

## EXECUTIVE SUMMARY

# Savannah / Hilton Head International Airport Master Plan Update

Prepared for:

**The Savannah Airport Commission**

Prepared by:

**URS Corporation**

In Association With:

**RS&H and Ruth and Associates, LLC**

*December 2014*

# Savannah Airport Commission

Mr. Sylvester Formey, Chairman

Mr. Stephen S. Green, Vice-Chairman

Mrs. Shirley James, Member

Mr. Sheldon Tenenbaum, Member

Ms. Lois Wooten, Member

Mr. James B. Blackburn, City Attorney

Mr. Gregory B. Kelly, AAE, Executive Director


Savannah/Hilton Head International Airport

400 Airways Avenue

Savannah, GA 31408

Tel: (912) 964-0514

Fax: (912) 964-0877

Info@SavannahAirport.com



# INTRODUCTION

Savannah/Hilton Head International Airport (SAV) is an important economic asset and key element of the transportation system serving the City of Savannah and the surrounding region. Planning for the future growth and needs of the Airport is a critical task that requires the continuous attention of the Savannah Airport Commission. Consequently, the Commission undertook a Master Plan Update that addresses the Airport's future needs in a comprehensive manner.

This document summarizes the findings of the Master Plan Update. The Master Plan provides airport management with a comprehensive assessment of the capital improvements needed to meet projected levels of passenger and aircraft operational activity during the next 20 years. Previous Master Plans were prepared for the Airport in 1956, 1969, and 1983. This Master Plan continues the strategic vision established in previous plans while accounting for current needs and anticipating future trends. The goal of this study is provide airport management with a flexible plan for the continued development of the Airport in a cost effective and responsible manner.


The Master Plan update consists of a technical report and a separate set of drawings referred to as an Airport Layout Plan (ALP) drawing set. The drawing set depicts all proposed development in a manner specified by the Federal Aviation Administration (FAA). It also requires the review and approval of the FAA before the capital improvements depicted on the drawings can become eligible for Federal funding. The FAA's approval of the drawing set indicates that the FAA finds the proposed development to be safe, efficient and designed in accordance with the FAA's design standards.

The Master Plan Update is briefly summarized on the following pages. Readers interested in the full details of the plan should refer to the technical report and its appendices that fully explain the rationale for all proposed development. Readers can also refer to the ALP drawing set for detailed illustrations of the proposed plan.



SAVANNAH HILTON HEAD INTERNATIONAL

# STUDY FUNDING AND ELEMENTS

The Master Plan Update was funded through a grant from the FAA and the use of Passenger Facility Charges (PFCs) collected from passenger tickets. No general tax revenues were used.

The Master Plan report contains the following elements:

- An **Inventory** of existing airport facilities and operational conditions.
- **Forecasts** of passengers, aircraft operations, types of aircraft, and based aircraft through 2035. These projected demand levels are used in subsequent sections to assess the adequacy of existing facilities.
- Identification of the **Facility Requirements** needed to serve projected levels of passengers and aircraft operations, as well as related activity such as vehicle trips and automobile parking.
- The evaluation of **Alternatives** for meeting the facility requirements identified in the preceding section.
- A discussion of the **ALP** drawing set.
- A **Facilities Implementation Plan** identifies proposed capital improvements and their anticipated implementation schedule (short, intermediate and long-term periods). This section also provides an estimate of development cost in 2013 dollars.

A brief discussion of the forecasts the study's findings and the recommended plan is provided on the following pages.


# FORECASTS OF AVIATION DEMAND

The Master Plan Update prepared forecasts for passengers, aircraft operations, air cargo and based aircraft. The forecasts were then used to determine whether existing airport facilities will be sufficient to meet future demand or if new or expanded facilities will be required. The forecasts considered a wide range of factors including:

- The area served by the Airport (referred to as the Prime Air Trade Area),
- Local demographics, such as population, employment and per capita personal income,
- Major regional industries and employers,
- Airlines serving the Airport and their routes,
- Nearby competing airports,
- Air service at Hilton Head Island Airport, and
- Subjective factors such as new technologies, completion from ultra-low cost carriers, dependencies on leisure travel, military travel, and airline mergers.

The forecasting effort also examined historical growth trends to understand growth patterns within each segment of activity.

## Passenger Enplanements

Passenger enplanements consist of the number of passengers boarding commercial service aircraft. Passenger enplanements at SAV grew at an average annual rate of 2 percent from 1990 to 2010, but experienced fluctuations during these years. These fluctuations occurred in response to economic conditions, air service trends, and competition from air service at surrounding airports.

A variety of forecasting techniques were used to estimate future levels of passenger enplanements. After careful consideration of each forecasting technique, it was recommended that the FAA's Terminal Area Forecast be used as the recommended forecast for the Master Plan Update. The forecast projects that passenger enplanements will grow at an average annual rate of 3.1 percent. The forecast predicts that nearly 1.7 million annual passenger enplanements will occur at the

Airport by 2035, compared to the 824,000 passenger enplanements that occurred during 2013.

## Aircraft Operations

The future number of aircraft operations was also forecasted by the Master Plan Update. An aircraft operation is defined as either one landing or one takeoff.

The forecast was used to assess the ability of the airfield to accommodate aircraft without incurring excessive delays. It was also used to determine the critical design aircraft which establishes the overall size and geometric requirements of airfield facilities. The Master Plan projects that aircraft operations will grow at an average annual rate of 0.9 percent to the year 2035. The forecast estimates that 124,000 annual aircraft operations will occur in 2035, compared to the approximately 85,000 aircraft operations that occurred in 2013.

## Air Cargo

Air cargo at SAV is primarily carried by all-cargo carriers such as FedEx and DHL. Total air cargo volumes have declined in recent years due to weak economic conditions. However, the Master Plan Update projects that air cargo volumes at SAV will grow at an average annual rate of 1.7 percent, which is consistent with the FAA's national projection. The forecast predicts that total (enplaned and deplaned) annual of cargo will increase to 25 million pounds by 2035 from the 16.8 million pounds that were handled during 2011.

## Based Aircraft

A total of 121 aircraft were based at SAV in 2012. A forecast of based aircraft was developed on the basis of FAA growth rates for various types of the aircraft fleet such as single-engine, multi-engine, turboprop and jet aircraft. The resulting forecast projects that 146 aircraft will be based at SAV by 2035. This represents an average annual growth rate of 0.8 percent. Nearly all of that growth will occur at the high end of the market (i.e., with turboprops and jet aircraft).

# STUDY FINDINGS

The Master Plan Update derived the following conclusions and recommendations for consideration by the Savannah Airport Commission.

## Airfield Facilities

- The existing airfield is sufficient to accommodate projected levels of aircraft operations through 2035 without experiencing unacceptable levels of delay.
- The Airport is not projected to reach 60 percent of airfield capacity (i.e., the level of capacity the FAA indicates should be used as a threshold for planning additional capacity) until after 2035. Therefore, the study does not project a need for a proposed third runway until after this Master Plan's timeframe. However, the third runway will continue to be shown in the plan as a long-range option.
- Airfield pavements are in good condition and have sufficient strength to accommodate projected aircraft operations. A pavement grooving project is recommended on Runway 1-19 to improve aircraft braking during wet pavement conditions.

The existing length of Runway 10-28 is sufficient to accommodate existing and projected aircraft operations. However, the length of Runway 1-19 (7,000 feet) imposes payload constraints on some regional jet operations. A runway extension of 500 feet on the north end of the runway would greatly reduce operational constraints.

- Improvements are recommended for the runway safety areas surrounding Runway 1-19 and Runway 10-28. These improvements would bring both runways into full compliance with FAA design standards.
- The existing taxiway system is sufficient to accommodate the efficient movement of aircraft with only minor improvements. However, additional taxiways are required to access future aviation development areas.
- Additional approach lighting systems are needed to provide lower approach minimums on most runways. An approach lighting system is recommended on Runway 1 and Runway 28. An upgrade of the existing approach lighting system on Runway 10 is recommended.
- Additional navigational aids (NAVAIDs) would improve airfield access during periods of low visibility. Therefore, an Instrument Landing System (ILS) is proposed on Runway 28.

## Terminal Facilities

The passenger terminal building is sufficiently sized to accommodate the projected levels of passengers during the study period with relatively minor improvements. Facility improvements are recommended and are summarized below.

- Numerous alternatives were developed for in-line baggage security screening systems to replace the current system that requires triple-handling of baggage. One of these alternatives can proceed to preliminary design when the Airport Commission obtains sufficient funding to construct the necessary facilities.
- The existing passenger security screening checkpoint is capable of efficiently processing passengers through a level of 1 million annual enplanements. However, additional lanes will be required to effectively process passenger demand at the 1.5 million and 2 million annual passenger enplanement levels. A total of six lanes will be required to efficiently process passengers when annual passenger enplanements reach 2 million. Therefore, the plan proposes an expansion of the concourse to accommodate a six-lane checkpoint.
- The proposed expansion of the passenger security screening checkpoint will impact two existing gates. The Master Plan includes a project for the replacement of these two gates along with two additional gates for a total of four new gates at the east end of the existing concourse.
- The Master Plan recommends that any future expansion of gates beyond the time frame addressed by this plan should occur through the construction of a new south concourse. A south concourse offers significant advantages in terms of efficiencies with passenger security screening and shorter aircraft taxi distances compared to other concourse expansion options.
- The Master Plan includes two proposed locations for the construction of family restrooms. One location is located in the Savannah Square prior to security screening while the other is located in the concourse post-security screening.

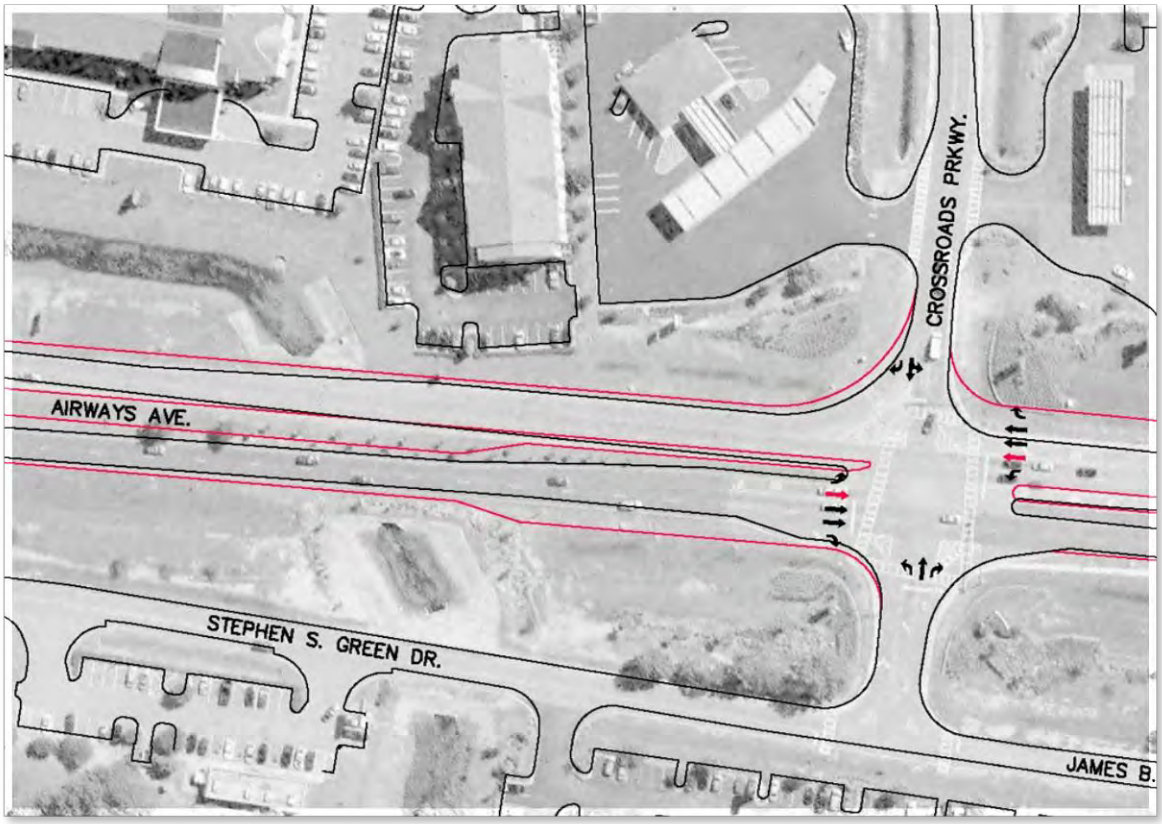


- The existing baggage claim carousels and associated claim hall will require expansion when annual passenger enplanements reach 2 million. The Master Plan includes a project for the replacement of the existing carousels with four new carousels that would each provide 200 linear feet of baggage claim frontage along with an expansion of the claim area at the north and south ends of the existing hall.
- The plan identifies three options for the construction of future Federal Inspection Services (FIS) facilities. These options include the use of reconfigured first floor space in the existing concourse, as well as future space beneath the proposed expansion of passenger security screening or the four-gate expansion at the end of the existing concourse.
- The plan identified two options for providing additional administrative office space when needed by the Airport Commission. The options include reuse of existing space beneath the concourse as well as the construction of new space on the third level of the terminal adjacent to existing offices.

## Roadway Facilities

The Master Plan recognizes that the greatest short-term need is improvements to the airport roadway system. A series of roadway improvements are proposed by the plan and summarized below to meet peak hour demands associated with 1 million annual passenger enplanements.

- Widening of Airways Avenue from two lanes in each direction to three lanes in each direction is recommended as a short-term project to maintain an acceptable level of service (LOS) during peak hours.




- Several intersection improvements are proposed to meet peak hour demand associated with 1 million annual passenger enplanements. This includes an additional turn lane from the northbound Interstate Highway 95 (I-95) exit to eastbound Airways Avenue, an exclusive turn lane from eastbound Pooler Parkway to the southbound I-95 entrance, and an additional turn lane from westbound Gulfstream Road to westbound Airways Avenue.


- Although a demand was identified for an expansion of Gulfstream Road from one lane in each direction to two lanes in each direction, no improvements are proposed due to the constraint of the existing tunnel. Therefore, Gulfstream Road will operate at a lower LOS during peak hours.
- Although not specifically required to meet projected vehicular demand, other potential roadway improvements include the construction of flyovers from Airways Avenue to Gulfstream Road. The flyovers would eliminate turning movements from each road to the other and would significantly improve traffic flow.
- The plan also includes an extension of Robert J. Miller Road from its current termination at Gulfstream Road northward to the northern boundary of Airport property. The purpose of this extension is to facilitate an eventual extension to Crossroads Parkway.
- The plan proposes an expansion of the arrivals curbside from its existing three lanes to four lanes by creating an additional lane toward the front of the terminal. In conjunction with this expansion, the plan recommends a relocation of the valet pick-up location to the commercial lanes with the construction of a canopy for weather protection. This improvement would provide an acceptable LOS through 1.5 million annual passenger enplanements.
- In the long-term, the plan includes a concept for a ground transportation center that would relocate taxi cab, shuttle bus, and public bus from the commercial curbside lane to a location north of the terminal, thereby, eliminating the need for returning rental cars to transit the front of the terminal. Replacement rental car facilities would be provided south of the existing rental car facilities on the south side of the terminal. This project would allow the existing commercial lanes to be used by passenger vehicles and would greatly improve arrivals curbside capacity when higher levels of demand are experienced in the long-term.

- Automobile parking will be adequate until the latter part of the study period. Therefore, the study examined options for parking lot expansion, but did not propose a specific project in the capital improvement plan. Parking demand should be reevaluated when passenger enplanements reach 1.5 million.

## Support Facilities

- The plan recommends the construction of a new Emergency Operations Center to coordinate activities during severe weather of other extraordinary situation. The plan proposed that the center be constructed west of Melaver Drive adjacent to the existing Airport Operations Center.


- The plan includes a project for an expansion of the existing Terminal Support Facility located on Daniel J. Coe, Jr. Drive. This project would double the size of the existing facility and provide additional storage capability for concessions in the passenger terminal and other tenants as required.
- The plan recommends the demolition of the former passenger terminal to provide space for the redevelopment of general aviation facilities or other uses as market demands dictate.


# RECOMMENDED PLAN

The recommended development plan for the Airport is organized into short, intermediate and long-term phases. These phases consist of two consecutive 5-year periods (i.e., 2014 to 2018 and 2019 to 2023) followed by one 10-year period that encompasses 2024 and beyond.

The projects proposed in each phase are intended to meet specific needs or demands as they were identified during the course of this study. However, changes from the forecasted levels of demand may alter the need for projects in each phase. Consequently, project scheduling is likely to change in response to fluctuations in demand and other factors such as the priorities of the Airport Commission and airport tenants, as well as available funding. The following paragraphs describe the recommended plan.

## SHORT-TERM PROJECTS (2014 THROUGH 2018)

Project priorities in the short-term include safety-related items such as Runway Safety Area (RSA) improvements, grooving of runway pavements, updating approach lighting, as well as development-related items such as taxiway improvements and capacity-related items such roadway and curbside projects.

Short-Term projects are listed in **Table 1** and are illustrated (where possible) in **Figure 1**. The estimated costs associated with these projects are also shown in Table 1.

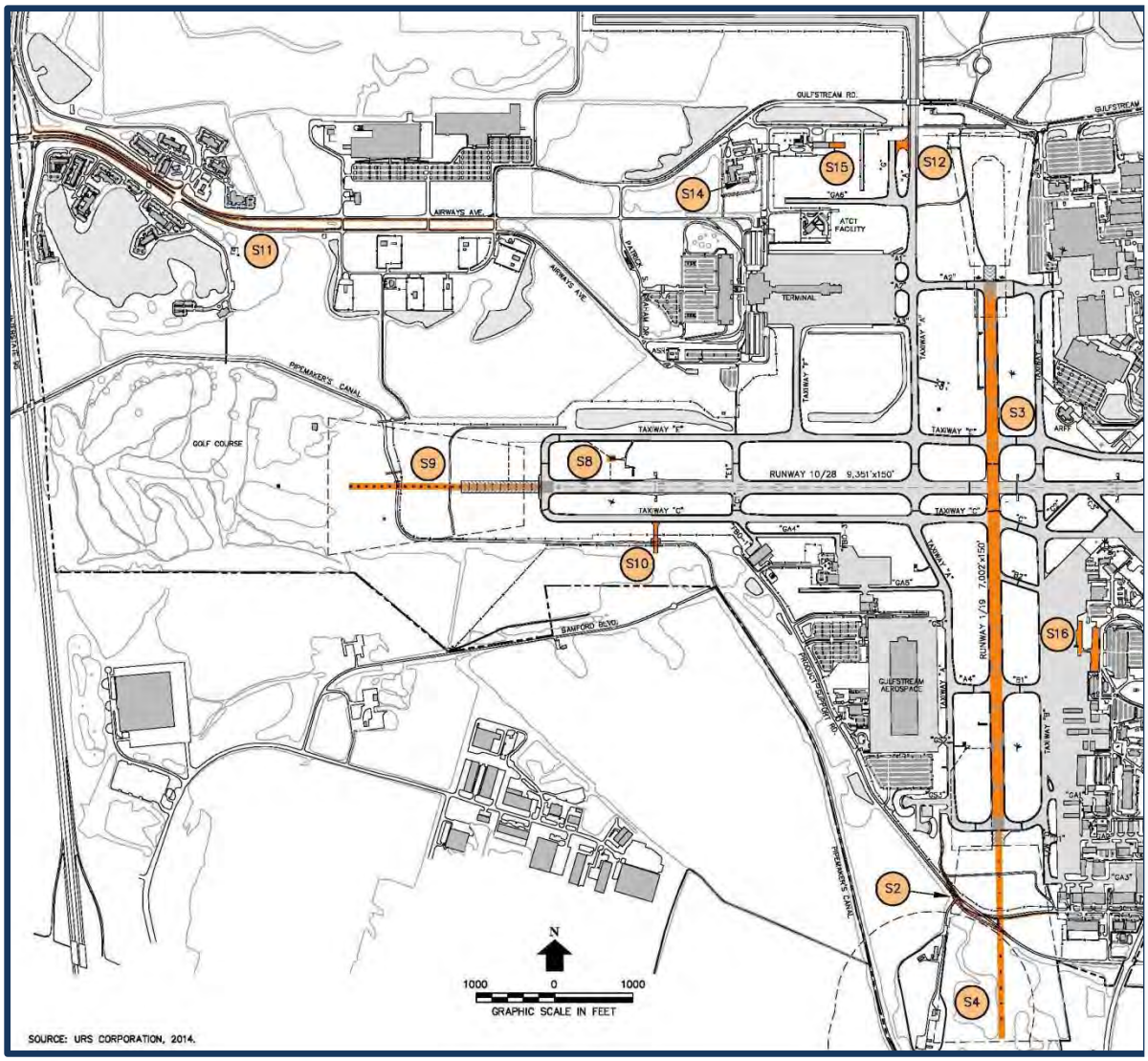
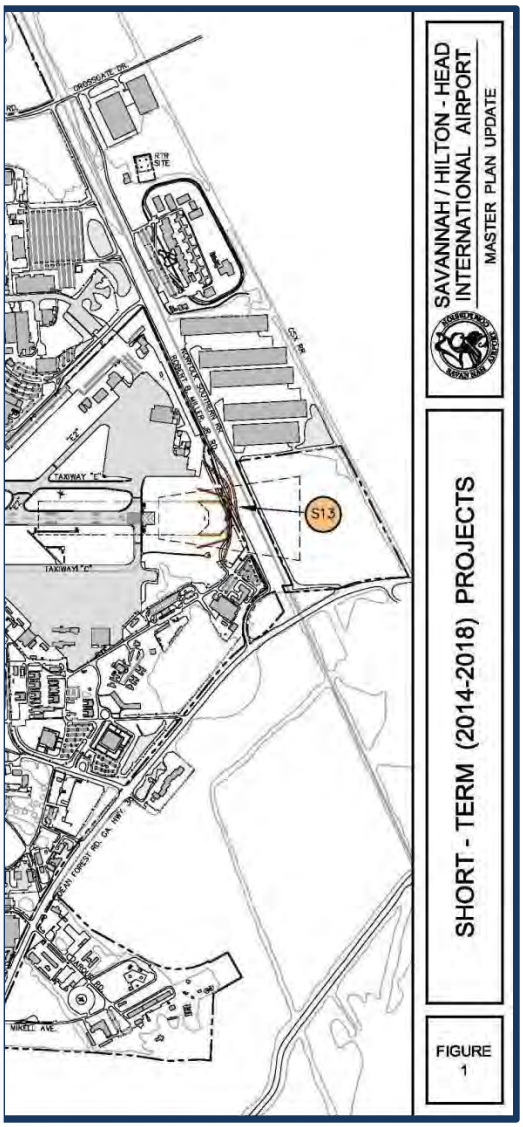



TABLE 1
SHORT-TERM (2014 TO 2018) PROJECT COST ESTIMATES

| Project Number | Project Name | Estimated Cost (2013 Dollars) |
|---|---|---|
| S1 | Construct Automated Outbound Baggage Systems | $12,022,254 |
| S2 | Construct Runway 1-19 RSA Improvements | $1,058,916 |
| S3 | Construct Runway 1-19 Pavement Grooving | $672,530 |
| S4 | Install Medium Intensity Approach Light System with Runway Alignment Indicator Light (MALSR) on Runway 1 | $2,256,285 |
| S5 | Construct Family Restrooms | $127,079 |
| S6 | Construct FIS Facility | $7,588,488 |
| S7 | Construct Fourth Lane on Arrivals Curbside and Relocate Valet Pick-Up Area | $500,934 |
| S8 | Upgrade Runway 10 ILS to CAT II | $2,512,818 |
| S9 | Install Approach Lighting with Sequenced Flashing Lights (ALSF-2) on Runway 10 | $3,484,146 |
| S10 | Construct Taxiway and Bridge over Pipemakers Canal | $4,850,132 |
| S11 | Widen Airways Avenue | $5,846,375 |
| S12 | Construct Taxiways A & G Connector | $1,125,015 |
| S13 | Construct Runway 10-28 RSA Improvements | $3,139,840 |
| S14 | Construct Emergency Operations Center | $4,682,607 |
| S15 | Expand Terminal Support Facility | $3,607,388 |
| S16 | Demolish Former Passenger Terminal | $3,036,415 |
| | Total | $54,916,416 |

Source: URS Corporation (URS), 2014.



## INTERMEDIATE-TERM PROJECTS (2019 THROUGH 2023)

Project priorities during the intermediate-term include expanding the passenger security screening checkpoint as passenger volumes exceed the Planning Activity Level (PAL) 1 level of 1 million passenger enplanements. Other priorities include a variety of airfield and NAVAID improvements.

Intermediate-term projects and their costs are listed in **Table 2**. The projects are illustrated in **Figure 2**.

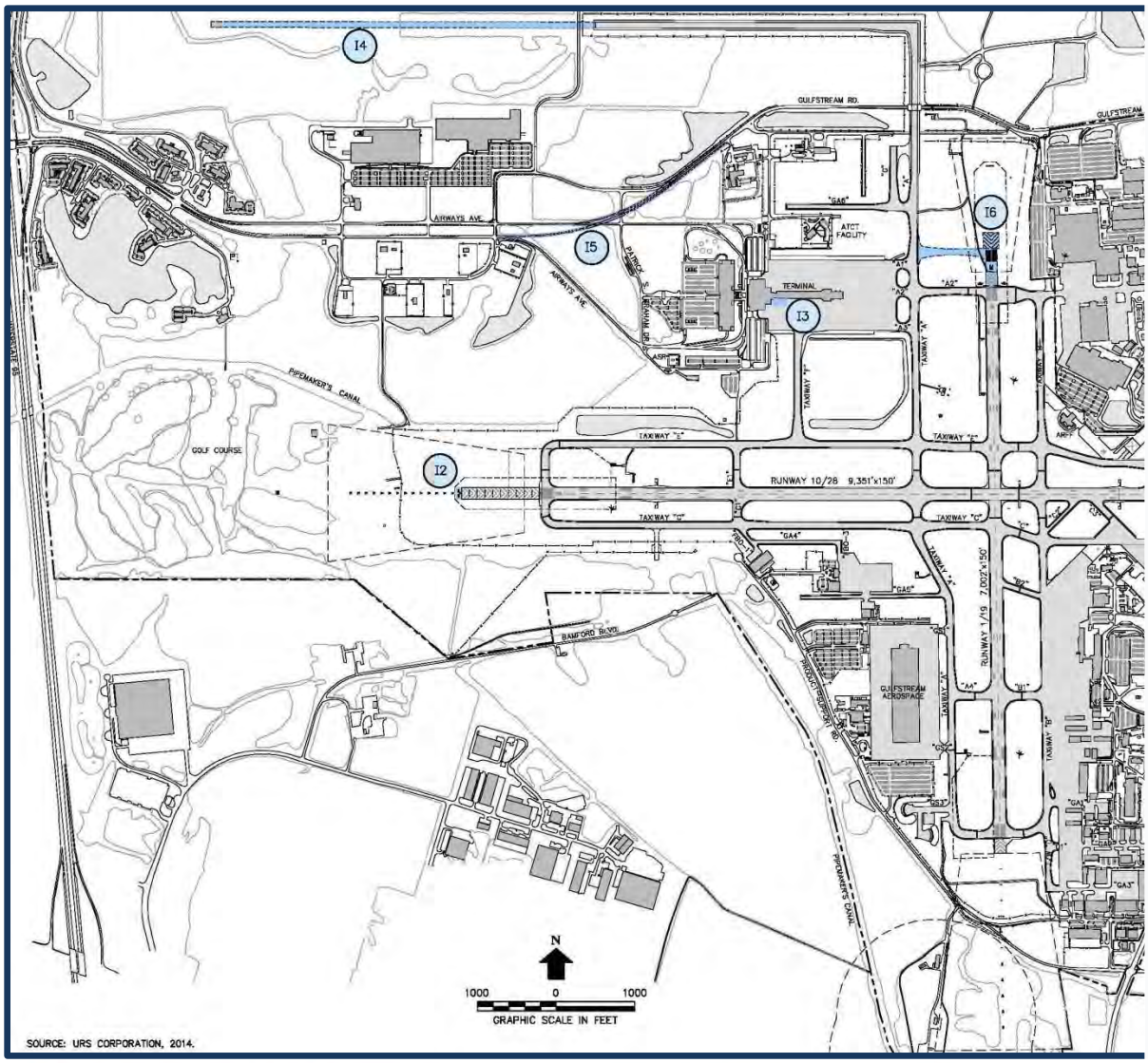
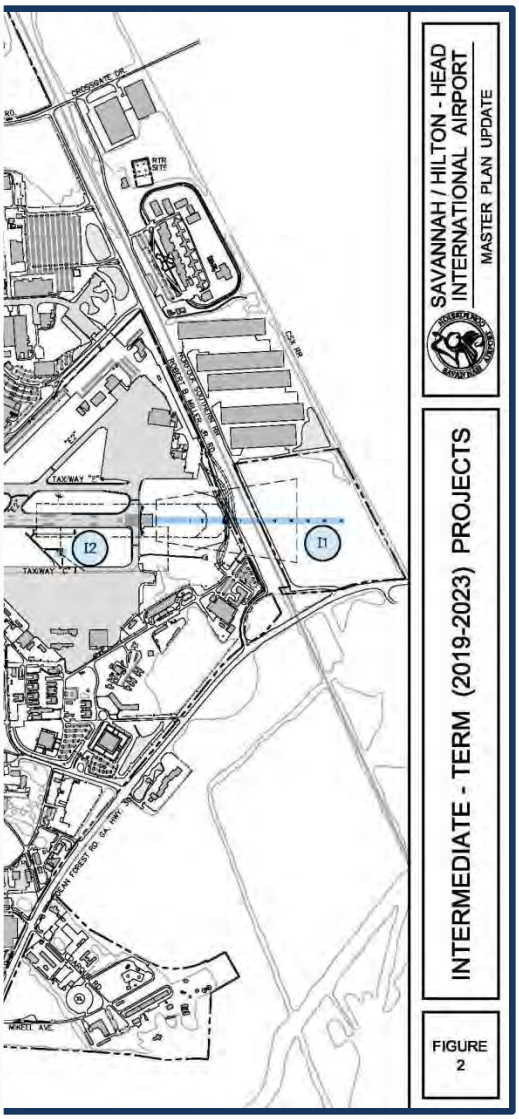



TABLE 2
INTERMEDIATE-TERM (2019 TO 2023)
PROJECT COST ESTIMATES

| Project Number | Project Name | Estimated Cost (2013 Dollars) |
|---|---|---|
| I1 | Install MALSR on Runway 28 | $2,306,285 |
| I2 | Install ILS on Runway 28 | $3,090,023 |
| I3 | Expand Passenger Screening Security Checkpoint | $10,701,339 |
| I4 | Completion of Taxiway H | $12,622,087 |
| I5 | Construct Airways Avenue Flyovers to Gulfstream Road | $15,280,653 |
| I6 | Extend Runway 1-19 Northward by 500 feet | $5,596,614 |
| | **Total** | **$49,597,001** |

Source: URS, 2014.



## Long-Term Projects (2024 and Beyond)

Project priorities in the long-term include providing for long-range expansions of the terminal concourse and providing additional capacity on the arrivals curbside by constructing a ground transportation center on the north side of the terminal.

Long-term projects and their estimated costs are shown in **Table 3**. Long-Term projects are illustrated (where possible) in **Figure 3**.

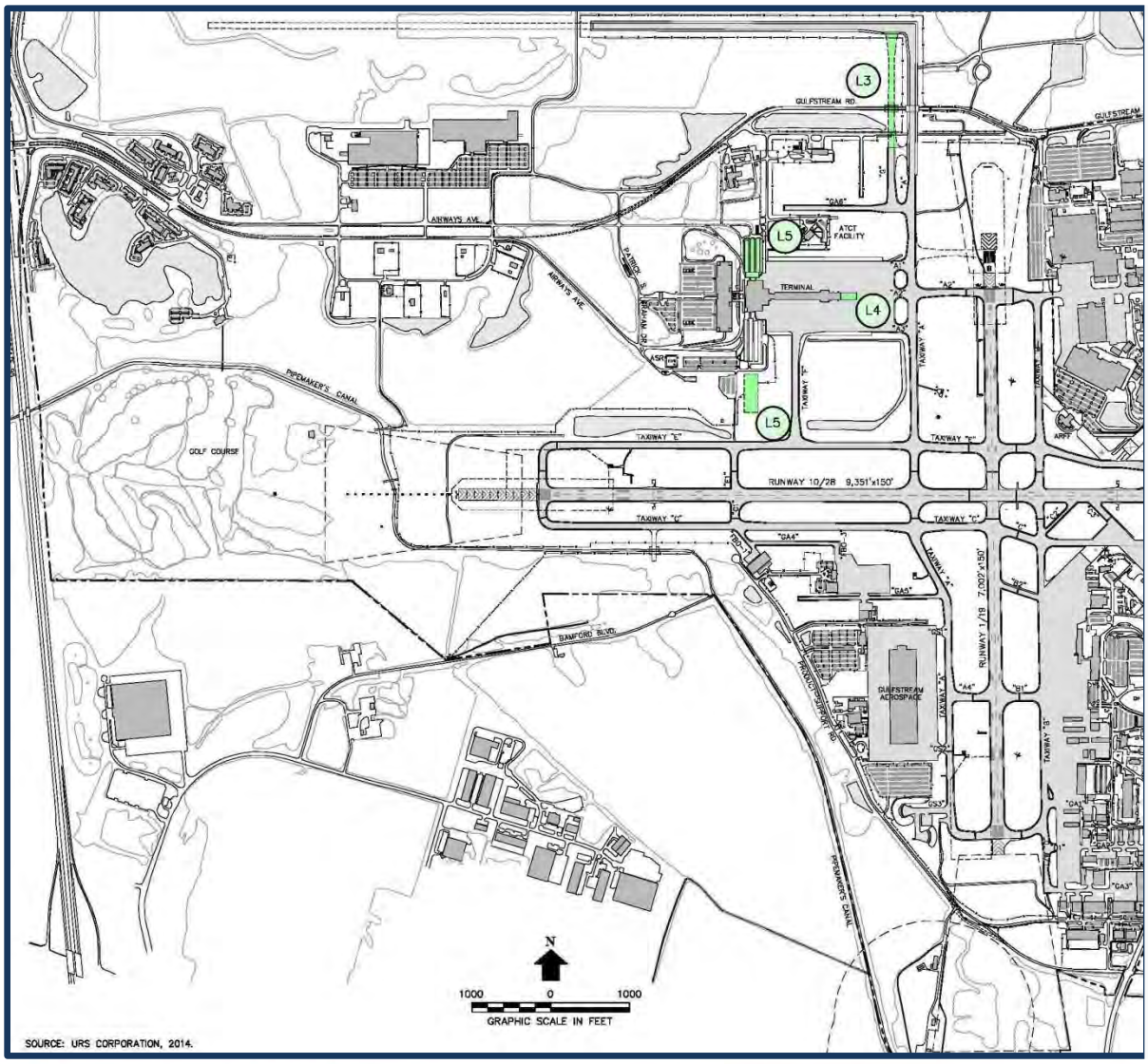
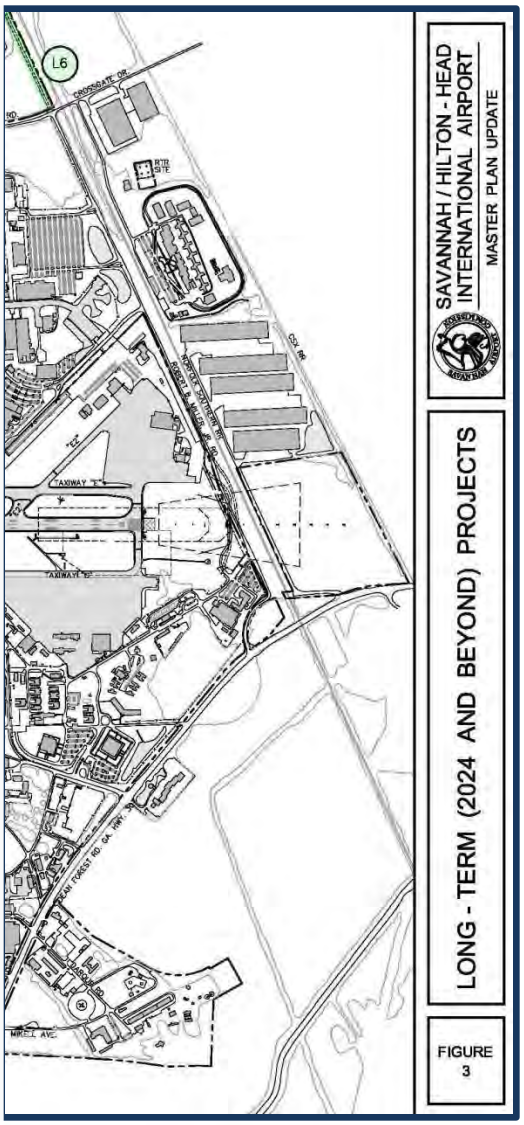



TABLE 3
LONG-TERM (2024 AND BEYOND)
PROJECT COST ESTIMATES

| Project Number | Project Name | Estimated Cost (2013 Dollars) |
|---|---|---|
| L1 | Expand Inbound Baggage Claim | $13,284,056 |
| L2 | Construct Administrative Office Space | $2,033,639 |
| L3 | Completion of Taxiway G | $6,676,699 |
| L4 | Construct Four-Gate Expansion on Existing Concourse | $17,335,687 |
| L5 | Construct Ground Transportation Center & Relocate Rental Car Ready Lot | $7,561,174 |
| L6 | Extend Robert B. Miller, Jr. Road | $1,633,262 |
| | **Total** | **$48,524,517** |

Source: URS, 2014.




The recommended plan provides the Airport Commission with a flexible roadmap for the future development of the Airport. Implementation of the plan will ultimately depend on future levels of passengers and aircraft operations, as well as available funding and other factors.