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.
- 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).

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 3-5 GSP’s Response to Surrounding Land Use

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.

**Support Facilities**

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.

**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.

**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.

**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.

**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.

**Midfield Zone**

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.

**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.

**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.

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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, ccess 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.

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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.
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.