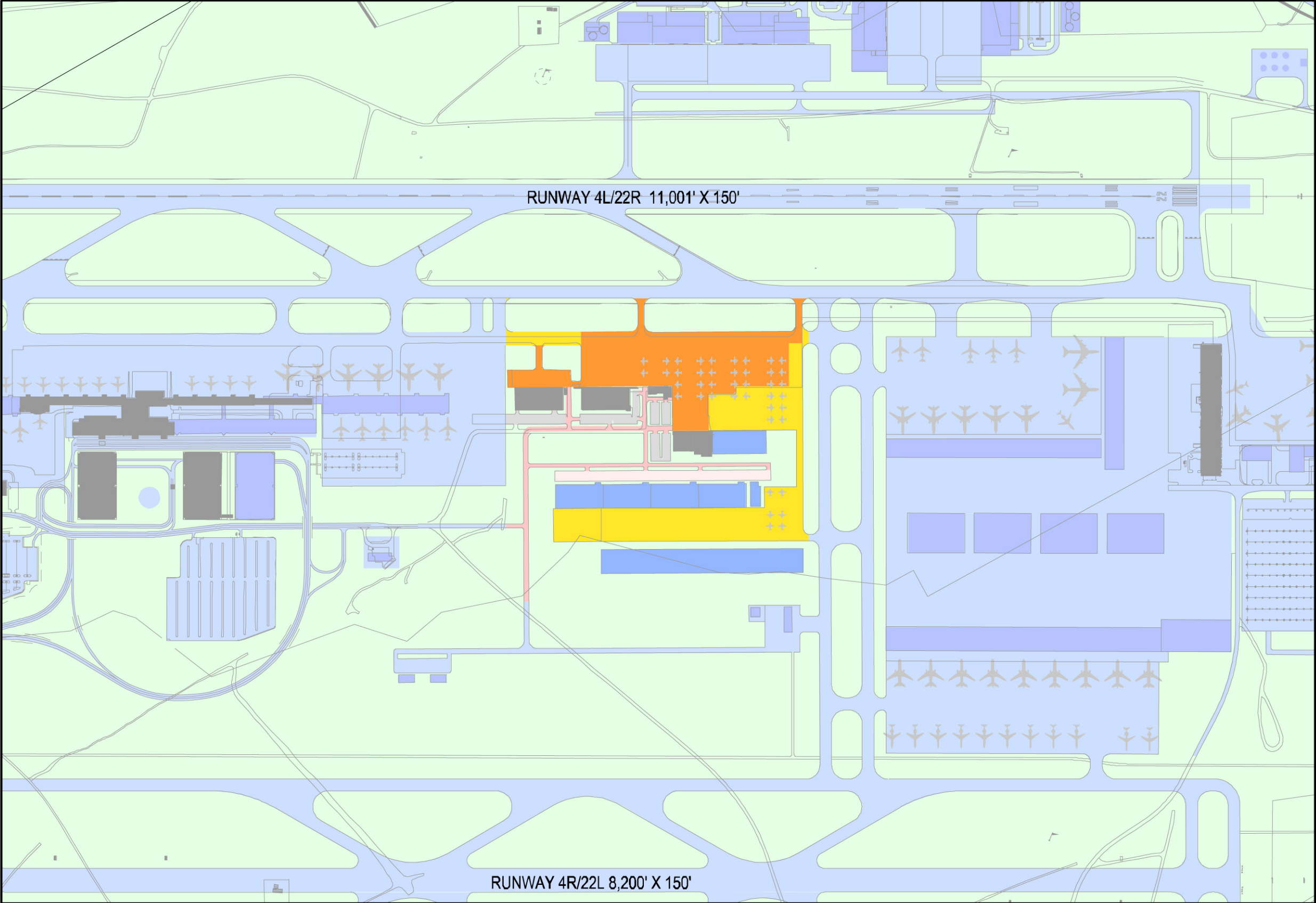
Two general aviation system concepts were considered and evaluated. Figure 7-1 presents the recommended concept at ultimate capacity.

Additional hangar space and apron area are initially provided adjacent to the existing north hangar by filling in the undeveloped area up to the setback line for the cross taxiway. The additional 50,000 square feet of hangar space will accommodate approximately 14 covered positions for the maximum-sized Group I aircraft, and the apron infill will accommodate all required tie-down positions. Six staging positions in front of the existing terminal have been provided for loading and unloading passengers. Because the airfield system uses the apron edge as a primary taxilane for aircraft circulation, the existing tie-down spaces and staging area have been reconfigured. These facilities will serve the general aviation requirements through the ultimate capacity of the existing runway.

Expansion for the ultimate development of the general aviation system is constrained by the passenger system to the south, the airfield system to the west, and the cargo system to the north. Consequently, expansion must occur to the east. In order to create a core of building facilities and centralize vehicle parking, expansion to the east will mirror the existing condition. Hangars will be constructed in a linear configuration parallel to the runways with a new apron area for hangar aircraft pullout on the east side. In order to maintain maximum flexibility for future growth scenarios, a second fixed-base operator terminal will be located at the north end of the apron with a staging apron for six aircraft on the north side. The new apron connects to the existing general aviation area via a Group II-rated taxiway that is parallel to the cross taxiways.

Aprons on both the east and west have apron-edge taxilanes that can accommodate Group II aircraft. The east apron connects directly to the taxilane and high-speed taxiway for Runway 3L/21R, and the west apron connects to the counterpoint of the cross taxiways. These direct access points decrease taxiing distances and improve circulation within the general aviation system.

The east side and south end of the east apron have been reserved for additional hangars, support facilities (e.g., maintenance hangar, paint hangars, parts warehouse, etc.), and attendant aprons, as mentioned above.



FACT SHEET

- Apron Size: 1,026,700 ft²
- Net New Apron Size: 502,700 ft²
- Staging Stands: 12
- Transit Stands: 30
- Fixed Based Operators: 2
- Hangar: 257,700 ft²
- Surface Parking: 625 stalls

LEGEND

- Existing Airfield
- New Airfield
- Existing Structures
- New Structures
- Existing Parking
- New Parking

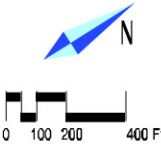


Figure 7-1 Ultimate General Aviation Configuration

Section 8

Cargo System

As described in Section 3, Development Concept, GSP is envisioned as a cargo distribution center for the Upstate of South Carolina. The double-digit growth in air cargo throughput at GSP in the 1990s attests to the need for the airport to fulfill such a role. Hence, the scale of the cargo operation is likely to experience growth, both in the near and long term.

There are two types of cargo operations at GSP: airline belly cargo and air courier services. The belly cargo operations are handled at one facility located southeast of the passenger terminal (see Figure 2-1) while a second cargo facility for dedicated air courier operations has been developed at the north end of the airport. As mentioned in Section 2, Existing Setting, this 325,000-square-foot apron, with 126,400 square feet of adjacent paving for staging, was constructed as part of the arrangement that brought the BMW assembly plant to the Upstate. Although the apron was designed to accommodate two B747s carrying assemblies for BMW, these trans-Atlantic shipments have not yet materialized and the apron is being partly utilized by FedEx for its operations.

Figure 8-1 presents the location for the belly cargo and air courier facilities based on the requirements of each operation.

Forecasts

Traffic projections presented in Section 4 indicate that GSP may handle 532,000 tons annually by 2053. Table 8-1 presents the distribution between all cargo freight and belly cargo based on an 85 percent to 15 percent distribution.

Table 8-1 Cargo Ultimate Development Annual Demand	
Cargo Type	Annual Demand (tons)
Air cargo freight	452,000
Belly cargo	80,000
Total	532,000

Belly Cargo Facility

The belly cargo facility will have to be near the passenger terminal. These facilities will consist of an airside staging area, building facilities, landside staging area, and employee parking. Dedicated aprons will not be needed since the cargo will be moved by tugs from the aircraft parked in front of the passenger concourse building.

Facility Requirements

The development plan calls for sufficient land for a 95,000-square-foot building and the corresponding airside staging area, building facilities, landside staging, and employee parking (see Figure 8-1).

Recommended Layout

The existing belly cargo building will remain in place until the terminal expands towards the south (see Figures 2-1 and 12-3). At that point, the facility will be relocated further south, immediately west of the southern concourse and along GSP Drive. The cargo terminal building will be configured parallel to the apron; tugs will be used to move cargo containers from the aircraft bellies to a staging area in front of the terminal.

Air Courier Facilities

Air courier facilities include aircraft aprons, building facilities, landside staging, and employee parking. Because air courier operations rarely require interaction with the passenger terminal, a remote location is preferred where commercial and private vehicular traffic will not interfere with cargo traffic.

In selecting a preferred long-term layout, several near- and long-term issues have been addressed. The north apron area provides excellent airside facilities for cargo aircraft, but it lacks building space needed to support landside operations. Air courier facilities layout should provide the following:

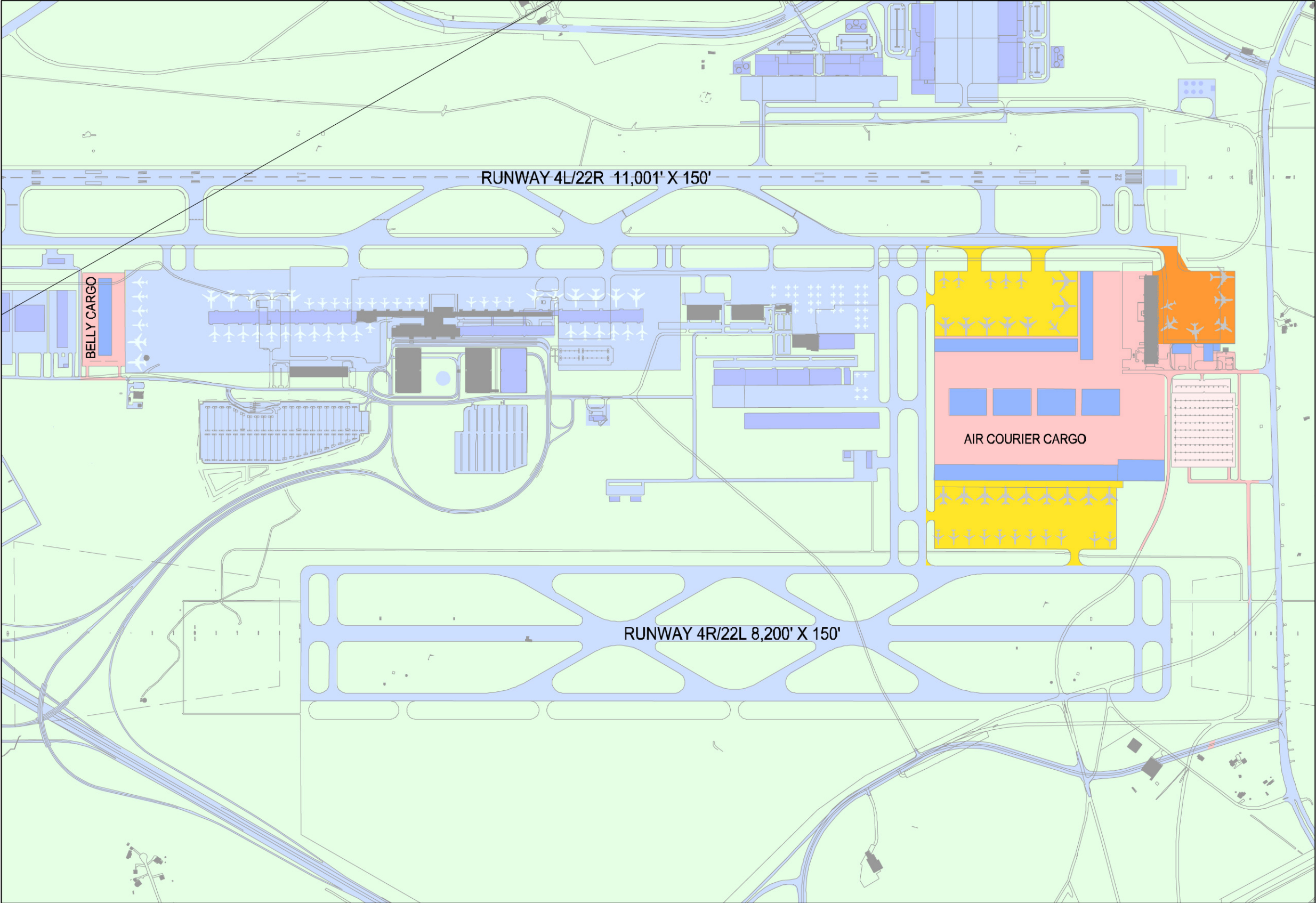
- Contiguous areas for major courier operations
- Layout aprons to accommodate various fleet mixes

- Separate truck and passenger vehicle entrances
- Centralized employee parking

Facility Requirements

FedEx has built a “3K” facility (expandable to “6K”) capable of processing 3000 package per hour at the courier cargo area. Long-term cargo facility requirements are based on the projected need for as many as 44 aircraft parking positions at ultimate development, should FedEx and other integrated carriers expand into major processing hubs. Table 8-2 shows the long-term aircraft parking needs; building area, landside staging, and employee parking that would be required to support these aircraft numbers. .

Table 8-2 Courier Ultimate Facility Requirements				
Carrier	Aircraft Parking	Building Area (sf)	Landside Staging (sf)	Parking (Stalls)
Airborne	11	220,000	330,000	225
Emery	10	140,000	210,000	143
FedEx	11	330,000	550,000	338
UPS	11	30,000	150,000	31
Other	11	275,000	410,000	281
Total	44 (concurrent)	995,000	1,650,000	1,018



FACT SHEET

AIR COURIER	
• Apron Size:	2,963,200 ft ²
• Net New Apron Size:	2,537,200 ft ²
• Hardstands:	44
• Building Area:	852,400 ft ²
• Staging Area:	1,839,600 ft ²
• Surface Parking	1,000 stalls

BELLY CARGO	
• Building Area:	90,000 ft ²
• Staging Area:	227,100 ft ²

LEGEND

	Existing Airfield
	New Airfield
	Existing Structures
	New Structures
	New Parking
	Staging Area

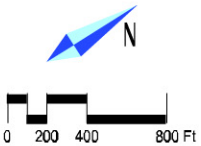


Figure 8-1 Ultimate Cargo Facilities Configuration

Recommended Layout

Without the specific contractual agreements with the airport, the strategy behind the development of the cargo system has been to provide a concept that provides flexible solutions while mitigating the uncertainty of specific courier facility requirements.

As presented in Figure 8-2, the ultimate layout of the courier facilities follows the development framework set by the construction of the FedEx facility, with expansion likely to occur to the west of the FedEx base, as described below.

- The existing north cargo apron will be expanded south to the cross taxiways to provide a contiguous cargo area parallel to the existing runway and spanning the full width of the cargo zone. A total of 25 Group III and Group IV aircraft can park on the perimeter of the apron. A single, one-way taxilane runs through the middle of the apron and can accommodate Group IV aircraft. Parking for two Group V aircraft is located on the north end of the apron with circulation limited to the northernmost throat.

When the second runway becomes available, a new apron will be located adjacent to, and parallel with, the second runway and will be similarly configured to park 18 Group III and IV aircraft.

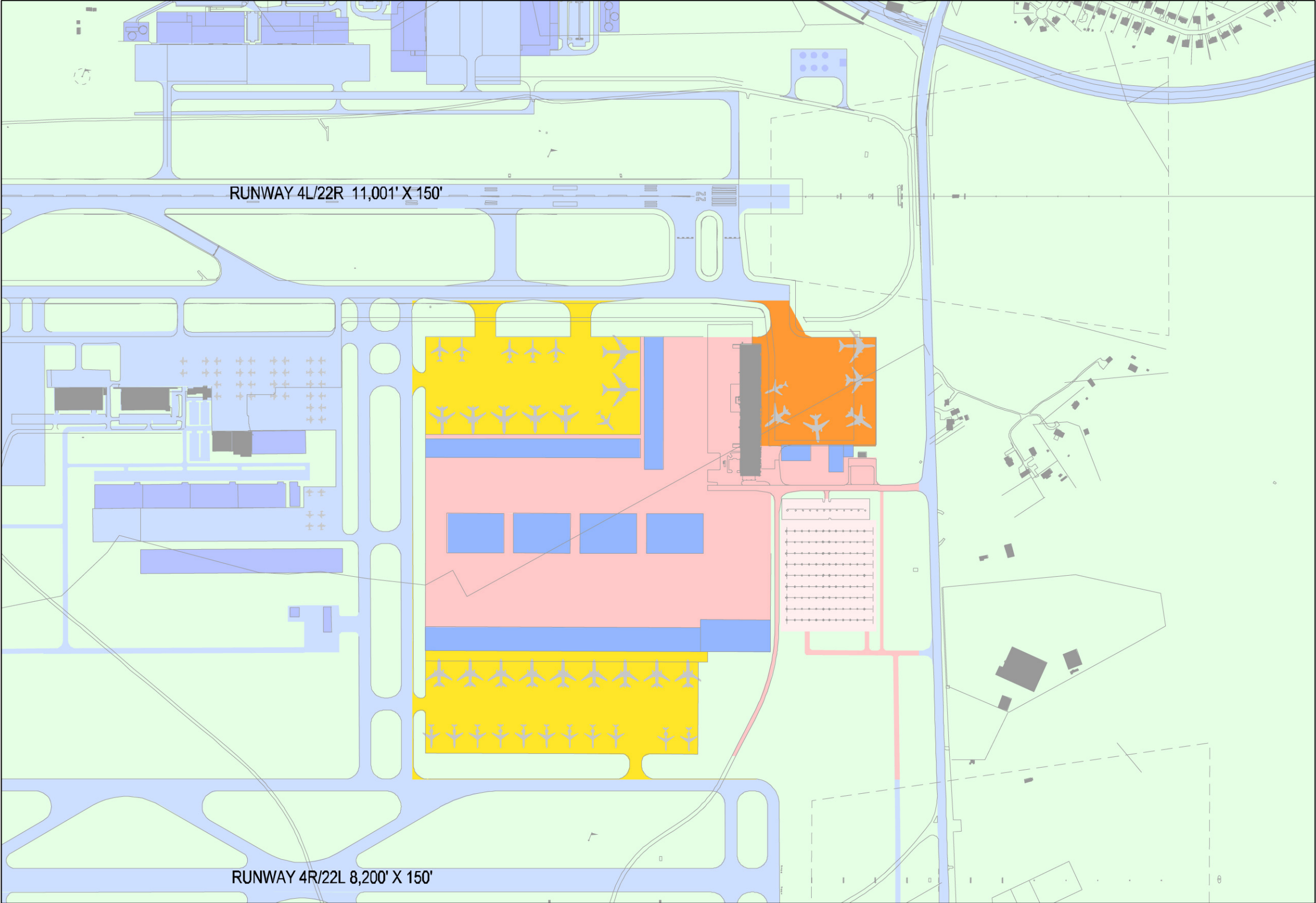
This arrangement was adopted by the Airport Commission because it offers a contiguous apron area, very efficient aircraft circulation, direct access to taxiways and cross taxiways, and relatively moderate taxiing distances.

- Buildings could be located either parallel or perpendicular to the apron, depending on courier requirements. Since Airborne (existing operator at GSP) prefers the perpendicular building arrangement, the recommended layout shows the site adjacent to the existing apron with the length of their building perpendicular to the apron edge.
- Landside staging occurs between the two parallel aprons with the center of the staging area reserved for freight forwarders and other businesses that need to be located in the cargo zone but do not require apron frontage. The shared staging area provides economies of space as couriers can cross-utilize staging area during non-concurrent peak operations. The central staging area

also makes truck circulation very efficient as turns are minimized and entry and exit controlled at one point.

- Employee parking is centralized next to SC101 outside of the staging area. Centralized employee parking has three distinct advantages: first, like the staging area, combining the parking for multiple operations having non-concurrent peak hours reduces total stall requirements; second, centralizing the parking, moving it outside of the staging area, and giving it separate access to SC101 improves traffic circulation and decreases congestion; and third, separating employee parking from the staging area improves the ability to monitor and control the movement of goods in the cargo zone.

The recommended layout offers the best solution to phasing and the need to balance current airside capacity with landside expansion. Building construction will begin on the east edge of the existing apron and perpendicular to the southeast corner. Apron expansion will follow to the south of the existing apron and parallel to Runway 4L/22R. The capacity of this apron will serve all projected cargo well after construction of the second runway. Construction of the second cargo apron on the east side of the cargo zone will coincide with the construction of the second runway, 4R/22L.



FACT SHEET

- Apron Size: 2,963,200 ft²
- Net New Apron Size: 2,537,200 ft²
- Hardstands: 44
- Building Area: 852,400 ft²
- Staging Area: 1,839,600 ft²
- Surface Parking 1,000 stalls

LEGEND

-  Existing Airfield
-  New Airfield
-  Existing Structures
-  New Structures
-  New Parking
-  Landside Staging

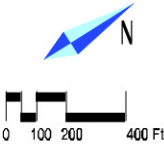


Figure 8-2 Ultimate Air Courier Facilities

Section 9

Support Facilities System

Airport and airline support facilities are critical to safe and efficient operations. As GSP grows, so does the need for new larger support facilities. These include aircraft rescue and fire-fighting (ARFF), ground service equipment (GSE) maintenance, facility maintenance, catering facility, meteorological facility, central utility plant, service station, rental car service area, administration building, police station, triturator, and fuel farm.

As described in Section 3, Development Concept, support facilities are located in Midfield and West Zones. The Midfield Zone will accommodate the majority of the support facilities along GSP Drive. Figure 9-1 presents the recommended locations for each facility at ultimate development of GSP. Site layout and configurations are based on experience and on the following objectives:

- Maximize use of existing facilities to minimize new investment
- Optimize operational efficiency by considering facility inter-relationships and adjacency requirements
- Locate facilities appropriately for airside and landside access
- Minimize the number of airside access points by grouping airside facilities together

The following provides a general description of each facility. More detailed conceptual engineering studies will be required in the future to determine facility requirements, site layouts, and facility configurations.

Airport Rescue and Fire-fighting Facilities

Airport rescue and fire-fighting (ARFF) facilities consist of a fire station (bays and offices), airside staging area, landside staging area, employee parking, and access roads. Two ARFF facilities are planned for the ultimate development, each with a land area of

approximately 65,000 square feet. The first will be located east of Runway 4L threshold and south of the passenger apron. A second facility will be located east of the general aviation complex. The development of these facilities will be staged as follows:

- The existing airport rescue fire-fighting station is located at the north end of the existing concourse next to the control tower. This facility will remain in service until the expansion of the concourse in the northern direction (beyond 13 gates) begins. Replacement will then become necessary to accommodate movement of aircraft along the apron edge taxiway.
- A replacement ARFF facility will be located east of Runway 4L threshold in the Midfield Zone. This facility is within a 3-minute response time of all points on the airfield and all buildings.
- When the future east runway becomes operational, a second ARFF facility will be needed. The ideal location is in the center of the Midfield Zone, where access to all facilities is optimized. The southern ARFF station will become the auxiliary facility and will continue to serve Runway 4L/22R and adjacent facilities.

GSE Maintenance Facilities

Routine and major maintenance of airline ground service equipment will be conducted in this complex. Facilities include maintenance shop, paint shop, parts and storage, staging, and administration areas.

This facility will be located in the Midfield Zone along GSP Drive. Access to the airside is from the east via the passenger apron.

For the ultimate development, 200,000 square feet of land will be reserved to support maintenance of GSE equipment for passenger and cargo operations.

Facility Maintenance Complex

Facilities maintenance supports all maintenance and repair activities performed at the airport on buildings, grounds, pavements, vehicles other than GSE, utilities, and signs. Custodial services for airport facilities are also supported. The land area reserved for facility maintenance complex is 400,000 square feet, large enough for an airport with two runways and fully developed passenger, general aviation, and cargo facilities. The

facility will be located landside along GSP Drive. Included in this area will be a maintenance building, warehouse, administration, staging areas, and employee parking.

Catering Facility

The catering facility supports airline meal production, storage, and distribution. The facility will include a catering kitchen, truck docks, and employee parking.

For long-range planning, it is assumed that 50 percent of GSP's flights will be regional, 40 percent mid-range, and the balance as long-range domestic and international flights. Based on these trips and the passenger daily forecasts for the ultimate development, GSP may need to prepare as many as 14,000 meals per day. This will result in the need for a 90,000-square-foot building and a site area of 180,000 square feet.

The facility will be located in the Midfield Zone along GSP drive. This offers direct landside access for delivery of food and supplies and to employee lots. This also offers access to the passenger terminal aprons via the airside ramps underneath the concourse.

Meteorological Facility

Weather information for air navigational purposes is collected in and disseminated from the meteorological facility, which is operated by the federal government. Short- and long-term weather trend information is available to crews, air traffic control personnel, and other airport users 24 hours a day.

The existing meteorological building is located in the Midfield Zone, east of the Runway 4L threshold, along GSP Drive. This facility will remain in its current location. Land will be reserved adjacent to the existing site for future expansion.

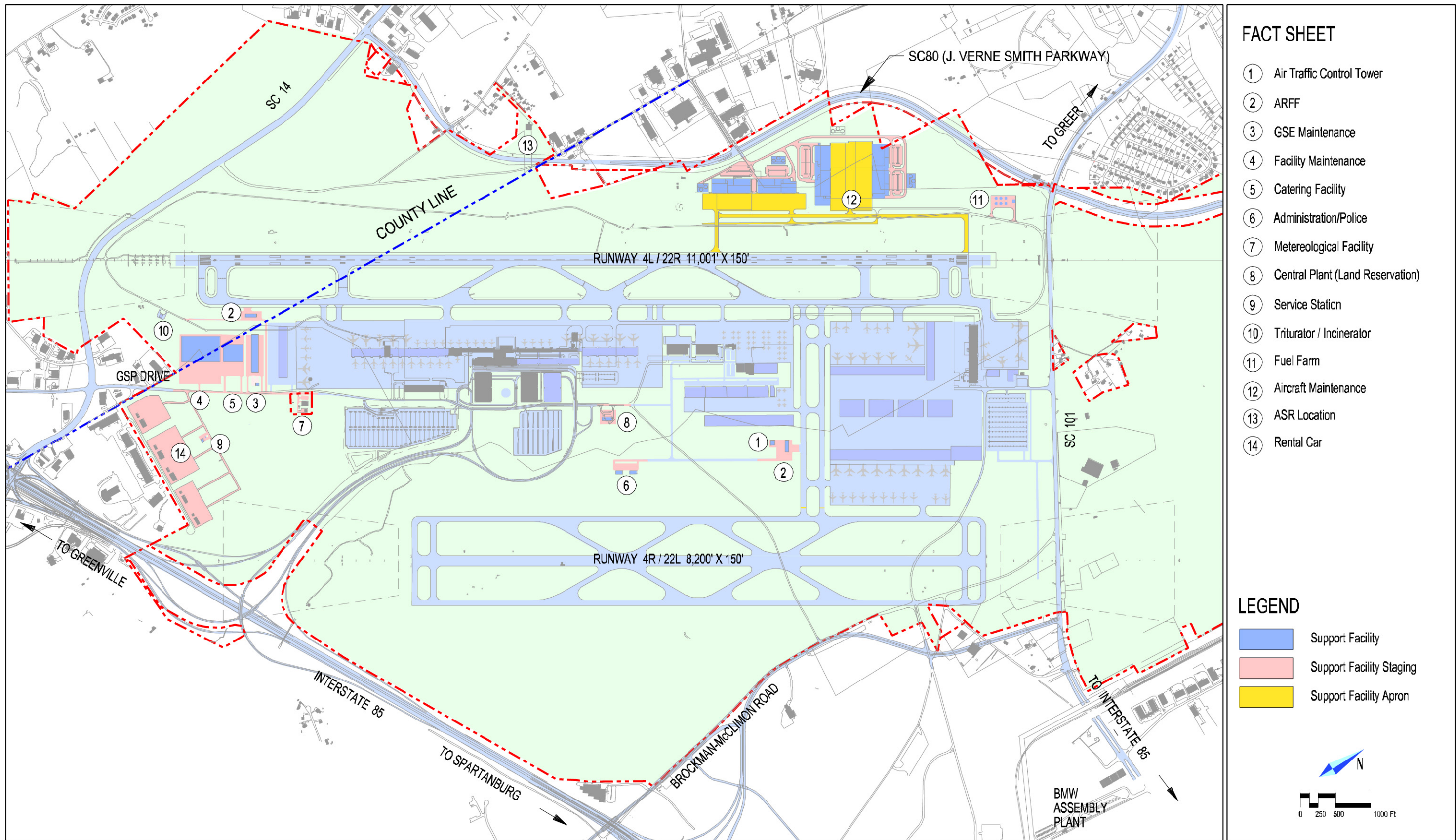


Figure 9-1 Ultimate Support Facilities Configuration

Airport Administration and Police Buildings

The GSP airport offices are currently located in the northern end of the passenger concourse building and cover 5,700 square feet. As the terminal building expands northward, this facility may have to be relocated. Since the airport administration building and police station need to be accessible to the general public and employees, these facilities should be located landside. Two 5,000-square-foot buildings with a parking lot of 100 stalls are planned immediately east of the long-term parking lot. Access will be via GSP Drive.

Central Utility Plant Facility

There are two options for the airport’s central utility plant. The ultimate layout plan delineates a new central plant adjacent to the ground service buildings; alternatively, the airport could retain its existing plant and construct new, decentralized plants in subsequent phases of building.

Triturator / Incinerator

This facility will be used for pre-shredding of aircraft sanitary sewage and for incinerating items taken off international flights. A 10,000-square-foot site is conservatively reserved south of the transient apron.

Fuel Farm

Aircraft fuel is delivered to the airport by truck, to an underground fuel farm located near the intersection of the access road to general aviation and Stevens Road. Stevens Aviation, a private contractor, operates the fuel farm. The Airport Commission plans to decommission this fuel farm and open a new facility in the Western Zone (northwest corner of the site). The new location will have direct access to SC 101; an airside fuel truck service road has already been constructed.

Based on the flight schedule for the ultimate development, the daily aircraft fuel demand at GSP is estimated to be 1.7 million gallons.

Assuming a 7-day storage capability, the airport needs to have a 200,000-square-foot fuel farm with a storage capacity of 12 million gallons.

An underground, piped distribution system to apron fuel hydrants is strongly recommended to avoid the need for a large and expensive fuel trucking fleet.

Rental Car Service Area

A rental car service area has been established in the Midfield area at the south boundary of the site, immediately east of GSP drive. The service area totals 35 acres, and includes service areas for five rental car firms. A service station with two pump islands is included in this area for use by the rental car service center.

Section 10

Commercial Development System

In addition to moving passengers and cargo to and from the Piedmont area, GSP has already proven itself to be a valuable asset in attracting manufacturing to the region. This has created high quality jobs for the local community and diversified the business environment and local economy.

To position the Upstate ahead of the competition in attracting new business, market trends for trade by air need to be examined, airport-dependent businesses identified, and a plan created to promote growth of these opportunities in the Upstate.

The Need for Speedy Delivery

The global marketplace has undergone significant shifts in the way business is conducted:

- The nature of trade continues to evolve in favor of a global environment as more and more countries are shifting towards free market economies as a result of an ever more integrated global economy. Instant satellite and electronic communications and efficient transportation systems are providing new opportunities for increased international trade.
- Customer expectations are changing. Customers are becoming more aware of what is available in the marketplace. They have become more demanding than ever before and require high quality, reliability, competitive pricing, and quick availability.
- Competition is more intense. New players are emerging in the international scene, especially in Asia and Latin America where wages are comparatively low. In response, US corporations are pushing for enhancing efficiencies and lowering costs.

It is clear that the Upstate is strongly connected to the global trade network with many businesses engaged in the manufacture and distribution of products for national and international markets. Getting

products and people to and from these distant markets quickly is a key requirement and GSP serves as a primary mechanism for achieving that important objective.

Airport-Dependent Businesses

Regional planners carefully develop land use plans based on synergies between business and inter-modal transportation facilities such as ports, airports, rail networks, and local roadway systems. Such synergies stimulate economic growth that benefits the local community. At the same time, airports capitalize on opportunities to generate more revenues as a result of the increased movement of people and cargo. Listed below are three categories of businesses that have synergies locating in the proximity of the airport.

Table 10-1 Examples of Airport-Dependent Businesses

Aircraft-Related	Aircraft maintenance Aircraft testing Pilot training Aerospace assembly parts Military-related
Passenger-Related	Business centers Convention centers Retail malls Hotels Duty Free Concessions Food services
Cargo-Related Business	Cargo processing Cargo warehousing Cargo distribution Manufacturing Production Free trade zone Exhibition centers Technology parks R&D centers

Ranking the Opportunities

Manufacturing and production continue to represent strong opportunities for the Upstate. Computers, electronics, and automotive parts are the three largest US exports by air. These products, along with pharmaceuticals, fashions, textiles, food items, and agricultural products, represent high-valued, lightweight goods that are suitable for air travel. Developing such opportunities will help create high-quality jobs, diversify and grow the local economy, and enhance GSP’s revenues and its customer base. Effective cargo distribution is key to the success of cargo opportunities provided adequate planning is done by the affected political subdivisions. Being positioned between Atlanta and Charlotte, it is natural that GSP could displace a significant portion of the transshipment from these areas. In addition, many cargo carriers will find that this added freight leaving and coming into the area offers a tremendous business opportunity. They would request new and more efficient cargo facilities and perhaps consider hubbing operations in the mid- to long term.

Reflecting these opportunities, the airport has attracted FedEx as a tenant to GSP and the company has built a 6,000 parcel per hour facility on an improved site at the north end of the airport. It is likely that other express courier companies will follow FedEx in the future and will locate in the vicinity of the FedEx facility, as the Upstate continues to grow.

Business and trade opportunities are also key candidates for the Upstate. These include a free trade zone, where cargo is duty free and customs inspection is not necessary, as well as hotels, convention centers, exhibition centers, and research and development centers. In addition to complementing local manufacturing and the creation of many jobs, these opportunities will better position Greenville-Spartanburg as an international business center.

To meet long-term needs, the airport has purchased property along the northern boundary of the airport. This land has been acquired for both functional and commercial purposes. The functional purpose is to provide a buffer against the encroachment of future incompatible development under the flight path and within the 65 DBL noise contours of the existing and future runways. The environs area, shown in Figure 3-8, ensures land uses compatible with airport operations on the future noise footprint. The commercial objective for this property is for uses that would complement the airport’s mission as a

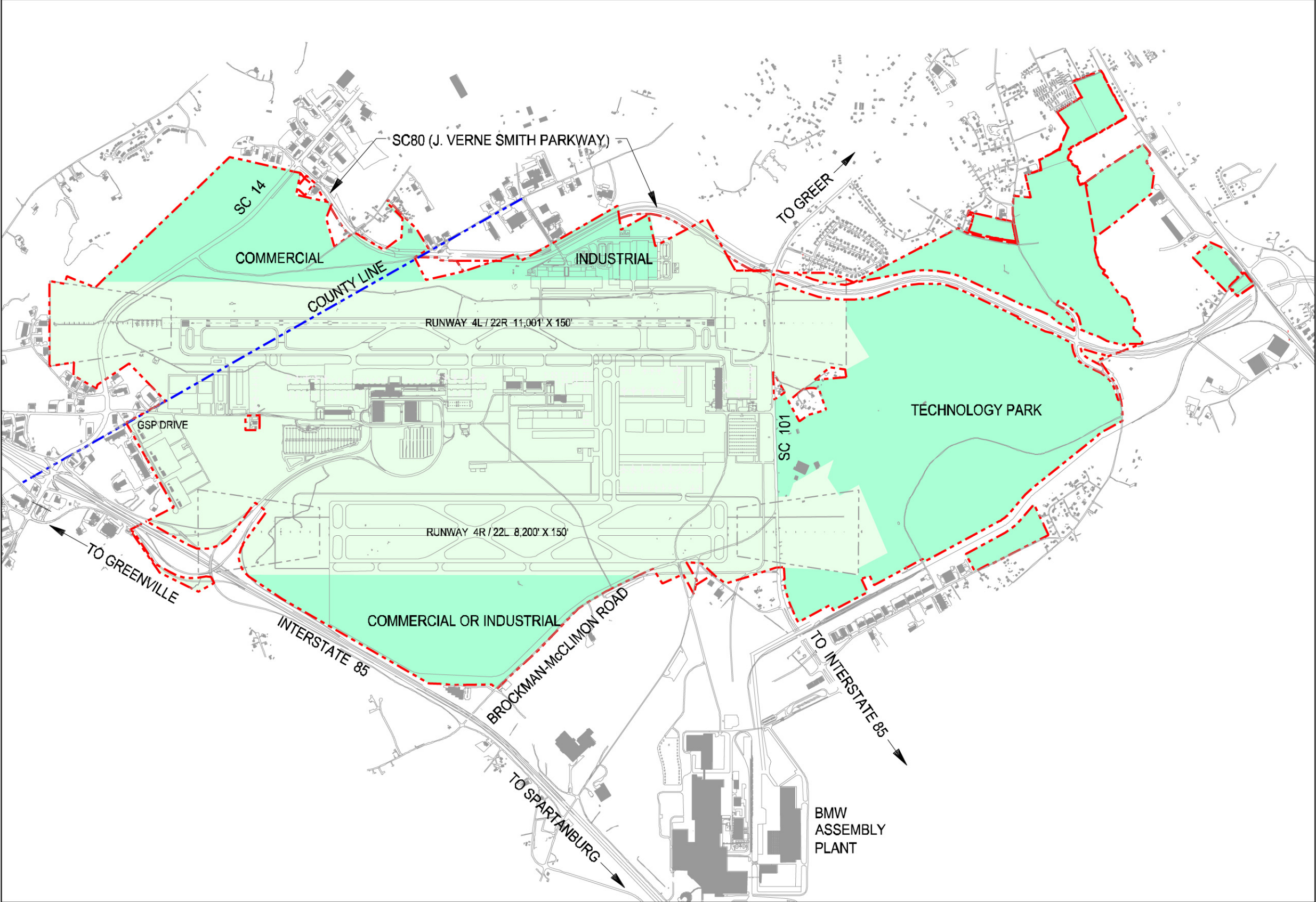
community asset serving the entire Upstate region. After studying many possible development options, the Commission identified several possibilities that would fit this mission, including a technology park, a research and development center, a training center, a free trade zone, and others. When the time is right to move forward with these options, the airport will undertake more detailed studies to define the access and infrastructure requirements that will be needed.

The Physical Response

Land for future commercial development is reserved west of Runway 4L/22R and east of Runway 4R/22L. This type of development is driven more by commercial agreements and, thus, only zoning is shown in Figure 10-1 and not a specific layout.

As stated in Section 3, Development Concept, the area west of Runway 4L/22R will be divided into two parts. The northern part will be industrial in nature, while the southern part will be for commercial use. The area west of Runway 4R/22L will be reserved for commercial or industrial uses with light employee density so as not to overload the capacity of I-85. A development such as a pilot training center may be appropriate.

The area north of the airport’s runway ends has been designated as a noise buffer, a reserve, and for future development, as described above.



LEGEND

Commercial	219 acres
Industrial	73 acres
Commercial or Industrial	242 acres
Technology	680 acres

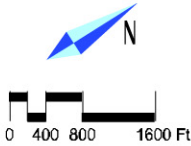


Figure 10-1 Commercial and Industrial Zones

Section 11

Ground Access System

The ground access system consists of the roadways and the parking areas that serve landside and airside facilities at the airport.

Figure 11-1 presents the recommended ultimate configuration of the ground access system. Primary facilities include regional roads, passenger access roads, service roads, cargo access roads, a perimeter (airside) road, terminal curb roadways, short-term parking structures, long-term parking lots, rental car staging, and employee parking.

Forecasts

Forecasts of vehicular traffic were prepared for future phases of airport development up to its ultimate capacity. The traffic forecasts were derived from forecasts of airside activity, including the volumes of air passengers that the airport will serve. Table 11-1 presents forecast activity for the ultimate development of GSP.

Table 11-1 Ultimate Ground Access Peak Hour Traffic

Peak Hour Traffic	Vehicles to Airport	Vehicles from Airport
Inbound peak hour	3,100	2,300
Outbound peak hour	1,700	3,100

For purposes of planning initial construction on the way to development of the airport to its ultimate capacity, it was determined that the road projects should be designed initially to serve traffic volumes anticipated in 2023 when the airport is expected to serve 5.3 million airline passengers annually.

The traffic volumes forecast for 2023 are approximately two-thirds of the volumes expected at ultimate airport capacity. It would be inefficient and uneconomical to build at the this time the number of lanes, intersection controls and parking spaces required for ultimate

development. Analyses of the internal ground access system as planned for 2023 show that the system will be adequate for the traffic volumes forecast for that year.

The same system configuration with some additional lanes and adjustments will also be adequate for the ultimate development.

Regional Road System

Primarily three routes provide ground access to GSP: I-85, SC14, and SC101. Proposed improvements to each of these routes as related to airport development are discussed below. Several other roads, which surround the airport, are discussed, including the Brockman-McClimon road, the existing dedicated cargo road to the BMW plant, and SC80 (J. Verne Smith Parkway), which will run along the western border of the airport.

Interstate 85

I-85 is a major Interstate freeway that parallels the southeast airport boundary; it carries a mix of traffic types. Traffic demand on this route will be related to both airport and regional growth.

Significant improvements are proposed for the road segment between the I-85/SC14 interchange and the I-85/GSP terminal access road interchange. Currently, this section of road is subject to unfavorable traffic conditions, which are largely due to inadequate number of lanes and the proximity of the two interchanges. This situation will worsen with time as airport-related and other traffic grows. It will be necessary to eliminate the complex weaving sections created by back-to-back interchanges. The proposed solution is presented in Figure 11-2. With this solution, the on- and off-ramp traffic of the two interchanges is completely separated by grade. I-85 is under the jurisdiction of the Department of Transportation and the proposed solution has been presented to the Department of Transportation as a recommendation. The plan will require some land acquisition.

SC101

SC101 is a major east/west route with a large amount of truck traffic. The traffic demand on this route will be generated primarily from regional growth and not from airport-related development. Because

access to the northern area of the airport will be from this route, however, some airport-related improvements are proposed.

SC101 is a 5-lane road where the center lane is used a turn lane. At ultimate airport development, it is recommended to provide an additional lane to a portion of SC101, which runs through the northern border of the airport. This will allow through traffic on SC101 to flow uninterrupted and will create a safer turning situation for traffic entering the cargo area during peak periods.

SC14

SC14, which cuts through the southwest area of the airport, carries a mix of airport and non-airport related traffic. Its traffic demand, therefore, will be generated by both airport and regional growth. The route has been reconstructed with additional lanes and improvement at SC 14 and at the south airport service drive (GSP Drive).

Other Roads

Brockman-McClimon Rd. runs along the east side of the airport property. It begins at SC101, crosses Interstate 85, and continues south through Spartanburg County ending at Bennetts Bridge Rd. This road is likely to be widened and realigned to accommodate a proposed new interchange that will serve the BMW plant.

A dedicated cargo road connects the cargo apron directly to the property of the BMW assembly plant. The existing alignment of this two-lane road lies within the runway protection zone of future Runway 4R/22L. When the runway is built, the roadway alignment will have to be shifted north.

Along the western boundary of the airport, the SCDOT has the extension of SC80 under construction. This road, which is expected to be completed by 2005, will be named the J. Verne Smith Parkway. It will provide access to future on-airport commercial areas via dedicated turning lanes.

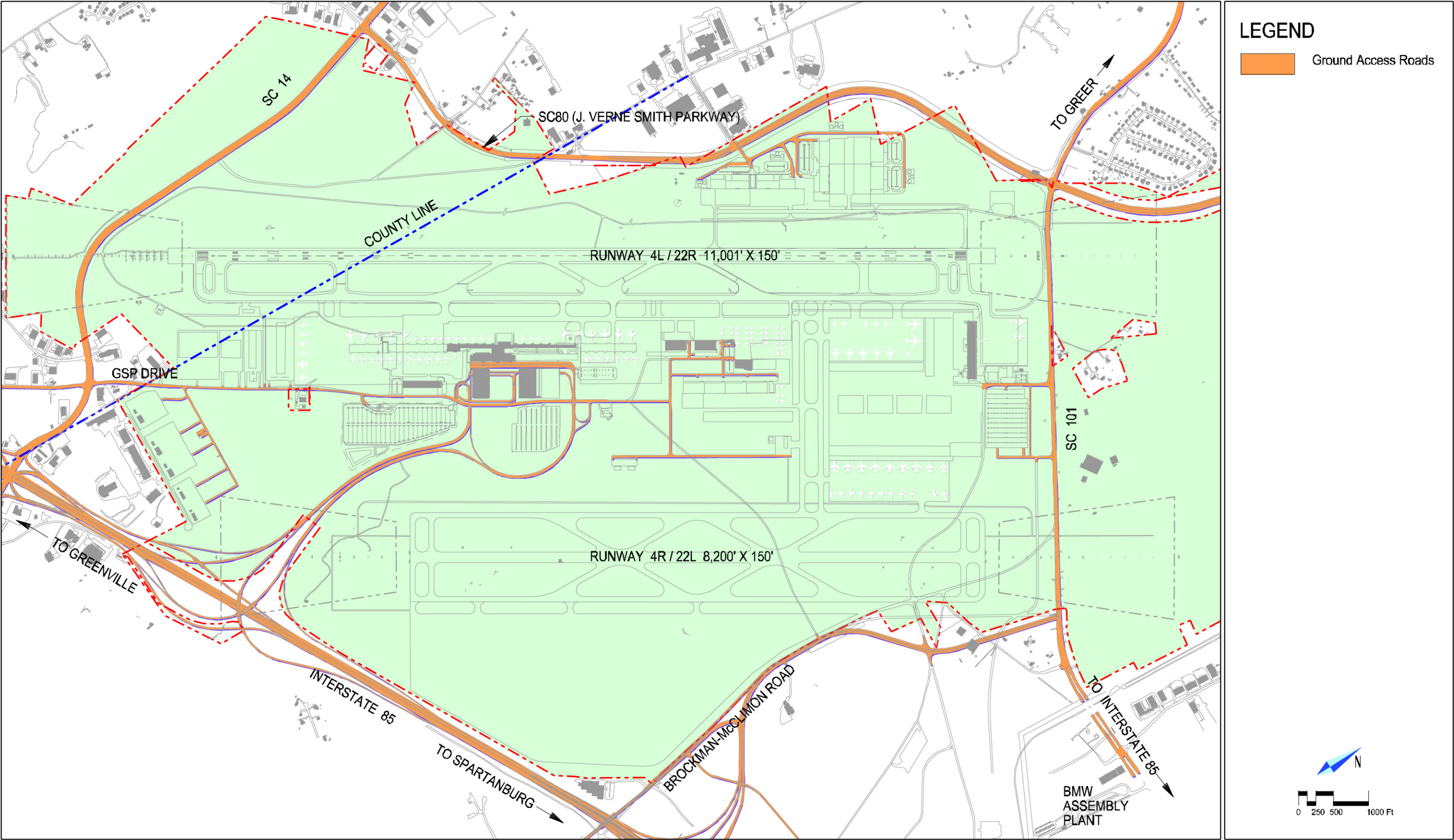


Figure 11-1 Ultimate Ground Access Configuration

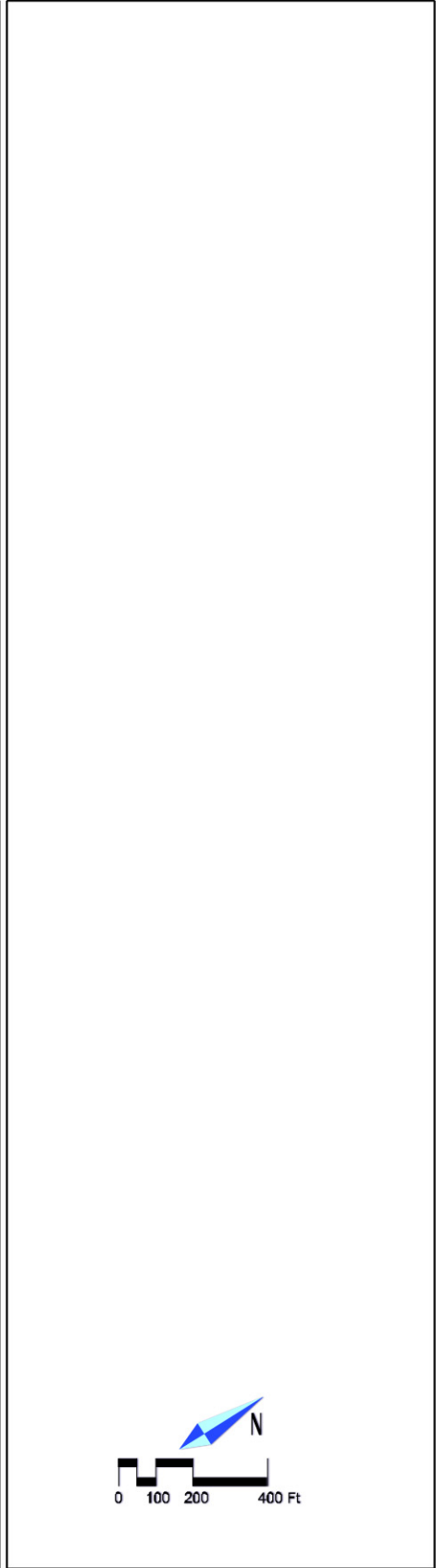


Figure 11-2 Interstate 85 Interchange

Internal Road System

The major elements of the internal road system include terminal area and passenger access, service, cargo access, and perimeter roads.

Terminal Area Roads

Alternatives for the terminal area road system were examined by dividing the system into four elements, and considering possible options for each one. Selected options were then combined to form alternative terminal area road system alternatives. The four elements as shown in Figure 11-3 are:

- The terminal loop road provides access to the terminal curbs, short-term and long-term parking, re-circulation within, and exit from, the terminal area.
- The short-term parking system provides access into the parking structures, circulation between them, and an exit, or exits, where parking fees are collected or tokens are received to open the exit gates.
- The long-term parking system will include two lots with access to and from GSP Drive.
- GSP Drive connects other activity areas to one another and to the terminal loop road.

Options for the terminal loop road were joint use of GSP Drive or alignment on either side of Dillard Creek.

Options for short-term parking included an exit from the first parking structure or an exit plaza near the fountain between the first and second structures.

Options for GSP Drive included relocation or realignment, grade separations at terminal loop road crossings and various intersection arrangements.

Two alternative plans shown in Figures 11-4 and 11-5 were prepared based on the examination of options.

Alternative A keeps the east side of the terminal loop road on the west side of Dillard Creek. The loop road passes through the existing long-term parking lot and removes some of the parking spaces, which

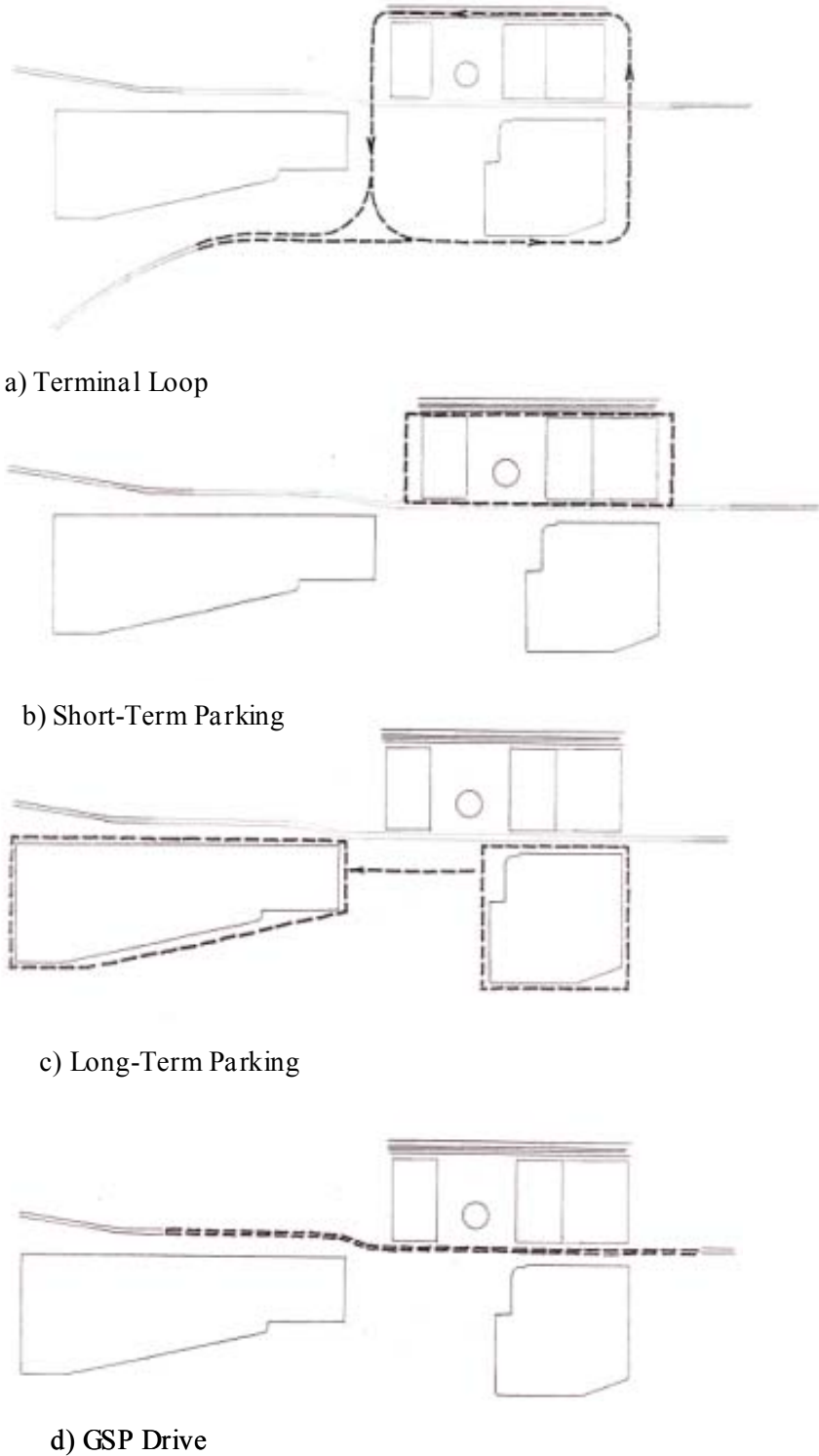


Figure 11-3 Terminal Access Elements

can be replaced by extending the existing lot to the south. The short-term parking exit is located in the first parking garage.

Alternative B places the east side of the terminal loop on the east side of the creek. The short-term parking exit is through a plaza near the fountain between the first and second parking structures.

Alternative B places the east side of the terminal loop on the east side of the creek. The short-term parking exit is through a plaza near the fountain between the first and second parking structures.

Alternative B was selected for the master plan because it avoids the existing long-term parking lot and therefore does not require any southern extension as Alternative A does, its short-term parking exit is not inside a parking structure and it allows access into the first parking structure immediately after the terminal curbs.

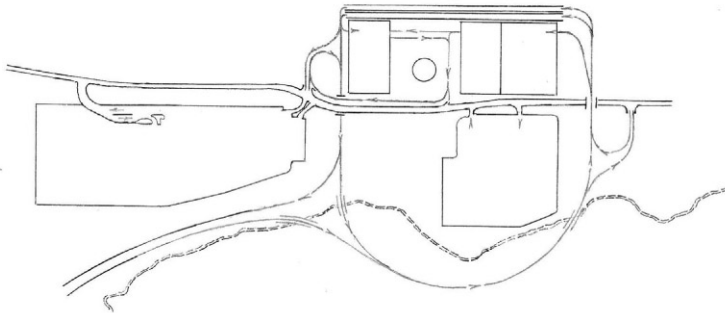


Figure 11-4 Terminal Access Alternative A

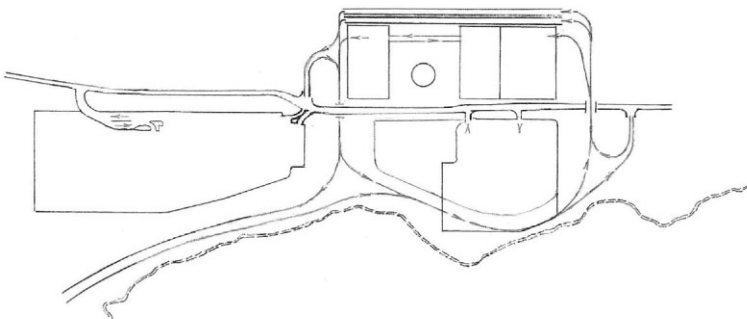


Figure 11-5 Terminal Access Alternative B

It provides grade separations over and under GSP Drive, loop ramps for interconnection between GSP Drive and the terminal loop road, and a loop ramp onto the terminal loop road for traffic leaving the short-term parking system. It also provides more opportunities for effective landscaping.

Passenger Access Roads

The main access route for all passenger-related traffic (commercial and general aviation) is provided via a direct interchange from Interstate 85. The existing terminal access road corridor is maintained through future development. A roadway loop configuration in the terminal area provides smooth, clear movement of vehicles through this area. Along this access road, the inbound decision-making sequence at ultimate development can be described as a series of steps (see Figure 11-6):

1. Vehicles enter the airport from the interchange at I-85
2. First decision is a choice to turn off to long-term parking and general aviation or to proceed to the passenger terminal area
3. At the next decision point, drivers may exit to the short-term parking area or proceed to the terminal curbs
4. The final inbound decision point is a choice between the road to the departure curb and the road to the arrival curb

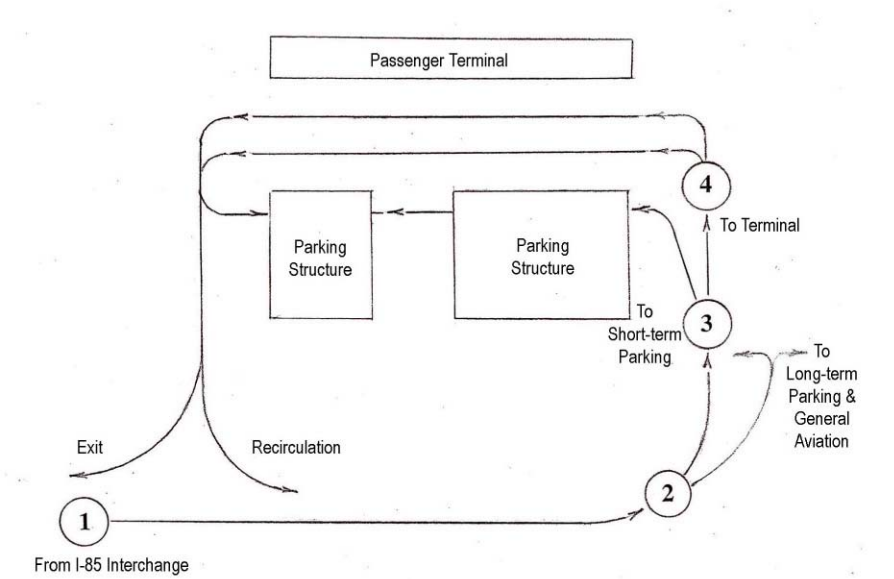


Figure 11-6 Terminal Inbound Decision-Making Sequence

Outbound vehicles from both the terminal curbs and the parking area have the option to re-circulate in the terminal area or exit to I-85 and the regional road system.

The passenger access road will evolve over time from its present configuration to the one described above. Consistent with the objectives of the Airport Commission, the goal of the phasing plan is to maintain the current alignment and configuration well into the future. As portions of the passenger terminal expand, the access road will undergo appropriate changes as described below.

- The first stage of development included the construction of a new parking structure. The terminal access road maintained its current loop alignment; however, an additional exit was added to provide access to the new structure (see Figure 11-7a).
- At the next stage of development, the passenger terminal will be extended to the north, increasing its curb frontage. Access to the parking structures will remain the same; however, a new road to the north will provide loop system access to the now-extended terminal curb. A new surface lot for long-term parking will be built south of the terminal area. It will connect with the terminal loop road via GSP Drive (see Figure 11-7b).
- In the final stage of development, the passenger terminal will be further extended to the north and a third parking structure will be built. At this stage, the alignment of the loop system will be expanded, with the parking and terminal curb access roads shifting further to the north.

The newer long-term surface parking lot can be expanded to the south. The existing long-term parking lot can remain unchanged in order to retain all the trees in the area to the south of it and opposite to the fountain on the other side of the GSP Drive. Both lots will continue to connect to the terminal loop road via GSP Drive (see Figure 11-7c).

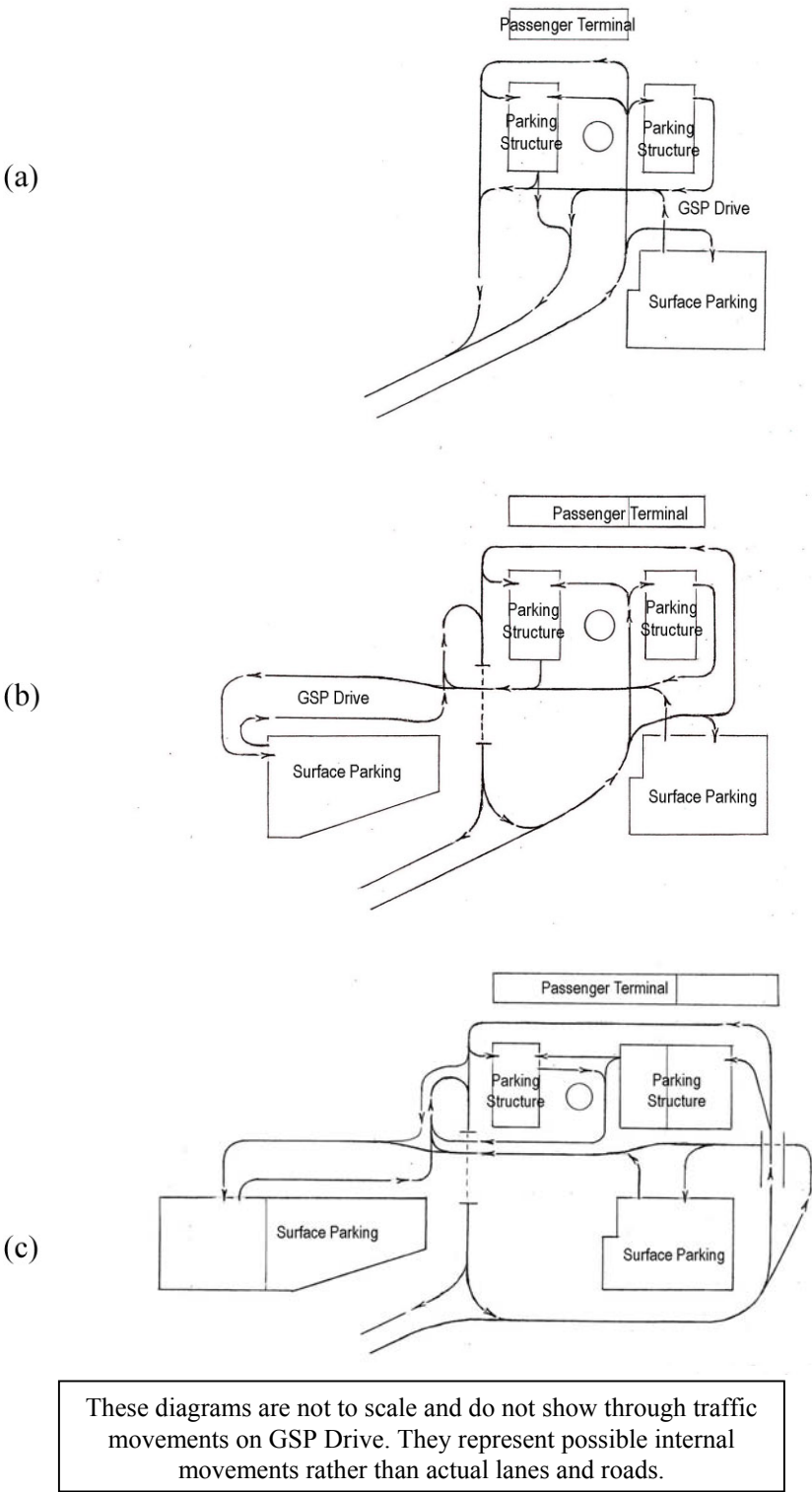


Figure 11-7 Phasing of Passenger Access Roads

Service Roads

Service traffic to the south end of the Midfield Zone is separated from passenger-related traffic via GSP Drive, a service access road from SC14. This is currently a two-lane, bi-directional road which will be expanded to four lanes by ultimate development. Major facilities in the south midfield served along this road include GSE maintenance, facility maintenance, catering, central plant, and rental car storage. GSP Drive further extends into the middle of the Midfield Zone, providing an alternative access route to general aviation and the air traffic control tower. This road has unrestricted access with the exception of the northernmost segment of the road leading to the control tower.

Cargo Access Road

Access to the cargo area in the north is direct via a four-lane road with a center turn lane from SC 101. The layout of the roadways within the cargo complex is to be configured at a time when the shape and layout of the cargo buildings in the complex are known.

Perimeter Airside Road

Perimeter airside roads are provided to allow controlled access to airfield facilities and for security.

Terminal Curbs

At ultimate development, the total terminal curb length is 2,500 feet with 1,500 feet adjacent to the building and the additional 1,000 feet located at an island curb. With a single level terminal configuration, departure traffic (drop-off) will be accommodated at the north end, and arrival traffic (pickup) at the south end. This configuration is very flexible to accommodate the peak traffic for both departures and arrivals.

A cross section of the terminal curb roadway is shown in Figure 11-8. The lanes will function in the following manner:

- Pickup/drop-off lane – Vehicles momentarily park in this lane to load and unload passengers and baggage.
- Maneuvering lane – This lane provides a buffer for vehicles pulling into or out of the pickup and drop-off lane. At the

adjacent curb, some double parking may be allowed during peak periods.

- Through traffic lane – Faster moving traffic travels in this lane.

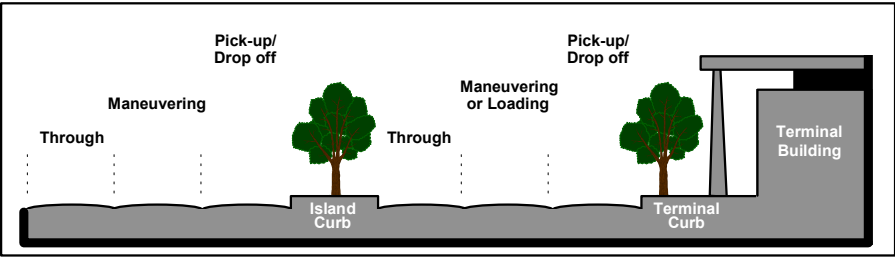


Figure 11-8 Terminal Curb Section

Parking Areas

Parking facilities located throughout the airport include:

- Structures for short-term parking and rental car ready and return
- At-grade lots for long term parking, rental car storage, and employee parking

Short-Term Parking

Passenger terminal short-term parking is provided in three parking garages, two of which exist and one to be built in the future. The new structure will be very similar to the existing garages but larger. The three garages will provide approximately 5,000 parking stalls. At ultimate development, the garages will be connected to one another with a through traffic lane on the second floor of the structures.

The majority of ticket dispensers are centrally located at the main parking entrance north of the northernmost structure. Additional ticket dispensers will be provided at one alternative entrance to the southernmost (existing) garage. Fee collection booths will be located at a centralized parking exit next to the fountain between the existing two garages.

Pedestrian access to terminal will be via at-grade crosswalks across the terminal curb roadway. Pedestrian vertical circulation within the garages will be by elevators and stairs.

Long-Term Parking

The existing long-term parking surface lots will continue to serve the airport through the foreseeable future. Incremental expansion may be required to satisfy demand.

For the final stage of the development of passenger access roads (see Figure 11-7c), long-term parking will be located in an open lot southeast of the parking garages. The capacity of this lot is planned to reach approximately 2,000 stalls, which will bring the total number of long-term parking spaces to more than 3,000 stalls.

Both long-term lots will have access from the main terminal access road via GSP Drive. Continuous shuttle service will provide transportation between the lot and the passenger terminal.

Rental Car Staging

Rental car pickup and drop-off now occurs in dedicated spaces on the first level of the southernmost short-term parking garage. Additional rental car parking is located in the rental car service facility adjacent to GSP Drive. At ultimate development, rental cars may be removed from the parking garage and relocated to a consolidated rental facility adjacent to the rental car service center.

Employee Parking

Approximately 500 parking stalls will be provided airport-wide for employees. This employee parking will be provided at various lots near key employment areas. For passenger terminal employees, an area is located within the long-term parking lot. For all cargo-related employees, centralized parking is provided adjacent to the cargo complex. General Aviation employees will park in lots adjacent to the G/A facilities.

Rail Access

An on-airport rail station should be provided once the Southeast High-Speed Rail corridor has been defined.

Section 12

Phasing

Economic fluctuations and uncertainty in the aviation marketplace almost always preclude a regimented approach to implementing airport development on a fixed schedule. This is especially true for GSP where the ultimate capacity may not be reached until 50 years into the future. The phasing strategy has, therefore, been formulated to achieve the following objectives:

- Ensure that the ultimate development is a natural and cost-effective progression from the existing facilities.
- Promote economically triggered development phasing that responds to market conditions. Each phase of the development must be operationally and economically viable.
- Defer decisions entailing significant capital investment until sufficient information is available to justify it. Such deferral must not adversely impact needed development.
- Balance GSP’s facilities and systems both functionally and operationally in each implementation phase.
- Maintain uninterrupted operations of all existing facilities while further construction is underway in each phase.

Implementation Planning Cycle

A flexible and dynamic approach to phasing is required to respond to changing conditions in a timely and cost-effective manner. Figure 12-1 presents a typical planning cycle for GSP, which will assist the Airport Commission in coordinating future demand and available capacity, and implementing new construction. Steps 1 through 3 should be performed using a 20-year planning horizon. Steps 4 and 5, however, should be performed using a 5-year horizon because more detail is required for near-term projects and funding requests. Step 6 should be activated when a specific project is required. In addition, Steps 5 and 6 feed data directly into the Airport Commission’s established capital improvements and funding systems. It is recommended that airport staff and/or consultants conduct such a planning cycle annually.

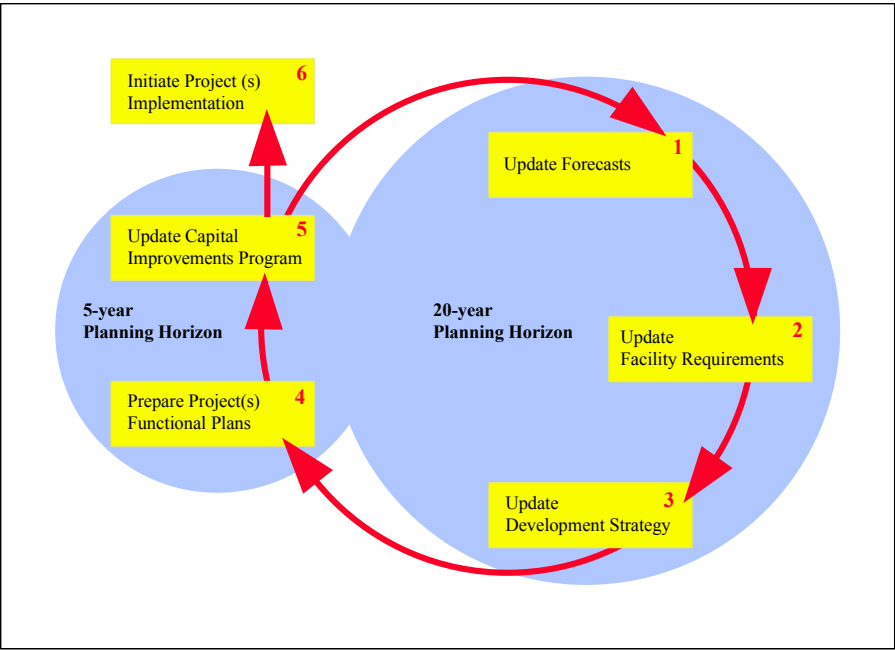


Figure 12-1 Implementation Planning Cycle

Major Phases of Development

To ensure that new development at GSP is conducted in an orderly manner, three major phases are presented, and each is defined by a major component of the airfield system. These phases are shown in Figures 12-2 through 12-4 and defined as follows.

- *Existing condition* show the 11,001-foot runway with other existing facilities, as they currently exist.
- *One runway ultimate condition* represents the 11,001-foot runway at its ultimate capacity and with all other systems accordingly.
- *Two-runway ultimate condition* represents the ultimate capacity of both runways with all other systems balanced accordingly.

It is important to note that these phases of development only represent snapshots in time. They are very flexible and can be adjusted to accommodate changes in the implementation strategy. Table 12-1 provides a more detailed listing of the facility requirements for each phase of the development described above.

Table 12-1 Phasing Plan

System/ Facility	Existing Condition	One- Runway Condition	Two-Runway Condition
Airfield			
Runway 4L/22R	11,001 ft	11,001 ft	11,001 ft
Parallel taxiway	11,001 ft	11,001 ft	11,001 ft
Runway 4R/22L	N/A	N/A	8,200 ft
Parallel taxiway	N/A	N/A	8,200 ft
Second parallel taxiway	N/A	N/A	Optional
Cross taxiway pair	N/A	N/A	3,025 ft
Passenger apron	1,004,000 sf	1,918,000 sf	4,114,000 sf
General aviation apron	524,000	683,000 sf	1,027,000 sf
Cargo apron	325,000 sf	1,815,000 sf	2,963,000 sf
Aircraft maintenance apron	N/A	412,000 sf	412,000 sf
Run-up pad	N/A	135,000 sf	135,000 sf
Passenger			
Jet gates (LARGE MIX)	13	23	43
Hardstands	0	3	6
Terminal	60,000 sf	90,000 sf	150,000 sf
Concourse	150,000 sf	350,000 ft	700,000 sf
Connecting bridges	10,000 sf	16,100 sf	22,200 sf
General Aviation			
Terminal	5,000 sf	5,000 sf	10,000 sf
Hangar parking	23	32	60
Tie downs (Group II)	20	20	30
Staging	6	6	12
Cargo			
Common use	95,000 sf	N/A	N/A
Belly cargo building	N/A	50,000 sf	95,000 sf
Air courier hardstands	3-6	27	44
Air courier building	120,000	500,000 sf	1,000,000 sf
Support Facilities			
	TBD	TBD	TBD
Commercial Development			
West zone - north	N/A	3,187,000 sf	3,187,000 sf
West zone - south	N/A	9,552,000 sf	9,552,000 sf
East zone	N/A	N/A	10,544,000 sf
Ground Access			
Cargo access	TBD	TBD	TBD
Other	TBD	TBD	TBD
Structured parking	2,607 stalls	3,106 stalls	4,650 stalls
Surface parking	1,943 stalls	2,500 stalls	3,300 stalls

Note: TBD = To be determined



FACT SHEET

Airfield

- 11,001 ft runway
- Four separate apron areas that include:
 - Main apron
 - Hold apron
 - GA apron
 - North air cargo apron

Passenger Terminal

- 9 operational contact gates with loading bridges
- 4 additional contact gates without loading bridges

Cargo Terminal

- 42,886 sqft of usable covered space
- Air cargo apron and US Customs office at the north end of airport
- 120,000 sqft FedEx Terminal

General Aviation Terminal

- G/A Terminal Building
- Four hangars that include:
 - Hangar 1 Storage
 - Hangar 2 Maintenance
 - Hangar 3 Storage
 - Hangar 4 Storage

Parking

- Short-term parking spaces:

- Parking Garage A	1,098
- Parking Garage B	1,529
- Short-term open lot	232
- Rental car area in 'A'	270
- Long-term parking spaces:

- Daily open lot	400
- Long-term open lot	1,097
- 214 employee parking spaces

Support Facilities

- See drawing

LEGEND

- Existing Airfield
- Existing Structures
- Existing Parking

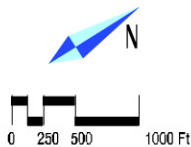


Figure 12-2 Existing Condition

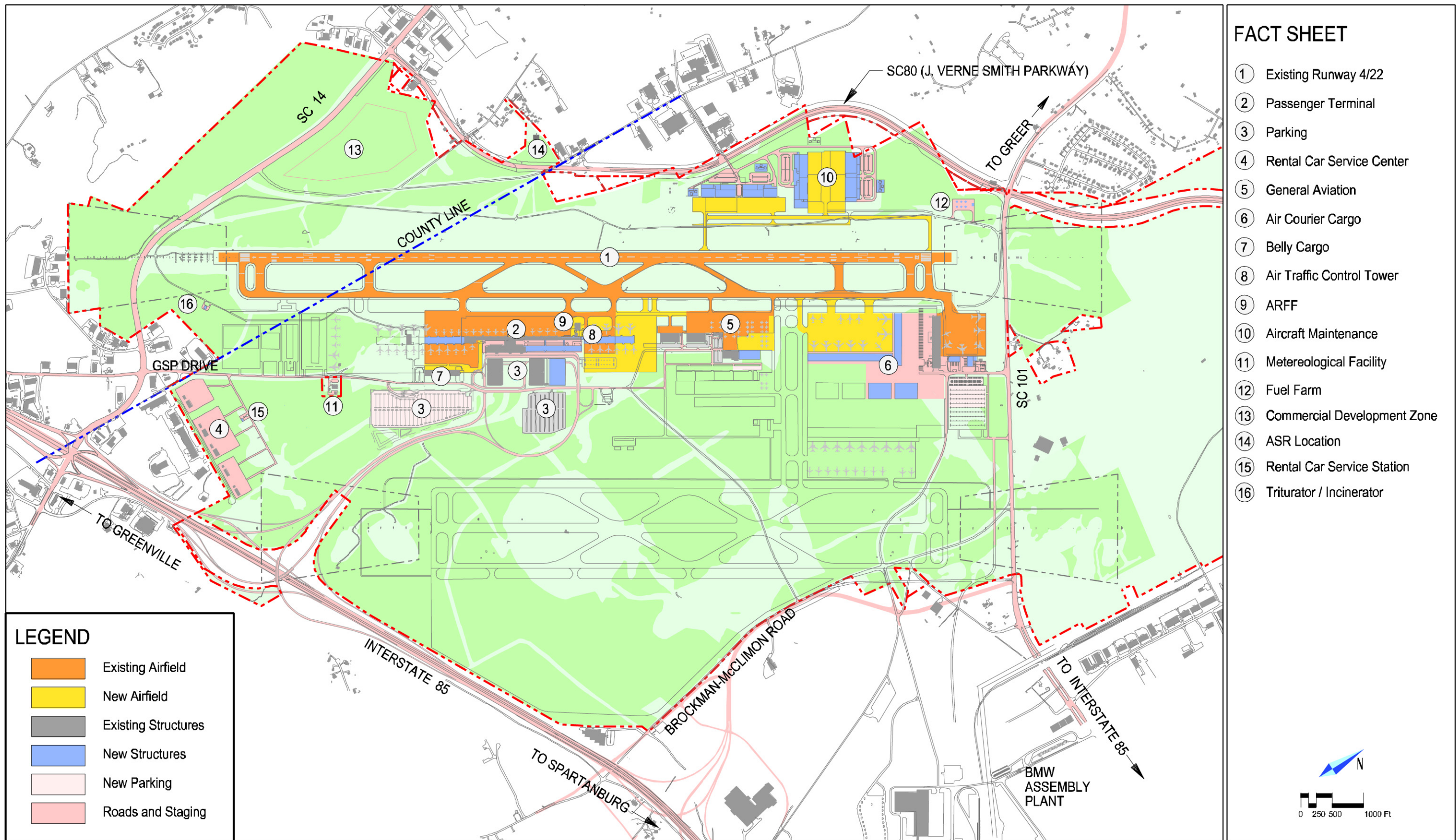
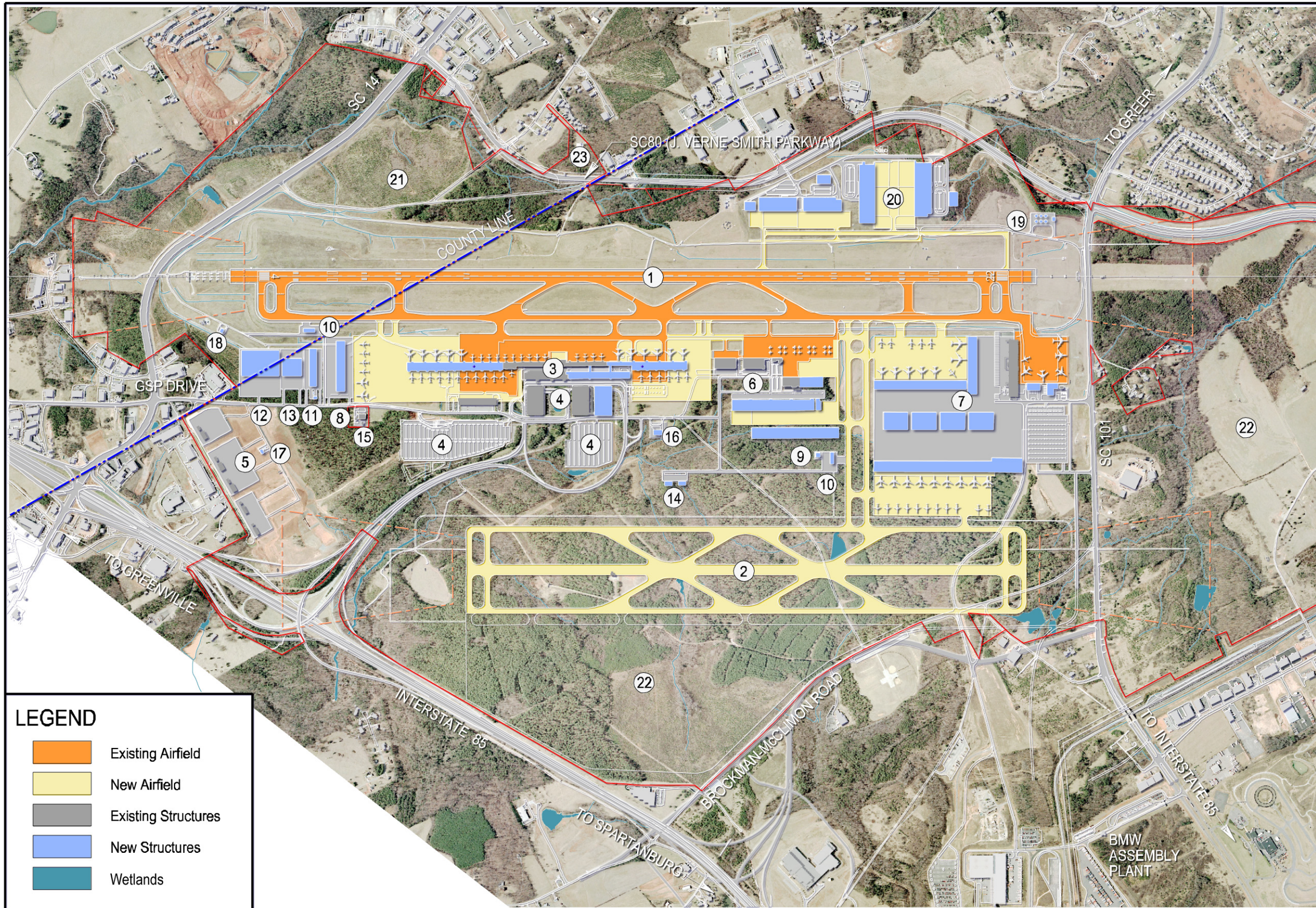


Figure 12-3 One Runway Ultimate Condition



FACT SHEET

- ① Existing Runway 4L/22R
- ② New Runway 4R/22L
- ③ Passenger Terminal
- ④ Parking
- ⑤ Rental Car Service Center
- ⑥ General Aviation
- ⑦ Air Courier Cargo
- ⑧ Belly Cargo
- ⑨ Air Traffic Control Tower
- ⑩ ARFF (2 Locations)
- ⑪ GSE Maintenance
- ⑫ Facility Maintenance
- ⑬ Catering Facility
- ⑭ Administration/Police
- ⑮ Metereological Facility
- ⑯ Central Plant (Land Reservation)
- ⑰ Rental Car Service Station
- ⑱ Triturator / Incinerator
- ⑲ Fuel Farm
- ⑳ Aircraft Maintenance
- ㉑ Commercial Development Zone
- ㉒ Industrial / Commercial Development Zone / Technology
- ㉓ ASR Location

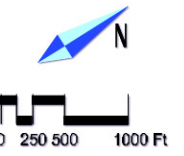


Figure 12-4 Two-Runway Ultimate Condition

Near-Term Critical Actions

Demand over the next few years will require upgrade and expansion. The following summarizes critical near-term implementation actions for GSP:

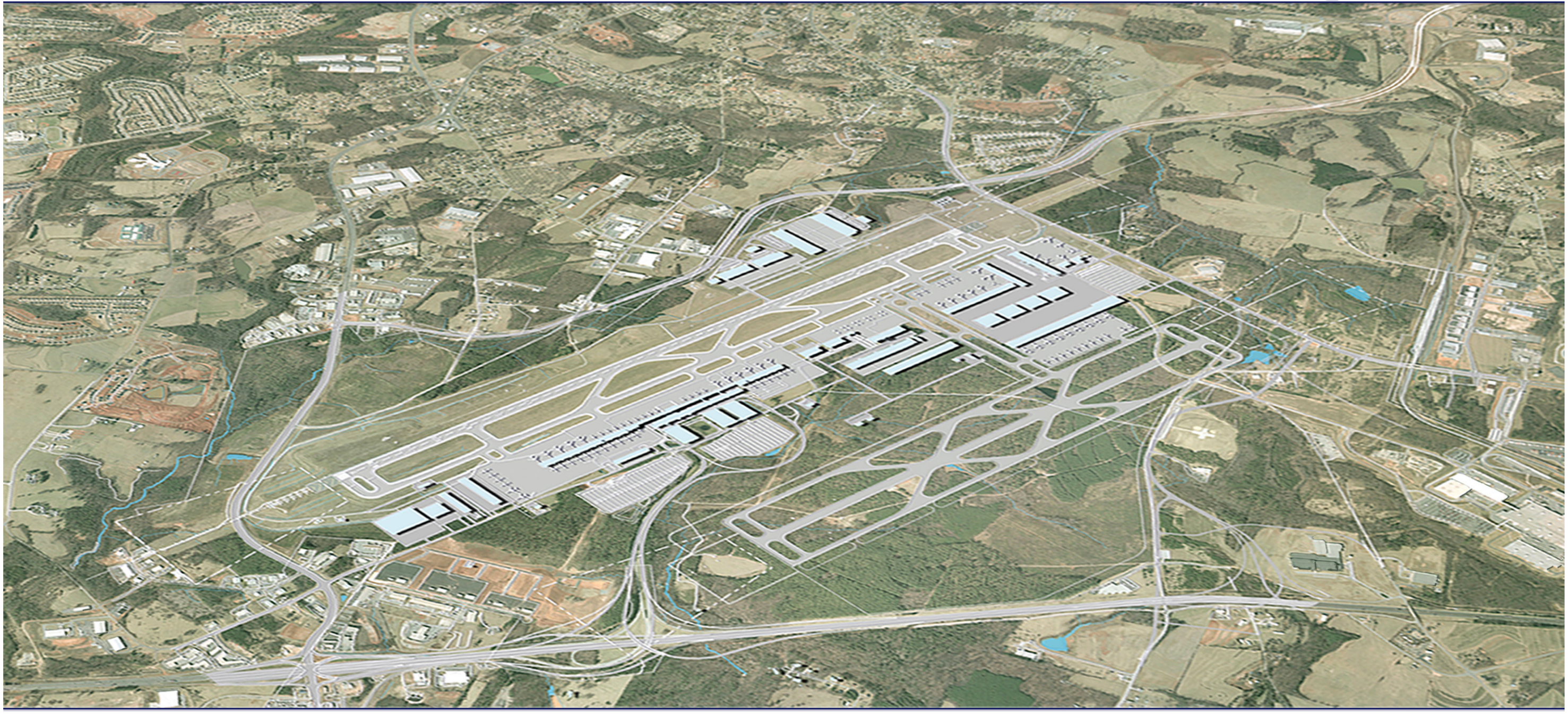
1. Existing runway will likely reach capacity by year 2020.
Planning should begin by 2008-2010
2. Upgrade and increase terminal departure processing capability
3. Agree with TSA on plans for upgrade of bag checks
4. Increase retail offerings at terminal, both landside and airside
5. New FBO is needed by 2006
6. Work with FAA on locating ASR-11 at Site 3
7. Add ramps at I-85 to take out weaving sections
8. Elevate GSP drive above road to existing terminal and add loop to connect to I-85 and for re-circulation
9. Land acquisition to support I-85 interchange upgrade

Long-Term Critical Actions

Over the 50-year planning horizon, the following summarizes issues to be addressed by GSP:

10. Follow development plan logic
11. Construct only one pair of cross taxiways
12. Expand passenger system linearly - first north then south
13. Plan for a second general aviation terminal
14. Develop north cargo apron for air courier operations
15. Congregate support facilities along GSP Drive
16. Pursue commercial development east and west of runways
17. Promote revenue generation from Technology Park
18. Widen I-85 and reconfigure airport interchange
19. Update master plan every five years
20. Protect airport's future by strict enforcement of airport environs regulations

Greenville - Spartanburg International Airport



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Section 1

Introduction

Need for an Updated Airport Master Plan

The Greenville–Spartanburg International Airport (GSP) is a center of transportation for the Upstate of South Carolina. The airport is also a major contributor to the local economy through revenue generation, employment, and enhancement of the competitiveness of local business.

Over the past 20 years, GSP has experienced significant growth in commercial operations. Only during the past two years, following the events of 9/11 and economic slowdown, has traffic declined somewhat. Several developments near the airport, including a new BMW assembly plant, have been completed and may require airport support in the near future. The long-term growth trends are expected to continue and, thus, expansion of GSP’s facilities to meet the Upstate’s future aviation and business demands is critical.

GSP Development Plan

The GSP Airport Commission maintains an updated master plan strategy to guide the near-term development of the airport in the context of a long-term strategy. Key documents include:

- In 1991, a master plan study entitled the “Horizon Plan” was developed for GSP by the LPA Group, Incorporated. The study explored the short-, mid-, and long-term aviation needs and recommended facility configurations to meet those needs. Key recommendations included lengthening of the runway to 11,001 feet and the addition of five gates to the concourse building.
- In March 1996, Bechtel Infrastructure completed a study that investigated the need for land acquisition for additional runway expansion, the adequacy of land use and reservation within the airport property, and the business opportunities near the airport.
- In March of 1997, Bechtel Infrastructure completed an update of the 1991 master plan. This update revised growth strategies for

the airfield, terminal, cargo, ground access, and parking configurations to improve operations and levels of service. The master plan also recommended land acquisition for access improvements and noise mitigation.

The aviation industry has seen significant changes in the past 5 years. New e-ticketing technologies have evolved. Low-cost carriers have thrived. Since the events of September 11, 2001, the Federal Government has mandated new costly security procedures. Travel demands have declined. Several major airlines are facing bankruptcy.

To address these major changes of the aviation industry, the GSP Airport Commission has contracted Bechtel Infrastructure to update the 1997 master plan by reviewing, validating, and revising the original master plan to meet the evolving needs of the Upstate.

This document summarizes the recommendations of the planning effort, the details of which have been developed with GSP Airport management. A systems approach, described below, has been used to define GSP’s requirements and evaluate the alternatives.

Airfield System. Covers all areas where aircraft operate, including runways, taxiways, taxilanes, aprons, ground service equipment, staging and roads, and air traffic control tower.

Passenger System. Covers all facilities associated with passenger use at the airport, including passenger terminal and concourses.

General Aviation System. Covers facilities for based and itinerant general aviation aircraft at GSP.

Cargo System. Covers both freight and belly cargo (space in the “belly” of commercial aircraft) facilities at GSP including terminal buildings, trucking docks, and truck staging areas.

Support Facilities System. Covers airport rescue and fire-fighting facilities, facility maintenance complex, catering facility, ground service equipment maintenance facility, utility plant, triturator/incinerator, public safety and health facility, meteorological facilities, fuel farm, and administration building.

Commercial Development System. Covers any potential commercial opportunities such as aircraft maintenance facility, pilot training center, and business parks.

Ground Access System. Covers roadways, terminal curbs, parking, rental car facilities, and taxi marshaling.

Building layouts are not included in this report and will be examined as part of conceptual design studies performed by others.

Report Organization

This report focuses on the preferred configuration for each system. Documentation for the alternatives analyses was provided to GSP Airport management during the development of the master plan update. The document is organized into the following sections:

- *Section 1, Introduction*, presents the need for an updated master plan and discusses how the report is organized.
- *Section 2, Existing Setting*, describes the existing facilities at the airport.
- *Section 3, Development Concept*, presents the GSP vision and goals, the land use plan, and the preferred ultimate airport layout plan.
- *Section 4, Traffic Projections*, summarizes annual and peak period traffic projections for passengers, cargo, and aircraft operations.
- *Sections 5 through 11* present the preferred configuration for the airfield, passenger, general aviation, cargo, support facilities, commercial development, and ground access systems.
- *Section 12, Phasing*, addresses the phasing strategy for airport development.

Section 2

Existing Setting

The Greenville-Spartanburg International Airport (GSP) is located in South Carolina on the county line separating Greenville and Spartanburg counties, approximately 15 miles southwest of downtown Spartanburg, 12 miles northeast of downtown Greenville, and 2 miles south of the City of Greer. The airport encompasses approximately 3,600 acres and currently has one runway, one passenger terminal, several general aviation facilities, two air cargo terminals, a cargo apron with a customs and immigration building, and numerous support facilities.

Figure 2-1 presents the existing facilities at the airport. A brief description of these facilities follows.

Airfield System

GSP’s runway 04/22 is 11,001-feet long and 150 feet wide. The runway currently accommodates Category IIIB precision approaches to Runway 04 and Category I approaches to Runway 22. East of the existing runway, land has been reserved to build a second parallel runway 8,200 feet long and 150 feet wide.

The airport’s primary taxiways consist of a parallel taxiway located 600 feet east of the runway centerline and an apron edge taxiway in front of the concourse, 300 feet east of the parallel taxiway. These taxiways are wide enough to accommodate the largest operating aircraft today (FAA Group V, B747-400). The 600-foot runway-taxiway separation is sufficient for future FAA Group VI aircraft, like the A380-800 aircraft.

The airport has several aircraft parking aprons that serve the passenger, general aviation, and cargo facilities. The air traffic control tower is located at the north end of Concourse B.

An ASR-8 radar operated by the FAA is located east of the passenger terminal complex. FAA proposes to replace this radar with a state-of-the-art ASR-11 radar at a new site in the near future.

Passenger System

The GSP passenger terminal was constructed in 1962 and expanded in 1989. It contains 13 gates in Concourses A and B, of which nine are currently served by passenger loading bridges. Table 2.1 provides information on aircraft gates at each concourse. The aircraft parking positions at the gates can accommodate a variety of Group II and Group III aircraft; however, the gate spacing requires closing an adjacent parking position when large Group III aircraft are present.

Table 2-1 Existing Aircraft Gates

Concourse	Total Gates	Gates With Loading Bridges
Concourse A	9	5
Concourse B	4	4

The terminal building contains space for ticketing, check-in, baggage claim, security processing, rental car counters, offices, and amenities for passengers. In 2003, airline tenants included American Eagle, Continental, Delta, Northwest, United Express, and US Airways. Two bridges containing concession space and passenger amenities connect the terminal to the concourse.

General Aviation System

The airport has several general aviation tenant facilities operated by one fixed-base operator (FBO) located to the north of the passenger terminal (as shown in Figure 2-2). Facilities include three storage hangars, a maintenance hangar, and a terminal building. In 2003, these facilities accommodated as many as 26 aircraft based at the airport and numerous itinerant aircraft. Based aircraft tenants included the Barnet Company, Executive Aviation Group, Gibbs International, Michelin Tire, and Milliken Company.

Cargo System

The south cargo terminal, with 25 truck loading docks, is located south of the passenger terminal and serves operations for Airborne, Delta, Continental, Northwest, US Airways, UPS, and the US Postal

Service. The north cargo area includes a 120,000 square foot Federal Express cargo terminal, an aircraft-parking apron, and a customs and immigration station. The 325,000-square-foot apron, with 126,400 square feet of adjacent paving for staging, was designed to accommodate two B747s.

Support Facilities System

GSP has several facilities and systems to support building and airfield operations, including the following:

- The airport rescue fire-fighting station with seven truck bays is located next to the air traffic control tower at the north end of Concourse B.
- The south cargo building, in addition to handling air courier freight, serves airline belly cargo and houses a US post office.
- The facilities maintenance and snow removal building is located at the south end of the passenger terminal apron.
- The catering facility is located in the basement of the concourse where the bridges connect to the terminal building.
- The central plant is also in the basement of the concourse adjacent to the catering facility.
- The fuel farm is located near the intersection of GSP Drive and Stevens Road. It is owned by the airport and operated by a FBO who trucks the fuel to the aircraft. The Airport Commission is planning to decommission this fuel farm and build a new one at the northwest corner of the airport property. The new site will have direct access to SC 101; an airside fuel truck service road to the new site has already been constructed.
- The passenger Federal Inspection Services (FIS) facility is located in the south end of Concourse A on the apron level. A separate FIS facility is located in the north cargo area, for processing of import cargo and air cargo crews.
- The National Weather Service facility is located on GSP Drive between SC14 and the passenger terminal, and includes a NEXRAD weather radar system. A six-station LLWAS (low-level wind sheer alert system) is installed at the airport.



FACT SHEET

Airfield

- 11,001 ft runway
- Four separate apron areas that include:
 - Main apron
 - Hold apron
 - GA apron
 - North air cargo apron

Passenger Terminal

- 9 operational contact gates with loading bridges
- 4 additional contact gates without loading bridges

Cargo Terminal

- 42,886 sqft of usable covered space
- Air cargo apron and US Customs office at the north end of airport
- 120,000 sqft FedEx Terminal

General Aviation Terminal

- G/A Terminal Building
- Four hangars that include:
 - Hangar 1 Storage
 - Hangar 2 Maintenance
 - Hangar 3 Storage
 - Hangar 4 Storage

Parking

- Short-term parking spaces:

- Parking Garage A	1,098
- Parking Garage B	1,529
- Short-term open lot	232
- Rental car area in 'A'	270
- Long-term parking spaces:

- Daily open lot	400
- Long-term open lot	1,097
- 214 employee parking spaces

Support Facilities

- See drawing

LEGEND

- Existing Airfield
- Existing Structures
- Existing Parking

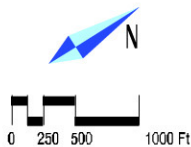


Figure 2-1 Existing Facilities

Commercial Development System

The airport currently has no on-site commercial development. A business park to the south of the airport on SC 14 is being developed and hotel facilities have been constructed several miles south on Interstate 85.

Highway SC80, a limited access four-lane highway running the length of the airport’s northwest property line, is under construction. This road will open the north side of the airport to commercial development, particularly hotels and business parks that accommodate travelers and others who require a convenient airport location for various business functions.

Ground Access System

Interstate 85, a six-lane north-south freeway on the east side of the airport, provides direct access to GSP via a full interchange. Vehicles approach the terminal from the interstate and circulate through a loop system with non-signalized intersections.

The airport can also be accessed at three other points. From the south, GSP Drive, a limited access road, connects to SC14 and runs perpendicular to the loop system to the air cargo and the general aviation areas. From the north, a limited access road connects to SC101 and serves the north cargo apron. From the northeast, Stevens Road provides direct access to the general aviation area from Brockman-McClimon Road. In addition, a dedicated road connects the north cargo apron directly to the BMW assembly plant property.

Access from Interstate 85 will be improved by upgrade of the airport interchange. The improvements will include separation of weaving lanes from the SC14 interchange to the south and the forthcoming interchange at Brockman-McClimon Road to the north.

Two parking garages have been constructed in the passenger terminal area, and surface parking lots have recently been expanded. The parking garages are located within the terminal loop system and provide short-term parking as well as spaces for rental car pickup and drop-off. Large surface lots adjacent to the loop system provide short-term, daily, and long-term parking. Table 2-2 summarizes the number of existing parking stalls.

Table 2-2 Existing Parking Stalls

Parking Facility	Existing Stalls
Short-term	
Parking Garage A	1,098
Parking Garage B	1,529
Short-term open lot	232
Rental car area in “A”	270
Long-term	
Daily open lot	400
Long-term open lot	1,097
Employee Lot	<u>214</u>
Total	4,840

Rental car companies have expanded their operations at GSP in recent years and five major companies have established facilities on the airport in a 35-acre rental car operations area south of the passenger terminal complex. In 2003 the rental car fleet at the airport totaled approximately 2,200 vehicles. The rental car companies at the airport, by decreasing market share, include: Hertz; Avis; Alamo/National; Budget; and Thrifty.

Utilities System

There is no main utility corridor for the airport. Power, gas, telephone, fiber optic cables, water, and sanitary sewer are brought into the airport at different points. The terminal, south cargo, and general aviation facilities are served by utility connections on the south side of the airport; the north cargo area is served by utility connections on the north side of the airport from SC 101.

Duke Energy supplies power from a main line that runs parallel to Interstate 85 and enters the airport parallel to the main access road. Duke Energy has sufficient capacity to meet the future power demand of the airport.

Telephone and fiber optics are under the jurisdiction of the Bell South network. Telephone service is supplied by lines entering the airport from the east along Stevens Road. Fiber optic service is supplied by a line entering the airport from the south along GSP Drive and running the full length of the airport to SC 101 just west of the north cargo apron.

Potable and fire water is supplied by the Greer Commission of Public Works. The main water line enters the airport from the west off Poplar Drive. It is a 12-inch line that reduces to an 8-inch pipe as it feeds the passenger terminal complex and adjacent facilities. The airport also has a 10-inch feed from SC 101 into the north cargo area.

The Greer Commission of Public Works supplies natural gas through lines entering the airport on the east along Stevens Road and from the south by a line entering the airport along GSP Drive.

The sanitary sewerage collection system on the airport is owned by the Airport Commission. The Greer Commission of Public Works has installed a pump station at the end of the collection system and pumps the sewage to their treatment facility.

Section 3

Development Concept

The development concept presents the ultimate GSP airport configuration, designed to meet the growing air transportation needs of the Upstate region of South Carolina. Several principles have guided the preparation of the concept including compliance with FAA guidelines, compatibility with adjacent land uses, and “best aviation industry practices”. Particular attention is given to safety and security, passenger convenience, capacity and level of service, operational efficiency, economic viability, special airline operating requirements, environmental compatibility, and flexibility for change.

This section presents the rationale behind the GSP development concept by outlining the long-term vision for the airport, addressing the immediate challenges facing GSP, and presenting the proposed land use and layout plans that respond to this vision and challenges.

GSP’s Long-Term Vision

Today, GSP is a passenger, corporate aviation, and cargo airport serving the Upstate region of South Carolina, including Greenville, Spartanburg, Anderson, and Pickens counties. In 2003, the airport is predominantly used for domestic flights (non-stop to and from 17 US cities), but also accommodates unscheduled international flights. In addition, GSP is a major contributor to the economy of the Upstate through direct employment and multiplier-effect economic stimulation (See attached economic impact study results).

Looking towards the future, GSP must address the ever-increasing security concerns at airports and technology improvements. The airport must also maintain modern, and highly efficient facilities in order to fulfill four critical roles throughout the 21st century.

GSP as a Gateway to the World. GSP must remain a world-class aviation center that acts as a gateway to the US market place and the rest of the world. The number of city connections and the frequency of domestic flights are expected to increase greatly in the future. Scheduled services to Europe, Canada, and Latin America are also foreseen (Figure 3-1).

GSP as a Cargo Distribution Center. GSP must build upon recent successes and become a cargo distribution center (Figure 3-2) that supports the rapidly growing industries in the Carolinas and leverages its excellent location on the eastern US highway and rail networks. This positioning will drive GSP’s continuing role as an important tool in supporting existing businesses and attracting new ones.

GSP as a Regional Economic Engine. GSP should continue to capitalize on the economic opportunities generated by the movement of people and cargo. Modern facilities and frequent flight schedules will promote the growth of trade, enhance the competitiveness of local business, and attract new manufacturing, distribution, services, and technology (Figure 3-3). For South Carolina and the Upstate, these facilities will ultimately stimulate additional investment, trade, and job growth.

GSP as a Showcase of South Carolina’s Success. GSP acts as a front door for air passengers arriving to, and departing from, the Upstate. Modern, efficient facilities and state-of-the-art passenger processing facilities is key to maintaining the highest service levels. Exhibition space within the airport should continue to be used to highlight the numerous corporate headquarters and multinational firms located in the Upstate, thereby projecting an image of progress and innovation (Figure 3-4).

GSP Immediate Challenges: Short-Term Goals

In addition to the long-term roles of the airport, the master plan addresses GSP’s immediate development needs to make certain that operational efficiency and user convenience are optimized. After considerable study of the existing setting and nearby developments, the airport has adopted several short-term planning goals.

- *Maintain Excellent Service Standards.* This planning goal aims to retain GSP’s current high service standards. High standards shall apply to issues of safety and security, passenger convenience, and airline operational efficiency.
- *Expand Airline Service.* Development plans for GSP should be coordinated with business strategies aimed at attracting additional airline service at GSP, including low-cost carriers, and initiating/expanding international cargo and passenger operations.

- *Comply with TSA Requirements.* Following the events of 9/11, the Transportation Security Administration (TSA) mandated new passenger, baggage, and vehicular screening procedures. As safety and security are a top priority at GSP, the planning process will examine requirements for further safe proofing the terminal building, upgrade of the Explosive Trace Detection (ETD) equipment, and enhancement of airside access security measures.
- *Network the Passenger Terminal for Intelligent Systems.* GSP should adopt plans for upgrading processing, communications, and building management systems. Key goals include installation of self-service ticketing facilities, Explosive Detection Systems (EDS) equipment, and additional passenger screening magnetometers, and wireless or hardwire Internet access.
- *Validate/Enhance Terminal Concessions Program.* Retail and food and beverage concessions in the passenger terminal are an important source of revenue to the airport and convenience to passengers. Substantive recommendations should be provided for improving both the variety and number of concession offerings.
- *Resolve Highway Capacity Constraints at I-85.* The upgrades at the SC14 interchange and the upcoming addition of a Brockman McClimon Road interchange along I-85 pose safety and congestion threats to GSP access. The planning process to alleviate these threats must be closely coordinated with the SC Department of Transportation.
- *Increase Capacity of Auto Parking Facilities.* The airport is quickly approaching saturation levels for long-term and employee parking. The planning process should address expansion strategies.
- *Maintain a “Good Neighbor” Policy.* The Master Plan Update should summarize the impacts of GSP’s growth on the Upstate economy and the surrounding environment.
- *Investigate the Need for Land Acquisition.* The planning process should address any need by the airport to acquire new land in its immediate surroundings. Such land may be required, among other reasons, for ground access improvement, and mitigation of environmental impacts.



Fig. 3-1 GSP as a Gateway to the World



Fig. 3-2 GSP as a Cargo Distribution Center

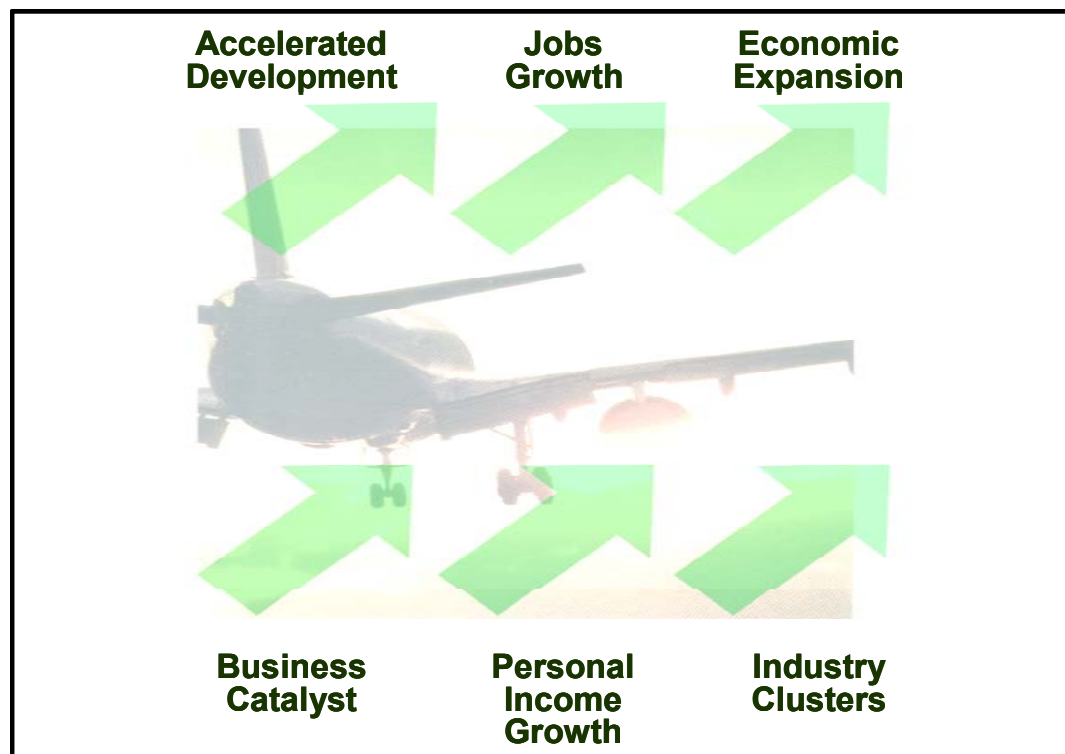


Fig. 3-3 GSP as a Regional Economic Engine



Fig. 3-4 GSP as a Showcase

GSP Development Plan

The GSP development plan addresses internal land uses of the airport and the airport’s relationships with the surrounding environs. A tour of the surrounding development was conducted in the course of this study. Future development plans were also evaluated based on the Appalachian Council of Government’s *Future Land Use Plan by 2015*.

The development plan aims at reserving land areas in appropriate proportions to meet the future aviation needs of the community. Key factors to a successful plan include a thorough understanding of the existing setting, assignment of land uses that respond to the surrounding environment, and proportionate and balanced distribution of land based on projected facility requirements.

Surrounding Development

In examining the general surrounding development, there is an apparent difference between uses to the north and south of the airport (see Figure 3-5).

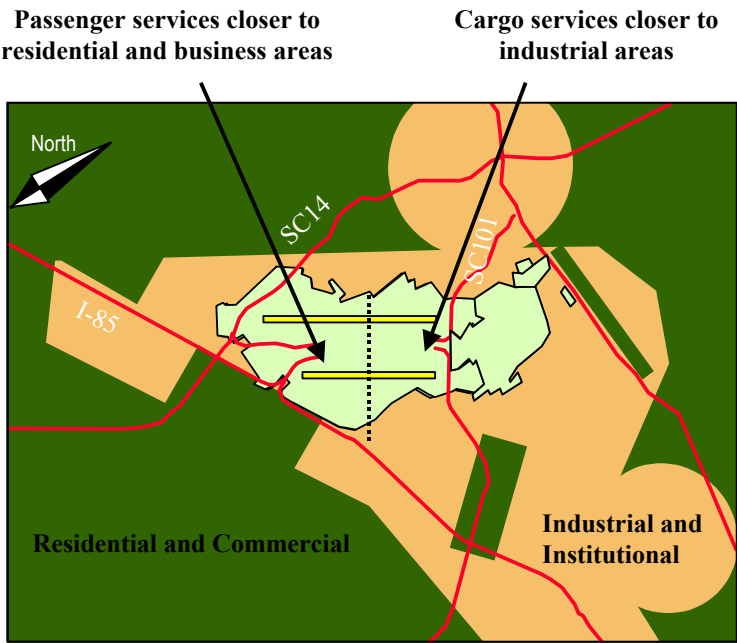


Figure 3-5 GSP’s Response to Surrounding Land Use

To the north, development is primarily industrial and institutional. Industrial traffic in this area is served by SC101, a major trucking route. To the south, development is primarily residential and commercial. Interstate 85 serves as the major route for all types of traffic.

The airport development plan responds to these different land uses by concentrating industrial land use, such as cargo facilities and aircraft maintenance, on the north side of the airport. More public and commercial uses, such as the passenger terminal and general aviation systems, are located on the south side.

West, Midfield, and East Zones

Using the runways as delineators, the airport can be divided into three zones from west to east (see Figure 3-6), which are characterized below.

West Zone. Lies between the existing runway and the western airport boundary. Given its direct ground transportation access to SC14 to the south and SC101 to the north (and J. Verne Smith Parkway in between), this area can best be developed with commercial and industrial uses. The current property boundary constrains contiguous development west of the existing runway. Therefore, in the short term, two distinct development areas are identified: the south will be developed with commercial uses, such as hotels and business parks, and the north with industrial uses, such as aircraft maintenance.

Midfield Zone. Lies between the existing and planned runways. Centrally located within the airport, this zone is ideal for aviation-related development, primarily passenger, general aviation, and cargo operations. These uses are also consistent with the existing facilities in the zone. Within this zone, development will be further designated in a manner consistent with surrounding land uses:

- The southern area will accommodate commercial passenger operations. The current passenger terminal is in this area and has adequate room for future expansion. A terminal access road presently exists which connects the terminal area with Interstate 85.

- The middle area will accommodate general aviation operations. The existing general aviation (G/A) facilities are located in this area with convenient airfield access. There is sufficient space to expand G/A and corporate operations in this area.
- The north area will accommodate cargo operations. Development of cargo facilities has already begun in this area, and there is significant space for future expansion. Cargo-generated ground traffic would have direct access to SC101 (and SC14 via J. Verne Smith Parkway) and the industrial areas north of the airport. This is advantageous because, from an overall perspective, it is especially desirable to separate the cargo traffic from passenger traffic. Land will also be reserved in this zone for airport and airline support facilities.

East Zone. Lies between the future runway and the eastern airport boundary. This zone has the advantage of direct airfield access and considerable frontage along Interstate 85. Although commercial and industrial uses are recommended for this zone, careful selection of the exact types of development is necessary. A high-density development in this area may overload the capacity of Interstate 85. A development with peak hours non-concurrent with the airport and with a low employee population, such as a pilot training center, is recommended.

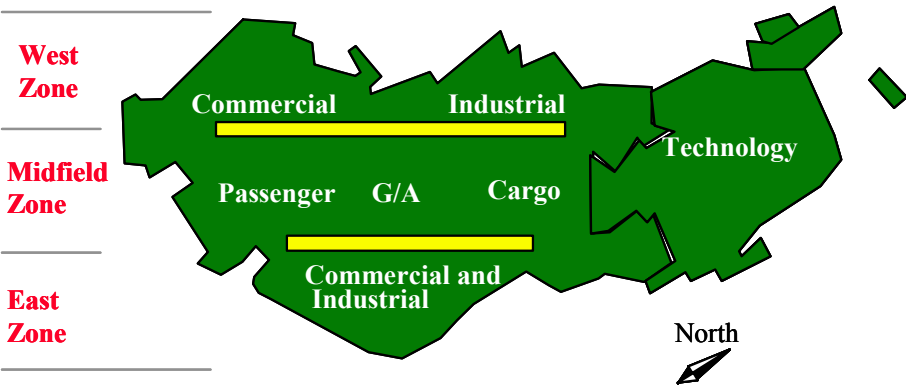


Figure 3-6 GSP Development Zones

To the north of the airport 680 acres have been purchased for the GSP Technology Park. This land has been acquired for both functional and commercial purposes. The functional purpose is to provide a buffer against the encroachment of future incompatible development under the flight path and within the 65 dB noise contours of the existing and future runways. The commercial objective for this property is for uses that would complement the airport’s mission as a community asset serving the entire Upstate region. This is discussed in more detail in Section 10, Commercial Development System.

Land Use Plan

Figure 3-7 presents the land use plan that was developed based on these internal and external land use issues; for reference, the plan is superimposed on the existing airport layout. The Midfield Zone is shown with passenger, general aviation, cargo, and other support facilities. Areas for the existing and future runways flank this midfield development. The outer areas of the airport property are reserved for commercial and industrial uses.

The Airport Environs Area is shown in Figure 3-8. The environs are areas 3,000 ft x 15,000 ft that extend from each end of the existing and of the future runways. They represent approximately the ultimate 65 dB noise footprint, beyond the airport property line, and give the Airport Commission a say in the determination of the zoning of these areas.

GSP Airport Layout Plan

The ultimate development airport layout plan is presented in Figure 3-9, which also shows the wetlands delineation. The major systems are described below.

Airfield

The airfield will consist of two parallel runways:

- Runway 4L/22R will be 11,001 feet long and during peak hours will accommodate the majority of passenger flights leaving from the south concourse gates and the largest cargo aircraft leaving from the air courier cargo apron.
- Runway 4R/22L will be 4,300 feet to the east. It will be 8,200 feet long and during peak hours accommodate the majority

of passenger flights leaving from the north concourse gates. General aviation and cargo aircraft will also use this runway.

Aircraft will circulate via a system of parallel taxiways and cross taxiways. Rapid exit taxiways will be provided in each direction for the planned runway. An apron edge taxiway will run from the concourse to the cross taxiways along the west side of the concourse. Dual taxilanes will accommodate most of the aircraft movement on the east side of the concourse. A total of 43 attached jet gates will be located in the concourse and a transit apron will provide an additional 6 contingency hard stands. Apron control towers on the roof of the concourse will control operations on the passenger apron.

Passenger

The passenger terminal and concourse are located between the two runways. At ultimate development, the existing terminal will be expanded to the north and maintain a single-level configuration. Consistent with the current configuration, escalators and pedestrian bridges will give passengers access to the concourse. At ultimate development, the majority of the concourse will be double-sided and extend linearly both to the north and the south from the existing concourses. Loading bridges will be provided at all gates and, within the concourse, passengers will move via moving walkways.

General Aviation

The general aviation area is defined by the boundaries of the passenger system to the south and the cross taxiways to the north. Facilities will consist of hangars for storage and maintenance of 60 fixed-based aircraft, apron area to accommodate the staging of 12 aircraft at two separate terminals, and 30 transit tie-down stands.

Cargo

Cargo will be handled on two aprons immediately adjacent to the airfield, one adjacent to Runway 4L/22R and one adjacent to Runway 4R/22L. Together, the aprons will provide 44 hard stands with single taxilanes. The landside portion of the cargo complex, including cargo terminals, freight forwarders, and truck staging areas, will be located between the aprons, maximizing terminal building frontage and landside staging. Centralized parking for all cargo-related employees will be adjacent to the complex.

Support Facilities

Support facilities will be located in the south and central areas of the Midfield Zone and in the north area of the West Zone. The following is a description of each area.

- The southern area of the Midfield Zone will contain facilities that require both landside and airside access. Therefore, catering, facility maintenance, auxiliary airport rescue fire-fighting, ground service equipment maintenance, and the belly cargo facilities will be located in this area. Due to its large land area and adequate access, this area will also include the airport administration building, police station, central plant, and rental car facilities.
- The central area of the Midfield Zone, located east of the general aviation complex, will provide restricted access to airside facilities. Facilities in this area will include the air traffic control tower and the primary airport rescue fire-fighting building.
- The northern area of the West Zone will include the fuel farm and aircraft maintenance, which is located west of Runway 4L/22R. This type of use is consistent with the adjacent industrial zone.

Ground Access

Terminal access for passenger-related traffic will be provided via a direct interchange with Interstate 85. In the terminal area, a loop system will provide access and re-circulation to the terminal curbs and parking areas. Service and cargo traffic in the south area of the Midfield Zone will be separated from passenger-related traffic via a service access road from SC 14. Cargo vehicles will access the cargo area in the north via a direct access road from SC 101.

Short-term parking will be provided in three parking garages, which will be located within the loop system and accessed by a dedicated exit lane. A through-traffic lane and bridges on the upper levels will connect the garages. Rental car pickup and drop-off occurs in dedicated spaces in the southernmost garage. Long-term and employee parking will be provided in open lots located outside of the loop road east of the parking garages.

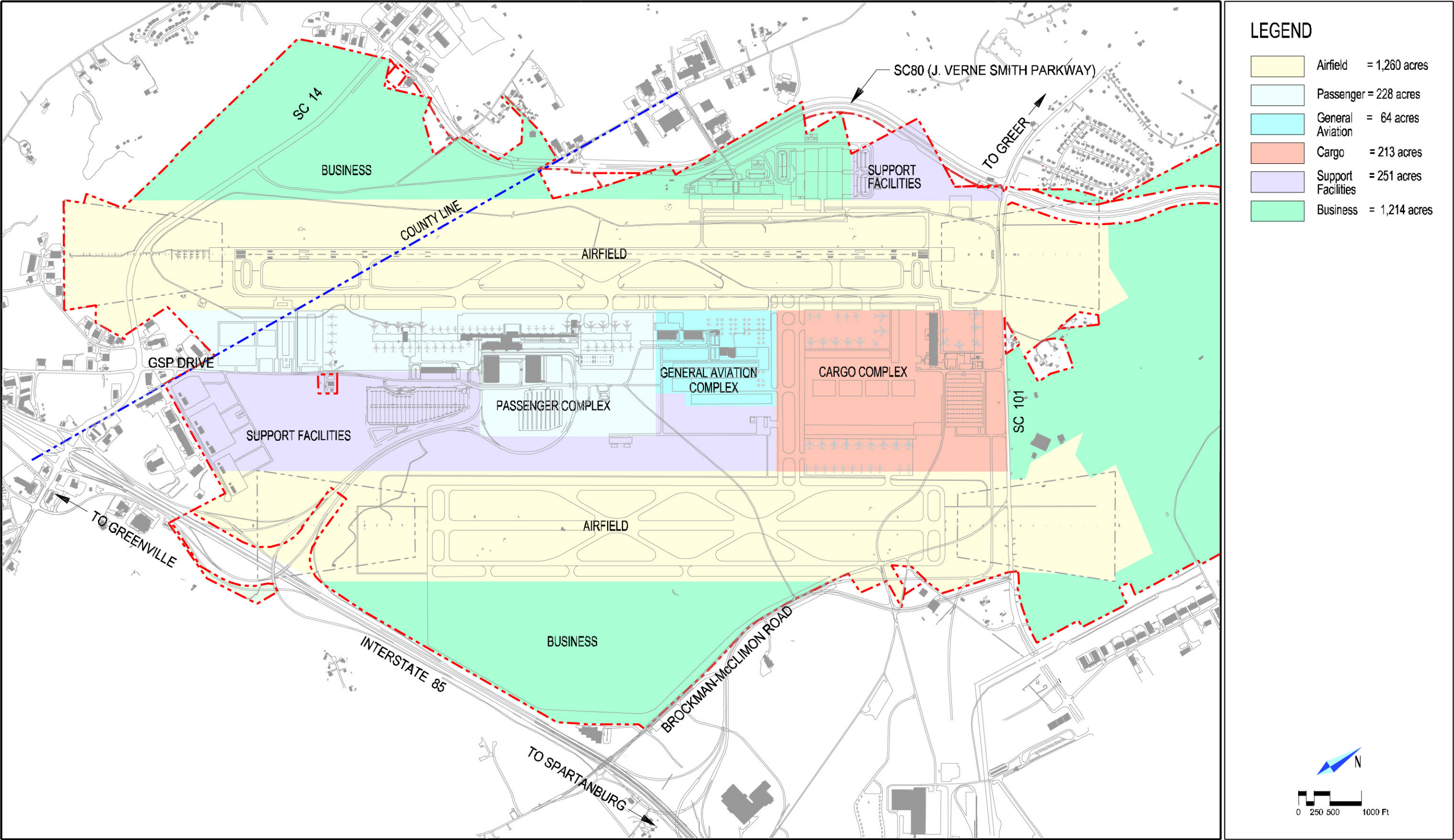


Figure 3-7 Land Use Plan

In the long term, high-speed rail (HSR) access may be required for GSP. The airport is currently trying to better understand the designated HSR alignment to reserve land for future station.

Commercial Development
Land for commercial development is reserved west of Runway 4L/22R and east of Runway 4R/22L. Since this type of development is driven by commercial agreements, only zoning is shown.

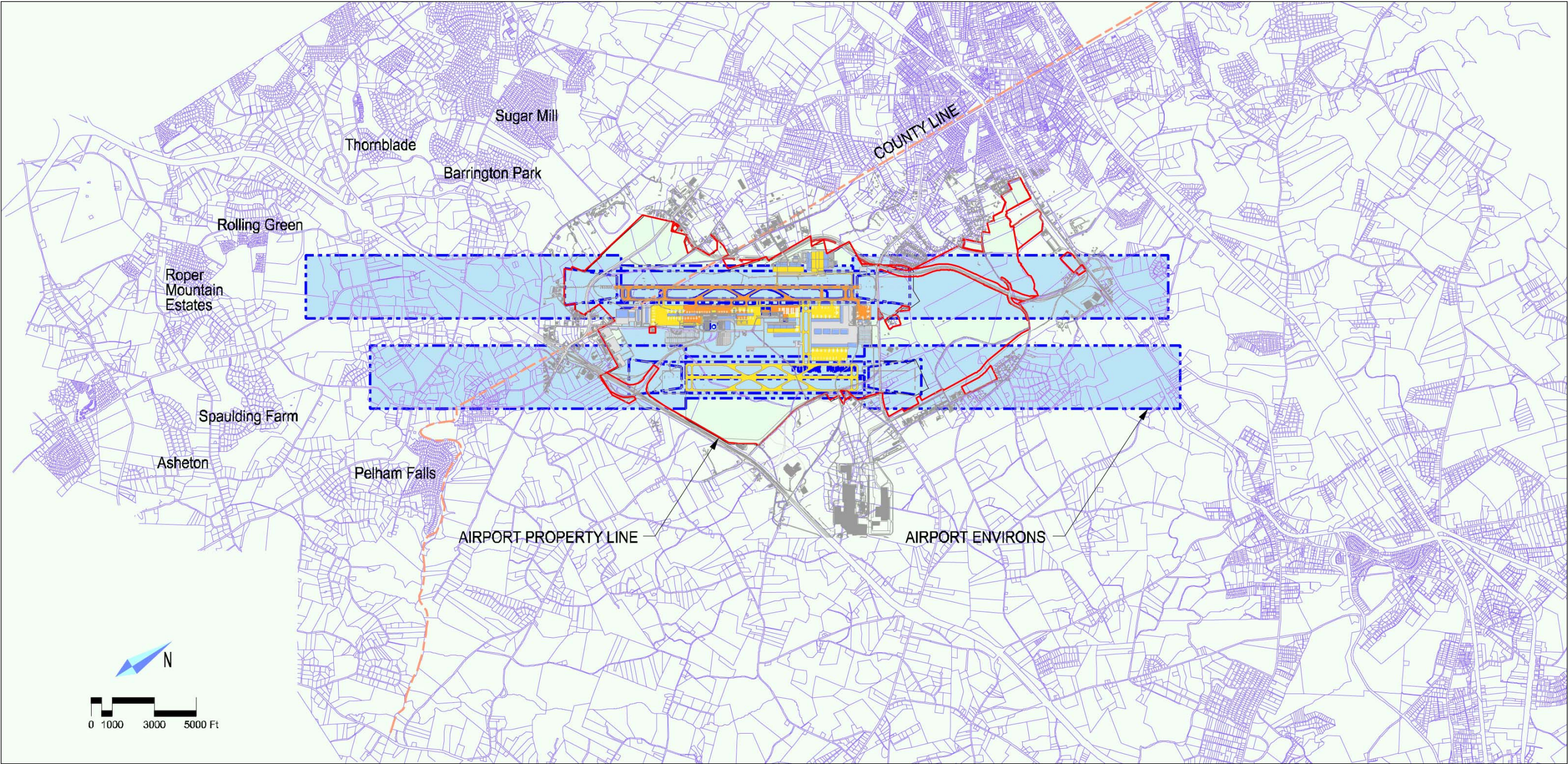
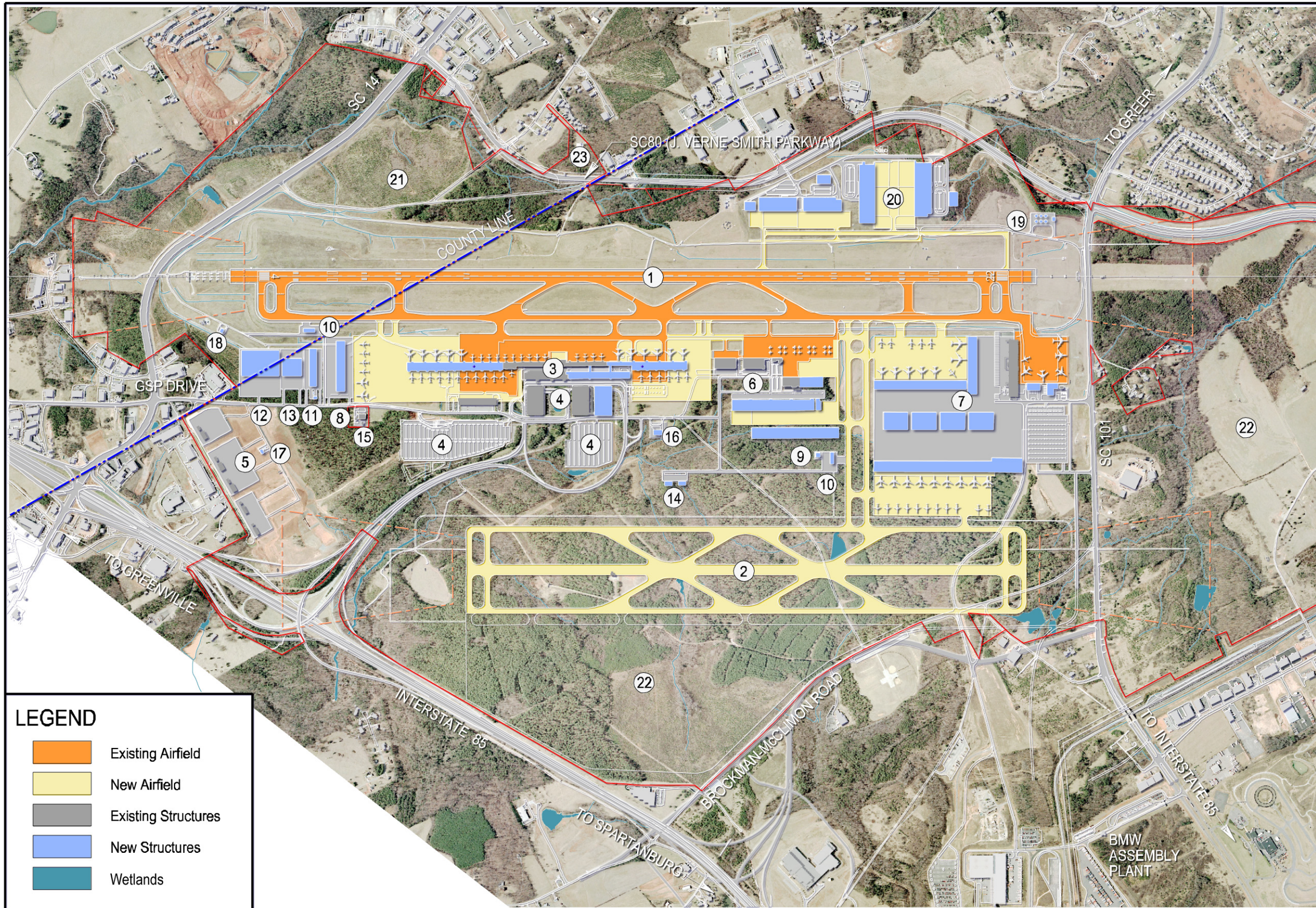


Figure 3-8 GSP Airport Environs



FACT SHEET

- Existing Runway 4L/22R
- New Runway 4R/22L
- Passenger Terminal
- Parking
- Rental Car Service Center
- General Aviation
- Air Courier Cargo
- Belly Cargo
- Air Traffic Control Tower
- ARFF (2 Locations)
- GSE Maintenance
- Facility Maintenance
- Catering Facility
- Administration/Police
- Metereological Facility
- Central Plant (Land Reservation)
- Rental Car Service Station
- Triturator / Incinerator
- Fuel Farm
- Aircraft Maintenance
- Commercial Development Zone
- Industrial / Commercial Development Zone / Technology
- ASR Location

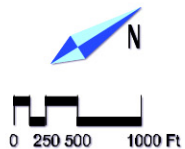


Figure 3-9 Ultimate Airport Layout Plan

Section 4

Traffic Projections

This section covers annual and peak period traffic projections for passengers, cargo, and aircraft movements at GSP. The planning horizon extends through the ultimate development of the GSP site which, based on a two-runway configuration, is projected to occur by 2053.

Traffic projections presented in this report are based on historical trends and expert judgment. These projections have been adjusted for comparisons with Federal Aviation Administration (FAA) and International Air Transport Association (IATA) projections for US domestic traffic. Market studies and airline agreements would be necessary for more detailed forecasts.

Passenger Traffic

Since 1965, the annual growth rate for passenger traffic at GSP has been 5.3 percent. This compares with an annual growth rate of 3.7 percent for US domestic enplanements during the same period. The strength of the Upstate economy has propelled GSP to grow much faster than the average national rate. Historical records and analysis of the 2003 flight schedules for GSP indicated the following statistics:

- Annual passenger traffic reached 1.6 million in year 2000 and has dropped to 1.4 million in 2002, due to the economic slowdown and the effects of the 9-11 events
- Recent average day of the peak month traffic (July 2002) was approximately 4,200 passengers
- Peak hour traffic was 600 passengers, 400-450 of which were either arriving or departing (depending on the hour of the day)

Three traffic growth scenarios have been developed. Their planning horizon extends over 50 years and is characterized by three periods: the short-term (2004-8), the mid-term (2009-23), and the long-term (2024-53). Table 4-1 presents the growth assumptions for each scenario and time period. The principal differences between these scenarios occur in the short-term.

- The low scenario begins with 2002’s actual volume (1.4 million) and its growth rate increases slowly from 1% to 3%
- The moderate scenario is a continuation of the long-term trend line, growing at a historical rate of 5.3% between 2004-2023
- The high scenario is the same as the moderate one, but with the introduction of low-cost carriers that expand their market at the rate of two new cities served each year

In the long-term (2024-2053), the growth rate in each scenario drops to 3.8%, which is a more sustainable rate. For comparison, a recent IATA forecast predicts that US domestic traffic will resume its historical growth trend of 3.8%-4% per annum (pa) after 2003.

Table 4-1 GSP Passenger Growth Scenarios

Growth Scenario	2004 – 2008 Short-term	2009 – 2023 Mid-term	2024 – 2053 Long-term
Low	1 - 3%	4.5%	3.8%
Moderate	5.3%	5.3%	3.8%
High	15.0%	5.3%	3.8%

Figure 4-1 presents annual passenger projections for GSP throughout the planning horizon. For planning purposes, the Airport Commission has selected the moderate growth scenario reflecting continued strong growth through 2023. As Figure 4-1 shows, the total traffic at GSP is projected to reach 5.3 million by 2023. As a reference point, the FAA has previously forecasted, GSP’s annual traffic volume to reach 3.3 million by year 2010. This falls between the moderate scenario (2.7 million) and the high scenario (4.3 million) for that year.

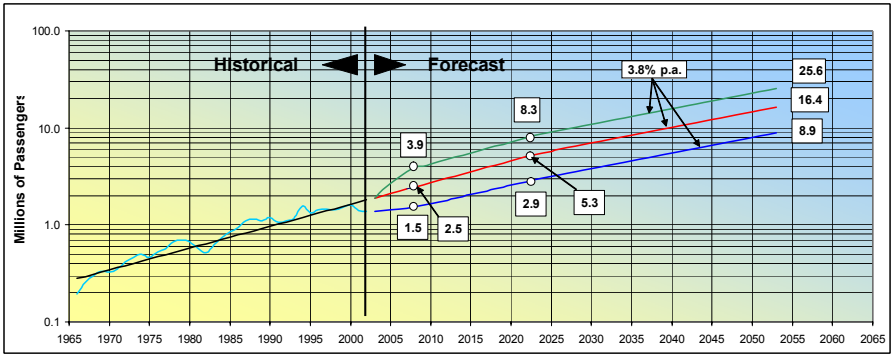


Figure 4-1 GSP Annual Projections for Passenger Traffic

The number of passengers at an airport varies seasonally with changes in business and vacation demands. Designing a facility to accommodate the absolute peak traffic achieves the highest service, but would be too costly. The planning volume most widely accepted by the aviation industry is the peak hour of the average day of the peak month (PH of ADPM). This planning volume should allow the airport to meet more than 95 percent of the design year’s hourly traffic demands at the planned level of service.

Based on patterns observed from the 2003 GSP flight schedule, annual forecasts are converted to peak hour traffic projections as shown in Table 4-2. The enplanement and deplanement peaks occur at different times and are not coincident.

Table 4-2 GSP Peak Hour Passenger Projections

Passenger Type	2003 *	2008	2013	2018	2023	2053
Major Airlines						
Enplanement	146	192	283	417	615	2,458
Deplanement	141	158	237	355	533	2,195
Combined	230	317	475	712	1,066	4,390
Regional Airlines						
Enplanement	258	422	473	530	594	978
Deplanement	217	343	387	436	492	828
Combined	427	686	774	873	984	1,655
Total						
Enplanement	304	528	650	800	984	2,759
Deplanement	250	415	529	675	861	2,508
Combined	428	905	1139	1433	1,803	5,017

* Estimated

Cargo Traffic

Cargo traffic at GSP has had two distinct growth periods. The first growth period was between 1965 and 1992 when the traffic growth trend was 5.1%, comparable to the overall growth rates for North America. Then in 1993, FedEx and Emery introduced all-freight service, which increased the total freight volume by 150% within a year. In the following period from 1993 to 2002, freight traffic grew to reach a peak of 28,645 tons in 1999 and then decreased to 21,997 in 2002.

Historical records and analysis of the 2003 flight schedules for GSP indicate the following statistics:

- Estimated 2003 cargo traffic will reach 21,000 tons
- Estimated average day of the peak month traffic is 61 tons
- Freight carried in bellies is down to 5%, with the remainder carried by Airborne, UPS, FedEx and Emery in DC9s and B727s
- Peak hour traffic was 20 tons, which represents two freighters arriving or leaving in the same hour

As with passenger traffic, three traffic growth scenarios are developed. Their behavior differs mainly in the short-term period.

- The low scenario starts from the volume of 2002 (22,000 tons) and its growth rate increases slowly from 0.5% to 2.5%
- The moderate scenario follows the long-term trend line, growing at its historical rate of 5.1%
- The high scenario is the same as the moderate one, with the introduction of a new all-freight carrier that expands at the rate one new market served each year with a bi-weekly flight

Table 4-3 presents the growth assumptions for each scenario and time period. In the medium and long-term, freight is assumed to keep growing at its historical 5.1% rate. In the low scenario the rate is limited to 3.5%, which is close to the worldwide growth rate of air cargo.

Table 4-3 Cargo Growth Scenarios

Growth Scenario	2004 – 2008 Short-term	2009 – 2023 Mid-term	2024 – 2053 Long-term
Low	0.5-2.5%	3.5%	3.5%
Moderate	5.1%	5.1%	5.1%
High	12.6%	5.1%	5.1%

The Airport Commission selected the moderate growth rate for planning purposes. As may be seen in Figure 4-2, traffic is projected to reach 79,000 tons by 2023 under the selected scenario.

Annual forecasts are converted to peak hour traffic projections based on patterns obtained from the 2003 GSP flight schedule. These projections are presented in Table 4-4.

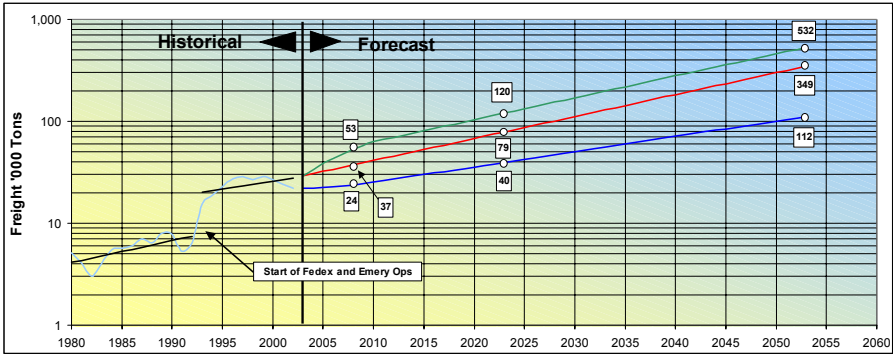


Figure 4-2 GSP Annual Projections for Cargo Traffic

Table 4-4 GSP Peak Hour Cargo Projections (Tons)

Freight Segment	2008	2013	2018	2023	2053
Belly					
Inbound/Outbound	0.6	1.0	1.6	2.6	14.6
Total	1.0	1.6	2.6	4.3	23.8
Freighter					
Inbound/Outbound	31.2	34.1	37.2	40.6	172.6
Total	41.7	47.3	53.7	60.9	258.8
Total					
Inbound/Outbound	31.4	34.4	37.7	41.3	183
Total	43.6	48.7	55.7	63.7	282.4

Aircraft Movements, including General Aviation

Annual passenger and cargo volumes are converted to aircraft movements by considering fleet mix, aircraft configuration, and load factors. These are shown in Table 4-5. Also shown in the same figure are annual general aviation aircraft movements, which are based on the following assumptions:

- Based aircraft are principally corporate aviation using the G/A facilities. For planning purposes, a new tenant is assumed to sign a lease with the fixed-base operator every 5 years. Each of these tenants is assumed to need three covered aircraft parking positions.
- The number of itinerant aircraft that use apron tie-down positions is expected to grow at an annual average of 2.5%. This is equal to

the GDP growth for developed economies as forecasted by Organization for Economic Cooperation and Development.

Table 4-5 GSP Annual Projections for Aircraft Movements

Operation Type	2003 *	2008	2013	2018	2023	2053
Passenger	44,716	84,040	100,627	120,488	144,269	337,955
All Cargo	1,863	3,200	3,810	4,536	5,400	22,000
G/A & Military	16,886	19,200	21,760	24,380	27,180	49,200
Total	63,465	106,440	126,197	149,404	176,849	409,155

* Estimated

Peak hour arrivals and departures are then derived by applying factors obtained from analysis of the GSP 2003 flight schedule. Table 4-6 presents annual and peak hour aircraft movements.

Table 4-6 GSP Peak Hour Projections for Aircraft Movements

Type	2003 *	2008	2013	2018	2023	2053
Non-concurrent						
Major Airlines	3	4	6	8	12	50
Regional Airlines	16	26	29	32	35	59
Freighters	2	4	4	5	5	10
G/A & Military	7	8	9	10	12	18
Concurrent	21	34	39	45	51	107

* Estimated

Section 5

Airfield System

The airfield system consists of runways, taxiways, aprons, and the air traffic control tower and air traffic control radar system.

Figure 5-1 presents the recommended ultimate configuration of the airfield system. Primary facilities include two parallel runways in the 4/22 direction, one cross taxiway pair connecting the two runways, multiple taxiways and taxilanes for aircraft circulation, and aprons to support passenger, general aviation, cargo, and aircraft maintenance facilities.

Runways

Existing land reservations at GSP allow for two parallel runways. Issues of runway capacity and configuration have been addressed to determine when a second runway will be needed, how long each runway should be, and what separation between runways should be used to optimize aircraft operations.

Runway Capacity

A runway demand/capacity analysis was performed to project when the existing runway may reach saturation. Airports are generally permitted to apply for FAA funding for a second runway when the existing runway reaches 60% of its capacity. Another critical issue was the determination of the ultimate GSP airfield capacity so that the airport system could be balanced to optimize capital investment.

Table 5-1 presents the projected runway system capacity and saturation dates for GSP. Peak hour capacities are based on projected fleet mix, distribution of arrivals and departures, and the existing visual flight rule/instrument flight rule (VFR/IFR) conditions. Given the demand projections presented in Section 4, Traffic Projections, for passenger, cargo, and general aviation aircraft movements at GSP, the existing runway is projected to reach 60% of saturation between 2010 and 2015. Ultimate airfield capacity with two runways may be reached between 2040 and 2045.

Table 5-1 Runway Capacity and Saturation (Operations)

	Peak Hour Capacity	Annual Capacity	Saturation Year
One runway	45	156,000	2015 – 2025
Two runways	90	312000	2040 – 2050

Separation Between Runways

Under current FAA regulations, a 4,300-foot runway separation allows independent simultaneous operations under all flight conditions. Given that current site boundaries can accommodate such a separation and additional land is not needed, a 4,300-foot separation is recommended. This separation is sufficient to accommodate all other airport facilities as described in the remainder of this report.

Primary Runway Length

At ultimate development, existing Runway 4/22 will become Runway 4L/22R and will be considered the primary airport runway. This runway’s length is 11,001 feet.

Given the 11,001-foot runway, the operational impacts on aircraft arrivals and departures were determined by using the design flight schedule, and applying such factors as the climate at GSP and the performance of aircraft and their engines.

This analysis determined that the existing 11,001-foot runway length will be able to accommodate, without any restriction, more than 99 % of all aircraft departures and more than 95 % of all cargo departures. The number of cargo operations impacted is considered to be an overstatement considering that the majority of cargo aircraft reach volume capacity before weight capacity.

Commercial factors, in addition to operational adequacy considerations, argue for and support GSP’s 11,001-foot runway. Throughout the US, cargo carriers have invested heavily in airports with runways that are considerably shorter than 11,001 feet.

Secondary Runway Length

At ultimate development, planned Runway 4R/22L will be considered the secondary runway at GSP. With a 4,300-foot separation, the airport currently has land available to build this runway up to a maximum of 8,200 feet in length.

Construction of the secondary runway will be triggered either by capacity constraints of the existing runway or by the decision of the Airport Commission to provide carriers with the added flexibility of simultaneous takeoffs and landings. While a runway longer than 8,200 feet would provide additional operational flexibility, it would result in the following consequences:

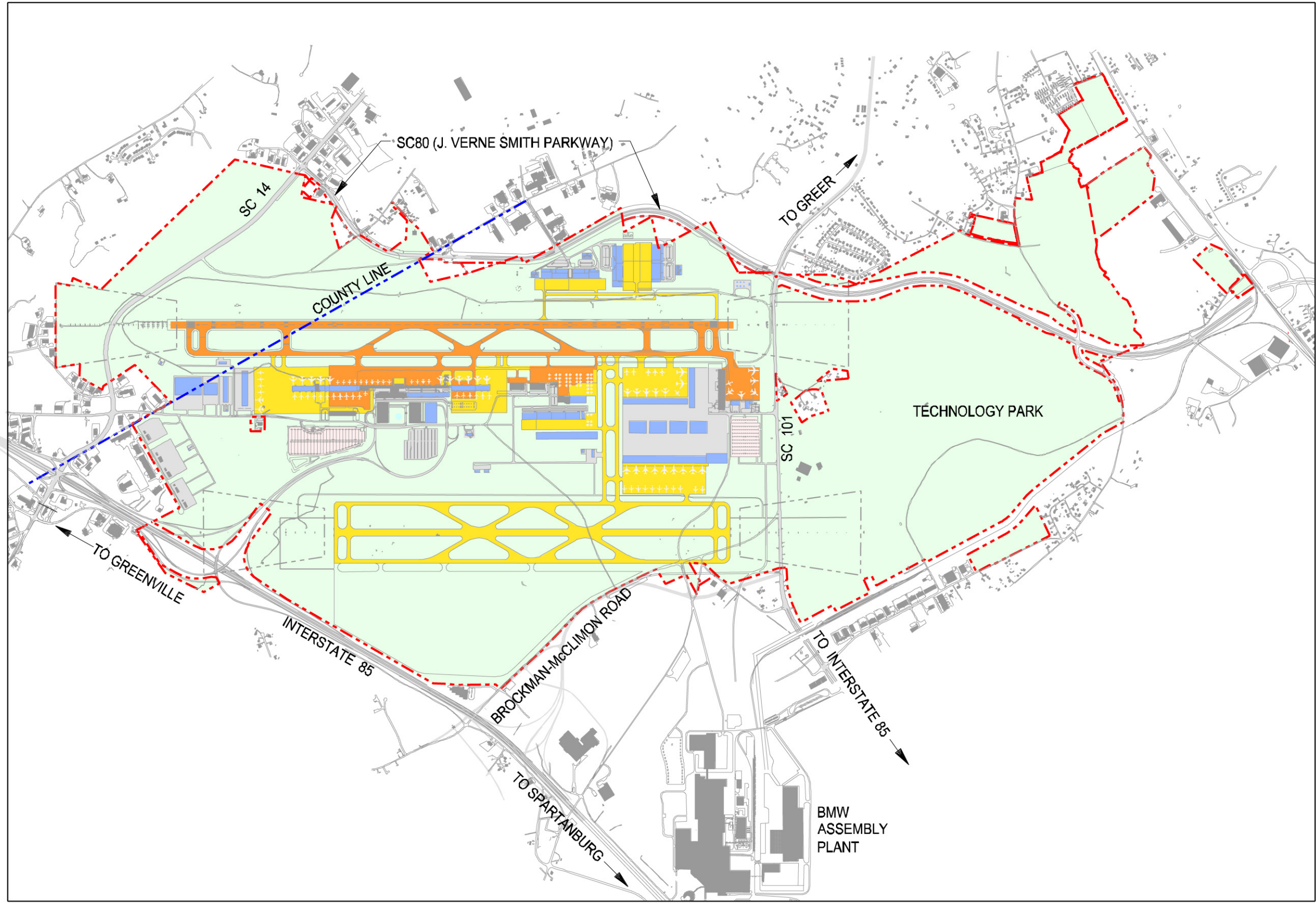
- Higher costs and need for additional land acquisition
- Need to realign Highway SC101
- Significant increase in the off-airport noise profile
- Potential negative community reaction

These issues outweigh the benefit of added flexibility, and it is recommended than an 8,200-foot runway length be adopted for the following scenario:

- For landings, the 8,200-foot runway will be able to accommodate practically all aircraft, thus alleviating pressure on the primary runway.
- For takeoffs, heavier aircraft will be directed to the 11,001-foot runway, while small passenger, commuter, and general aviation aircraft will use both runways.

Taxiways

Figure 5-1 illustrates the taxiing system as planned for ultimate development. Whenever possible, dual taxiways are used and loop systems created to minimize conflicts and provide alternative taxiing routes. Rapid exits, cross taxiways, and aircraft circulation are described below.



FACT SHEET

Runway 4L/22R Length	= 11,001 ft
Runway 4R/22L Length	= 8,200 ft
Passenger Complex Apron	= 4,114,200 ft²
General Aviation Apron	= 1,026,700 ft²
Cargo Apron	= 2,963,200 ft²

LEGEND

- Existing Airfield
- New Airfield

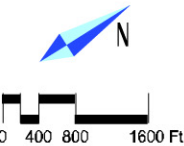


Figure 5-1 Ultimate Airfield Configuration

Rapid Exit Taxiways

To provide adequate capacity and improve runway operations, rapid exit taxiways should be provided for both runways. Runway 4L/22R already has two rapid exit taxiways in each landing direction (north and south) for a total of four rapid exits connecting to its single parallel taxiway. Runway 4R/22L will have at least one parallel taxiway, possibly two. With the first parallel taxiway built to the west, two rapid exit taxiways will be provided in each landing direction (north and south) for a total of four rapid exits. If a second parallel taxiway is built to the east of the runway, a similar configuration of four rapid exits will be provided.

Cross Taxiways

To provide access between the primary and secondary runways, two alternatives for cross taxiways were considered: a single pair of cross taxiways (see Figure 5-2) on the north side or dual pairs on each end. Based on an analysis of impact on aircraft delay, a single pair of cross taxiways is recommended. Only a slight reduction in taxiing delay was achieved when a second pair of cross taxiways were used, as shown in Table 5-2. Such an improvement is not economically justified, especially given the additional capital cost and the need to significantly reconfigure the airport entrance road. At peak period, a 3-minute taxiing departure delay is considered acceptable by the aviation industry standards.

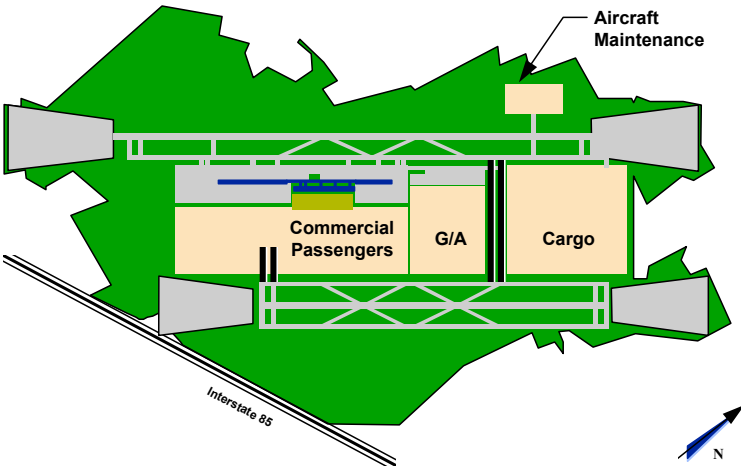


Figure 5-2 Cross Taxiway Alternatives
Table 5-2 Cross Taxiway Impact on Aircraft Delay

	Average Taxiing Delay (minutes)	
	Single Pair	Dual Pair
Arrivals	0.05	0.11
Departures	2.67	1.52

Taxiing Patterns

Figure 5-3 depicts the suggested aircraft circulation routes to accommodate the runway operational scenario during the peak hour of the ultimate development.

During off-peak hours, the air traffic control tower will likely permit aircraft to use circulation patterns that minimize taxiing times and distances.

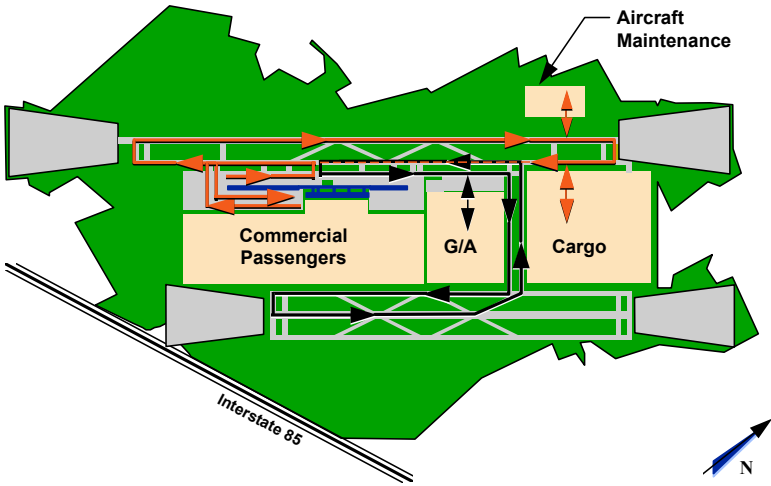


Figure 5-3 Aircraft Circulation during Peak Hour

Aprons

There are a number of aprons at GSP, most of which are located in the midfield area. For passenger operations, a single apron surrounds the concourse building, providing 43 jet gates and six hardstands. On the west side of the concourse, a single Group IV apron edge taxiway provides

circulation on the apron, while on the east side, Group III taxilanes provide access to gates. The total apron area is approximately 4.1 million square feet.

At ultimate development, two general aviation aprons will be provided. The existing apron adjacent to Runway 4L/22R will be maintained and expanded. A new apron will be built to the east of the existing G/A complex. Total G/A apron area will be approximately one million square feet.

Two cargo aprons will be located in the north area of the Midfield Zone, one adjacent to Runway 4L/22R and one adjacent to Runway 4R/22L. A single Group IV taxilane is provided for circulation on the aprons. Each apron is approximately 3 million square feet in area.

An aircraft maintenance apron, sized to accommodate B747s, is located west of the northern end of Runway 4L/22R in the north area of the West Zone. The total apron area, including the run-up pad, is 548,000 ft².

Air Traffic Control Tower

The existing air traffic control tower (ATCT) will be adequate for GSP with a one-runway operation. At the time a second runway is built, a new ATCT will be needed in order to satisfy line-of-sight requirements for controllers.

A location has been identified and land reserved for a new ATCT. A site central to the two runways is located east of the G/A complex and north of the long-term lot. The height and detailed layout of the tower will be the subject of a future study.

Air Traffic Control Radar

The FAA provides and operates air traffic surveillance radar at GSP. This radar is used to monitor and control traffic at GSP and also at other airports within approximately 50 miles of GSP.

The FAA proposes to replace GSP’s existing ASR-8 radar with an upgraded ASR-11. Because the existing ASR-8 site will be displaced when GSP’s second runway is constructed in the future, the new

radar will be installed on a different site that is compatible with the airport master plan.

The FAA has conducted a study of potential locations for the new ASR-11 and has concluded that two locations meet the official criteria of the National Airspace System plan. One of these potential locations is in the east portion of the airport, near Interstate 85 and Brockman-McClimon Road. A radar at this location, however, would adversely impact the optimum commercial or industrial development of this part of the airport east of the future second runway. The second potential location for the new radar is west of the existing runway, on the west side of the new SC80 (J. Verne Smith Parkway). Because this second potential location will not adversely affect any airport development, this location is designated as the site for the future ASR-11 radar.

Section 6

Passenger System

The passenger system occupies most of the central and south area of the Midfield Zone, as delineated in Section 3, Development Concept. The system consists of the concourse, the aprons around the concourse, the terminal, and the bridges connecting the concourse to the terminal.

The existing terminal is a single story, double-height 90,000-square-foot complex with ticketing and commercial space at the north end, and baggage claim and rental car counters at the south end. The Airport Commission has decided to retain the single-story design rather than use multiple levels to separate arrivals and departures.

The airport has 13 jet gates located in a two story, 150,000-square-foot concourse complex; airline support facilities are located at the apron level and passenger arrivals and departures are located on the second level. There are 9 operational gates with loading bridges in a single-sided concourse configuration, which can accommodate a variety of Group II and Group III aircraft. (However, the gate spacing requires closing an adjacent gate when parking large Group III aircraft.) Four additional gates, located in a double-sided concourse at the south end, are built but do not have loading bridges. These can accommodate three Group III aircraft and two Group II aircraft.

To accommodate the projected growth in passenger traffic at GSP while preserving the high standard of service, the following specific planning parameters were addressed:

- Utilize the efficiency of double-sided concourses
- Minimize aircraft taxiing distances and provide efficient aircraft circulation
- Minimize passenger walking distances and provide clear orientation for passenger movement in the terminal and concourse buildings
- Provide an efficient curb area in front of the terminal building

- Provide convenient parking
- Maintain the attractive entrance to the airport
- Phase facility expansions in an orderly manner to minimize cost
- Minimize topographical impact from facility expansion

Forecasts

As detailed in Section 4, Traffic Projections, GSP is projected to serve over 16 million passengers annually within the next 50 years, according to the moderate growth scenario.

Facility Requirements

Ultimate passenger system facility requirements are driven by the ultimate capacity of the airfield to accommodate aircraft operations, which, in turn, determine the required number of gates. At ultimate capacity, GSP will require 43 contact gates and 6 contingent hardstands to accommodate the projected mix of aircraft.

Tables 6-1 and 6-2 summarize the passenger system facility requirements. Using a double-sided concourse design for expansion, 700,000 square feet are required for ultimate development hold rooms, concessions, and other amenities. The surrounding apron will require in excess of 4 million square feet of pavement. The terminal building will require 150,000 square feet for ticketing, baggage claim, car rental, passenger amenities, and 2,300 linear feet of curb frontage. Four bridges are required to connect the terminal building to the concourse.

Table 6-1 Aircraft Parking Facility Requirements

Aircraft Mix	Gates	Hardstands
Large aircraft mix option	43	6
Small aircraft mix option	60	12

Table 6-2 Ultimate Building Facility Requirements

Building	Area (SF)
Concourse	700,000
Terminal	150,000
Connectors	28,300
Total	878,000

Recommended Passenger System Layout

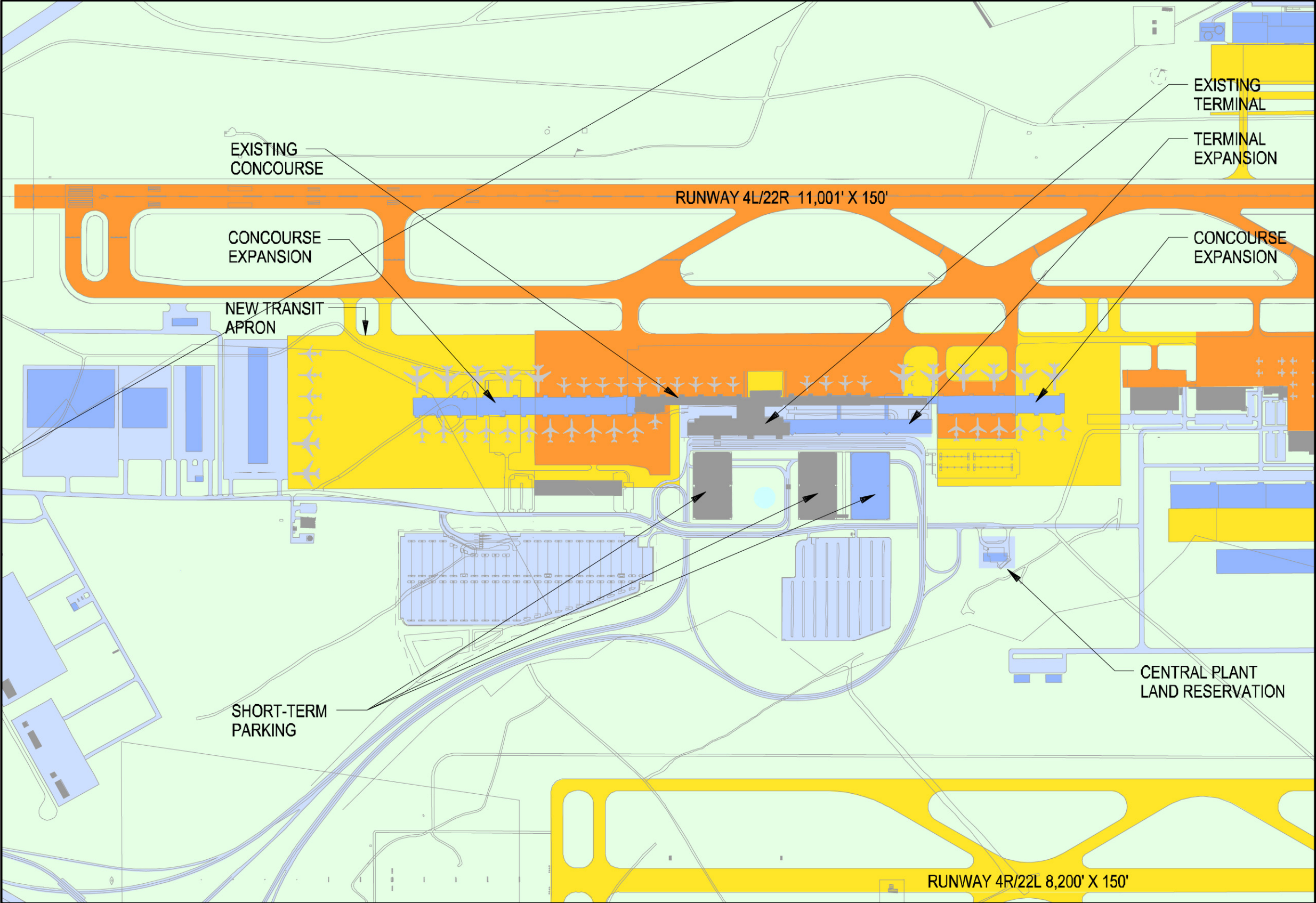
Figure 6-1 presents the recommended passenger system concept.

Concourse

The concourse has been expanded in a linear configuration in both the north and south directions. Expansion to the north is limited by the general aviation system whereas expansion to the south is limited only by the ultimate facility requirements of the passenger system. Expanding in both directions adds balance to the gates relative to the terminal; it not only minimizes walking distances for passengers, but also minimizes taxiing distances for aircraft assigned to use runway 4R/22L.

The linear configuration is very user-friendly in that passengers are always well oriented within the building. Walking distances are relatively short for a linear configuration because the airport is primarily an origin/destination facility, where critical distances are between curb and gates rather than between gates. Where walking distances within the concourse exceed 1,000 feet, moving walkways will be provided.

The north expansion provides for an additional 12 gates consisting of six Group IV aircraft on the west side and six Group III aircraft on the east side. The first gate in the concourse expansion to the north is a single-sided configuration that provides space for the northern expansion of the terminal. The remaining 11 north gates use a double-sided configuration.



FACT SHEET

- Apron Size: 4,114,200 ft²
- Net New Apron Size: 3,109,900 ft²
- Jet Gates: 43
- Terminal: 150,000 ft²
- Concourse: 700,000 ft²
- Ramp Towers: 2
- Structured Parking: 4,500 stalls
- Surface Parking: 3,300 stalls

LEGEND

- Existing Airfield
- New Airfield
- Existing Structures
- New Structures

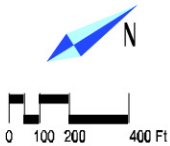


Figure 6-1 Ultimate Passenger Terminal Configuration

The south expansion provides for an additional 18 gates consisting of five Group IV aircraft and three Group II aircraft on the west side and ten Group III aircraft on the east side. All gates utilize a double-sided configuration. Rooftop ramp control towers are positioned at the north and south ends of the concourse to coordinate aircraft circulation at the gates.

The concourse width is related to the size of the aircraft served at the gates: Group III and Group IV aircraft carry more passengers and thus require larger departure lounges. Double-sided concourses must provide for departure lounges on each side, and the circulation space must accommodate the increased passenger traffic. Consequently, smaller Group II aircraft have been assigned to the existing single-sided concourse section, and the larger Group IV and Group III aircraft have been assigned to the expanded double-sided concourse section.

As depicted in Figure 6-2, the concourse width at the double-sided gates is 110 feet, which accommodates 30-foot-wide departure lounges along the exterior walls and two 20-foot-wide circulation halls on the interior. A 10-foot-wide space in the center of the circulation hall has been reserved for moving walkways. Concession space and passenger amenities (such as toilets and telephones) are located along the exterior walls between departure lounges.

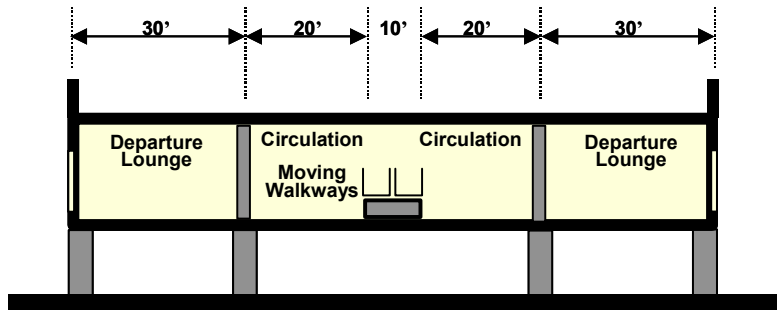


Figure 6-2 Cross Section of Double-Sided Concourse

Great care has been taken in developing the implementation and phasing of this concept. Expanding the concourse first to the north in two phases, with the 12 new gates, will meet demand through the ultimate capacity of the existing runway and defer relocation of existing belly cargo building and facilities maintenance buildings. Because the northern expansion area is already level, earthwork will be minimal. Moreover, in order to defer construction of the new

control tower and fire stations until construction of the second runway, the airport can retain the existing location of these facilities by opting to delay opening one of the 12 new gates.

Expansion to the south will begin after construction of the second runway, and will continue incrementally with the construction of five or six gates at a time. Because construction will occur at the end of the concourse during each expansion, construction integration will be relatively easy and the impact on the current operation of the airport will be minor. Earthwork requirements are relatively minor at the south end of the existing concourse but become more of an issue farther south as the concourse expands across a gently falling terrain.

Figure 6-3 presents cross sections through the passenger system and illustrates the apron configuration. Expansion of the west side apron is possible only to the north and south; separation for the high-speed taxiway serving Runway 4L/22R precludes increasing its width to the west. The present width allows parking for Group IV aircraft at the west gates with a single apron-edge taxilane capable of accommodating Group IV aircraft. Therefore, as mentioned in Section 5, Airfield System, circulation on the apron edge will be one way during peak hours and must be coordinated by the control tower with traffic opposite direction on the high-speed taxiway. Aprons on the east side of the concourse have dual taxilanes to accommodate the Group III aircraft and increase circulation efficiency. Restricting Group IV aircraft from the east gates considerably reduces apron paving requirements relative to parking and taxilane widths.

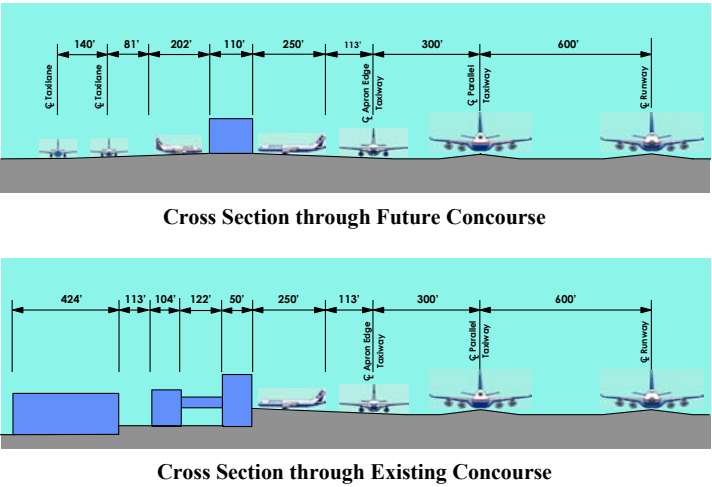


Figure 6-3 Passenger System Cross Sections

Since expansion on the north will dislocate the existing transit apron, the apron at the south end of the concourse can be extended incrementally to accommodate transit aircraft. As the concourse is expanded to the south, a new transit apron is paved forward of the next concourse expansion. The south end of the apron has been reserved for the six contingent hardstands and new transit aircraft at ultimate development. The outside taxilane adjacent to this section of the apron can accommodate Group V aircraft.

Terminal

The terminal has been expanded in a linear configuration to parallel the expansion of the concourse. Expansion occurs to the north to provide balance between the north and south concourse gates and to minimize closing existing aircraft gates or limiting construction of new ones. The unique design elements of the terminal, which were reinforced by the 1989 expansion, allow expansion to occur in modules. An additional three modules, each approximately 300 feet long, may be required.

At the ultimate development, it is recommended that ticketing and baggage claim operations be separated and placed at opposite ends of the terminal. Departure activities (such as ticketing, baggage make-up, retail banking, and air travel services) will occur at the north end, supported by a north end vehicular approach to the departure curb and the proximity of two short-term parking garages. Arrival activities (such as baggage claim, rental car counters, hotel, and limousine service stands) will occur at the south end, supported by the existing baggage claim equipment and the consolidation of the rental car pickup and return in the southernmost parking garage.

The 1997 master plan did not consider the interior function of the terminal, but this update has addressed several such issues, as follows:

Departure Facilities

Self-service Ticketing. The use of E-ticketing and self-service kiosks is quickly becoming a basic requirement for airlines and represents a significant cost savings for airlines over previous ticketing procedures. At GSP, some self-service kiosks have been installed on the wall opposite the counters. However, several airlines have requested installation of self-service equipment in the counters

themselves. As a result, it is recommended that the airport prepare a design standard to accommodate the installation of this equipment. The standard would provide uniformity of appearance and an integrated look to the counters. Once the standard is agreed, it is further recommended that GSP complete the renovation of the existing ticketing counters by installing self-service equipment as requested by the airlines. Conversion to self-service ticketing will also provide some additional capacity since a larger number of counters can be accommodated in the same space and the average time required to process passengers with self-service is decreased. This will extend the life of the existing ticketing lobby and the time until expansion would be required. Figure 6-4 shows the existing counters and an example of a self-service installation.



Figure 6-4 Existing Ticket Lobby and E-ticket Kiosks

Checked Baggage Security. The current bag screening process by the Transportation Security Administration (TSA) includes the use of explosive trace detection (ETD) equipment. The TSA operation is located in the bag make-up area behind the ticketing counter area. Since the TSA operation has been added to an area that was not designed to accommodate the equipment and personnel required, the area is congested at peak periods and access by tugs and bag carts is adversely affected. It is also anticipated that, at some point, the TSA will move from ETD to explosive detection systems (EDS) that require far more space to accommodate.

As traffic at GSP increases or the TSA shifts to EDS, it will be necessary to mitigate the existing space constraints. After reviewing options, it is recommended that operational changes be implemented to locate tugs and carts in the access road for loading and provide roller conveyors (non-mechanized) to tie the TSA processing to this

new location. Since the access road is already covered by a protective roof, all-weather protection will be provided to the loading operation. (see Figure 6-5).



Figure 6-5 Baggage Security Area Enhancement

Passenger Security Check. The current passenger security processing areas operated by the TSA are located in the two wings of the concourse. Each processing area has one channel consisting of an X-ray and a magnetometer. As passenger growth occurs, there is sufficient space in both areas to add a second channel and thereby double the processing capacity of the security areas. In the next 5 years, it will not be necessary to add capacity; however, the forecast suggests that growth will justify expansion in later development.

Concessions. Analysis of retail, and food and beverage revenues at GSP indicates that the airport is below the average returns achieved at airports of a similar size. There is some deficit on landside, but the greatest deficiency is on airside. This airside deficit is exaggerated by the fact that the post 9-11 shift to tighter security is driving people to spend more time airside after passing through security. To enhance customer service and increase revenues, it is recommended that additional retail and F&B be added at the airside A and B concourse levels adjacent to the escalators and in strategic locations adjacent to holding lounges.(see Figure 6-6). This would provide greater choice for passengers, added food options, and greater revenue for the airport. The existing landside art display area could be converted to concession use and the art area moved to another location in the terminal.

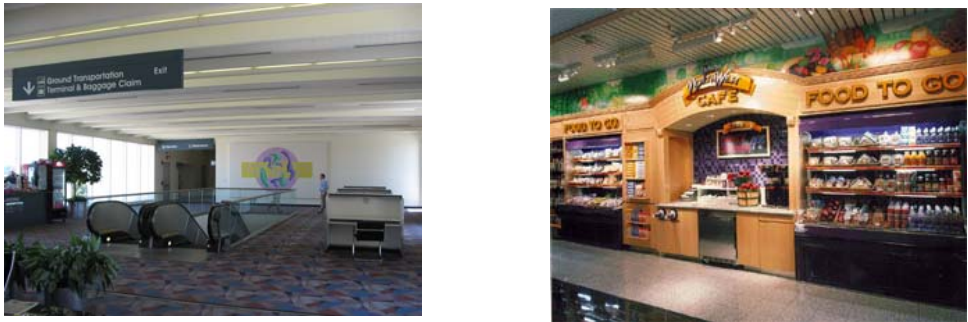


Figure 6-6 Location for Added Concessions at Concourses

For long-term expansion of concessions, a more ambitious plan includes enclosing the space between Concourses A and B to provide an area for additional concessions and a food court (see Figure 6-7). The feasibility of this option would be considered in the future as part of a retail market study defining the specific mix of facilities and cost-benefit advantages.

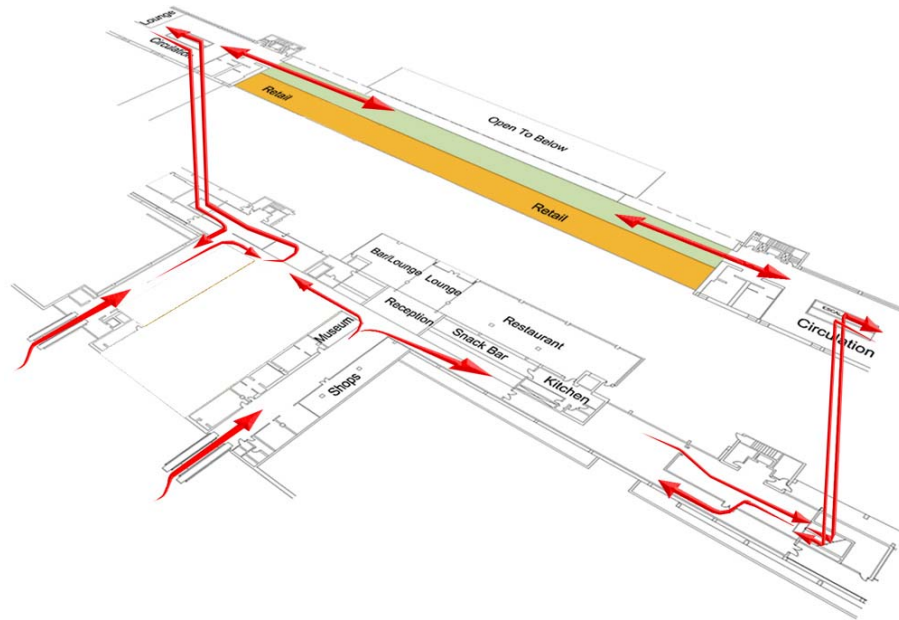


Figure 6-7: Long-term Concession Expansion

Arrival Facilities

Baggage Claim. The existing baggage claim area has two carousels and sufficient space to add a third. This will provide sufficient capacity expansion to handle long-term needs at the airport.

Rental Car Counters. The existing rental car counters are located in the arrivals area. Sufficient space will be provided to accommodate additional counters if necessary. The current procedure whereby the paperwork is executed at the counters and the rental cars are delivered to the ready car parking area, located on the lower level of garage A, should be continued for the foreseeable future.

Connecting Bridges

A minimum of four bridges connecting the terminal to the concourse will be required for ultimate expansion. Bridges are approximately 50 feet wide and span the 122 feet across the baggage service road behind the terminal. A central circulation width of 18 feet has the capacity to accommodate in excess of 550 persons per minute. Sixteen feet on either side of the bridges have been reserved for concessions and passenger amenities.

Section 7

General Aviation System

The general aviation system is located in the center of the Midfield Zone, as delineated in Section 3, Development Concept. Its boundaries are defined by the limits of the passenger system to the south and the cargo system to the north. The system includes terminal buildings, apron for terminal staging, hangars, apron for hangar aircraft pullout, and apron for aircraft tie-down parking.

General aviation operations are conducted by a single fixed-base operator (FBO). The FBO provides aircraft storage, maintenance, and fueling services. In 2003, the FBO has as many as 26-based aircraft at their GSP facilities.

At present, GSP serves primarily the corporate aviation clientele. The following planning parameters were addressed relative to continuing to serve this niche of the general aviation market:

- Provide hangar space for all fixed-based aircraft
- Minimize aircraft taxiing distances
- Utilize existing facilities
- Provide flexibility for multiple fixed-based operators
- Centralize vehicle parking.
- Work with existing topography

Forecasts

Section 4, Traffic Projections, explains the rationale for projecting growth of fixed-base aircraft and itinerant aircraft for general aviation at GSP. As shown in Tables 4-5 and 4-6, annual general aviation and military movements may reach 49,200 operations by 2053. Peak hour movements are projected to be 18.

Facility Requirements

Table 7-1 summarizes the general aviation facility requirements based on the projections above. At ultimate capacity, the general aviation system will require 60 covered positions in approximately 258,000 square feet of hangar space, 30 outside tie-down positions, 12 staging positions, and more than 1,000,000 square feet of apron paving. Area for a second terminal has also been provided. Because the growth of general aviation traffic is not as predictable as commercial passenger traffic, land has been reserved for additional hangars, support facilities (e.g., maintenance hangar, paint hangars, parts warehouse, etc.), and attendant aprons.

Table 7-1 Aircraft Parking Position Facility Requirements

	Hangar Positions	Tie-Downs	Staging
Group I			
Jets	18	-	-
Turboprops	36	30	-
Group II	<u>6</u>	<u>-</u>	<u>12</u>
Total	60	30	12

Recommended General Aviation Layout

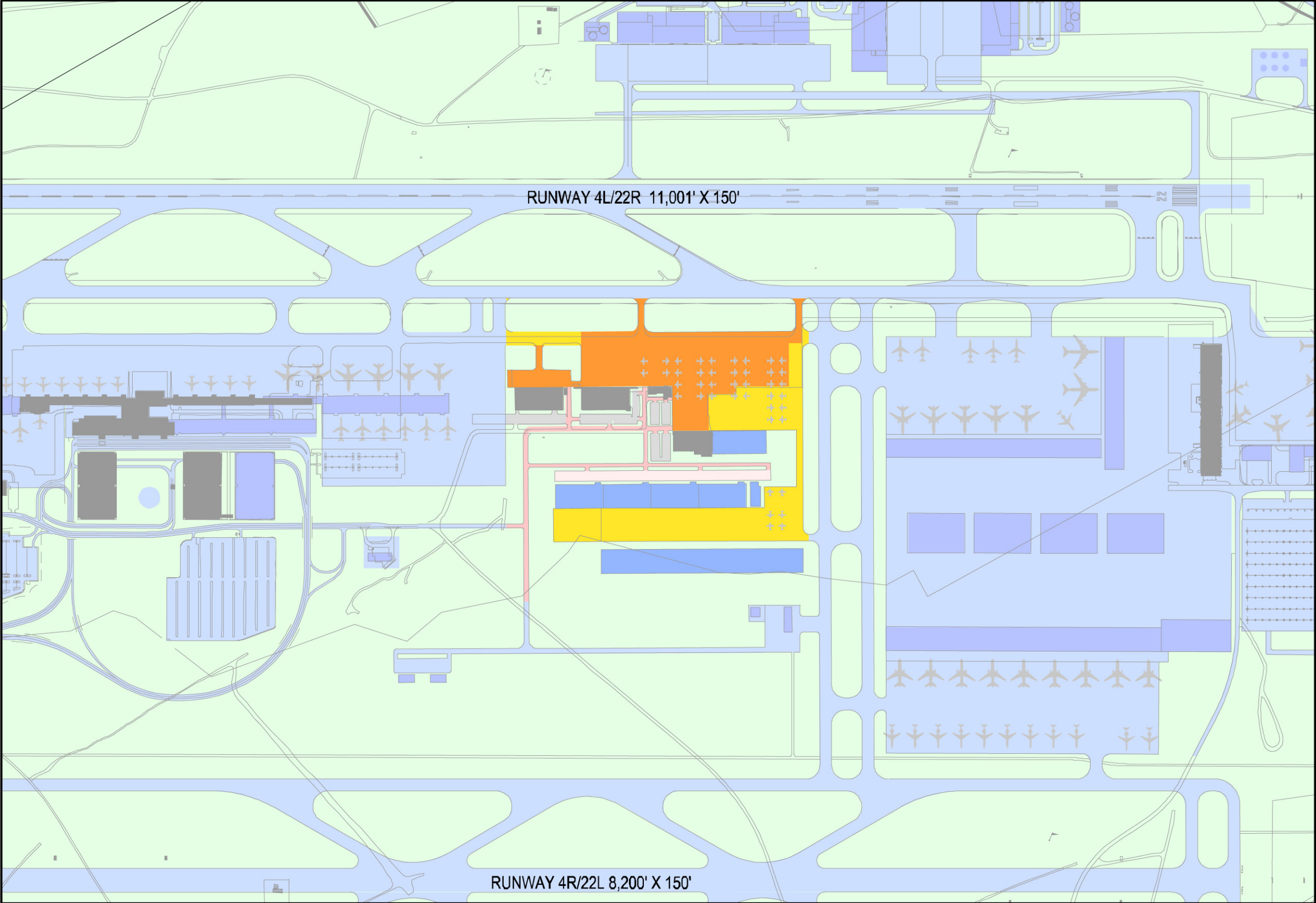
Two general aviation system concepts were considered and evaluated. Figure 7-1 presents the recommended concept at ultimate capacity.

Additional hangar space and apron area are initially provided adjacent to the existing north hangar by filling in the undeveloped area up to the setback line for the cross taxiway. The additional 50,000 square feet of hangar space will accommodate approximately 14 covered positions for the maximum-sized Group I aircraft, and the apron infill will accommodate all required tie-down positions. Six staging positions in front of the existing terminal have been provided for loading and unloading passengers. Because the airfield system uses the apron edge as a primary taxilane for aircraft circulation, the existing tie-down spaces and staging area have been reconfigured. These facilities will serve the general aviation requirements through the ultimate capacity of the existing runway.

Expansion for the ultimate development of the general aviation system is constrained by the passenger system to the south, the airfield system to the west, and the cargo system to the north. Consequently, expansion must occur to the east. In order to create a core of building facilities and centralize vehicle parking, expansion to the east will mirror the existing condition. Hangars will be constructed in a linear configuration parallel to the runways with a new apron area for hangar aircraft pullout on the east side. In order to maintain maximum flexibility for future growth scenarios, a second fixed-base operator terminal will be located at the north end of the apron with a staging apron for six aircraft on the north side. The new apron connects to the existing general aviation area via a Group II-rated taxiway that is parallel to the cross taxiways.

Aprons on both the east and west have apron-edge taxilanes that can accommodate Group II aircraft. The east apron connects directly to the taxilane and high-speed taxiway for Runway 3L/21R, and the west apron connects to the counterpoint of the cross taxiways. These direct access points decrease taxiing distances and improve circulation within the general aviation system.

The east side and south end of the east apron have been reserved for additional hangars, support facilities (e.g., maintenance hangar, paint hangars, parts warehouse, etc.), and attendant aprons, as mentioned above.



FACT SHEET

- Apron Size: 1,026,700 ft²
- Net New Apron Size: 502,700 ft²
- Staging Stands: 12
- Transit Stands: 30
- Fixed Based Operators: 2
- Hangar: 257,700 ft²
- Surface Parking: 625 stalls

LEGEND

- Existing Airfield
- New Airfield
- Existing Structures
- New Structures
- Existing Parking
- New Parking

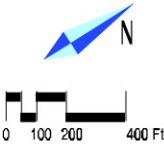


Figure 7-1 Ultimate General Aviation Configuration

Section 8

Cargo System

As described in Section 3, Development Concept, GSP is envisioned as a cargo distribution center for the Upstate of South Carolina. The double-digit growth in air cargo throughput at GSP in the 1990s attests to the need for the airport to fulfill such a role. Hence, the scale of the cargo operation is likely to experience growth, both in the near and long term.

There are two types of cargo operations at GSP: airline belly cargo and air courier services. The belly cargo operations are handled at one facility located southeast of the passenger terminal (see Figure 2-1) while a second cargo facility for dedicated air courier operations has been developed at the north end of the airport. As mentioned in Section 2, Existing Setting, this 325,000-square-foot apron, with 126,400 square feet of adjacent paving for staging, was constructed as part of the arrangement that brought the BMW assembly plant to the Upstate. Although the apron was designed to accommodate two B747s carrying assemblies for BMW, these trans-Atlantic shipments have not yet materialized and the apron is being partly utilized by FedEx for its operations.

Figure 8-1 presents the location for the belly cargo and air courier facilities based on the requirements of each operation.

Forecasts

Traffic projections presented in Section 4 indicate that GSP may handle 532,000 tons annually by 2053. Table 8-1 presents the distribution between all cargo freight and belly cargo based on an 85 percent to 15 percent distribution.

Table 8-1 Cargo Ultimate Development Annual Demand	
Cargo Type	Annual Demand (tons)
Air cargo freight	452,000
Belly cargo	80,000
Total	532,000

Belly Cargo Facility

The belly cargo facility will have to be near the passenger terminal. These facilities will consist of an airside staging area, building facilities, landside staging area, and employee parking. Dedicated aprons will not be needed since the cargo will be moved by tugs from the aircraft parked in front of the passenger concourse building.

Facility Requirements

The development plan calls for sufficient land for a 95,000-square-foot building and the corresponding airside staging area, building facilities, landside staging, and employee parking (see Figure 8-1).

Recommended Layout

The existing belly cargo building will remain in place until the terminal expands towards the south (see Figures 2-1 and 12-3). At that point, the facility will be relocated further south, immediately west of the southern concourse and along GSP Drive. The cargo terminal building will be configured parallel to the apron; tugs will be used to move cargo containers from the aircraft bellies to a staging area in front of the terminal.

Air Courier Facilities

Air courier facilities include aircraft aprons, building facilities, landside staging, and employee parking. Because air courier operations rarely require interaction with the passenger terminal, a remote location is preferred where commercial and private vehicular traffic will not interfere with cargo traffic.

In selecting a preferred long-term layout, several near- and long-term issues have been addressed. The north apron area provides excellent airside facilities for cargo aircraft, but it lacks building space needed to support landside operations. Air courier facilities layout should provide the following:

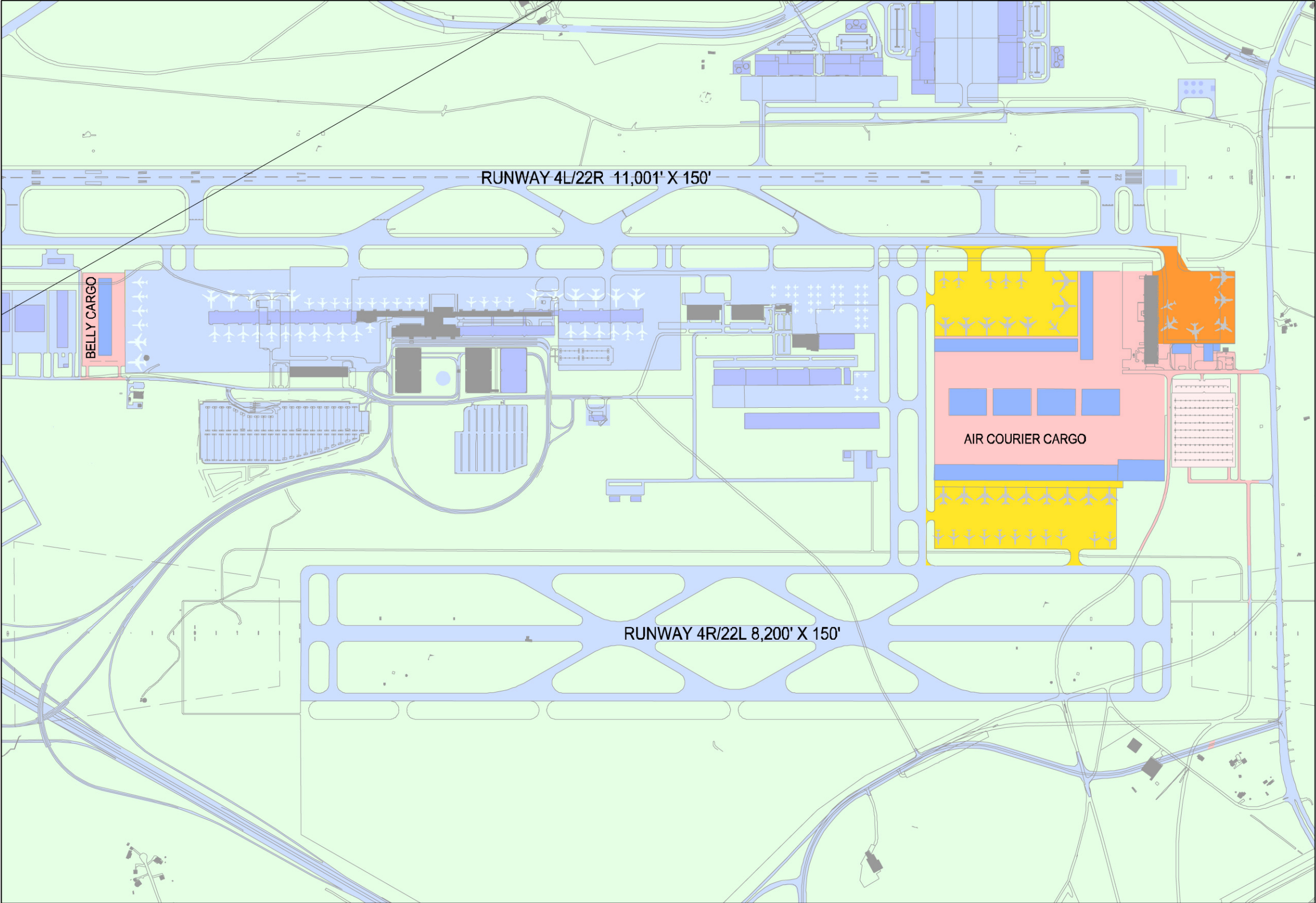
- Contiguous areas for major courier operations
- Layout aprons to accommodate various fleet mixes

- Separate truck and passenger vehicle entrances
- Centralized employee parking

Facility Requirements

FedEx has built a “3K” facility (expandable to “6K”) capable of processing 3000 package per hour at the courier cargo area. Long-term cargo facility requirements are based on the projected need for as many as 44 aircraft parking positions at ultimate development, should FedEx and other integrated carriers expand into major processing hubs. Table 8-2 shows the long-term aircraft parking needs; building area, landside staging, and employee parking that would be required to support these aircraft numbers. .

Table 8-2 Courier Ultimate Facility Requirements				
Carrier	Aircraft Parking	Building Area (sf)	Landside Staging (sf)	Parking (Stalls)
Airborne	11	220,000	330,000	225
Emery	10	140,000	210,000	143
FedEx	11	330,000	550,000	338
UPS	11	30,000	150,000	31
Other	11	275,000	410,000	281
Total	44 (concurrent)	995,000	1,650,000	1,018



FACT SHEET

AIR COURIER	
• Apron Size:	2,963,200 ft ²
• Net New Apron Size:	2,537,200 ft ²
• Hardstands:	44
• Building Area:	852,400 ft ²
• Staging Area:	1,839,600 ft ²
• Surface Parking	1,000 stalls

BELLY CARGO	
• Building Area:	90,000 ft ²
• Staging Area:	227,100 ft ²

LEGEND

	Existing Airfield
	New Airfield
	Existing Structures
	New Structures
	New Parking
	Staging Area

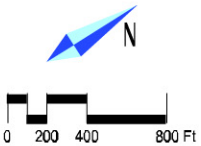


Figure 8-1 Ultimate Cargo Facilities Configuration

Recommended Layout

Without the specific contractual agreements with the airport, the strategy behind the development of the cargo system has been to provide a concept that provides flexible solutions while mitigating the uncertainty of specific courier facility requirements.

As presented in Figure 8-2, the ultimate layout of the courier facilities follows the development framework set by the construction of the FedEx facility, with expansion likely to occur to the west of the FedEx base, as described below.

- The existing north cargo apron will be expanded south to the cross taxiways to provide a contiguous cargo area parallel to the existing runway and spanning the full width of the cargo zone. A total of 25 Group III and Group IV aircraft can park on the perimeter of the apron. A single, one-way taxilane runs through the middle of the apron and can accommodate Group IV aircraft. Parking for two Group V aircraft is located on the north end of the apron with circulation limited to the northernmost throat.

When the second runway becomes available, a new apron will be located adjacent to, and parallel with, the second runway and will be similarly configured to park 18 Group III and IV aircraft.

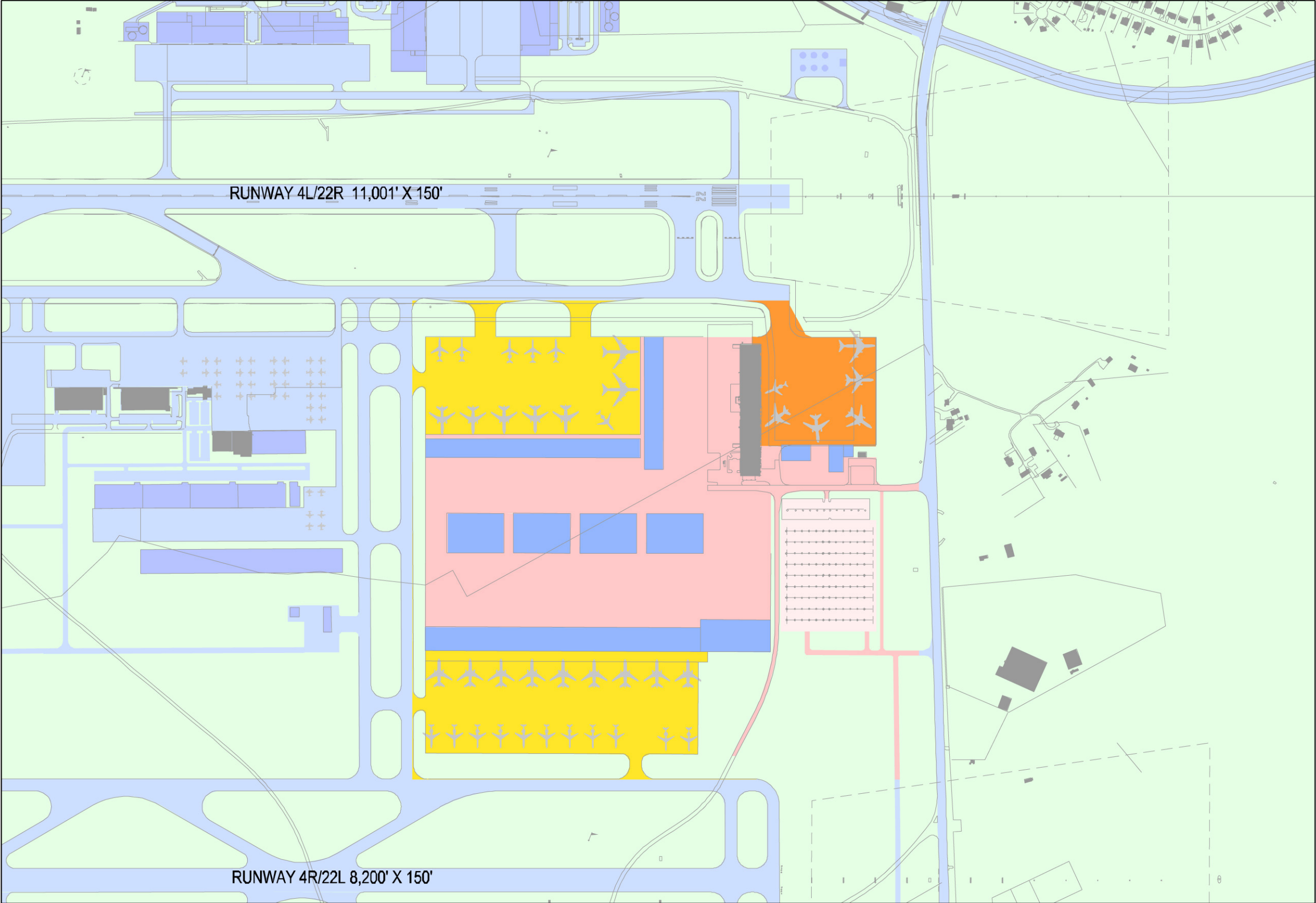
This arrangement was adopted by the Airport Commission because it offers a contiguous apron area, very efficient aircraft circulation, direct access to taxiways and cross taxiways, and relatively moderate taxiing distances.

- Buildings could be located either parallel or perpendicular to the apron, depending on courier requirements. Since Airborne (existing operator at GSP) prefers the perpendicular building arrangement, the recommended layout shows the site adjacent to the existing apron with the length of their building perpendicular to the apron edge.
- Landside staging occurs between the two parallel aprons with the center of the staging area reserved for freight forwarders and other businesses that need to be located in the cargo zone but do not require apron frontage. The shared staging area provides economies of space as couriers can cross-utilize staging area during non-concurrent peak operations. The central staging area

also makes truck circulation very efficient as turns are minimized and entry and exit controlled at one point.

- Employee parking is centralized next to SC101 outside of the staging area. Centralized employee parking has three distinct advantages: first, like the staging area, combining the parking for multiple operations having non-concurrent peak hours reduces total stall requirements; second, centralizing the parking, moving it outside of the staging area, and giving it separate access to SC101 improves traffic circulation and decreases congestion; and third, separating employee parking from the staging area improves the ability to monitor and control the movement of goods in the cargo zone.

The recommended layout offers the best solution to phasing and the need to balance current airside capacity with landside expansion. Building construction will begin on the east edge of the existing apron and perpendicular to the southeast corner. Apron expansion will follow to the south of the existing apron and parallel to Runway 4L/22R. The capacity of this apron will serve all projected cargo well after construction of the second runway. Construction of the second cargo apron on the east side of the cargo zone will coincide with the construction of the second runway, 4R/22L.



FACT SHEET

- Apron Size: 2,963,200 ft²
- Net New Apron Size: 2,537,200 ft²
- Hardstands: 44
- Building Area: 852,400 ft²
- Staging Area: 1,839,600 ft²
- Surface Parking 1,000 stalls

LEGEND

-  Existing Airfield
-  New Airfield
-  Existing Structures
-  New Structures
-  New Parking
-  Landside Staging

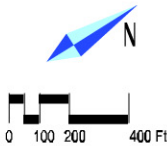


Figure 8-2 Ultimate Air Courier Facilities

Section 9

Support Facilities System

Airport and airline support facilities are critical to safe and efficient operations. As GSP grows, so does the need for new larger support facilities. These include aircraft rescue and fire-fighting (ARFF), ground service equipment (GSE) maintenance, facility maintenance, catering facility, meteorological facility, central utility plant, service station, rental car service area, administration building, police station, triturator, and fuel farm.

As described in Section 3, Development Concept, support facilities are located in Midfield and West Zones. The Midfield Zone will accommodate the majority of the support facilities along GSP Drive. Figure 9-1 presents the recommended locations for each facility at ultimate development of GSP. Site layout and configurations are based on experience and on the following objectives:

- Maximize use of existing facilities to minimize new investment
- Optimize operational efficiency by considering facility inter-relationships and adjacency requirements
- Locate facilities appropriately for airside and landside access
- Minimize the number of airside access points by grouping airside facilities together

The following provides a general description of each facility. More detailed conceptual engineering studies will be required in the future to determine facility requirements, site layouts, and facility configurations.

Airport Rescue and Fire-fighting Facilities

Airport rescue and fire-fighting (ARFF) facilities consist of a fire station (bays and offices), airside staging area, landside staging area, employee parking, and access roads. Two ARFF facilities are planned for the ultimate development, each with a land area of

approximately 65,000 square feet. The first will be located east of Runway 4L threshold and south of the passenger apron. A second facility will be located east of the general aviation complex. The development of these facilities will be staged as follows:

- The existing airport rescue fire-fighting station is located at the north end of the existing concourse next to the control tower. This facility will remain in service until the expansion of the concourse in the northern direction (beyond 13 gates) begins. Replacement will then become necessary to accommodate movement of aircraft along the apron edge taxiway.
- A replacement ARFF facility will be located east of Runway 4L threshold in the Midfield Zone. This facility is within a 3-minute response time of all points on the airfield and all buildings.
- When the future east runway becomes operational, a second ARFF facility will be needed. The ideal location is in the center of the Midfield Zone, where access to all facilities is optimized. The southern ARFF station will become the auxiliary facility and will continue to serve Runway 4L/22R and adjacent facilities.

GSE Maintenance Facilities

Routine and major maintenance of airline ground service equipment will be conducted in this complex. Facilities include maintenance shop, paint shop, parts and storage, staging, and administration areas.

This facility will be located in the Midfield Zone along GSP Drive. Access to the airside is from the east via the passenger apron.

For the ultimate development, 200,000 square feet of land will be reserved to support maintenance of GSE equipment for passenger and cargo operations.

Facility Maintenance Complex

Facilities maintenance supports all maintenance and repair activities performed at the airport on buildings, grounds, pavements, vehicles other than GSE, utilities, and signs. Custodial services for airport facilities are also supported. The land area reserved for facility maintenance complex is 400,000 square feet, large enough for an airport with two runways and fully developed passenger, general aviation, and cargo facilities. The

facility will be located landside along GSP Drive. Included in this area will be a maintenance building, warehouse, administration, staging areas, and employee parking.

Catering Facility

The catering facility supports airline meal production, storage, and distribution. The facility will include a catering kitchen, truck docks, and employee parking.

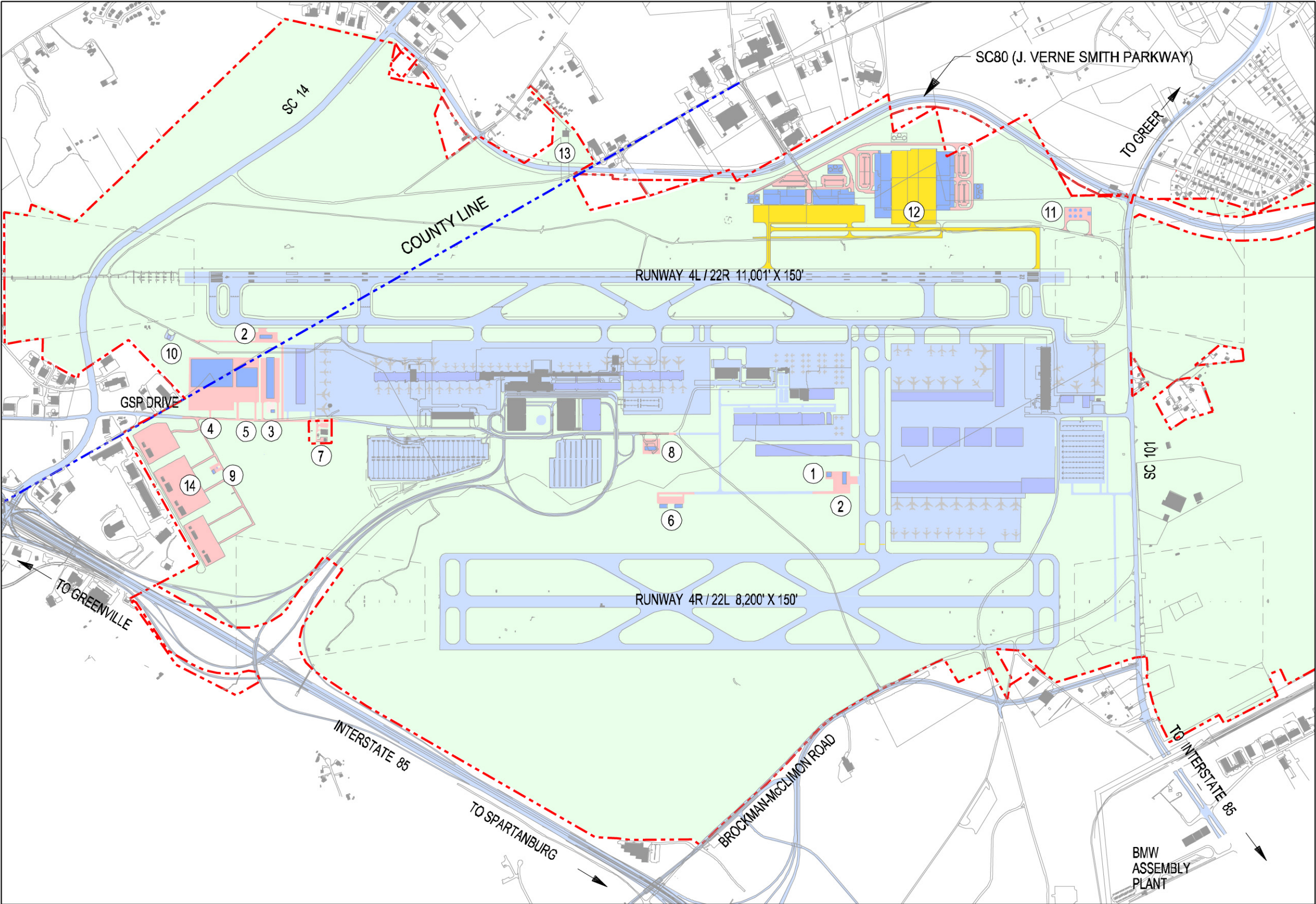
For long-range planning, it is assumed that 50 percent of GSP’s flights will be regional, 40 percent mid-range, and the balance as long-range domestic and international flights. Based on these trips and the passenger daily forecasts for the ultimate development, GSP may need to prepare as many as 14,000 meals per day. This will result in the need for a 90,000-square-foot building and a site area of 180,000 square feet.

The facility will be located in the Midfield Zone along GSP drive. This offers direct landside access for delivery of food and supplies and to employee lots. This also offers access to the passenger terminal aprons via the airside ramps underneath the concourse.

Meteorological Facility

Weather information for air navigational purposes is collected in and disseminated from the meteorological facility, which is operated by the federal government. Short- and long-term weather trend information is available to crews, air traffic control personnel, and other airport users 24 hours a day.

The existing meteorological building is located in the Midfield Zone, east of the Runway 4L threshold, along GSP Drive. This facility will remain in its current location. Land will be reserved adjacent to the existing site for future expansion.



FACT SHEET

- ① Air Traffic Control Tower
- ② ARFF
- ③ GSE Maintenance
- ④ Facility Maintenance
- ⑤ Catering Facility
- ⑥ Administration/Police
- ⑦ Metereological Facility
- ⑧ Central Plant (Land Reservation)
- ⑨ Service Station
- ⑩ Triturator / Incinerator
- ⑪ Fuel Farm
- ⑫ Aircraft Maintenance
- ⑬ ASR Location
- ⑭ Rental Car

LEGEND

- Support Facility
- Support Facility Staging
- Support Facility Apron

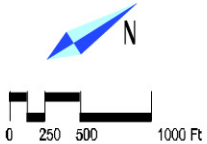


Figure 9-1 Ultimate Support Facilities Configuration

Airport Administration and Police Buildings

The GSP airport offices are currently located in the northern end of the passenger concourse building and cover 5,700 square feet. As the terminal building expands northward, this facility may have to be relocated. Since the airport administration building and police station need to be accessible to the general public and employees, these facilities should be located landside. Two 5,000-square-foot buildings with a parking lot of 100 stalls are planned immediately east of the long-term parking lot. Access will be via GSP Drive.

Central Utility Plant Facility

There are two options for the airport’s central utility plant. The ultimate layout plan delineates a new central plant adjacent to the ground service buildings; alternatively, the airport could retain its existing plant and construct new, decentralized plants in subsequent phases of building.

Triturator / Incinerator

This facility will be used for pre-shredding of aircraft sanitary sewage and for incinerating items taken off international flights. A 10,000-square-foot site is conservatively reserved south of the transient apron.

Fuel Farm

Aircraft fuel is delivered to the airport by truck, to an underground fuel farm located near the intersection of the access road to general aviation and Stevens Road. Stevens Aviation, a private contractor, operates the fuel farm. The Airport Commission plans to decommission this fuel farm and open a new facility in the Western Zone (northwest corner of the site). The new location will have direct access to SC 101; an airside fuel truck service road has already been constructed.

Based on the flight schedule for the ultimate development, the daily aircraft fuel demand at GSP is estimated to be 1.7 million gallons.

Assuming a 7-day storage capability, the airport needs to have a 200,000-square-foot fuel farm with a storage capacity of 12 million gallons.

An underground, piped distribution system to apron fuel hydrants is strongly recommended to avoid the need for a large and expensive fuel trucking fleet.

Rental Car Service Area

A rental car service area has been established in the Midfield area at the south boundary of the site, immediately east of GSP drive. The service area totals 35 acres, and includes service areas for five rental car firms. A service station with two pump islands is included in this area for use by the rental car service center.

Section 10

Commercial Development System

In addition to moving passengers and cargo to and from the Piedmont area, GSP has already proven itself to be a valuable asset in attracting manufacturing to the region. This has created high quality jobs for the local community and diversified the business environment and local economy.

To position the Upstate ahead of the competition in attracting new business, market trends for trade by air need to be examined, airport-dependent businesses identified, and a plan created to promote growth of these opportunities in the Upstate.

The Need for Speedy Delivery

The global marketplace has undergone significant shifts in the way business is conducted:

- The nature of trade continues to evolve in favor of a global environment as more and more countries are shifting towards free market economies as a result of an ever more integrated global economy. Instant satellite and electronic communications and efficient transportation systems are providing new opportunities for increased international trade.
- Customer expectations are changing. Customers are becoming more aware of what is available in the marketplace. They have become more demanding than ever before and require high quality, reliability, competitive pricing, and quick availability.
- Competition is more intense. New players are emerging in the international scene, especially in Asia and Latin America where wages are comparatively low. In response, US corporations are pushing for enhancing efficiencies and lowering costs.

It is clear that the Upstate is strongly connected to the global trade network with many businesses engaged in the manufacture and distribution of products for national and international markets. Getting

products and people to and from these distant markets quickly is a key requirement and GSP serves as a primary mechanism for achieving that important objective.

Airport-Dependent Businesses

Regional planners carefully develop land use plans based on synergies between business and inter-modal transportation facilities such as ports, airports, rail networks, and local roadway systems. Such synergies stimulate economic growth that benefits the local community. At the same time, airports capitalize on opportunities to generate more revenues as a result of the increased movement of people and cargo. Listed below are three categories of businesses that have synergies locating in the proximity of the airport.

Table 10-1 Examples of Airport-Dependent Businesses

Aircraft-Related	Aircraft maintenance Aircraft testing Pilot training Aerospace assembly parts Military-related
Passenger-Related	Business centers Convention centers Retail malls Hotels Duty Free Concessions Food services
Cargo-Related Business	Cargo processing Cargo warehousing Cargo distribution Manufacturing Production Free trade zone Exhibition centers Technology parks R&D centers

Ranking the Opportunities

Manufacturing and production continue to represent strong opportunities for the Upstate. Computers, electronics, and automotive parts are the three largest US exports by air. These products, along with pharmaceuticals, fashions, textiles, food items, and agricultural products, represent high-valued, lightweight goods that are suitable for air travel. Developing such opportunities will help create high-quality jobs, diversify and grow the local economy, and enhance GSP’s revenues and its customer base. Effective cargo distribution is key to the success of cargo opportunities provided adequate planning is done by the affected political subdivisions. Being positioned between Atlanta and Charlotte, it is natural that GSP could displace a significant portion of the transshipment from these areas. In addition, many cargo carriers will find that this added freight leaving and coming into the area offers a tremendous business opportunity. They would request new and more efficient cargo facilities and perhaps consider hubbing operations in the mid- to long term.

Reflecting these opportunities, the airport has attracted FedEx as a tenant to GSP and the company has built a 6,000 parcel per hour facility on an improved site at the north end of the airport. It is likely that other express courier companies will follow FedEx in the future and will locate in the vicinity of the FedEx facility, as the Upstate continues to grow.

Business and trade opportunities are also key candidates for the Upstate. These include a free trade zone, where cargo is duty free and customs inspection is not necessary, as well as hotels, convention centers, exhibition centers, and research and development centers. In addition to complementing local manufacturing and the creation of many jobs, these opportunities will better position Greenville-Spartanburg as an international business center.

To meet long-term needs, the airport has purchased property along the northern boundary of the airport. This land has been acquired for both functional and commercial purposes. The functional purpose is to provide a buffer against the encroachment of future incompatible development under the flight path and within the 65 DBL noise contours of the existing and future runways. The environs area, shown in Figure 3-8, ensures land uses compatible with airport operations on the future noise footprint. The commercial objective for this property is for uses that would complement the airport’s mission as a

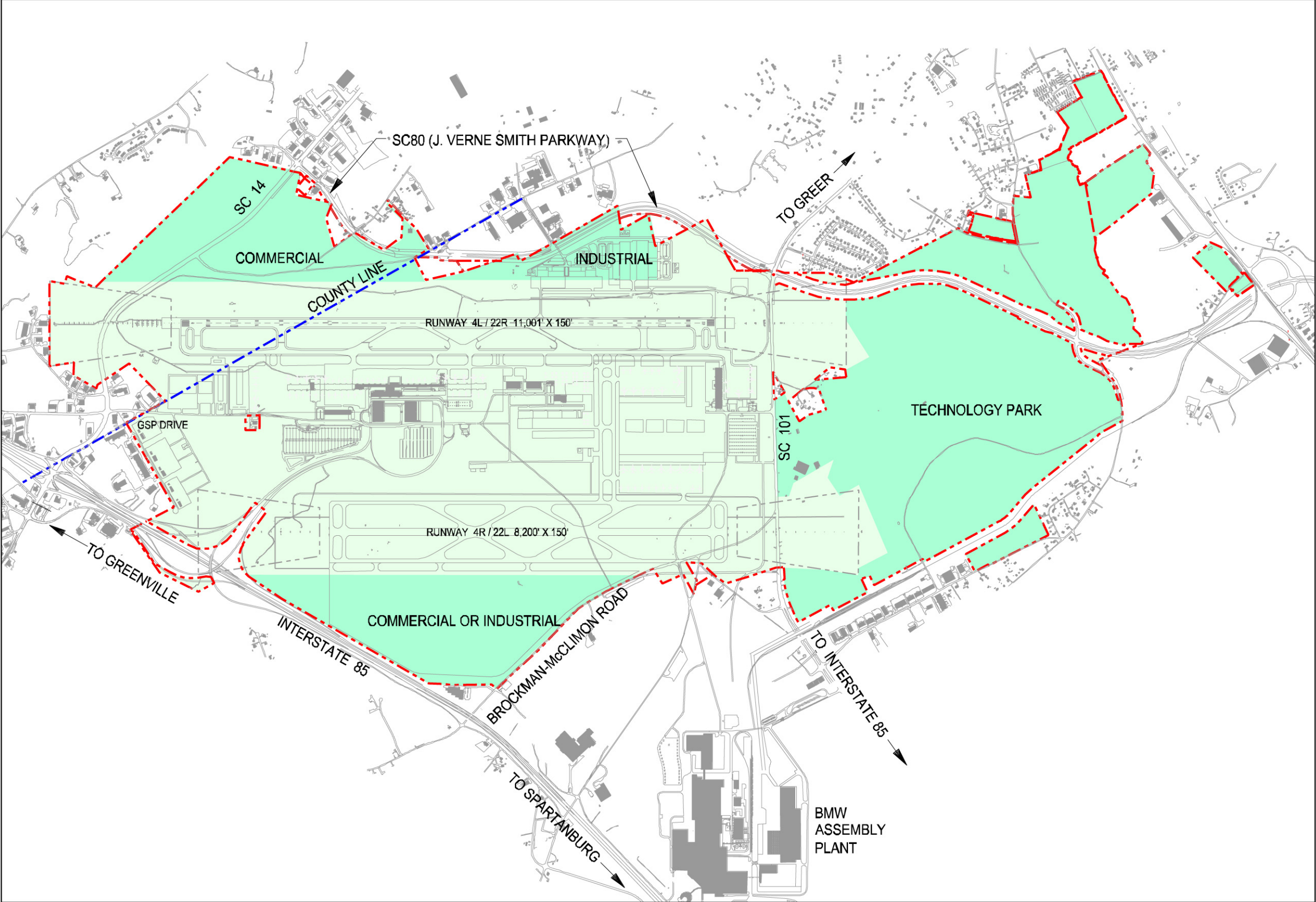
community asset serving the entire Upstate region. After studying many possible development options, the Commission identified several possibilities that would fit this mission, including a technology park, a research and development center, a training center, a free trade zone, and others. When the time is right to move forward with these options, the airport will undertake more detailed studies to define the access and infrastructure requirements that will be needed.

The Physical Response

Land for future commercial development is reserved west of Runway 4L/22R and east of Runway 4R/22L. This type of development is driven more by commercial agreements and, thus, only zoning is shown in Figure 10-1 and not a specific layout.

As stated in Section 3, Development Concept, the area west of Runway 4L/22R will be divided into two parts. The northern part will be industrial in nature, while the southern part will be for commercial use. The area west of Runway 4R/22L will be reserved for commercial or industrial uses with light employee density so as not to overload the capacity of I-85. A development such as a pilot training center may be appropriate.

The area north of the airport’s runway ends has been designated as a noise buffer, a reserve, and for future development, as described above.



LEGEND

Commercial	219 acres
Industrial	73 acres
Commercial or Industrial	242 acres
Technology	680 acres

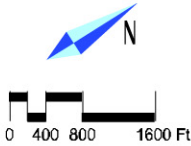


Figure 10-1 Commercial and Industrial Zones

Section 11

Ground Access System

The ground access system consists of the roadways and the parking areas that serve landside and airside facilities at the airport.

Figure 11-1 presents the recommended ultimate configuration of the ground access system. Primary facilities include regional roads, passenger access roads, service roads, cargo access roads, a perimeter (airside) road, terminal curb roadways, short-term parking structures, long-term parking lots, rental car staging, and employee parking.

Forecasts

Forecasts of vehicular traffic were prepared for future phases of airport development up to its ultimate capacity. The traffic forecasts were derived from forecasts of airside activity, including the volumes of air passengers that the airport will serve. Table 11-1 presents forecast activity for the ultimate development of GSP.

Table 11-1 Ultimate Ground Access Peak Hour Traffic

Peak Hour Traffic	Vehicles to Airport	Vehicles from Airport
Inbound peak hour	3,100	2,300
Outbound peak hour	1,700	3,100

For purposes of planning initial construction on the way to development of the airport to its ultimate capacity, it was determined that the road projects should be designed initially to serve traffic volumes anticipated in 2023 when the airport is expected to serve 5.3 million airline passengers annually.

The traffic volumes forecast for 2023 are approximately two-thirds of the volumes expected at ultimate airport capacity. It would be inefficient and uneconomical to build at the this time the number of lanes, intersection controls and parking spaces required for ultimate

development. Analyses of the internal ground access system as planned for 2023 show that the system will be adequate for the traffic volumes forecast for that year.

The same system configuration with some additional lanes and adjustments will also be adequate for the ultimate development.

Regional Road System

Primarily three routes provide ground access to GSP: I-85, SC14, and SC101. Proposed improvements to each of these routes as related to airport development are discussed below. Several other roads, which surround the airport, are discussed, including the Brockman-McClimon road, the existing dedicated cargo road to the BMW plant, and SC80 (J. Verne Smith Parkway), which will run along the western border of the airport.

Interstate 85

I-85 is a major Interstate freeway that parallels the southeast airport boundary; it carries a mix of traffic types. Traffic demand on this route will be related to both airport and regional growth.

Significant improvements are proposed for the road segment between the I-85/SC14 interchange and the I-85/GSP terminal access road interchange. Currently, this section of road is subject to unfavorable traffic conditions, which are largely due to inadequate number of lanes and the proximity of the two interchanges. This situation will worsen with time as airport-related and other traffic grows. It will be necessary to eliminate the complex weaving sections created by back-to-back interchanges. The proposed solution is presented in Figure 11-2. With this solution, the on- and off-ramp traffic of the two interchanges is completely separated by grade. I-85 is under the jurisdiction of the Department of Transportation and the proposed solution has been presented to the Department of Transportation as a recommendation. The plan will require some land acquisition.

SC101

SC101 is a major east/west route with a large amount of truck traffic. The traffic demand on this route will be generated primarily from regional growth and not from airport-related development. Because

access to the northern area of the airport will be from this route, however, some airport-related improvements are proposed.

SC101 is a 5-lane road where the center lane is used a turn lane. At ultimate airport development, it is recommended to provide an additional lane to a portion of SC101, which runs through the northern border of the airport. This will allow through traffic on SC101 to flow uninterrupted and will create a safer turning situation for traffic entering the cargo area during peak periods.

SC14

SC14, which cuts through the southwest area of the airport, carries a mix of airport and non-airport related traffic. Its traffic demand, therefore, will be generated by both airport and regional growth. The route has been reconstructed with additional lanes and improvement at SC 14 and at the south airport service drive (GSP Drive).

Other Roads

Brockman-McClimon Rd. runs along the east side of the airport property. It begins at SC101, crosses Interstate 85, and continues south through Spartanburg County ending at Bennetts Bridge Rd. This road is likely to be widened and realigned to accommodate a proposed new interchange that will serve the BMW plant.

A dedicated cargo road connects the cargo apron directly to the property of the BMW assembly plant. The existing alignment of this two-lane road lies within the runway protection zone of future Runway 4R/22L. When the runway is built, the roadway alignment will have to be shifted north.

Along the western boundary of the airport, the SCDOT has the extension of SC80 under construction. This road, which is expected to be completed by 2005, will be named the J. Verne Smith Parkway. It will provide access to future on-airport commercial areas via dedicated turning lanes.

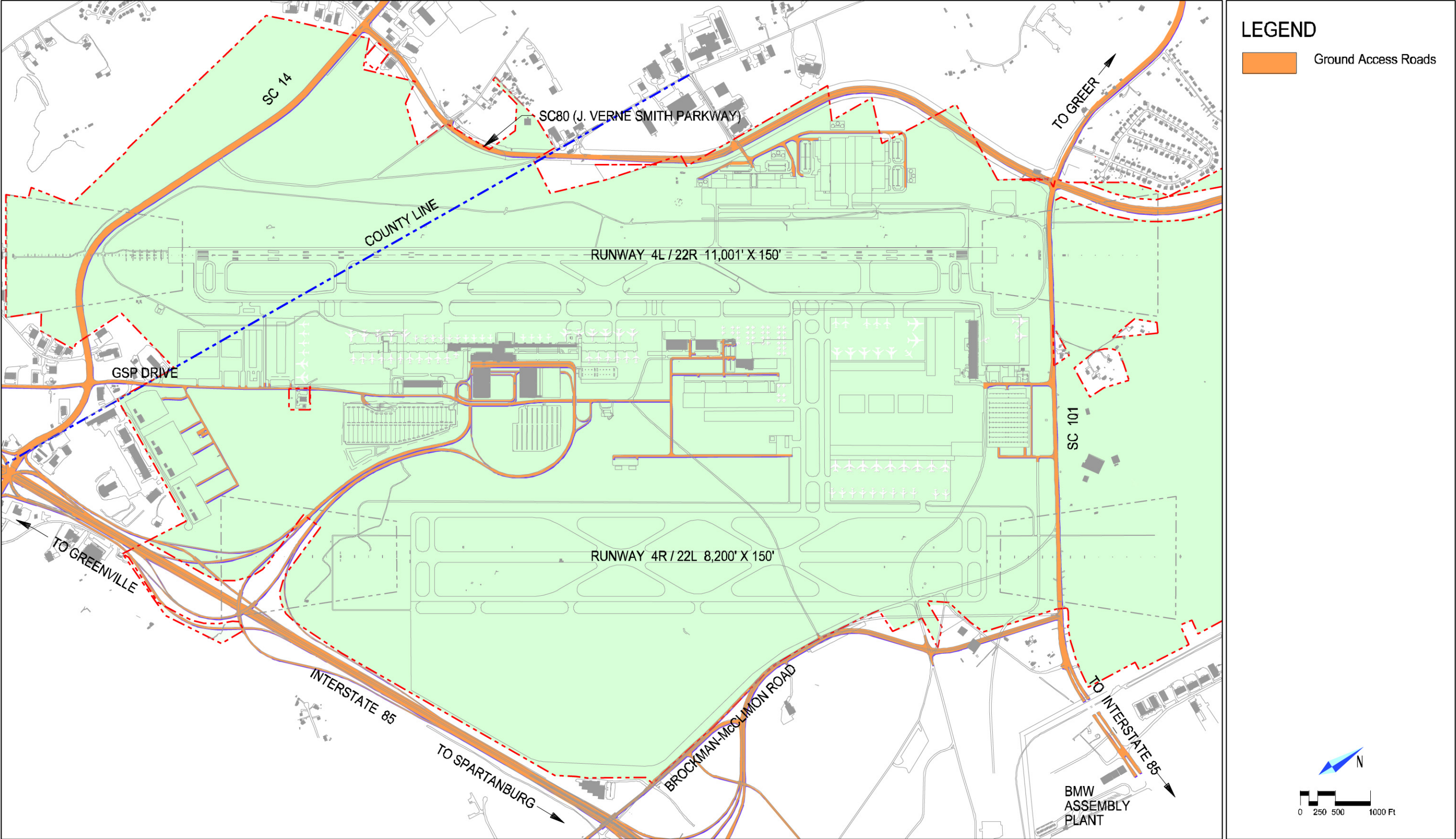


Figure 11-1 Ultimate Ground Access Configuration

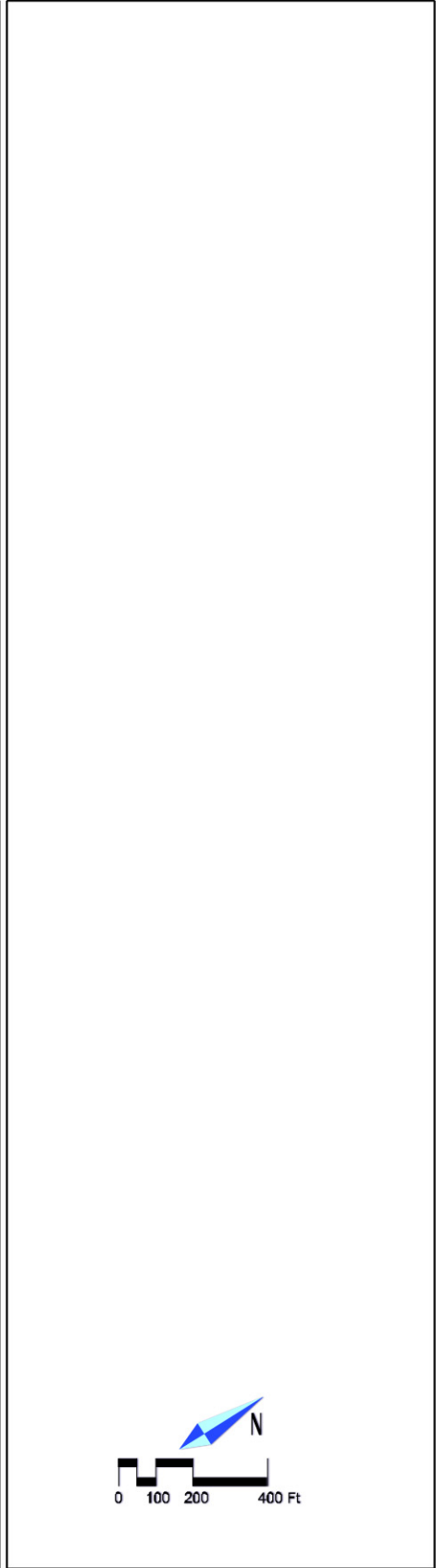


Figure 11-2 Interstate 85 Interchange

Internal Road System

The major elements of the internal road system include terminal area and passenger access, service, cargo access, and perimeter roads.

Terminal Area Roads

Alternatives for the terminal area road system were examined by dividing the system into four elements, and considering possible options for each one. Selected options were then combined to form alternative terminal area road system alternatives. The four elements as shown in Figure 11-3 are:

- The terminal loop road provides access to the terminal curbs, short-term and long-term parking, re-circulation within, and exit from, the terminal area.
- The short-term parking system provides access into the parking structures, circulation between them, and an exit, or exits, where parking fees are collected or tokens are received to open the exit gates.
- The long-term parking system will include two lots with access to and from GSP Drive.
- GSP Drive connects other activity areas to one another and to the terminal loop road.

Options for the terminal loop road were joint use of GSP Drive or alignment on either side of Dillard Creek.

Options for short-term parking included an exit from the first parking structure or an exit plaza near the fountain between the first and second structures.

Options for GSP Drive included relocation or realignment, grade separations at terminal loop road crossings and various intersection arrangements.

Two alternative plans shown in Figures 11-4 and 11-5 were prepared based on the examination of options.

Alternative A keeps the east side of the terminal loop road on the west side of Dillard Creek. The loop road passes through the existing long-term parking lot and removes some of the parking spaces, which

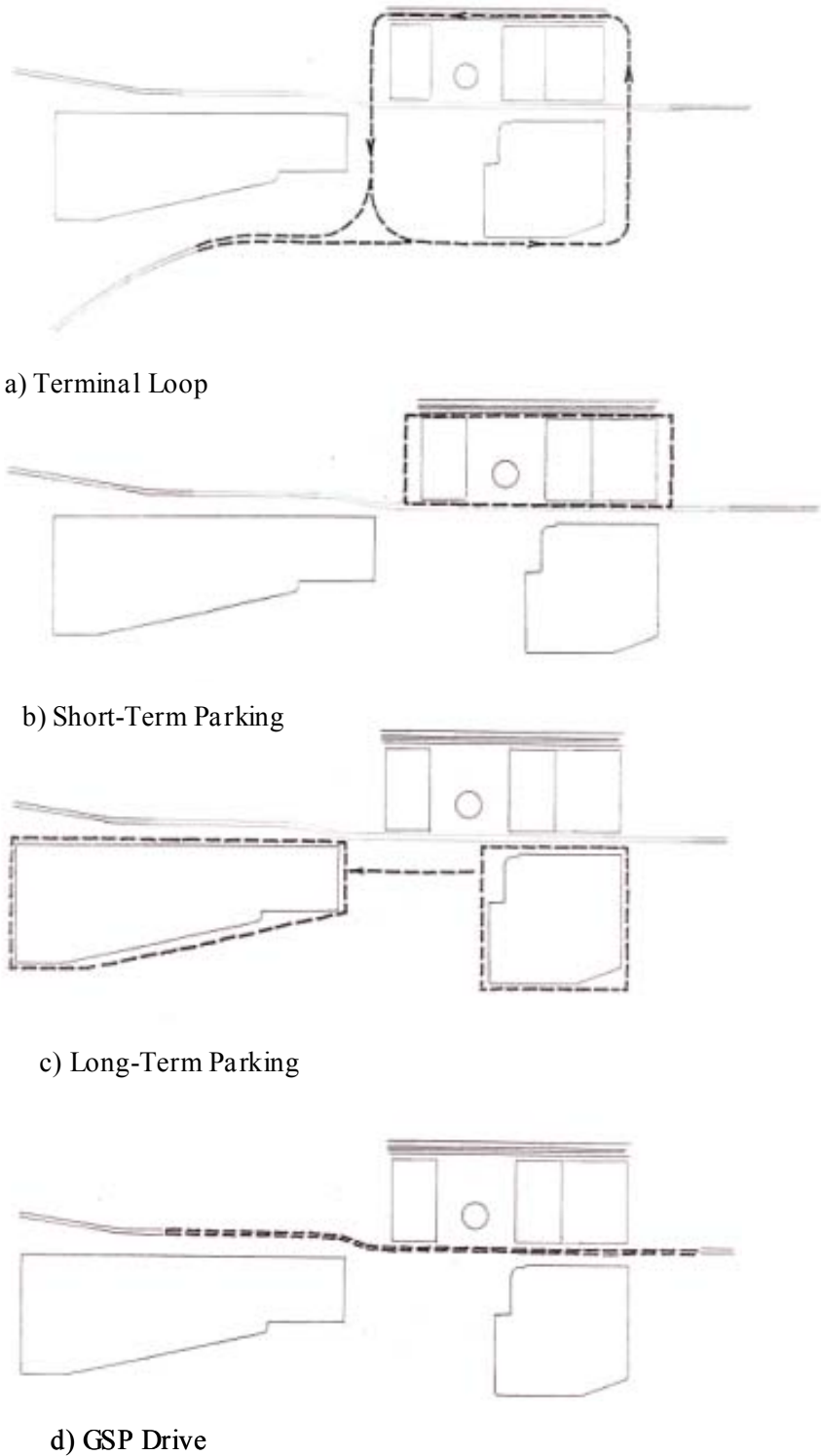


Figure 11-3 Terminal Access Elements

can be replaced by extending the existing lot to the south. The short-term parking exit is located in the first parking garage.

Alternative B places the east side of the terminal loop on the east side of the creek. The short-term parking exit is through a plaza near the fountain between the first and second parking structures.

Alternative B places the east side of the terminal loop on the east side of the creek. The short-term parking exit is through a plaza near the fountain between the first and second parking structures.

Alternative B was selected for the master plan because it avoids the existing long-term parking lot and therefore does not require any southern extension as Alternative A does, its short-term parking exit is not inside a parking structure and it allows access into the first parking structure immediately after the terminal curbs.

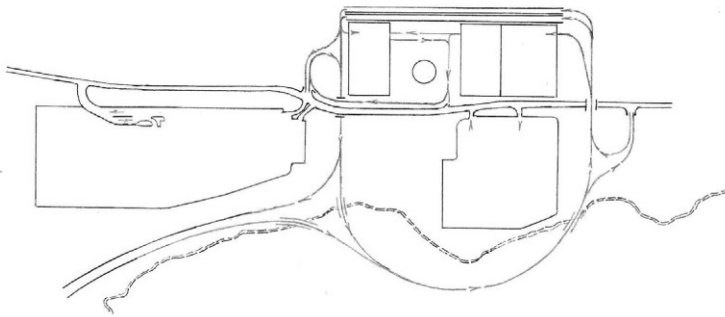


Figure 11-4 Terminal Access Alternative A

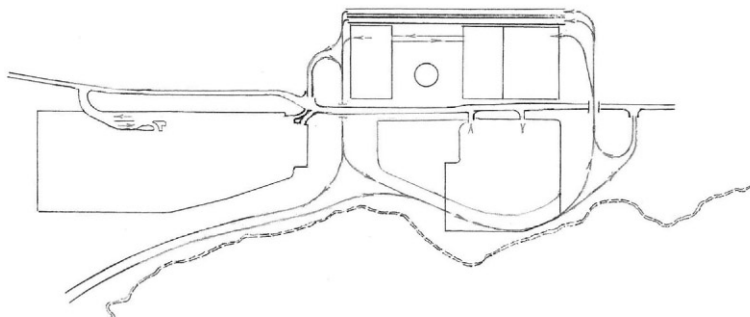


Figure 11-5 Terminal Access Alternative B

It provides grade separations over and under GSP Drive, loop ramps for interconnection between GSP Drive and the terminal loop road, and a loop ramp onto the terminal loop road for traffic leaving the short-term parking system. It also provides more opportunities for effective landscaping.

Passenger Access Roads

The main access route for all passenger-related traffic (commercial and general aviation) is provided via a direct interchange from Interstate 85. The existing terminal access road corridor is maintained through future development. A roadway loop configuration in the terminal area provides smooth, clear movement of vehicles through this area. Along this access road, the inbound decision-making sequence at ultimate development can be described as a series of steps (see Figure 11-6):

1. Vehicles enter the airport from the interchange at I-85
2. First decision is a choice to turn off to long-term parking and general aviation or to proceed to the passenger terminal area
3. At the next decision point, drivers may exit to the short-term parking area or proceed to the terminal curbs
4. The final inbound decision point is a choice between the road to the departure curb and the road to the arrival curb

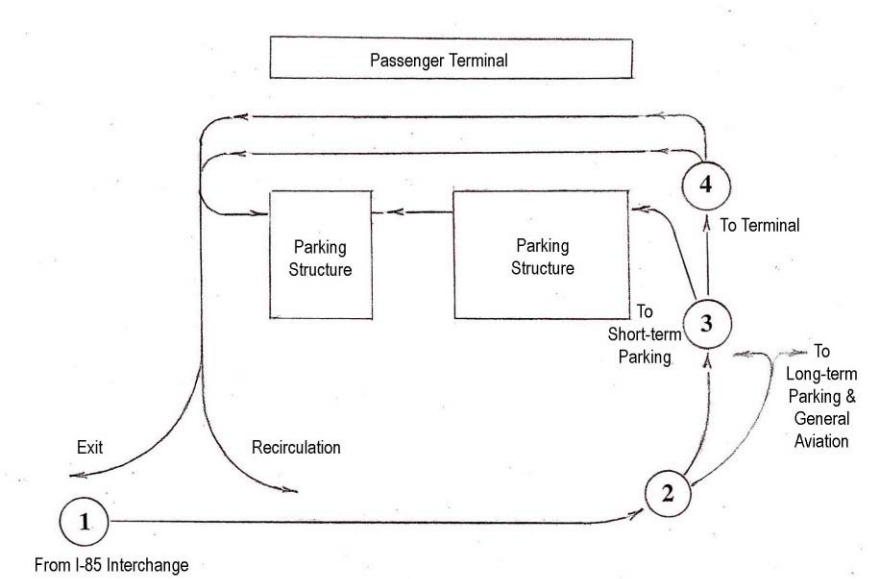


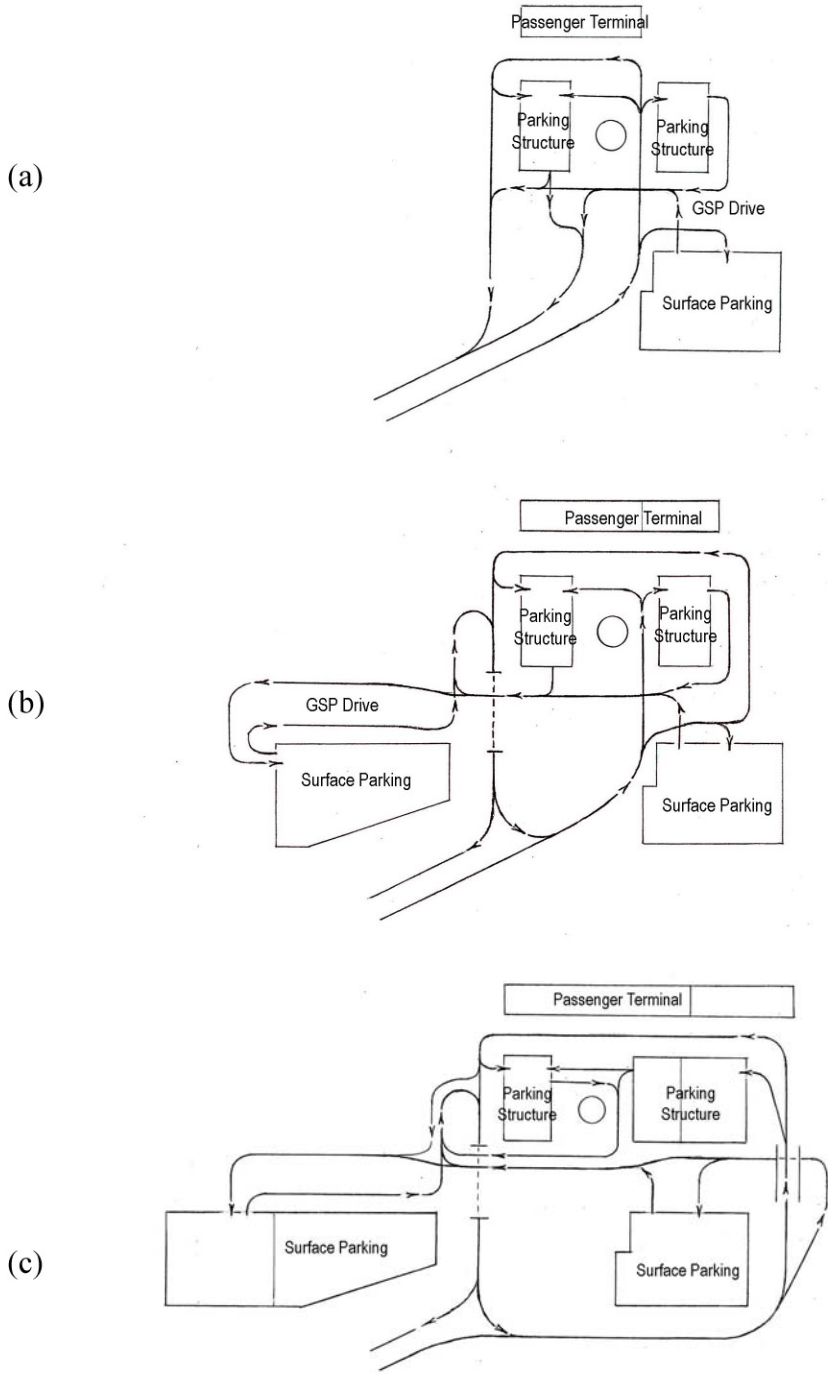
Figure 11-6 Terminal Inbound Decision-Making Sequence

Outbound vehicles from both the terminal curbs and the parking area have the option to re-circulate in the terminal area or exit to I-85 and the regional road system.

The passenger access road will evolve over time from its present configuration to the one described above. Consistent with the objectives of the Airport Commission, the goal of the phasing plan is to maintain the current alignment and configuration well into the future. As portions of the passenger terminal expand, the access road will undergo appropriate changes as described below.

- The first stage of development included the construction of a new parking structure. The terminal access road maintained its current loop alignment; however, an additional exit was added to provide access to the new structure (see Figure 11-7a).
- At the next stage of development, the passenger terminal will be extended to the north, increasing its curb frontage. Access to the parking structures will remain the same; however, a new road to the north will provide loop system access to the now-extended terminal curb. A new surface lot for long-term parking will be built south of the terminal area. It will connect with the terminal loop road via GSP Drive (see Figure 11-7b).
- In the final stage of development, the passenger terminal will be further extended to the north and a third parking structure will be built. At this stage, the alignment of the loop system will be expanded, with the parking and terminal curb access roads shifting further to the north.

The newer long-term surface parking lot can be expanded to the south. The existing long-term parking lot can remain unchanged in order to retain all the trees in the area to the south of it and opposite to the fountain on the other side of the GSP Drive. Both lots will continue to connect to the terminal loop road via GSP Drive (see Figure 11-7c).



These diagrams are not to scale and do not show through traffic movements on GSP Drive. They represent possible internal movements rather than actual lanes and roads.

Figure 11-7 Phasing of Passenger Access Roads

Service Roads

Service traffic to the south end of the Midfield Zone is separated from passenger-related traffic via GSP Drive, a service access road from SC14. This is currently a two-lane, bi-directional road which will be expanded to four lanes by ultimate development. Major facilities in the south midfield served along this road include GSE maintenance, facility maintenance, catering, central plant, and rental car storage. GSP Drive further extends into the middle of the Midfield Zone, providing an alternative access route to general aviation and the air traffic control tower. This road has unrestricted access with the exception of the northernmost segment of the road leading to the control tower.

Cargo Access Road

Access to the cargo area in the north is direct via a four-lane road with a center turn lane from SC 101. The layout of the roadways within the cargo complex is to be configured at a time when the shape and layout of the cargo buildings in the complex are known.

Perimeter Airside Road

Perimeter airside roads are provided to allow controlled access to airfield facilities and for security.

Terminal Curbs

At ultimate development, the total terminal curb length is 2,500 feet with 1,500 feet adjacent to the building and the additional 1,000 feet located at an island curb. With a single level terminal configuration, departure traffic (drop-off) will be accommodated at the north end, and arrival traffic (pickup) at the south end. This configuration is very flexible to accommodate the peak traffic for both departures and arrivals.

A cross section of the terminal curb roadway is shown in Figure 11-8. The lanes will function in the following manner:

- Pickup/drop-off lane – Vehicles momentarily park in this lane to load and unload passengers and baggage.
- Maneuvering lane – This lane provides a buffer for vehicles pulling into or out of the pickup and drop-off lane. At the

adjacent curb, some double parking may be allowed during peak periods.

- Through traffic lane – Faster moving traffic travels in this lane.

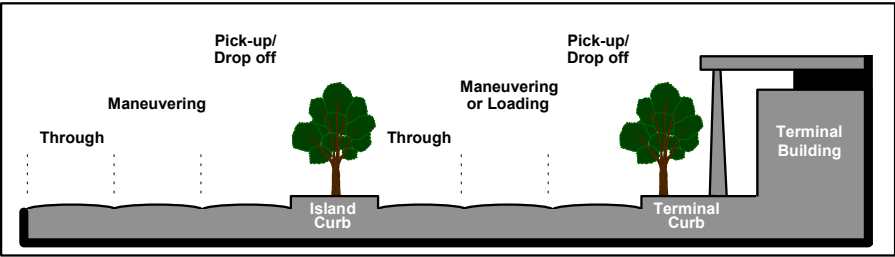


Figure 11-8 Terminal Curb Section

Parking Areas

Parking facilities located throughout the airport include:

- Structures for short-term parking and rental car ready and return
- At-grade lots for long term parking, rental car storage, and employee parking

Short-Term Parking

Passenger terminal short-term parking is provided in three parking garages, two of which exist and one to be built in the future. The new structure will be very similar to the existing garages but larger. The three garages will provide approximately 5,000 parking stalls. At ultimate development, the garages will be connected to one another with a through traffic lane on the second floor of the structures.

The majority of ticket dispensers are centrally located at the main parking entrance north of the northernmost structure. Additional ticket dispensers will be provided at one alternative entrance to the southernmost (existing) garage. Fee collection booths will be located at a centralized parking exit next to the fountain between the existing two garages.

Pedestrian access to terminal will be via at-grade crosswalks across the terminal curb roadway. Pedestrian vertical circulation within the garages will be by elevators and stairs.

Long-Term Parking

The existing long-term parking surface lots will continue to serve the airport through the foreseeable future. Incremental expansion may be required to satisfy demand.

For the final stage of the development of passenger access roads (see Figure 11-7c), long-term parking will be located in an open lot southeast of the parking garages. The capacity of this lot is planned to reach approximately 2,000 stalls, which will bring the total number of long-term parking spaces to more than 3,000 stalls.

Both long-term lots will have access from the main terminal access road via GSP Drive. Continuous shuttle service will provide transportation between the lot and the passenger terminal.

Rental Car Staging

Rental car pickup and drop-off now occurs in dedicated spaces on the first level of the southernmost short-term parking garage. Additional rental car parking is located in the rental car service facility adjacent to GSP Drive. At ultimate development, rental cars may be removed from the parking garage and relocated to a consolidated rental facility adjacent to the rental car service center.

Employee Parking

Approximately 500 parking stalls will be provided airport-wide for employees. This employee parking will be provided at various lots near key employment areas. For passenger terminal employees, an area is located within the long-term parking lot. For all cargo-related employees, centralized parking is provided adjacent to the cargo complex. General Aviation employees will park in lots adjacent to the G/A facilities.

Rail Access

An on-airport rail station should be provided once the Southeast High-Speed Rail corridor has been defined.

Section 12

Phasing

Economic fluctuations and uncertainty in the aviation marketplace almost always preclude a regimented approach to implementing airport development on a fixed schedule. This is especially true for GSP where the ultimate capacity may not be reached until 50 years into the future. The phasing strategy has, therefore, been formulated to achieve the following objectives:

- Ensure that the ultimate development is a natural and cost-effective progression from the existing facilities.
- Promote economically triggered development phasing that responds to market conditions. Each phase of the development must be operationally and economically viable.
- Defer decisions entailing significant capital investment until sufficient information is available to justify it. Such deferral must not adversely impact needed development.
- Balance GSP’s facilities and systems both functionally and operationally in each implementation phase.
- Maintain uninterrupted operations of all existing facilities while further construction is underway in each phase.

Implementation Planning Cycle

A flexible and dynamic approach to phasing is required to respond to changing conditions in a timely and cost-effective manner. Figure 12-1 presents a typical planning cycle for GSP, which will assist the Airport Commission in coordinating future demand and available capacity, and implementing new construction. Steps 1 through 3 should be performed using a 20-year planning horizon. Steps 4 and 5, however, should be performed using a 5-year horizon because more detail is required for near-term projects and funding requests. Step 6 should be activated when a specific project is required. In addition, Steps 5 and 6 feed data directly into the Airport Commission’s established capital improvements and funding systems. It is recommended that airport staff and/or consultants conduct such a planning cycle annually.

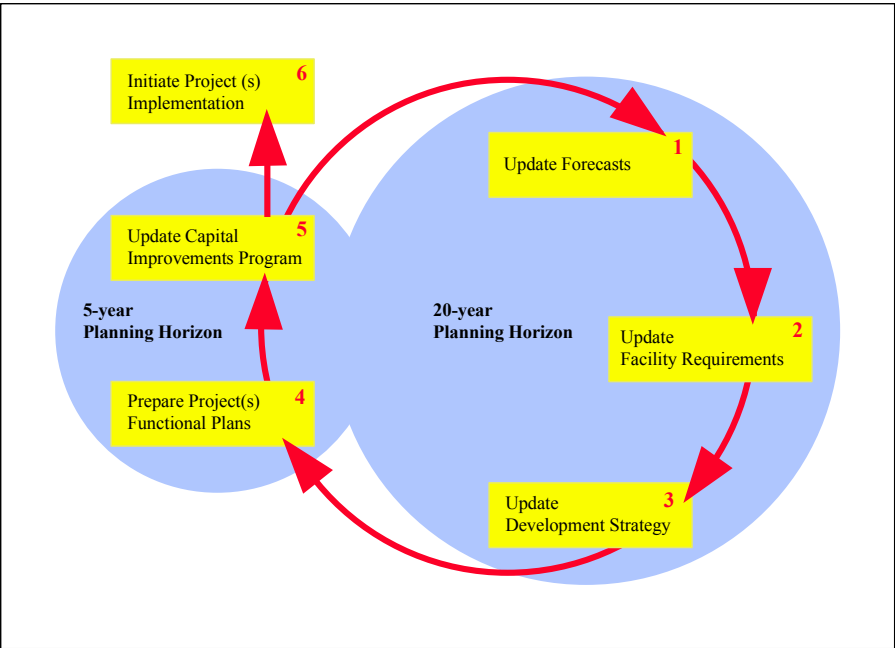


Figure 12-1 Implementation Planning Cycle

Major Phases of Development

To ensure that new development at GSP is conducted in an orderly manner, three major phases are presented, and each is defined by a major component of the airfield system. These phases are shown in Figures 12-2 through 12-4 and defined as follows.

- *Existing condition* show the 11,001-foot runway with other existing facilities, as they currently exist.
- *One runway ultimate condition* represents the 11,001-foot runway at its ultimate capacity and with all other systems accordingly.
- *Two-runway ultimate condition* represents the ultimate capacity of both runways with all other systems balanced accordingly.

It is important to note that these phases of development only represent snapshots in time. They are very flexible and can be adjusted to accommodate changes in the implementation strategy. Table 12-1 provides a more detailed listing of the facility requirements for each phase of the development described above.

Table 12-1 Phasing Plan

System/ Facility	Existing Condition	One- Runway Condition	Two-Runway Condition
Airfield			
Runway 4L/22R	11,001 ft	11,001 ft	11,001 ft
Parallel taxiway	11,001 ft	11,001 ft	11,001 ft
Runway 4R/22L	N/A	N/A	8,200 ft
Parallel taxiway	N/A	N/A	8,200 ft
Second parallel taxiway	N/A	N/A	Optional
Cross taxiway pair	N/A	N/A	3,025 ft
Passenger apron	1,004,000 sf	1,918,000 sf	4,114,000 sf
General aviation apron	524,000	683,000 sf	1,027,000 sf
Cargo apron	325,000 sf	1,815,000 sf	2,963,000 sf
Aircraft maintenance apron	N/A	412,000 sf	412,000 sf
Run-up pad	N/A	135,000 sf	135,000 sf
Passenger			
Jet gates (LARGE MIX)	13	23	43
Hardstands	0	3	6
Terminal	60,000 sf	90,000 sf	150,000 sf
Concourse	150,000 sf	350,000 ft	700,000 sf
Connecting bridges	10,000 sf	16,100 sf	22,200 sf
General Aviation			
Terminal	5,000 sf	5,000 sf	10,000 sf
Hangar parking	23	32	60
Tie downs (Group II)	20	20	30
Staging	6	6	12
Cargo			
Common use	95,000 sf	N/A	N/A
Belly cargo building	N/A	50,000 sf	95,000 sf
Air courier hardstands	3-6	27	44
Air courier building	120,000	500,000 sf	1,000,000 sf
Support Facilities			
	TBD	TBD	TBD
Commercial Development			
West zone - north	N/A	3,187,000 sf	3,187,000 sf
West zone - south	N/A	9,552,000 sf	9,552,000 sf
East zone	N/A	N/A	10,544,000 sf
Ground Access			
Cargo access	TBD	TBD	TBD
Other	TBD	TBD	TBD
Structured parking	2,607 stalls	3,106 stalls	4,650 stalls
Surface parking	1,943 stalls	2,500 stalls	3,300 stalls

Note: TBD = To be determined



FACT SHEET

Airfield

- 11,001 ft runway
- Four separate apron areas that include:
 - Main apron
 - Hold apron
 - GA apron
 - North air cargo apron

Passenger Terminal

- 9 operational contact gates with loading bridges
- 4 additional contact gates without loading bridges

Cargo Terminal

- 42,886 sqft of usable covered space
- Air cargo apron and US Customs office at the north end of airport
- 120,000 sqft FedEx Terminal

General Aviation Terminal

- G/A Terminal Building
- Four hangars that include:
 - Hangar 1 Storage
 - Hangar 2 Maintenance
 - Hangar 3 Storage
 - Hangar 4 Storage

Parking

- Short-term parking spaces:

- Parking Garage A	1,098
- Parking Garage B	1,529
- Short-term open lot	232
- Rental car area in 'A'	270
- Long-term parking spaces:

- Daily open lot	400
- Long-term open lot	1,097
- 214 employee parking spaces

Support Facilities

- See drawing

LEGEND

- Existing Airfield
- Existing Structures
- Existing Parking

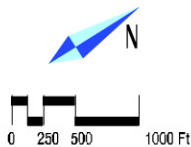


Figure 12-2 Existing Condition

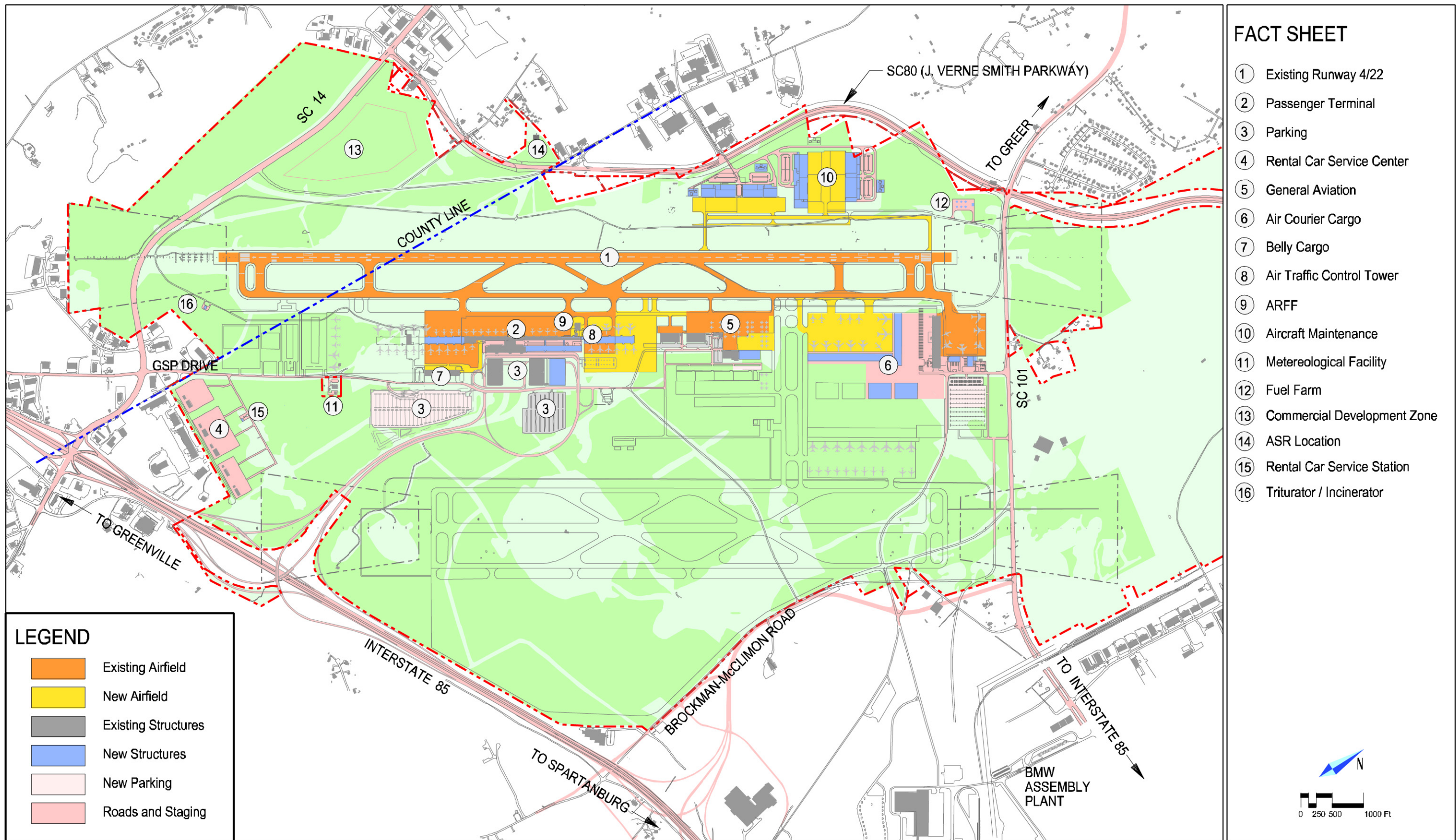
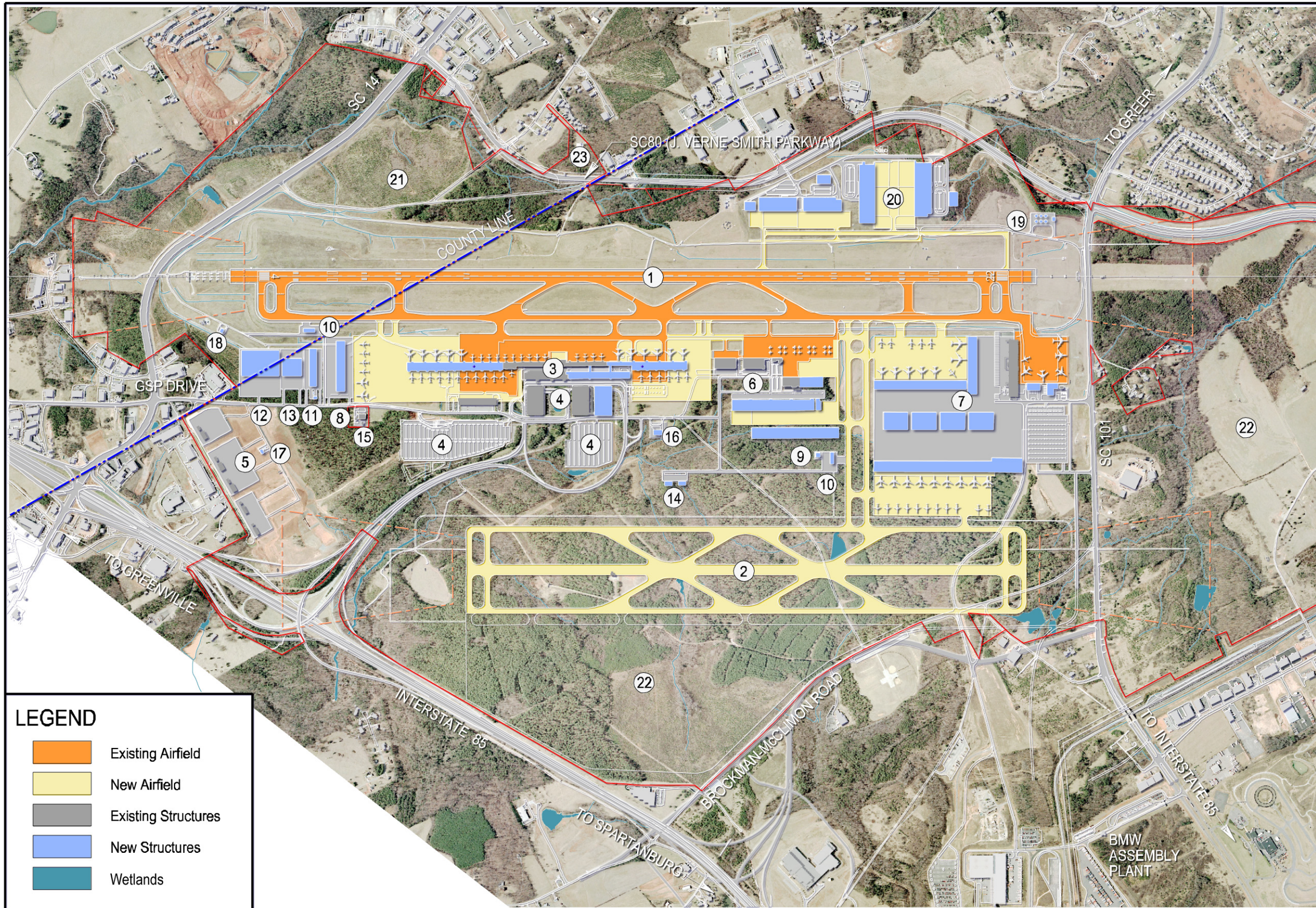


Figure 12-3 One Runway Ultimate Condition



FACT SHEET

- ① Existing Runway 4L/22R
- ② New Runway 4R/22L
- ③ Passenger Terminal
- ④ Parking
- ⑤ Rental Car Service Center
- ⑥ General Aviation
- ⑦ Air Courier Cargo
- ⑧ Belly Cargo
- ⑨ Air Traffic Control Tower
- ⑩ ARFF (2 Locations)
- ⑪ GSE Maintenance
- ⑫ Facility Maintenance
- ⑬ Catering Facility
- ⑭ Administration/Police
- ⑮ Metereological Facility
- ⑯ Central Plant (Land Reservation)
- ⑰ Rental Car Service Station
- ⑱ Triturator / Incinerator
- ⑲ Fuel Farm
- ⑳ Aircraft Maintenance
- ㉑ Commercial Development Zone
- ㉒ Industrial / Commercial Development Zone / Technology
- ㉓ ASR Location

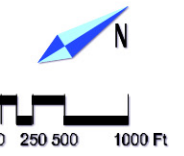


Figure 12-4 Two-Runway Ultimate Condition

Near-Term Critical Actions

Demand over the next few years will require upgrade and expansion. The following summarizes critical near-term implementation actions for GSP:

1. Existing runway will likely reach capacity by year 2020.
Planning should begin by 2008-2010
2. Upgrade and increase terminal departure processing capability
3. Agree with TSA on plans for upgrade of bag checks
4. Increase retail offerings at terminal, both landside and airside
5. New FBO is needed by 2006
6. Work with FAA on locating ASR-11 at Site 3
7. Add ramps at I-85 to take out weaving sections
8. Elevate GSP drive above road to existing terminal and add loop to connect to I-85 and for re-circulation
9. Land acquisition to support I-85 interchange upgrade

Long-Term Critical Actions

Over the 50-year planning horizon, the following summarizes issues to be addressed by GSP:

10. Follow development plan logic
11. Construct only one pair of cross taxiways
12. Expand passenger system linearly - first north then south
13. Plan for a second general aviation terminal
14. Develop north cargo apron for air courier operations
15. Congregate support facilities along GSP Drive
16. Pursue commercial development east and west of runways
17. Promote revenue generation from Technology Park
18. Widen I-85 and reconfigure airport interchange
19. Update master plan every five years
20. Protect airport's future by strict enforcement of airport environs regulations