CHAPTER 2

AVIATION ACTIVITY FORECAST

This Page Intentionally Left Blank

TABLE OF CONTENTS

Chapter 2 Aviation Activity Forecast

LIST OF FIGURES

LIST OF TABLES

This Page Intentionally Left Blank

2.1 INTRODUCTION

Chapter 2 presents a forecast of the aviation activity for the Salt Lake City International Airport (SLC or the Airport). The forecast uses 2017 as the baseline year, and makes projections beginning in 2018, extending over the 20-year planning horizon to 2037.

The aviation activity forecast chapter:

- Reviews and compares relevant forecasts for projected growth at SLC
- Identifies the service area for SLC that represents the primary geographic area from which customers are drawn and evaluates socioeconomic data. Valid and relevant data from a variety of sources which include but are not limited to
  - Airlines operating out of SLC
  - Bureau of Transportation Statistics
  - T-100 market segment data
  - Official Airline Guide schedules (OAG)
  - Federal Aviation Administration (FAA)
    - Terminal Area Forecast (TAF) 2017, published in January 2018
    - FAA Aerospace Forecasts
    - The Operations Network (OPSNET)
  - Historical Airport Data from the Salt Lake City Department of Airports
  - General Aviation Strategy Plan, 2019
  - Key stakeholder input identified in the Forecast Expert Panel Session (See Section 1.2.6)
  - 2006 SLC Airport Layout Plan Update
  - The University of Utah Kem C. Gardner Policy Institute
  - 2007 Utah Continuous Airport Systems Plan (UCASP)
  - Woods & Poole, Inc., 2018 socioeconomic data for United States (U.S.) metropolitan statistical areas (MSAs), and Micropolitan Statistical Areas (MICROs)
- Uses a variety of methods for generating forecasts which include, but are not limited to:
  - Trend line analysis
  - Econometric regression modeling
  - Monte Carlo Simulation
- Forecasts projections for the Airport in the areas of:
  - Passenger Activity
    - Enplanements (total, origin & destination (O&D), and connecting)
    - Operations (itinerant, local, annual instrument approaches, instrument flight rules (IFR), visual flight rules (VFR), and fleet mix)
    - Design Day Schedule
    - Peak Hour
  - Air Cargo (total, freight, and belly cargo)
  - General Aviation (GA) Based Aircraft and Operations
  - Military Operations
  - Critical aircraft identified by runway

Three forecasts were generated for passenger, cargo, and GA activity – they are identified as the Base Case, Low Case, and High Case Scenario Forecasts. The prevailing practice relative to military activity is to maintain the base year data (in this case 2017) constant over the forecast period, therefore the military activity for the Base Case, Low Case Scenario, and High Case Scenario Forecasts are all the same.

The preferred forecast is referred to as the Base Case Forecast, and it has the highest probability for achievement. In addition, several specialized forecasts, or derivatives, were developed by considering different assumptions regarding passenger enplanements which identify both a lower and higher level of enplanements than the Base Case Forecast.

The Base Case Forecast of passenger enplanements can be used as a barometer to measure for growth and the need for facilities in future years. If activity grows faster than anticipated by this Base Case Forecast, i.e., toward the level of enplanements identified by the High Case Scenario Forecast, then the Salt Lake City Department of Airports (SLCDA) should reassess their implementation schedule and accelerate plans as necessary. Similarly, slower than projected growth (Low Case Scenario Forecast) may warrant SLCDA deferring planned improvements until higher activity is reached. Actual activity growth should be frequently compared to anticipated design and construction schedules so that modifications can be identified, as necessary.

This document provides an aviation demand forecast and develops support forecasts, or derivative forecasts such as peak period passenger or aircraft operations forecasts by type, for use in preparing Facility Requirements within the next chapter.

Given the recent period of fast enplanement growth and the uncertainty about the ability to sustain this level of growth much longer, the Base Case and two scenario forecasts provide flexibility to predict future facility requirements that might be needed within a range of reasonableness. These forecasts serve as benchmarks for understanding the pace of growth at SLC should the Base Case Forecast be exceeded, or conversely, not achieved.

Reflecting positive trends in the United States and the region for future growth in air travel, the Base Case Forecast assumes;

- Continuation of strong growth between SLC and its city pairs at least in the short term
- Continuation of seasonal flights
- Continuation of flights to small cities in the western mountain region and the use of aircraft with 60 seats and less
- Limited increases in non-stop destinations as SLC already serves 98 cities non-stop (August 2018)
- Continued increases in international enplanements with a growth in new international city pairs
- Continued upgauging of aircraft on routes from SLC, particularly to the West Coast
- Additional overnight flights to the east coast to connect with international flights
- Accommodation of expanding growth in tourism and business.

The High Case Scenario Forecast is based upon a slightly higher long-term growth rate in population and employment as indicated in forecasts by the University of Utah's Kem C. Gardener Policy Institute as opposed to using Woods & Poole. In addition, the FAA's slightly higher long-term Gross Domestic Product (GDP) for the U.S. is used as opposed to the Woods & Poole Gross Regional Product (GRP) for the counties in the SLC Service Area (defined in **Section 2.1.2**). All these variables for this region are approximately equal to or greater than those of the United States. This is in addition to the possible effect from sustained competitive airfares and airline profitability. The Low Case Scenario assumes a slight decline in long-term GDP growth relative to Woods & Poole's estimate of regional GRP as well as higher airfares and airline yields that suppresses air passenger growth.

2.1.1 Executive Summary of Forecasts for FAA Approval

This section provides a quick summation of forecasts for the reader and for the FAA. Detail explanation about forecast methodology and results may be found is subsequent portions of the forecasts.

A key consideration in the development of aviation forecasts is how they compare with the Federal Aviation Administration (FAA) Terminal Area Forecasts (TAF).[1] The TAF is an important planning tool used by the FAA to review and compare forecasts prepared by Airport Sponsors. In accordance with FAA Order 5050.4B, National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions, paragraph 706.b(3), "The sponsor's forecast must be consistent with the Terminal Area Forecast (TAF). To be consistent with the TAF, the sponsor's 5-year forecast should be within 10% of the TAF and a 10-year forecast should be within 15% of the TAF."[2] The FAA must approve sponsor forecasts before they can be used to prepare facility requirements in a master plan or before going forward with an environmental document that requires a forecast. If these stated thresholds are exceeded, the FAA Region office in which the airport is located will forward the forecasts to FAA headquarters for approval.

The basis for comparison of forecasts is the FAA TAF 2017 published in January 2018. The FAA TAF compares data on a fiscal year basis, i.e., October 1 of a year through September 30 of the next year. Wherever possible, the Master Plan Update forecasts use the same fiscal year methodology as the FAA TAF for purposes of direct comparison. Data cited identifies whether it is fiscal year data or calendar year.

It should be noted that the preferred Base Case Forecast for SLC tracks closely with the current FAA, TAF 2017 published January 2018.) **TABLE 2-1** provides a comparison of the SLC Forecast with the FAA TAF 2017. Commercial operations refer to all scheduled and non-scheduled passenger and air cargo operations. As described in the paragraphs below, the long-term number of commercial operations indicated by TAF 2017 is slightly higher than forecast by the Base Case. This is due to assumptions regarding increasing gauge that results in fewer total operations having greater seating configurations and carrying more passengers. In addition, long-term GA operations are projected to slightly increase over TAF 2017 levels, as a result of anticipated increases in the number of turbojet operations, although, piston operations are forecast to decline.

[1] The Terminal Area Forecast is the official FAA forecast of aviation activity for United States airports.
[2] December 23, 2004, memorandum from the FAA Director, Airport Planning and Programming, entitled Revision to Guidance on Review and Approval of Aviation Forecasts.

TABLE 2-1
BASE CASE FORECAST COMPARISON WITH FAA TAF 2017

	2017		2022		2027		2037	
Category	**Base Case**	**TAF 2017**	**Base Case**	**TAF 2017**	**Base Case**	**TAF 2017**	**Base Case**	**TAF 2017**
Enplanements	11,515,639	11,515,639	14,228,574	13,121,857	15,662,157	14,499,142	18,666,369	17,623,339
Passenger Operations	257,863	277,269	282,077	298,163	309,395	324,653	343,535	388,313
Cargo Operations	19,406		23,122		24,280		31,142	
GA Operations	40,476	40,476	42,825	39,599	45,624	39,899	52,807	40,503
Military Operations	7,348	7,348	7,348	7,348	7,348	7,348	7,348	7,348
Total Operations	325,093	325,093	355,372	345,110	386,647	371,900	434,832	436,164
GA Based Aircraft[1]	290	359	294	387	295	415	303	478
Comparison with FAA TAF 2017 (percent different)								
Enplanements	0.0%		7.8%		7.4%		5.6%	
Commercial Operations[2]	0.0%		2.3%		2.7%		-3.6%	
GA Operations	0.0%		7.5%		12.5%		23.3%	
Military Operations	0.0%		0.0%		0.0%		0.0%	
Total Operations	0.0%		2.9%		3.8%		-0.3%	
GA Based Aircraft	-23.8%		-31.6%		-40.7%		-57.8%	

[1]The discrepancy between the Base Case Forecast and FAA TAF 2017 in GA Based Aircraft is the result of a verified count completed in mid-2018
[2] Commercial Operations are defined as scheduled air carrier passenger and cargo
Source: RS&H, 2018; FAA TAF, 2017

2.1.2 SLC Service Area

The SLC service area is defined as the maximum boundary from which Airport customers are anticipated to travel, giving consideration for drive time, cost, and the types of services that are unique to SLC over other airports. Defining the service area plays a major role in the forecast, because it determines the values of the socioeconomic variables that will be used in projecting the Airport's growth.

The drive-time analysis assumes people would drive a maximum distance of approximately 120 minutes to reach SLC, based on the size of SLC and the variety of airport services offered there. As a result, the main population center of Salt Lake City[3] is included in the Salt Lake Metropolitan Statistical Area[4] (MSA) along with three other MSAs that include: Provo-Orem, UT MSA; Ogden-Clearfield, UT MSA; and Logan, UT MSA. It also includes three Micropolitan Statistical Areas[5] (MICRO)s: Heber, UT MICRO; Summit Park, UT MICRO; and Evanston, WY MICRO. The counties that are within these statistical areas are identified as the SLC Service Area and used as some of the socioeconomic data for this forecast. **FIGURE 2-1** shows the SLC Service Area.

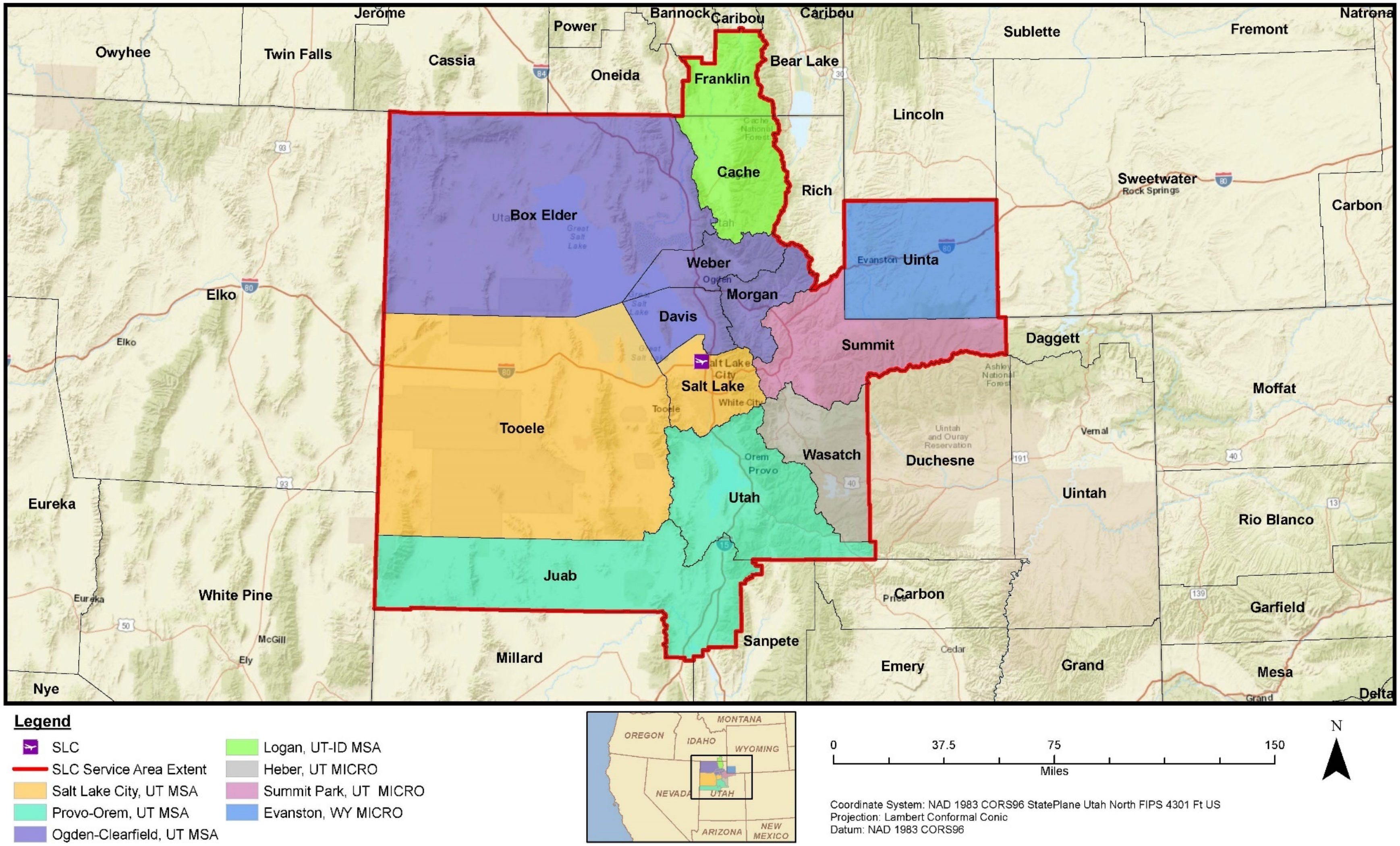
A consensus regarding the composition of the SLC Service Area was gained during the Master Plan Update Forecast Expert Panel Session held on August 28, 2018. While additional counties in Utah, Idaho, and Wyoming were discussed as potentially being part of the service area, the decision to exclude them from the analysis centered on including only MSAs and MICROs for which there was more complete data and due to the small additional population those other counties would add, which would not significantly affect the forecast.

TABLE 2-2 shows a comparison of key socioeconomic variables for the SLC service area, state of Utah, and the U.S. as a whole.

.

[3] SLC is located approximately five miles due west and slightly north of downtown Salt Lake City, Utah.
[4] Metropolitan Statistical Areas, or MSAs are defined by having at least one urbanized area of 50,000 or more population, plus adjacent territory that has a high degree of social and economic integration with the core as measured by commuting ties
[5] Micropolitan Statistical Areas, or MICROs are defined by having at least one urban cluster of at least 10,000 but less than 50,000 population, plus adjacent territory that has a high degree of social and economic integration with the core as measured by commuting ties.

FIGURE 2-1
SLC SERVICE AREA



Source: RS&H, 2018; Esri, 2018

TABLE 2-2
KEY SOCIOECONOMIC VARIABLES PROJECTED (2017-2037)

	2017	2022	2027	2037	2018-2037 AAGR
SLC Service Area					
Total Population	2,707,367	2,903,182	3,110,811	3,539,175	1.4%
Total Employment	1,773,518	1,944,582	2,103,410	2,406,825	1.5%
Personal Income Per Capita	$46,209	$49,135	$51,532	$55,094	0.9%
Gross Regional Product (millions)	$158,355	$177,503	$195,862	$233,343	2.0%
State of Utah					
Total Population	3,093,435	3,325,603	3,573,578	4,092,861	1.4%
Total Employment	1,984,346	2,179,169	2,361,331	2,714,541	1.6%
Personal Income Per Capita	$44,506	$47,366	$49,735	$53,269	0.8%
Gross Regional Product (millions)	$173,547	$194,551	$214,808	$256,479	2.0%
United States					
Total Population	325,888,129	341,327,746	357,430,460	389,046,190	0.9%
Total Employment	198,989,688	214,599,006	229,158,435	256,758,953	1.3%
Personal Income Per Capita	$53,201	$56,915	$60,250	$65,558	1.1%
Gross Regional Product (millions)	$20,189,355	$22,237,573	$24,257,497	$28,406,746	1.7%

Note AAGRs are rounded to the nearest 0.1%
Source: RS&H, 2018; Woods and Poole Inc., 2018

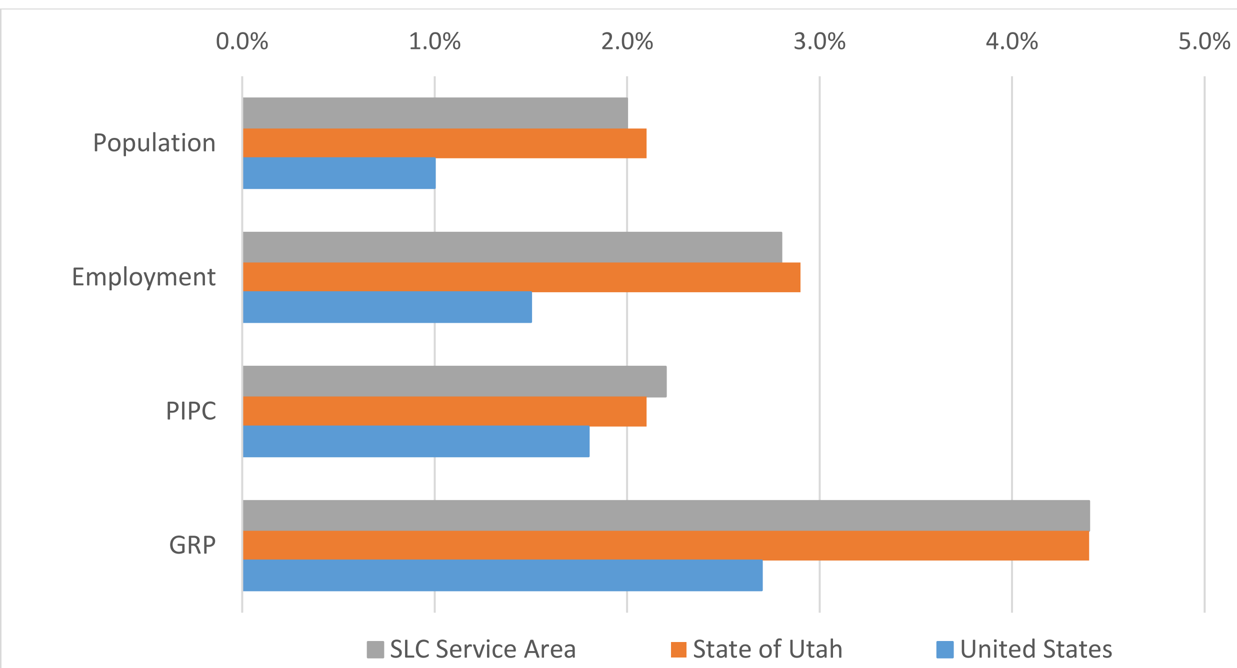
2.1.2.1 Socioeconomic Analysis

Population, employment, personal income per capita (PIPC), and Gross Regional Product (GRP) [6] are all considered the four key socioeconomic variables, or potential economic drivers for forecasting aviation activity. Therefore they were all analyzed for historical and long term growth projections.

From 1993 to 2017, the SLC service area and the State of Utah aligned very closely in each of the four variables as well as their annual average growth rates (AAGR)s.[7] This was, and still is, due to the populations of the MSAs and MICROs surrounding the Airport representing a high proportion of the state as a whole. In 2017, 87.5% of the state of Utah's population was within the SLC service area.[8]

Over the past 25 years, the SLC service area and state of Utah each had greater AAGRs than the U.S. for all of the socioeconomic variables compared. The SLC service area (2.0% AAGR) and the state of Utah (2.1% AAGR) both had double the rate of population growth that the U.S. (1.0% AAGR) had. While the employment and PIPC also followed similar trends, the PIPC rates of growth were the closest among the four socioeconomic variables with the SLC service area (2.2% AAGR), state of Utah (2.1% AAGR), and U.S. (1.8% AAGR). The GRP was the most noticeably divergent statistic with the SLC service area and the state of Utah (4.4% AAGR) over 1.5% higher than the U.S. (2.7% AAGR). **FIGURE 2-2** compares the historical AAGRs for the socioeconomic variables from 1993-2017.

FIGURE 2-2
COMPARISON OF HISTORICAL SOCIOECONOMIC VARIABLES (1993-2017)

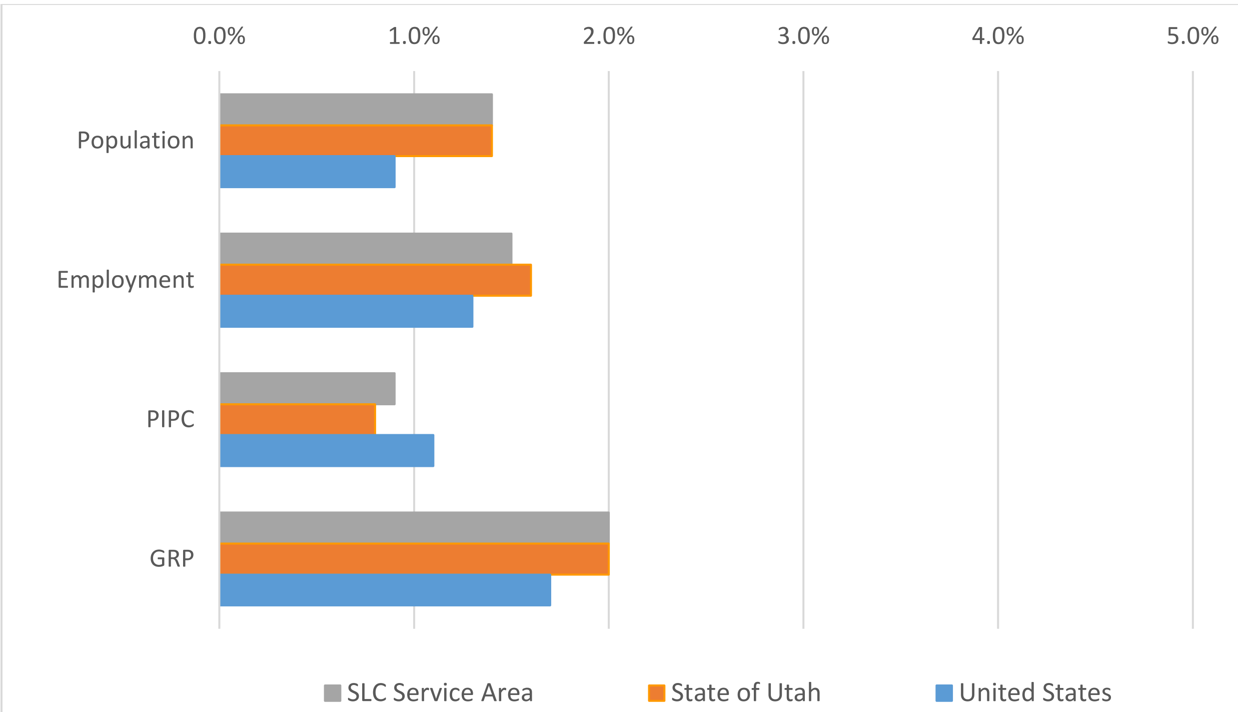


Source: RS&H, 2018; Woods and Poole Inc., 2018

[6] GRP is referred to as Gross Domestic Product (GDP) at the national level.
[7] AAGRs are calculated by taking each percentage of growth for a particular timeframe and averaging them.
[8] Percentage based on Woods and Poole Inc. 2018 population totals for SLC service area counties and the U.S.

The projected AAGRs of the SLC service area and state of Utah remained similar over the planning horizon indicating the region is an economic core to the state of Utah and surrounding areas. Like the historical growth rates, the SLC service area projections showed AAGR increases in all of the socioeconomic variables over the planning horizon, with GRP being the greatest. The only variable that shows a projected U.S. AAGR surpassing the SLC service area and the state of Utah is PIPC. **FIGURE 2-3** compares the projected socioeconomic variables from 2018-2037.

FIGURE 2-3
COMPARISON OF SOCIOECONOMIC VARIABLE PROJECTIONS (2018-2037)



Source: RS&H, 2018; Woods and Poole Inc., 2018

2.1.2.2 Gross Domestic Product

U.S. GDP is one of the variables that correlates very well with long-term growth and is a factor that is often associated with passenger and cargo forecasts.

Additional research was preformed regarding other historical estimates and future projections of GDP. Data was available from 1980 with projections beyond 2037 from two sources -- Woods & Poole and Global Insight. Woods & Poole was used as the primary indicator of U.S. GDP and SLC GRP forecasts. Global Insight is used by the FAA in its annual Aerospace Forecasts. Another source consulted was GDP forecasts published by the Congressional Budget Office. Their data was available for the period 2013-2028. An international GDP projection of U.S. GDP published by the Organization for Economic Cooperation and Development (OECD) was also consulted. The OECD is a more than 50-year old organization originally established to plan the most efficient way to use U.S. money from the Marshall Plan to rebuild Europe after World War II. That organization publishes U.S. GDP forecasts from 2014 to beyond 2037.

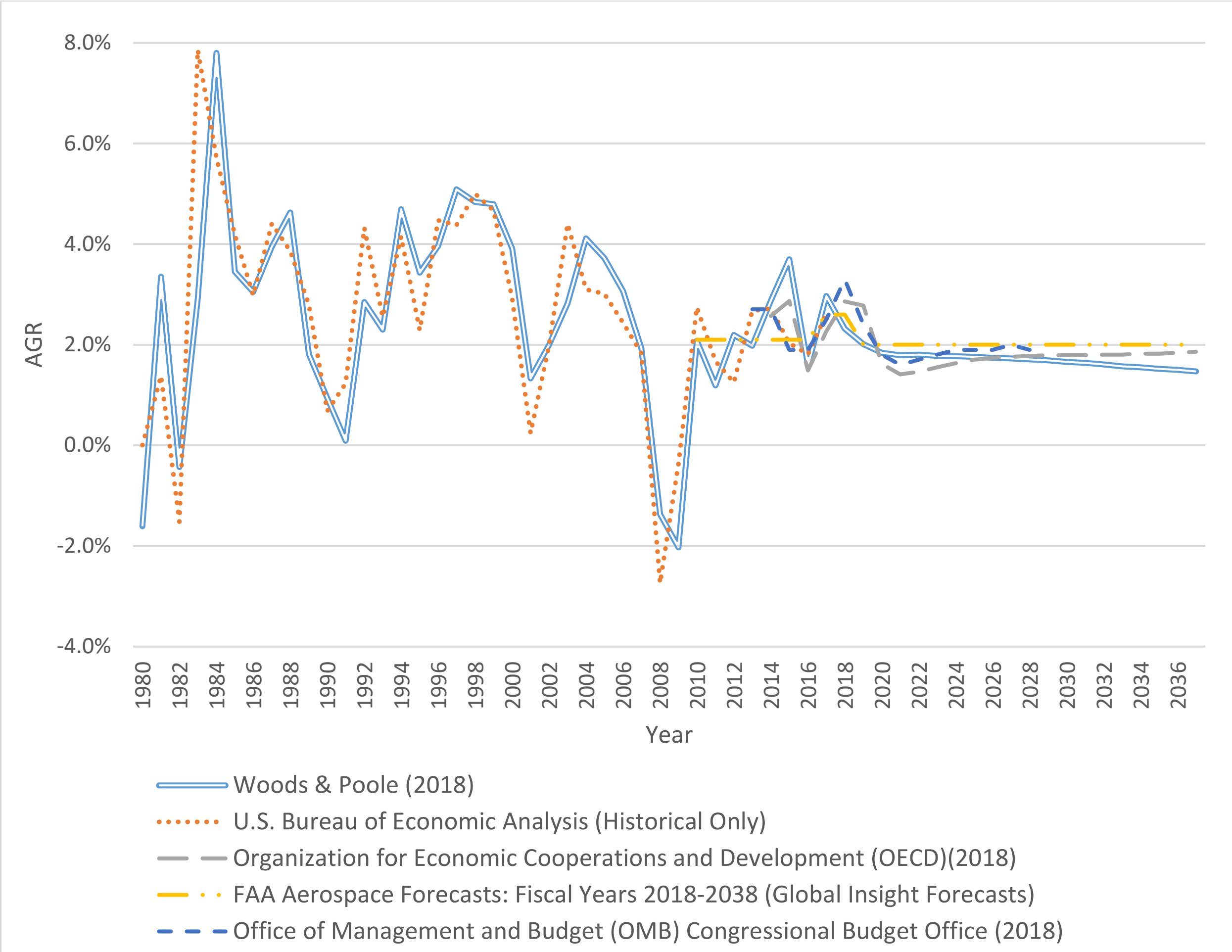
Finally, the U.S. Bureau of Economic Analysis was considered, which provides historical GDP data, going back to 1980.

Other sources, including Barclays and the International Monetary Fund, were also investigated but excluded as a result of limited available data.

FIGURE 2-4 provides a graph of these GDP forecasts. All annual projections show U.S. GDP growth is expected to peak in 2018 and decrease quickly over the next 5 years to 1.8%-1.4%. In particular, the next 5 years appear to be especially slow growth years with only modest increasing forecasts thereafter; nothing approaching the recent period.

- Woods & Poole's projections of GDP are highest in 2018 (2.97%) and decline to 1.8% in five years and continues to decline thereafter to less than 1.5% after 2038.
- Global Insight's peak forecast of GDP over the next 20 years is in 2018 at 2.6% and then declines to 2.0% where it remains constant over to beyond 2037. This forecast is highest over the long term.
- OECD's estimates of GDP growth indicate the next five years as a trough with a low projection of 1.4% in 2021 followed by a slow growth rebound through 2038 at 1.9%.
- The Congressional Budget Office predicts a 3.3% GDP growth rate for 2018 declining in the next five years to 1.6% and leveling off at approximately 1.9% after ten years.

FIGURE 2-4
COMPARISON OF GROSS DOMESTIC PRODUCT FORECASTS BY VARIOUS SOURCES



Source: Woods & Poole, Inc., 2018; U.S. Bureau of Economic Analysis; Organization for Economic Cooperation and Development, 2018; FAA Aerospace Forecast: FY 2018-2038; U.S. Office of Management and Budget, Congressional Budget Office, 2018

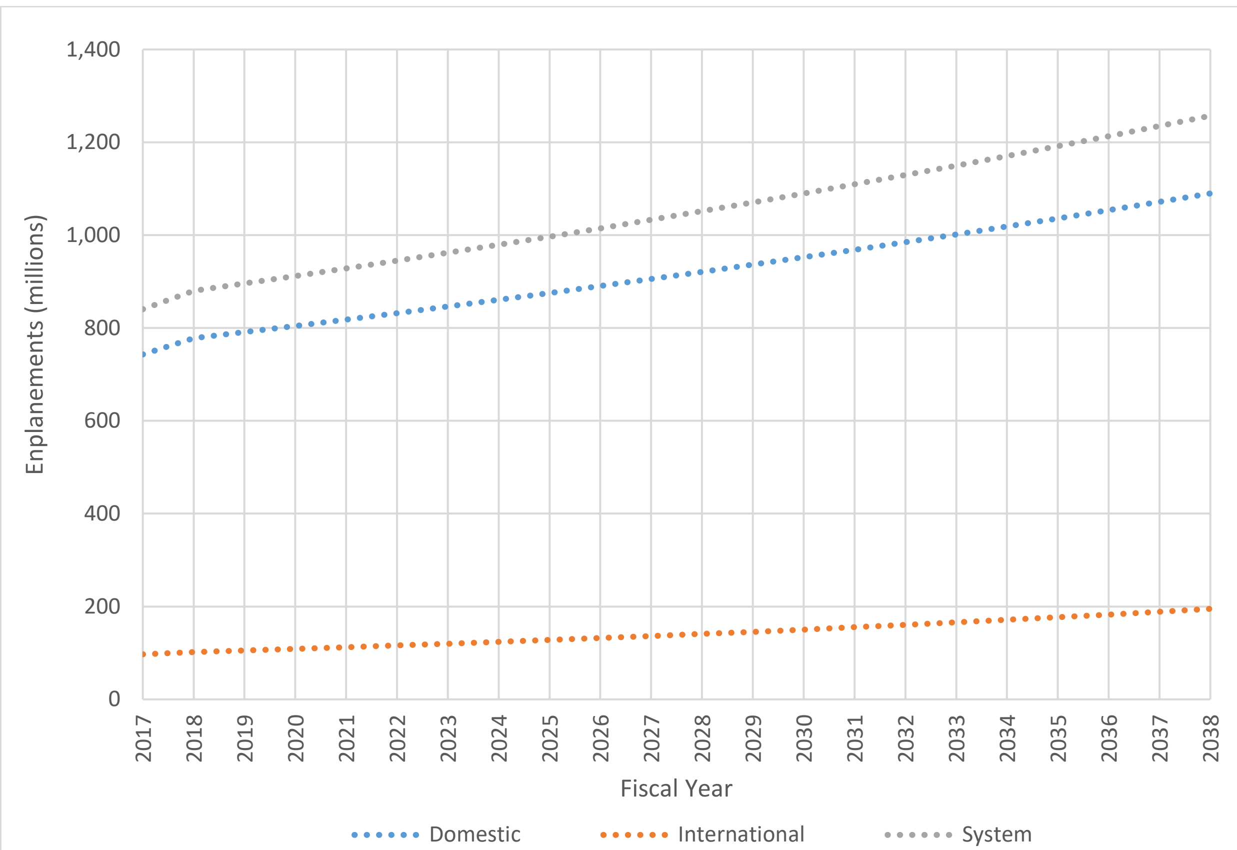
2.2 REVIEW OF FORECASTS

This section provides an assessment of key reports and documentation used in preparing SLC aviation activity forecasts.

2.2.1 FAA Aerospace Forecast Fiscal Years 2018-2038

The *FAA Aerospace Forecast for Fiscal Years 2018-2038* projects steady long term growth for revenue passenger enplanements of U.S. commercial air carriers.[9] Revenue passenger enplanements are projected to increase rapidly from FY 2017-2018 for all passenger types with domestic enplanements increasing with an AAGR of 4.7%, international enplanements at an AAGR of 5.0%, and the combined system enplanements at an AAGR of 4.7%. Post-2018 through the end of the planning horizon growth is predicted to level out to an AAGR of 1.7% for domestic, 3.3% AAGR for international, and 1.9% for the system. **FIGURE 2-5** shows the projected growth for U.S. domestic, international, and system revenue passenger enplanements over the next 20 years.

FIGURE 2-5
PROJECTED REVENUE PASSENGER ENPLANEMENTS FOR U.S. COMMERCIAL AIR CARRIERS (2017-2038)



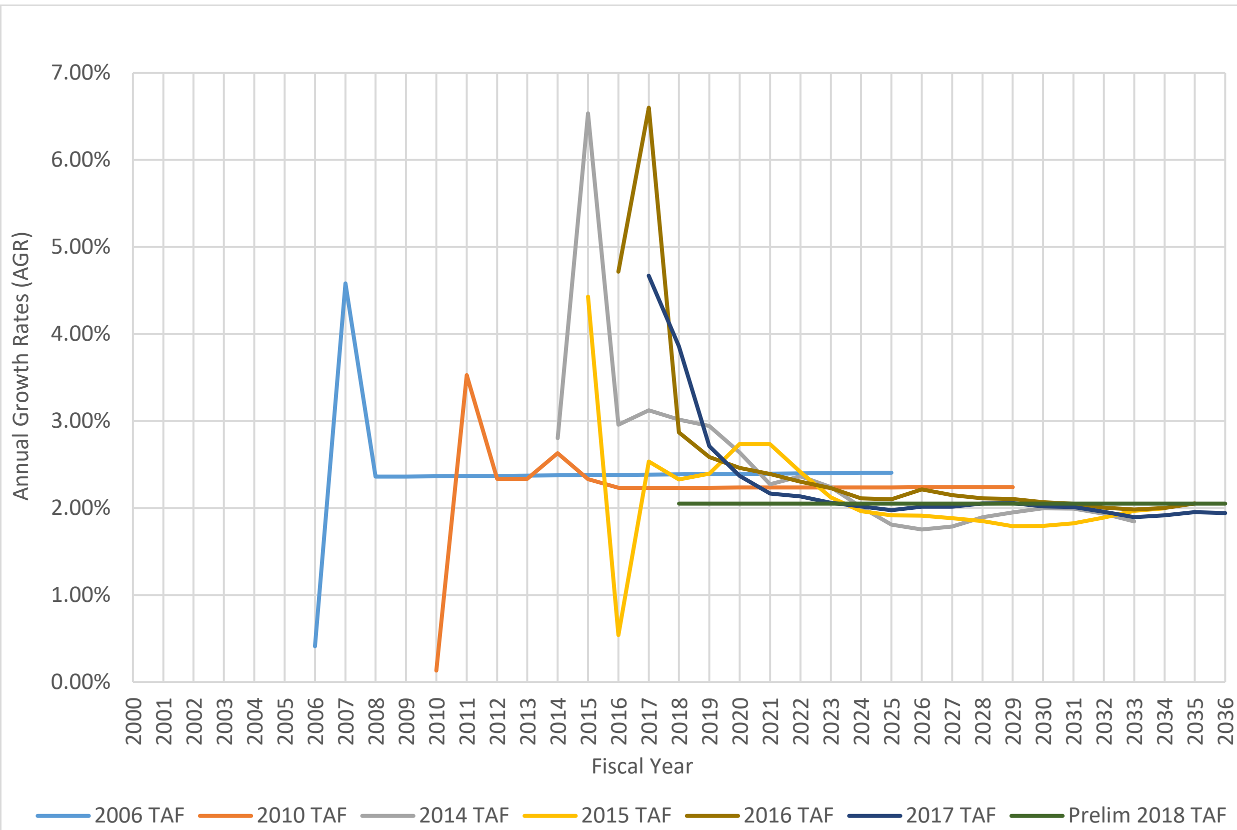
Note: Totals represent the sum of U.S. Mainline and Regional Air Carriers; Totals are interpolated and rounded using the AAGRs from 2017-2018 and 2018-2038 U.S. Mainline Air Carriers Scheduled Passenger Traffic Table (Table 5)
Source: FAA Aerospace Forecasts Fiscal Years 2018-2038; RS&H, 2018

[9] Includes both mainline and regional air carriers.

2.2.2 Terminal Area Forecast 2017 (Published January, 2018) and Forecast Report

The FAA TAF is the official forecast produced annually by the FAA for U.S. airports. TAF forecasts are prepared to assist in planning efforts and needs of the FAA. Because the TAF is updated annually, a specific forecast may differ from previous years. The TAF is based on the federal fiscal year (FY) which goes from October 1 through September 30, as opposed to calendar year (CY) which begins January 1 and ends December 31. **FIGURE 2-6** shows the growth rates per actual year of a selection of TAF forecasts including: preliminary TAF 2018, as well as the current TAF 2017 (which was published in January, 2018), TAF 2016, TAF 2015, TAF 2014, TAF 2010, and TAF 2006.

FIGURE 2-6
RECENT TAF FORECAST GROWTH RATES FOR SLC



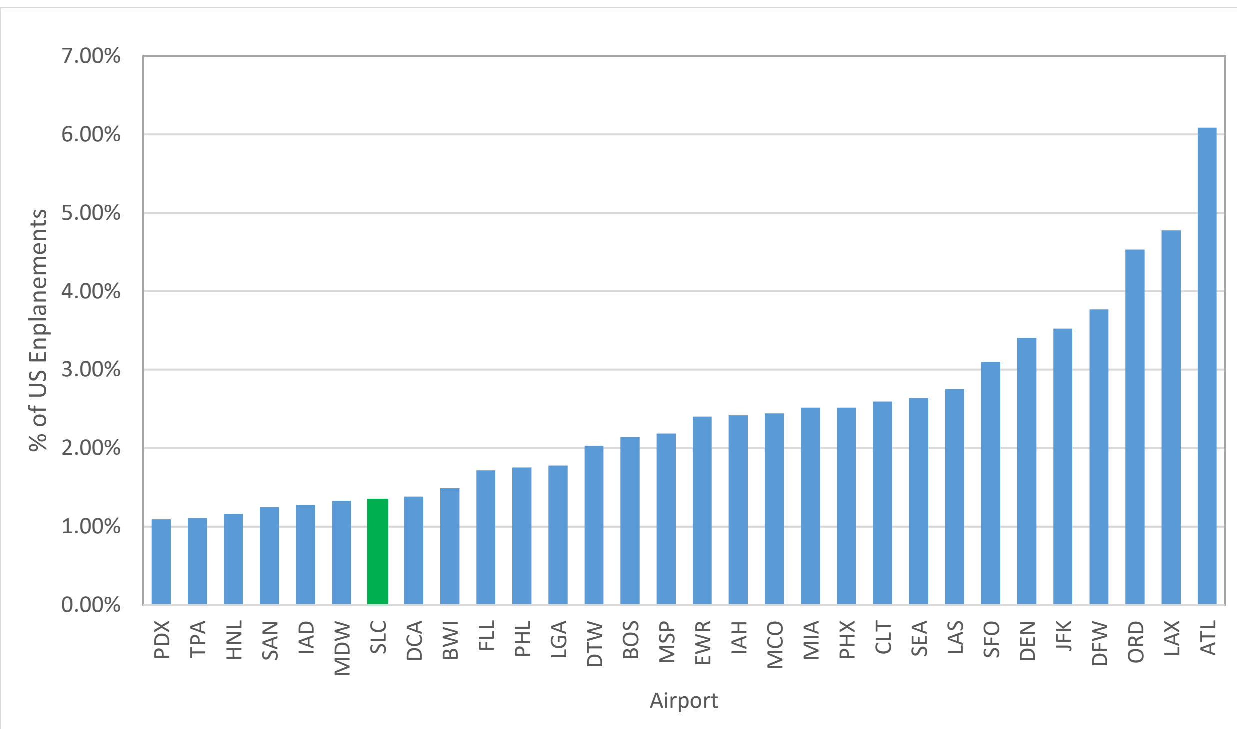
Note: Growth rates are per actual year of forecast
Source: FAA TAF 2006; FAA TAF 2010: FAA TAF 2014; FAA TAF 2015; FAA TAF 2016; FAA TAF 2017; Preliminary FAA TAF 2018

2.2.3 2019-2023 National Plan of Integrated Airport Systems (NPIAS)

The FAA's National Plan of Integrated Airport Systems (NPIAS) for 2019-2023 identifies the roles for each of the 3,328 airports included within the national airport system, as well as the federal funding each airport is eligible to receive under the Airport Improvement Program (AIP). Each time the NPIAS is updated, all of the NPIAS airports are categorized as either primary or non-primary, based on their enplaned passenger totals. For the evaluation of each airport within the 2019-2023 NPIAS, passenger enplanement totals for CY 2017 were used. Of all NPIAS airports, there were a total of 380 primary airports receiving scheduled service with 10,000 or more enplaned passengers annually, while there were 2,941 non-primary airports that received less than 10,000 enplaned passengers. Salt Lake City International Airport is a primary airport, since it does enplane more than 10,000 passengers.

Each primary airport is then further classified as a large hub, medium hub, small hub, or non-hub airport based on the percentage of total U.S. enplanements it handles. In the 2019-2023 NPIAS, there were 30 large hub airports each accounting for 1 percent or more of the U.S. total, 31 medium hub airports each accounting for 0.25 to 1 percent of the U.S. total, 72 small hub airports each accounting for 0.05 to 0.25 percent of the U.S. total, and 249 non-hub airports each accounting for less than 0.05 percent of the U.S. total, but still receiving more than 10,000 enplanements annually. Based on SLC's passenger enplanement total of 11,143,738, it accounts for 1.3% of the U.S. total, ranking as the 24th busiest U.S. airport in terms of passenger enplanements in the 2019-2023 NPIAS Report. **FIGURE 2-7** shows a comparison of large hub airports in the 2019-2023 NPIAS, with SLC identified in green.

FIGURE 2-7
COMPARISON OF NPIAS LARGE HUB AIRPORTS

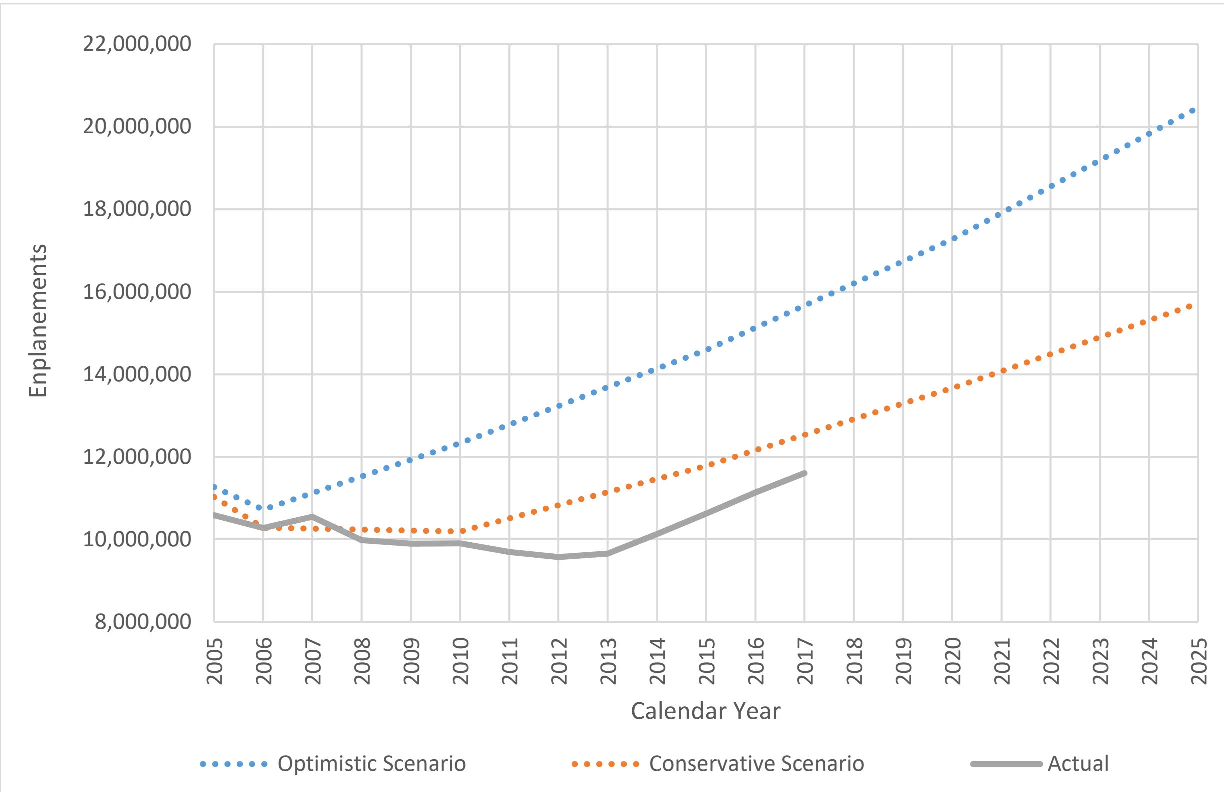


Note: Based on Calendar Year 2017 enplanement totals
Source: RS&H, 2018; NPIAS, 2019-2023

2.2.4 2006 Salt Lake City International Airport Layout Plan Update

The 2006 Salt Lake City International Airport Layout Plan Update produced optimistic and conservative scenario forecasts for enplanement growth through 2025. **FIGURE 2-8** shows the two scenarios and compares them to the actual enplanement growth of the Airport through 2017. The conservative scenario forecast aligned closely with the actual enplanement growth through 2010. It should be noted that decline in actual activity was significantly influenced by the 2008 national economic crisis which affected the entire aviation industry.

FIGURE 2-8
OPTIMISTIC AND CONSERVATIVE SCENARIOS (2006 SLC AIRPORT LAYOUT PLAN UPDATE)

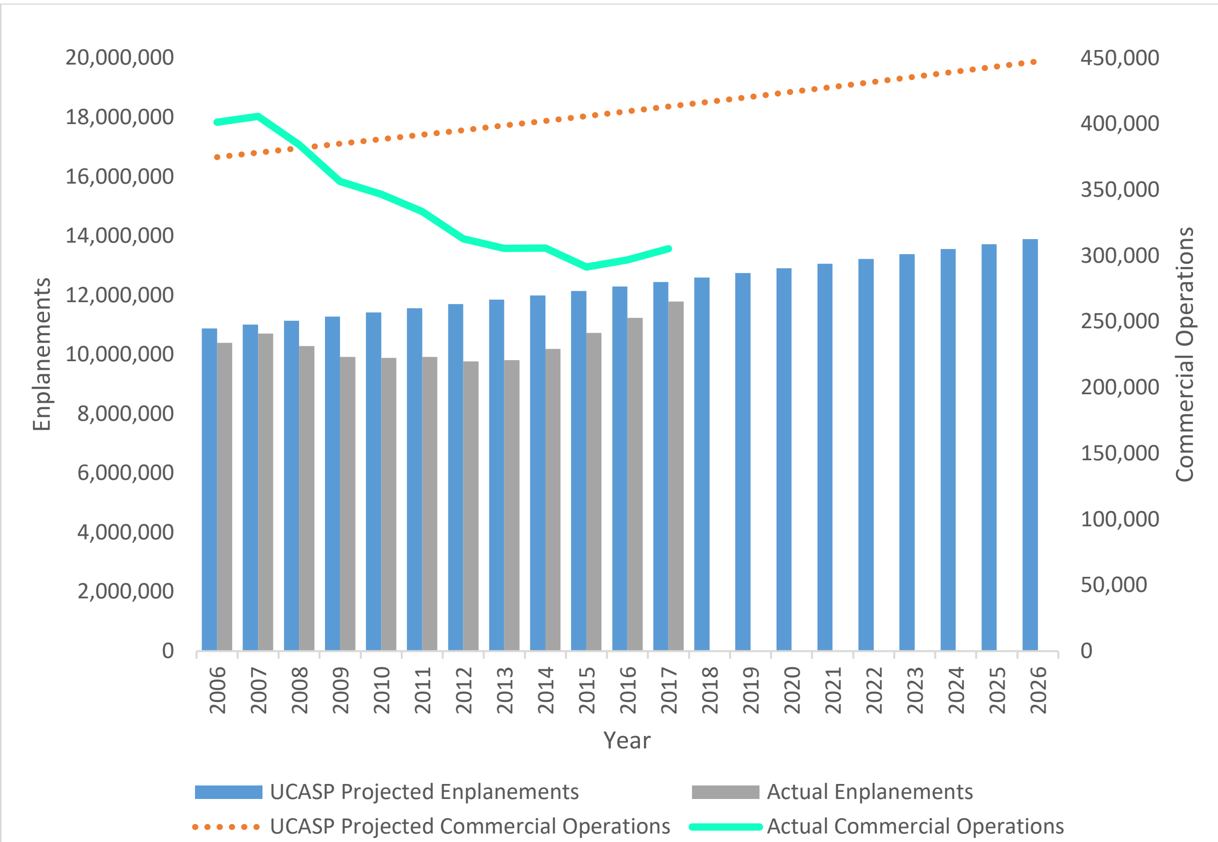


Source: SLC Master Plan Update, 2006

2.2.5 Utah Continuous Airport System Plan

The 2007 Utah Continuous Airport System Plan (UCASP) identifies SLC as the sole international airport in the state of Utah, providing essential national and international commercial airline service. The last UCASP update in 2007 forecast an AAGR of 0.9% for commercial operations, and 1.2% for total passenger enplanements through 2026. **FIGURE 2-9** shows the projected enplanements and commercial operations for SLC through 2026, as well as the actual totals during that timeframe. As with the forecast of enplanements, actual activity was negatively impacted by the 2008 national economic crisis.

FIGURE 2-9
2007 UCASP FORECAST FOR COMMERICAL OPERATIONS AND ENPLANEMENTS IN UTAH



Note: Values are interpolated and rounded using the UCASP AAGR for commercial operations (0.89%) and enplanements (1.23%)
Source: RS&H, 2018; UCASP Executive Summary, 2007; FAA TAF, 2017 (State of Utah Summary)

The 2007 UCASP also recognized multiple factors that could influence aviation demand in Utah including:

- Transportation improvements
- Tourism
- Oil/Gas
- Retirements/Second homes
- Population growth
- Employment growth

2.2.6 Expert Panel

The SLCDA established a committee composed of technical persons knowledgeable of aviation industry trends to critique the draft forecast prepared for the Airport. This committee, or Expert Panel, included individuals representing the FAA, Utah Division of Aeronautics, airlines interests including Delta, Economic Development Corporation of Utah, Utah Governor's Office of Economic Development, and executive SLCDA Staff.

An Expert Panel meeting was held on August 28, 2018. The consultant provided a presentation of historical Airport, airline, passenger, cargo, general aviation, and military trends as well as the input that would be used in developing a base case passenger enplanement forecast and derivative forecasts of lower and higher scenarios.

Numerous comments were provided by the Expert Panel members to help guide forecast development. Comments received from the panel included:

- SkyWest enplanement shares should be broken down by affiliated mainline carriers (American, Alaska, Delta, and United) and separate from SkyWest only operations
- Discussion of future growth in domestic and international markets and the aircraft that would serve them was provided
- Consensus was reached that SLC anticipated growth of four percent would be achieved over the next four-to-five years
- The general forecast methodology is sound and the macro/micro areas considered to be representative of the SLC Market Service Area is appropriate
- Utah population growth is quite different than much of the US total population
- Commenting about the uniqueness of SLC traffic patterns showing upgauging to support west coast airports and the paradigm shifts effects on near term growth
- General trends that will likely result in only having 20 to 30 Regional Jet operations per day by 2030 having seats of 60 or fewer passengers
- Acknowledging the benefits of the new airport terminal, its favorable cost model, and the competitive advantage it gives SLC over competitive airports like Denver International Airport (DEN), Phoenix Sky Harbor International Airport (PHX), and Dallas-Fort Worth International Airport (DFW).

2.2.7 Passenger Aircraft Fleet Mix-Baseline 2017

The passenger aircraft[10] fleet mix baseline list identifies the most commonly used passenger aircraft[11] at SLC for 2017. Further details on the number of operations of each aircraft compared to the passenger aircraft operations as a whole can be found in **Appendix C**.

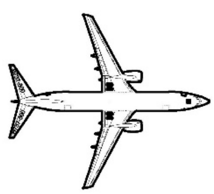
Airbus

- Airbus 319-100
- Airbus 320-200

- Airbus 321-200
- Airbus 300-600
- Airbus 330-200, -300

Boeing

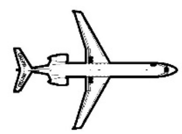
- Boeing 717-200
- Boeing 737-700, -800, -900



- Boeing 757-200
- Boeing 767-300
- Boeing 787-900

Bombardier

- Bombardier CRJ 200
- Bombardier CRJ 700



- Bombardier CRJ 900
- Bombardier Dash 8 (Q400)

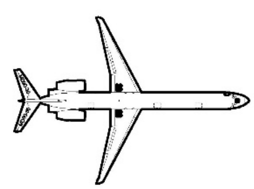
Embraer

- Embraer 170

- Embraer 175-L, -S

McDonnell-Douglas (Boeing)

- McDonnell Douglas MD-90



- McDonnell Douglas DC-10
- McDonnell Douglas MD-11

[10] For this forecast, the term "passenger aircraft" or "passenger operations" refers to the sum of total of air carrier and air taxi & commuter aircraft types operating out of SLC.
[11] "Most commonly used passenger aircraft" refers to those aircraft with at least 1,000 operations in FY 2017, however this list it is not meant to limit or omit any the other passenger aircraft fleet used out of SLC.

2.3 HISTORICAL OPERATIONS

2.3.1.1 Historical Total Operations

Over the past 15 years, the total operations from SLC have decreased by over 75,000. During that time the largest contributors to the decline were decreases in air taxi & commuter (-5.1% AAGR)[12]; this categories includes commuter jets having fewer than 60 seats, e.g., CRJ-200. General Aviation (GA) operations (-4.1% AAGR) reflects declining of piston engine operations. In contrast, air carrier[13] operations (2.4% AAGR) increased from 146,598 to 209,203 during those 15 years to offset some of the decline. **FIGURE 2-10** shows the historical distribution of total airport operations from 2003-2017.

2.3.1.2 Historical Passenger Operations

In 2003, the distribution of passenger operations[14] by type as indicated in the FAA TAF was nearly an even split, with air taxi & commuter representing 52.5%, and air carrier representing 47.5% of the total. Since that time, air carrier activity increased from 146,598 to 209,203 flights, representing 75.5% of total passenger share; and air taxi & commuter decreased from 164,914 to 68,066, representing a 24.5% share of passenger operations. This shift in operations is largely due to evolving airline business strategies in which high frequency routes currently served by small aircraft are being served by larger aircraft flying less often. **FIGURE 2-11** shows the historical distribution of passenger operations from 2003-2017.

2.3.1.3 Historical General Aviation Operations

Itinerant GA operations predominate over local operations at SLC. Historically from 2003-2017, the itinerant GA operations have averaged 93% of all GA operations annually. **FIGURE 2-12** shows the historical distribution of operations from 2003-2017.

2.3.1.4 Historical Military Operations

Historical military operations provide a view of how active military aircraft operate out of SLC. Much like GA, the historical military operations are very much one sided with the majority of operations being itinerant. Over the past 15 years, itinerant military operations have never represented less than 98.2% of military operations. The total military operations have decreased from 9,020 in 2003, to 7,348 in 2017. **FIGURE 2-13** shows the historical distribution of total military operations from 2003-2017.

2.3.1.5 Detail 2017 Fleet Mix

Appendix C provides a detail listing of the aircraft model types that operated at SLC in 2017. This data was derived from the FAA's National Offload Program (NOP) for aircraft activity and comprises 91% of all operations. It, however, does not include military or helicopter operations. **Appendix C** included military and helicopter operations as a result of coordinating with the FAA Airport Traffic Control Tower (ATCT) and Fixed Base Operators (FBOs). The 325,093 operations represented in this table is the same as the FAA TAF 2017 number of operations for SLC.

---

[12] Air taxi and commuter operations are those with less than 60 passenger seats or a cargo payload of less than 18,000 pounds. These can include aircraft such as the Embraer 120 or Cessna 208.

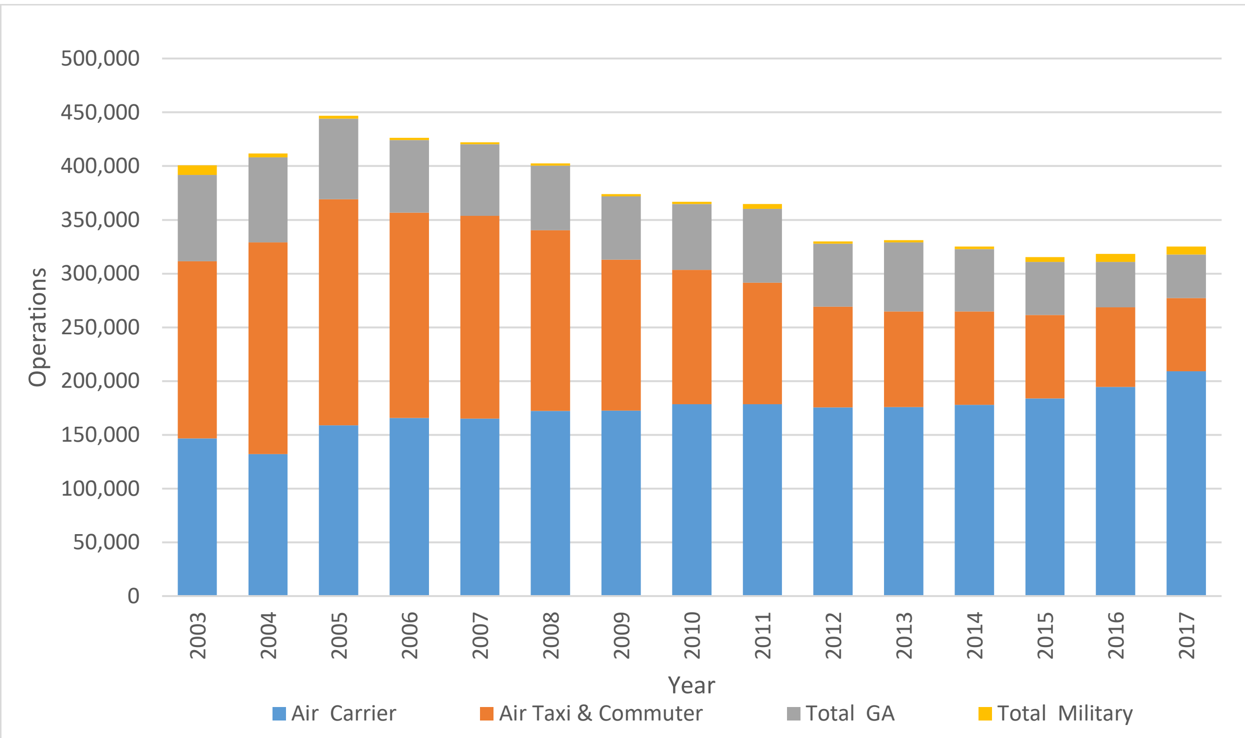
[13] Includes air cargo operations.

[14] For this forecast, passenger operations refer to the combined total of air carrier and air taxi & commuter operations.

FIGURE 2-10
HISTORICAL TOTAL OPERATIONS (2003-2017)

FY	Total Operations	Air Carrier	Air Taxi & Commuter	Total GA	Total Military
2003	400,700	146,598	164,914	80,168	9,020
2004	411,785	132,072	197,093	79,122	3,498
2005	446,926	158,880	210,342	74,944	2,760
2006	426,350	165,632	191,068	67,611	2,039
2007	422,297	165,306	188,429	66,642	1,920
2008	402,424	172,208	168,106	60,029	2,081
2009	374,004	172,481	140,470	58,955	2,098
2010	366,785	178,513	125,074	61,085	2,113
2011	364,839	178,563	113,077	68,570	4,629
2012	330,023	175,449	93,681	58,649	2,244
2013	331,008	175,921	88,915	64,097	2,075
2014	325,115	178,093	86,586	58,243	2,193
2015	315,338	184,011	77,652	49,249	4,426
2016	318,285	194,767	73,990	42,118	7,410
2017	325,093	209,203	68,066	40,476	7,348
Average Annual Growth Rate (AAGR)					
2003-2017	-1.3%	2.4%	-5.1%	-4.1%	7.7%

Source: FAA TAF 2017, Published January, 2018

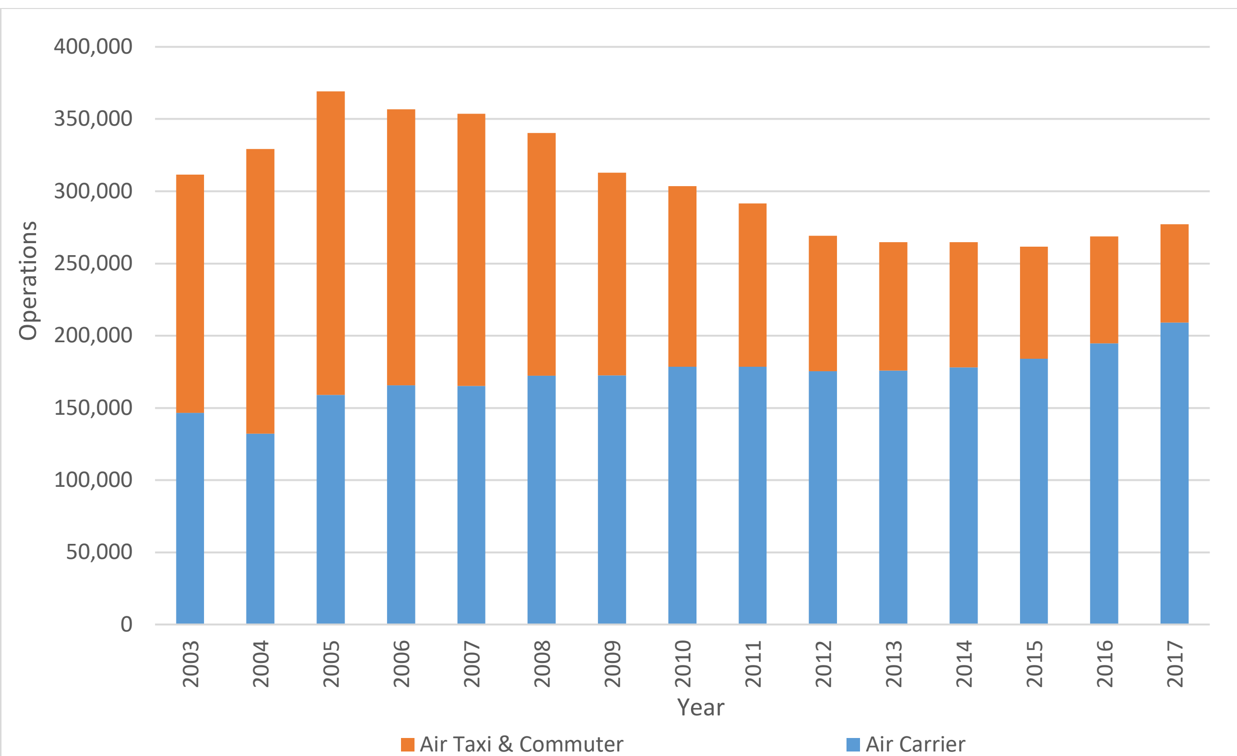


Source: FAA TAF 2017, Published January, 2018

FIGURE 2-11
HISTORICAL PASSENGER OPERATIONS (2003-2017)

FY	Total	Air Carrier	% Share	Air Taxi & Commuter	% Share
2003	311,512	146,598	47.1%	164,914	52.9%
2004	329,165	132,072	40.1%	197,093	59.9%
2005	369,222	158,880	43.0%	210,342	57.0%
2006	356,700	165,632	46.4%	191,068	53.6%
2007	353,735	165,306	46.7%	188,429	53.3%
2008	340,314	172,208	50.6%	168,106	49.4%
2009	312,951	172,481	55.1%	140,470	44.9%
2010	303,587	178,513	58.8%	125,074	41.2%
2011	291,640	178,563	61.2%	113,077	38.8%
2012	269,130	175,449	65.2%	93,681	34.8%
2013	264,836	175,921	66.4%	88,915	33.6%
2014	264,679	178,093	67.3%	86,586	32.7%
2015	261,663	184,011	70.3%	77,652	29.7%
2016	268,757	194,767	72.5%	73,990	27.5%
2017	277,269	209,203	75.5%	68,066	24.5%

Source: FAA TAF 2017, Published January, 2018

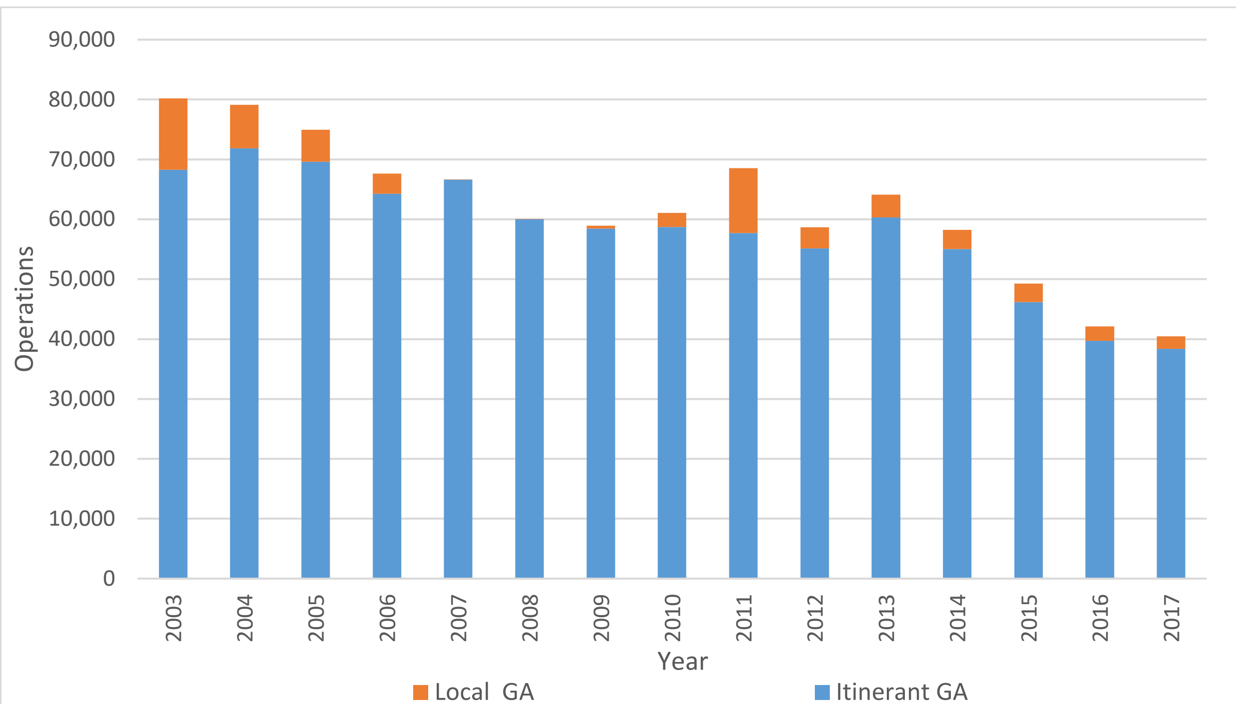


Source: FAA TAF 2017, Published January, 2018

FIGURE 2-12
HISTORICAL GENERAL AVIATION OPERATIONS (2003-2017)

Fiscal Year	Total GA	Itinerant GA	% Share	Local Civil*	% Share
2003	80,168	68,282	85.2%	11,886	14.8%
2004	79,122	71,879	90.8%	7,243	9.2%
2005	74,944	69,617	92.9%	5,327	7.1%
2006	67,611	64,267	95.1%	3,344	4.9%
2007	66,642	66,633	>99.9%	9	<0.1%
2008	60,029	60,027	>99.9%	2	<0.1%
2009	58,955	58,444	99.1%	511	0.9%
2010	61,085	58,700	96.1%	2,385	3.9%
2011	68,570	57,701	84.1%	10,869	15.9%
2012	58,649	55,118	94.0%	3,531	6.0%
2013	64,097	60,346	94.1%	3,751	5.9%
2014	58,243	55,022	94.5%	3,221	5.5%
2015	49,249	46,180	93.8%	3,069	6.2%
2016	42,118	39,710	94.3%	2,408	5.7%
2017	40,476	38,372	94.8%	2,104	5.2%

Note: *Local Civil Operations refers to Local GA operations in the FAA TAF
Source: FAA TAF 2017, Published January, 2018

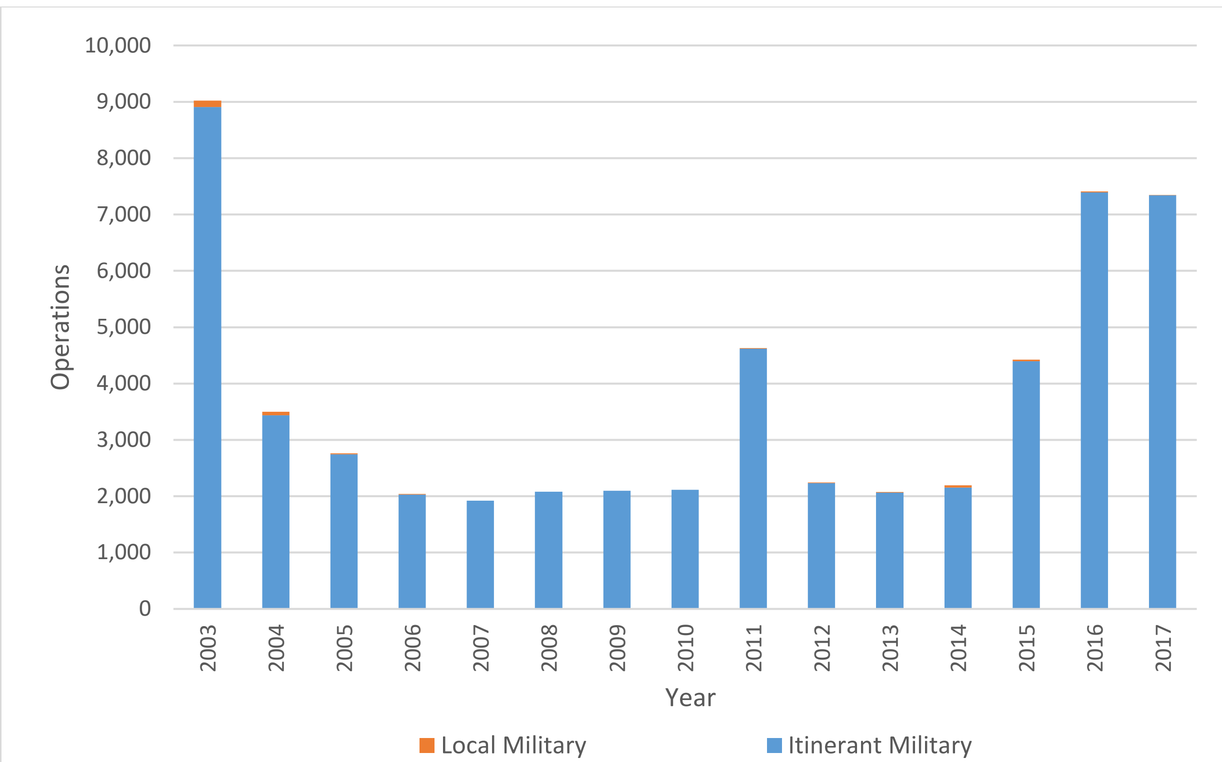


Source: FAA TAF 2017, Published January, 2018

FIGURE 2-13
HISTORICAL MILITARY OPERATIONS (2003-2017)

Fiscal Year	Total Military	Itinerant Military	% Share	Local Military	% Share
2003	9,020	8,910	98.8%	110	1.2%
2004	3,498	3,437	98.3%	61	1.7%
2005	2,760	2,744	99.4%	16	0.6%
2006	2,039	2,027	99.4%	12	0.6%
2007	1,920	1,920	100.0%	0	0.0%
2008	2,081	2,081	100.0%	0	0.0%
2009	2,098	2,098	100.0%	0	0.0%
2010	2,113	2,113	100.0%	0	0.0%
2011	4,629	4,620	99.8%	9	0.2%
2012	2,244	2,234	99.6%	10	0.4%
2013	2,075	2,061	99.3%	14	0.7%
2014	2,193	2,153	98.2%	40	1.8%
2015	4,426	4,396	99.3%	30	0.7%
2016	7,410	7,392	99.8%	18	0.2%
2017*	7,348	7,342	99.9%	6	0.1%

Source: FAA TAF 2017, Published January, 2018



Source: FAA TAF 2017, Published January, 2018

2.4 PASSENGER ENPLANEMENTS

2.4.1 Historical Enplanements

According to the historical data from the FAA TAF 2017, annual[15] enplanements[16] at SLC have increased by over 4 million from FY 1993-2017. During that time both air carrier and commuter[17] enplanements increased by over 2 million. The proportion of enplanements served by each airline type has also changed, as commuter airlines served only 3.8% of the Airport's total enplanements in 1993, and in 2017 they served 22.9%. **TABLE 2-3** and **FIGURE 2-14** show the historical enplanements by type from 1993-2017.

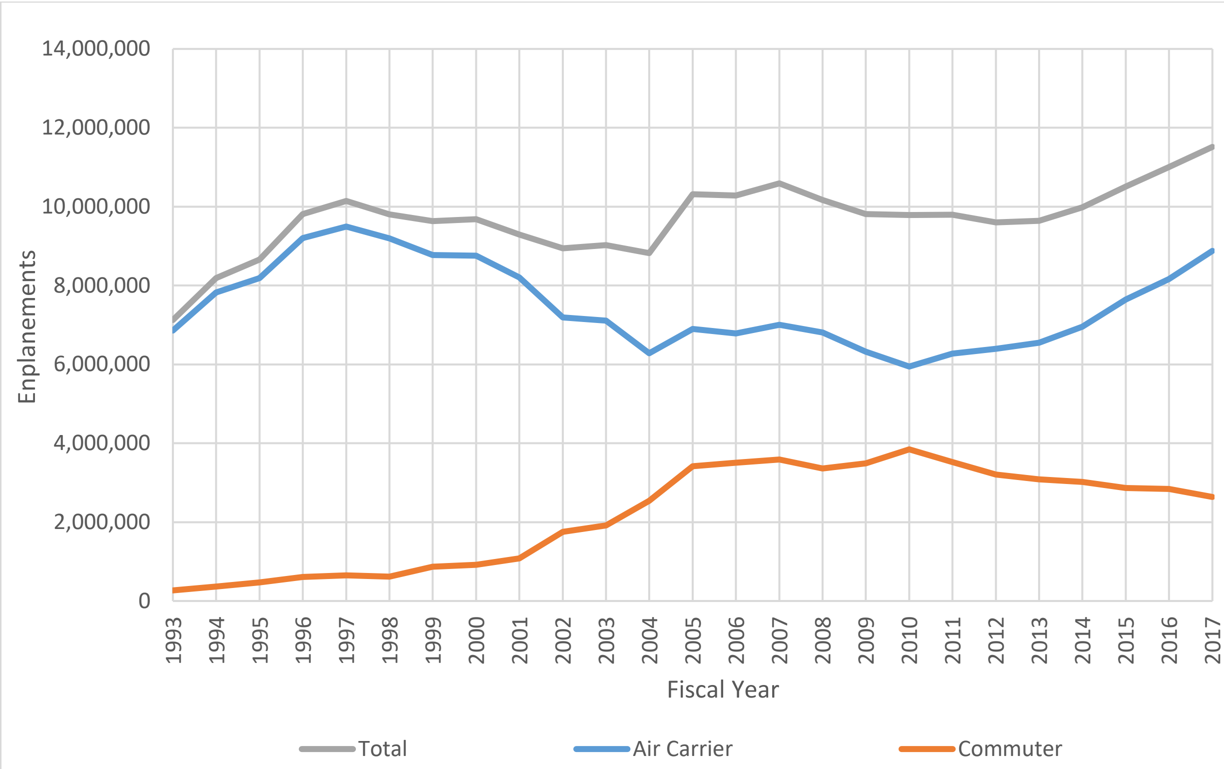
TABLE 2-3
HISTORICAL ENPLANEMENTS BY TYPE (1993-2017)

	Enplanements		
Fiscal year	**Air Carrier**	**Commuter**	**Total**
1993	6,855,872	269,203	7,125,075
1994	7,825,735	364,279	8,190,014
1995	8,192,501	469,625	8,662,126
1996	9,203,415	609,973	9,813,388
1997	9,495,786	649,333	10,145,119
1998	9,192,805	615,431	9,808,236
1999	8,770,603	866,780	9,637,383
2000	8,760,945	917,629	9,678,574
2001	8,206,164	1,084,526	9,290,690
2002	7,189,655	1,756,937	8,946,592
2003	7,107,602	1,913,721	9,021,323
2004	6,278,603	2,545,231	8,823,834
2005	6,899,968	3,414,855	10,314,823
2006	6,783,300	3,503,255	10,286,555
2007	7,001,699	3,590,981	10,592,680
2008	6,809,752	3,361,871	10,171,623
2009	6,324,440	3,489,027	9,813,467
2010	5,945,758	3,845,991	9,791,749
2011	6,276,982	3,519,577	9,796,559
2012	6,394,392	3,209,108	9,603,500
2013	6,549,622	3,088,372	9,637,994
2014	6,958,146	3,021,896	9,980,042
2015	7,647,018	2,862,209	10,509,227
2016	8,161,829	2,840,040	11,001,869
2017	8,880,620	2,635,019	11,515,639
Average Annual Growth Rate (AAGR)			
1993-2017	1.9%	11.3%	2.7%

Source: FAA TAF 2017, Published January, 2018

[15] Unless otherwise identified, all references to "annual" refers to the federal fiscal year, October 1-September 30.
[16] An enplanement is count of an individual who boards a passenger aircraft
[17] The definition of commuter refers to a passenger aircraft having fewer than 60 seats.

FIGURE 2-14
HISTORICAL ENPLANEMENT BREAKDOWN (1993-2017)



Source: FAA TAF 2017, Published January, 2018

2.4.1.1 Origination & Destination and Connecting Enplanements

Enplanements can be classified by passenger types, in reference to the Airport's role within their itinerary. These passenger types include origin & destination (O&D) and connecting enplanements.

O&D enplanements represent the passengers that enplane/deplane a commercial aircraft beginning or ending their itinerary at SLC. These passengers may travel nonstop, or connect at other airports domestically and internationally before reaching their final destination. Meanwhile, connecting passengers begin their itinerary at a different airport, and connect in SLC and possibly other airports before reaching their final destination. As a connecting airport, SLC acts as a middle segment to a passenger's trip. Enplanement type distribution ratios are essential, because they provide valuable information to determine the facilities that will be necessary to accommodate the needs of each enplanement type. **TABLE 2-4** shows a historical summary of the total enplanements, and ratios of O&D and connecting enplanements from 1993-2017.

Historically, the Airport has fluctuated around the 50% mark for both O&D and connecting enplanements. More recently, the trend has seen O&D enplanements increasing at a higher rate (AAGR of 3.6%) than connecting enplanements which increased at an AAGR of 0.8% from 1993-2017. From 2013-2017, the Airport proportion of O&D and connecting enplanements changed by 7.3% resulting in base year 2017 in which SLC had its highest percentage of O&D enplanements (61.4%), and lowest percentage of connecting enplanements (38.6%) over the past 25 years.

Delta Air Lines (DL) has been the largest operating commercial airline out of SLC for the past 25+ years. As the most prominent air carrier at SLC, its own O&D and connecting activities greatly affect the Airport's passenger type distribution. During the past five years, DL has decreased its connections and become more even in its distribution of O&D and connecting enplanements. At the same time, other airlines operating out of SLC have shown an increase in O&D enplanements resulting in lower connecting proportions. **FIGURE 2-15** compares DL's contribution to the total enplanements at SLC with the rest of the commercial passenger airlines as a whole from 2013-2017.[18]

TABLE 2-4
HISTORICAL ENPLANEMENT DISTRIBUTION (1993-2017)

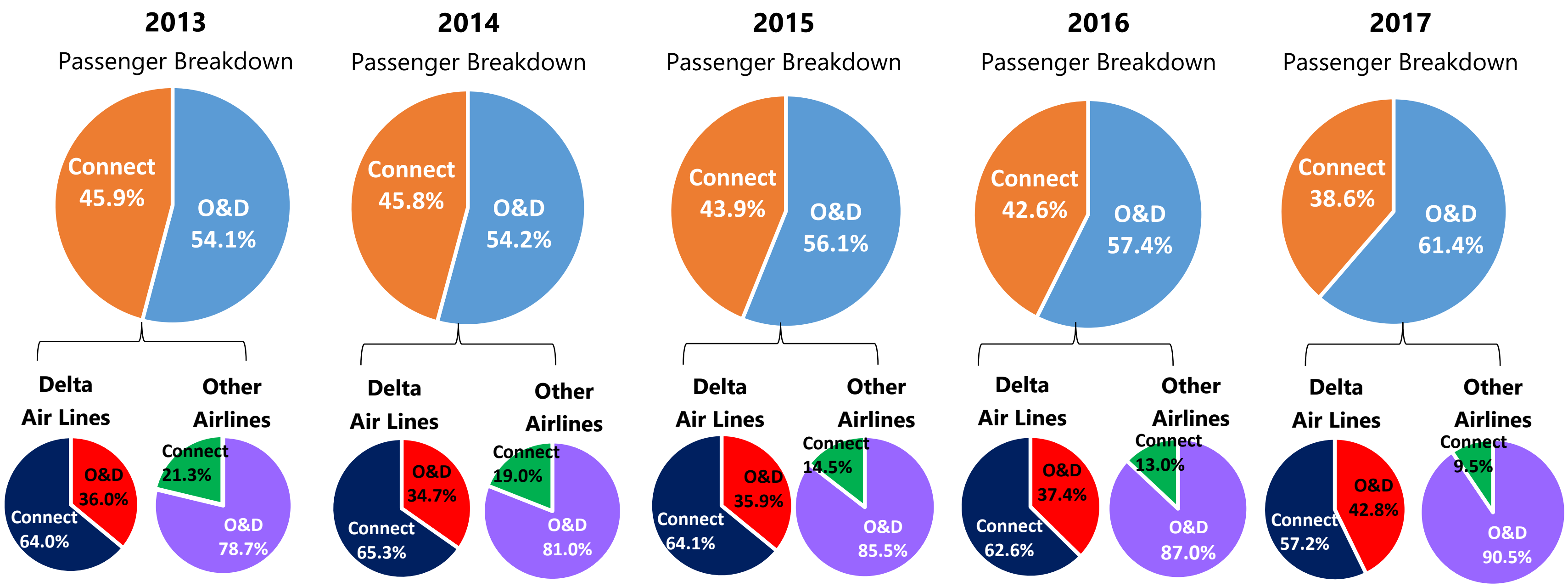
FY	Origin & Destination (O&D)		Connecting	
	%	Enplanements	%	Enplanements
1993	44.3%	3,156,408	55.7%	3,968,667
1998	48.5%	4,756,994	51.5%	5,051,242
2003	50.8%	4,582,832	49.2%	4,438,491
2008	55.3%	5,620,821	44.7%	4,550,802
2009	52.2%	5,119,439	47.8%	4,694,028
2010	51.3%	5,019,406	48.7%	4,772,343
2011	52.3%	5,121,099	47.7%	4,675,460
2012	53.6%	5,143,580	46.4%	4,459,920
2013	54.1%	5,214,155	45.9%	4,423,839
2014	54.2%	5,406,189	45.8%	4,573,853
2015	56.1%	5,896,727	43.9%	4,612,500
2016	57.4%	6,312,872	42.6%	4,688,997
2017	61.4%	7,065,996	38.6%	4,449,643
Enplanement Average Annual Growth Rate (AAGR)				
1993-1997	11.9%		7.4%	
1998-2002	-1.7%		-3.1%	
2003-2007	4.5%		3.1%	
2008-2017	2.5%		-1.1%	
1993-2017	3.60%		0.77%	

Note: O&D and Connecting Enplanements were interpolated using connecting percentages from the 2006 Salt Lake City Master Plan Update and T-100 Airline Market Data from 2005-2012 and the FAA TAF 2018

Source: Bureau of Transportation Statistics T-100 segment data, 2005-2017; 2005-2012; Salt Lake City Master Plan Update, 2006 (data for years 1993-2004)

[18] Analysis of O&D and connecting passengers includes connecting passengers among interline carriers as a part of the mainline carrier statistic.

FIGURE 2-15
HISTORICAL O&D AND CONNECTING ENPLANEMENTS (2013-2017)



Source: Bureau of Transportation Statistics T-100 segment data, 2013-2017

	Delta Air Lines			Other Airlines			All Airlines		
Fiscal Year	**O&D**	**Connecting**	**Total**	**O&D**	**Connecting**	**Total**	**O&D**	**Connecting**	**Total**
2013	1,989,061	3,536,473	5,525,534	3,195,702	862,525	4,058,227	5,184,763	4,398,998	9,583,761
2014	2,005,015	3,768,784	5,773,799	3,391,844	796,810	4,188,654	5,396,859	4,565,594	9,962,453
2015	2,242,318	4,001,808	6,244,126	3,670,263	623,732	4,293,995	5,912,581	4,625,540	10,538,121
2016	2,449,728	4,103,010	6,552,738	3,850,978	576,397	4,427,375	6,300,706	4,679,407	10,980,113
2017	3,007,367	4,024,807	7,032,174	4,057,990	424,847	4,482,837	7,065,357	4,449,654	11,515,011

Source: Bureau of Transportation Statistics T-100 segment data, 2013-2017

2.4.1.2 Domestic and International Enplanements

Domestic O&D passengers begin or end their itinerary at SLC, and travel to or from a domestic destination. These passengers fly nonstop or connect through various locations. The connecting domestic passengers are those that originate their travel at an airport other than SLC, connect at SLC, and continue to another domestic airport upon departing from SLC. In either case, SLC acts as a middle segment of a domestic itinerary. **TABLE 2-5** ranks the top 25 domestic O&D destinations by total enplaned and deplaned O&D passengers for FY 2017.

Three types of international travelers were defined based on the Bureau of Transportation Statistics (BTS) T-100 segment market data.[19] The first group was identified as nonstop international O&D enplanements. The nonstop international O&D enplanements include those individuals that were on nonstop flights out of SLC, to any of the destinations at which the Airport provides nonstop international service. The second group is also identified as international O&D enplanements, but is different from the first because they included various connecting segments. These enplanements include passengers that began their trip in SLC, before connecting to other airports (both domestic and international), upon reaching their final international destination.

TABLE 2-6 ranks the top 25 international destinations by the total enplaned and deplaned O&D passenger counts for FY 2017. The last group is identified as connecting international passengers. These passengers all connect at SLC for one of their middle segments on their international trip.

TABLE 2-7 provides an alternative way to view the top 25 international O&D destinations as compared to the previous table, by adding in total connecting passengers to establish a final total of international passengers to each market. **FIGURE 2-16** provides a map of these top international markets from 2017.

An analysis of these three types of international enplanements out of SLC for FY 2013-2017 found that the domestic percentage of O&D versus connecting enplanements were very similar. As a result, for planning purposes, it was determined to use the same O&D/connecting percentages for both domestic and international enplanements in this forecast. This does not have any impact upon the Facility Requirements that would be generated from these forecasts.

[19] T-100 segment market data, also known as the Air Carrier Statistics database, contains certificated monthly reports of domestic and international airline market and segment data.

TABLE 2-5
TOP 25 DOMESTIC DESTINATIONS BY O&D PASSENGERS (2013-2017)

2017 Top 25 Domestic Departures and Arrivals Locations	IATA Code	Total Enplaned and Deplaned Passengers				
		2013	2014	2015	2016	2017
1 Los Angeles, California	LAX	495,880	377,700	630,080	700,790	717,260
2 Denver, Colorado	DEN	538,180	407,420	503,110	499,290	605,370
3 Phoenix, Arizona	PHX	470,130	330,420	518,150	522,070	562,810
4 Seattle, Washington	SEA	370,930	304,130	398,770	427,310	441,150
5 Las Vegas, Nevada	LAS	350,380	262,920	391,550	424,780	423,070
6 Long Beach, California	LGB	295,460	223,530	299,670	339,990	419,570
7 San Diego, California	SAN	250,170	210,970	371,520	363,040	409,870
8 New York, New York (JFK International)	JFK	318,670	211,310	310,730	330,930	360,740
9 Dallas-Fort Worth, Texas	DFW	240,560	184,970	254,300	291,740	348,270
10 Chicago, Illinois (O'Hare International)	ORD	187,220	132,990	292,540	325,040	338,410
11 Orlando, Florida (Orlando International)	MCO	176,830	142,740	277,490	327,710	329,010
12 Portland, Oregon	PDX	251,900	215,160	280,660	310,990	324,410
13 Oakland, California	OAK	293,770	216,690	332,130	318,870	307,660
14 San Francisco, California	SFO	166,150	153,110	299,970	308,360	307,650
15 San Jose, California	SJC	92,770	93,530	150,610	180,660	287,100
16 Atlanta, Georgia	ATL	213,700	158,830	244,130	253,720	284,720
17 Boston, Massachusetts	BOS	153,700	124,420	176,980	224,500	275,480
18 Minneapolis, Minnesota	MSP	141,230	116,000	168,030	174,200	187,530
19 Houston, Texas (Bush Intercontinental)	IAH	153,900	126,600	197,140	187,150	186,520
20 Santa Ana, California	SNA	194,350	124,270	158,750	170,870	186,380
21 Baltimore, Maryland	BWI	146,610	124,600	195,270	194,120	182,500
22 Washington D.C. (Reagan National)	DCA	139,280	109,280	160,980	179,970	174,340
23 Sacramento, California	SMF	103,330	83,870	110,450	126,960	168,120
24 Newark, New Jersey	EWR	112,300	70,320	104,950	117,600	157,950
25 Philadelphia, Pennsylvania	PHL	112,370	86,290	124,190	134,870	149,210

Source: Bureau of Transportation Statistics T-100 segment data, 2013-2017

1	2	3	4	5	6

TABLE 2-6
TOP 25 INTERNATIONAL DESTINATIONS BY O&D PASSENGERS (2013-2017)

2017 Top 25 International Destinations based on O&D Passengers	IATA Code	Total Enplaned and Deplaned Passengers				
		2013	2014	2015	2016	2017
1 London, England	LHR	36,478	49,211	34,328	46,006	60,490
2 Cancun, México	CUN	48,311	61,451	60,690	59,987	54,129
3 Cabo San Lucas, México	SJD	22,483	30,458	19,920	29,111	39,865
4 Toronto, Canada	YYZ	30,184	41,001	38,172	40,855	39,532
5 Vancouver, Canada	YVR	25,936	37,351	31,649	36,402	38,664
6 Puerto Vallarta, México	PVR	15,102	17,690	21,360	28,060	36,775
7 Mexico City, México	MEX	35,158	45,751	33,038	32,700	27,549
8 Paris, France	CDG	14,770	20,973	16,141	18,017	24,767
9 Guadalajara, México	GDL	18,002	28,493	22,583	22,271	21,750
10 Montreal, Canada	YUL	15,660	20,615	18,034	19,386	18,974
11 Amsterdam, Netherlands	AMS	10,471	13,851	10,375	12,214	18,811
12 Calgary, Canada	YYC	15,817	20,544	20,036	20,145	16,829
13 Tokyo, Japan	NRT	18,824	29,693	19,292	21,152	16,679
14 Seoul, South Korea	ICN	13,388	17,691	13,957	16,402	15,750
15 Shanghai, China	PVG	9,129	14,178	12,397	15,339	15,430
16 Frankfurt, Germany	FRA	13,787	17,659	13,977	13,470	14,356
17 Beijing, China	PEK	9,917	14,287	11,032	13,242	13,982
18 Lima, Peru	LIM	11,591	18,343	11,709	14,377	12,835
19 Rome, Italy	FCO	9,132	11,468	10,145	10,426	12,241
20 Hong Kong, China	HKG	7,744	11,363	10,466	11,558	12,044
21 Sydney, Australia	SYD	7,507	7,606	8,379	9,863	10,977
22 San José, Costa Rica	SJO	7,499	7,939	9,597	10,964	10,681
23 Dublin, Ireland	DUB	6,845	6,808	7,163	8,468	10,110
24 Manila, Philippines	MNL	6,367	6,789	7,441	7,494	9,787
25 Edmonton, Canada	YEG	8,438	11,382	13,423	13,217	9,753

Note: Ranking based on FY 2017 O&D Passengers only
Source: Bureau of Transportation Statistics T-100 segment data, 2013-2017

1	2	3	4	5	6

Service in 2017 | Service in 2017 but not served in 2013

TABLE 2-7
TOP 25 INTERNATIONAL DESTINATIONS BY TOTAL O&D PASSENGERS WITH CONNECTING PASSENGERS INCLUDED (2013-2017)

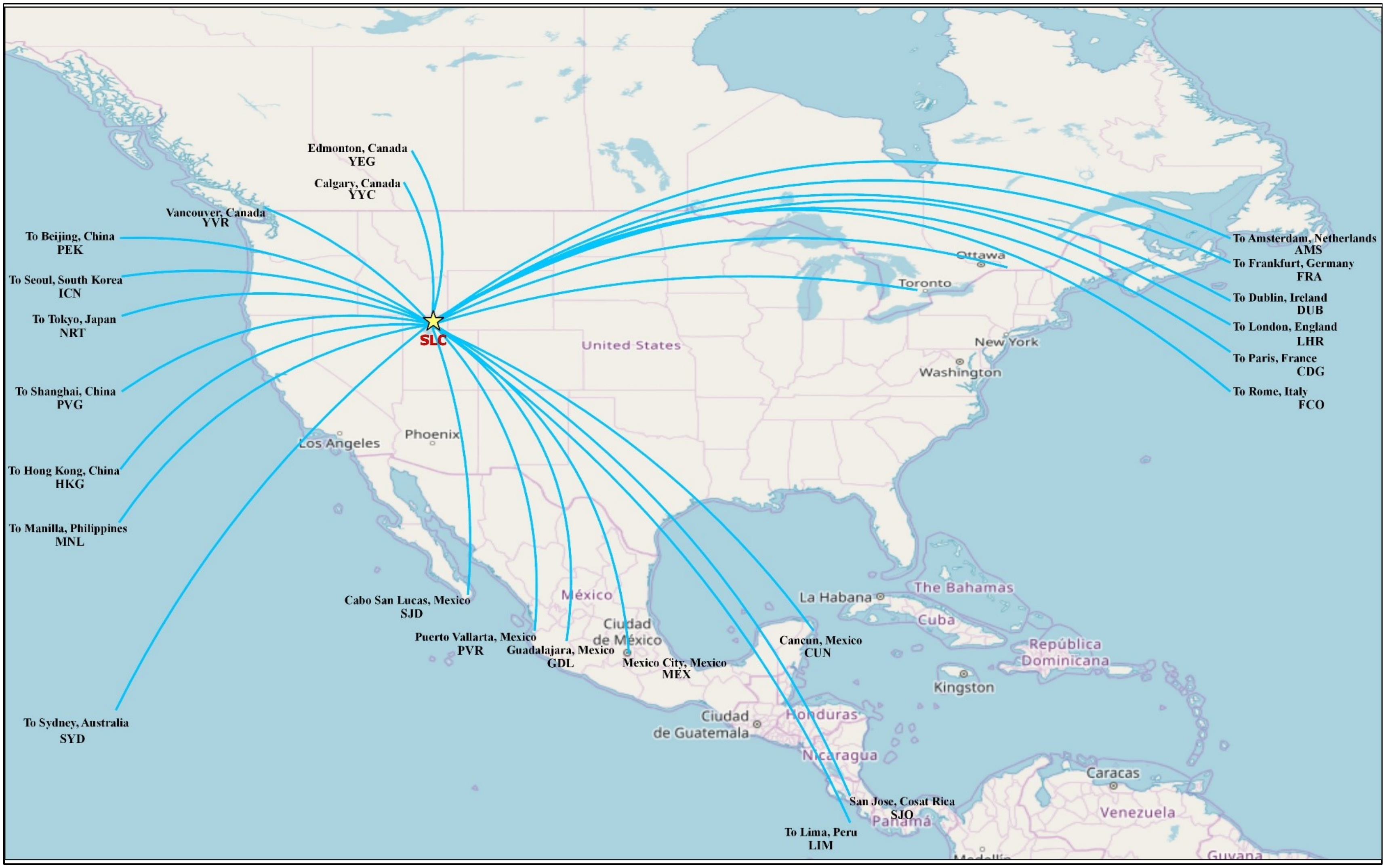
2017 Top 25 International Destinations by O&D Passengers with Connecting Passengers Included	IATA Code	Total Enplaned and Deplaned Passengers				
		2013	2014	2015	2016	2017
1 Cancun, México	CUN	52,023	56,373	82,918	89,203	85,978
2 London, England	LHR	36,757	39,535	36,764	57,263	83,859
3 Toronto, Canada	YYZ	31,580	42,401	39,622	52,256	64,357
4 Vancouver, Canada	YVR	56,506	65,288	59,313	59,586	61,390
5 Cabo San Lucas, México	SJD	31,296	43,937	32,025	39,165	49,012
6 Puerto Vallarta, México	PVR	18,421	23,439	31,616	39,090	45,018
7 Mexico City, México	MEX	35,945	46,703	48,127	48,056	41,366
8 Paris, France	CDG	27,846	36,586	29,687	31,481	37,150
9 Guadalajara, México	GDL	20,408	32,229	32,513	34,558	35,047
10 Calgary, Canada	YYC	43,915	50,628	42,381	41,503	33,583
11 Amsterdam, Netherlands	AMS	11,488	14,663	14,436	20,986	30,965
12 Shanghai, China	PVG	10,478	16,329	15,104	21,569	20,807
13 Montreal, Canada	YUL	16,509	21,304	18,779	20,195	19,940
14 Tokyo, Japan	NRT	23,567	36,857	25,182	27,724	19,380
15 Seoul, South Korea	ICN	18,716	20,253	15,662	17,659	16,617
16 Frankfurt, Germany	FRA	14,881	19,286	15,482	15,031	15,677
17 Beijing, China	PEK	12,738	16,128	15,249	15,092	15,270
18 Rome, Italy	FCO	10,627	13,675	13,068	12,326	14,520
19 Lima, Peru	LIM	12,521	19,283	12,614	15,397	13,817
20 Hong Kong	HKG	8,239	12,108	11,482	12,077	12,668
21 Sydney, Australia	SYD	9,274	9,242	9,809	11,322	12,321
22 San José, Costa Rica	SJO	8,220	9,126	10,644	12,410	12,237
23 Dublin, Ireland	DUB	8,115	8,224	8,193	10,132	11,551
24 Edmonton, Canada	YEG	8,849	11,684	13,670	14,207	10,635
25 Manila, Philippines	MNL	7,010	7,925	8,162	8,290	10,148

Note: Ranking based on addition of connecting passengers to O&D passengers
Source: Bureau of Transportation Statistics T-100 segment data, 2013-2017

1	2	3	4	5	6

Service in 2017 — Service in 2017 but not served in 2013

FIGURE 2-16
TOP 25 INTERNATIONAL DESTINATIONS BY REGION (2017)

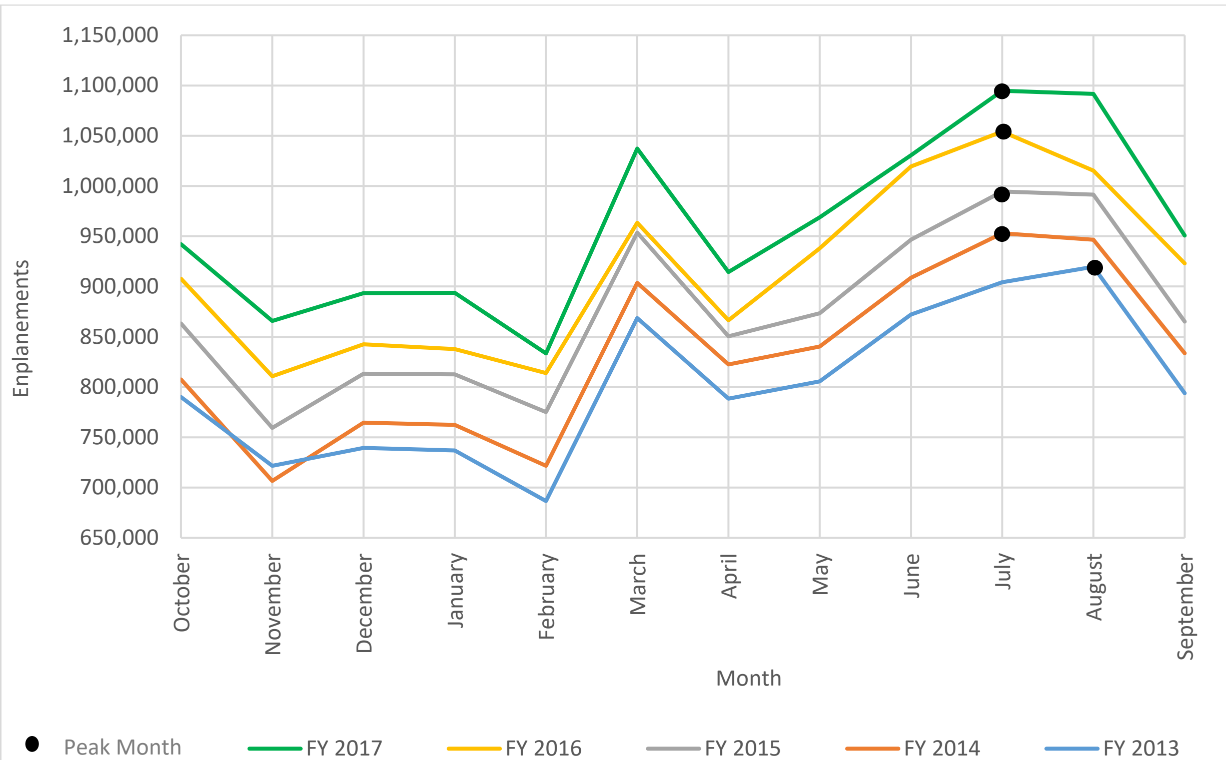


Source: RS&H, 2018; Esri, 2018

2.4.1.3 Peak Month

Over the past five fiscal years, the peak months identified by total enplanements at SLC have occurred in either July or August, with July being the peak month during the most recent four years. Both July 2016 and 2017 had over one million enplanements. Over the past five fiscal years July has represented an average of 9.5% of the Airport's annual enplanements. Given these totals, July is identified as the Peak Month of Enplanements for this Master Plan Update. **FIGURE 2-17** and **TABLE 2-8** compare the enplanements out of SLC by month from 2013-2017.

FIGURE 2-17
PEAK MONTH ENPLANEMENTS (FY 2013-2017)



Source: Bureau of Transportation Statistics T-100 segment data, 2013-2017

TABLE 2-8
MONTHLY ENPLANEMENTS SHARE BY FISCAL YEAR (2013-2017)

FY	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Total
2013	789,975	721,723	739,355	737,070	686,624	868,718	788,514	805,649	872,124	904,385	919,677	793,877	9,627,691
	8.2%	7.5%	7.7%	7.7%	7.1%	9.0%	8.2%	8.4%	9.1%	9.4%	9.6%	8.3%	100.00%
2014	807,637	706,650	764,706	762,258	721,642	903,538	822,656	840,416	908,652	953,006	946,713	833,644	9,971,518
	8.1%	7.1%	7.7%	7.7%	7.2%	9.1%	8.3%	8.4%	9.1%	9.6%	9.5%	8.4%	100.00%
2015	863,227	759,426	813,222	812,664	775,006	953,733	850,502	873,283	946,509	994,554	991,313	865,158	10,498,597
	8.2%	7.2%	7.8%	7.7%	7.4%	9.1%	8.1%	8.3%	9.0%	9.5%	9.4%	8.2%	100.00%
2016	907,714	810,778	842,708	837,854	814,052	963,447	866,482	938,148	1,019,460	1,054,169	1,015,294	922,929	10,993,035
	8.3%	7.4%	7.7%	7.6%	7.4%	8.8%	7.9%	8.5%	9.3%	9.6%	9.2%	8.4%	100.00%
2017	942,172	865,832	893,331	893,921	833,491	1,037,170	914,332	968,768	1,030,585	1,094,789	1,091,511	950,605	11,516,507
	8.2%	7.5%	7.8%	7.8%	7.2%	9.0%	8.0%	8.4%	9.0%	9.5%	9.5%	8.3%	100.00%

Note: For each year the first row of values shows the total enplanements during that fiscal year; the second row of values for that year is equal to the percentage of the fiscal year that the enplanements represent for that month. Percentages are rounded to the nearest 0.1 percent.
Source: Bureau of Transportation Statistics T-100 segment data, 2013-2017

2.4.2 Market Trends and Activity

2.4.2.1 SLC Operating Air Carriers

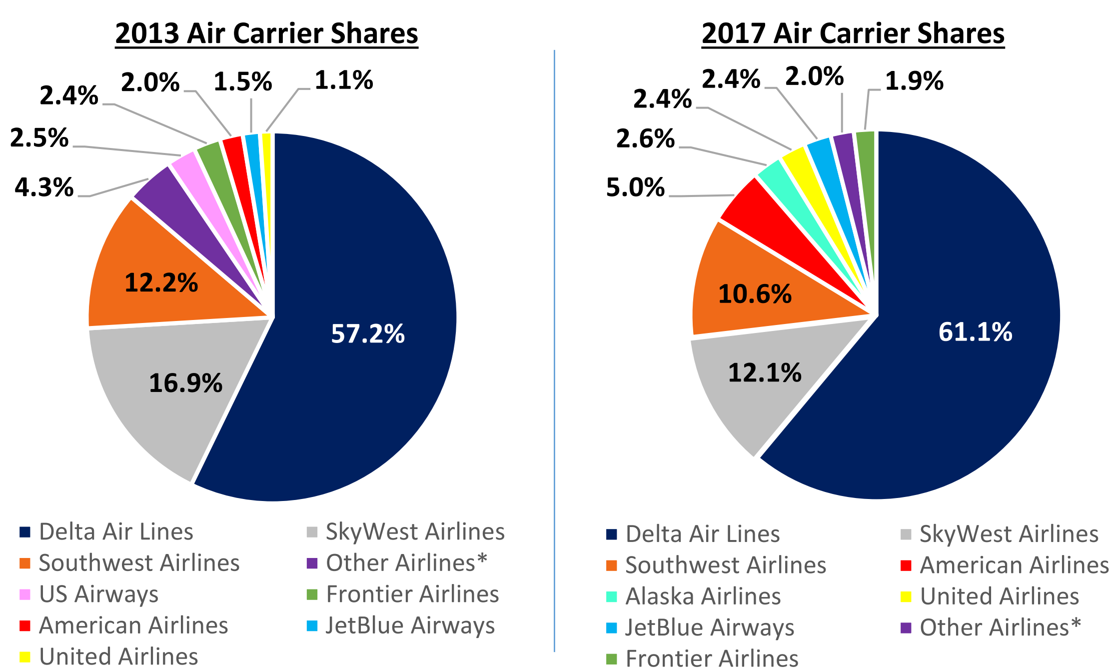
The air carriers which operate at SLC include;

- Aeroméxico (AM)
- Alaska Airlines (AS)
- American Airlines (AA)
- Delta Air Lines (DL)
- Frontier Airlines (F9)
- JetBlue Airways (B6)
- KLM Royal Dutch Airlines (KL)
- SkyWest Airlines (OO)
- Southwest Airlines (WN)
- United Airlines (UA)

2.4.2.2 Air Carrier Market Share

Of all mainline and regional carriers operating out of SLC, DL has consistently maintained the largest share of enplanements over the past 25+ years. More recently DL has increased its share with a 3.9% increase from 2013 to 2017. As a regional carrier, SkyWest Airlines[20] (OO) code shares with Alaska Airlines, American Airlines, Delta Air Lines, as well as United Airlines and operates as an individual airline. The air carrier shares indicated in **FIGURE 2-18** includes the portion of SkyWest code shares, and are identified as part of the mainline carrier's market share of enplanements. As an individual airline, the airline with the second greatest share is SkyWest Airlines. Southwest Airlines is third in air carrier shares.

FIGURE 2-18
SLC AIR CARRIER MARKET SHARE OF ENPLANEMENTS (2013 & 2017)



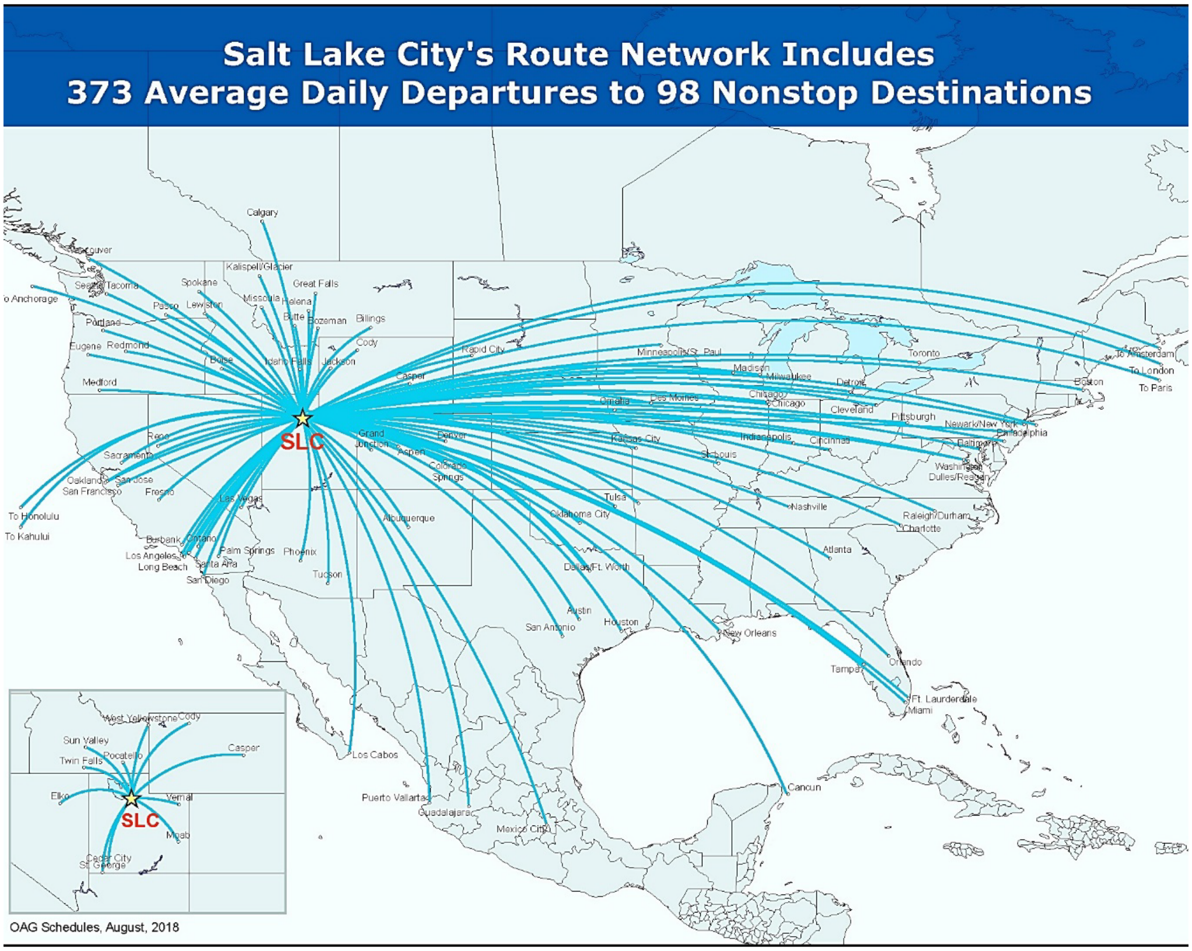
Note: Other Airlines* indicates the sum of all enplanements by those airlines with less than 100,000 enplanements annually
Source: Bureau of Transportation Statistics T-100 segment data, 2018

[20] SkyWest Airlines is not included in the list of air carriers because it is a regional carrier.

2.4.2.3 Airline Markets Served

As of August, 2018 the Airport's route network had 373 daily departures to 98 nonstop destinations. The international destinations include three European, three Canadian, and five Mexican nonstop destinations. Domestically, SLC provides service across the country, with nonstop service from coast to coast, as well as the Hawaiian Islands, and Alaska. **FIGURE 2-19** shows a map of the nonstop destinations in August, 2018.

FIGURE 2-19
NONSTOP DESTINATIONS (AUGUST, 2018)



Source: SLCDA, 2018

2.4.2.4 Load Factors

Load factors represent the percentage number of paying passengers on a commercial flight, compared to total seats available. Over the past 10 fiscal years, air carriers at SLC have sustained a load factor of 80%[21] or greater annually, as well as continuing to be above the U.S. average each year. In FY 2015, SLC reached its highest average loads during that time with an annual load factor of 85.77%; the highest U.S. average was 82.72% in 2014. **FIGURE 2-20** compares changes in the FY origin load factors[22] for all airlines out of SLC and the U.S. from 2008-2017.

---

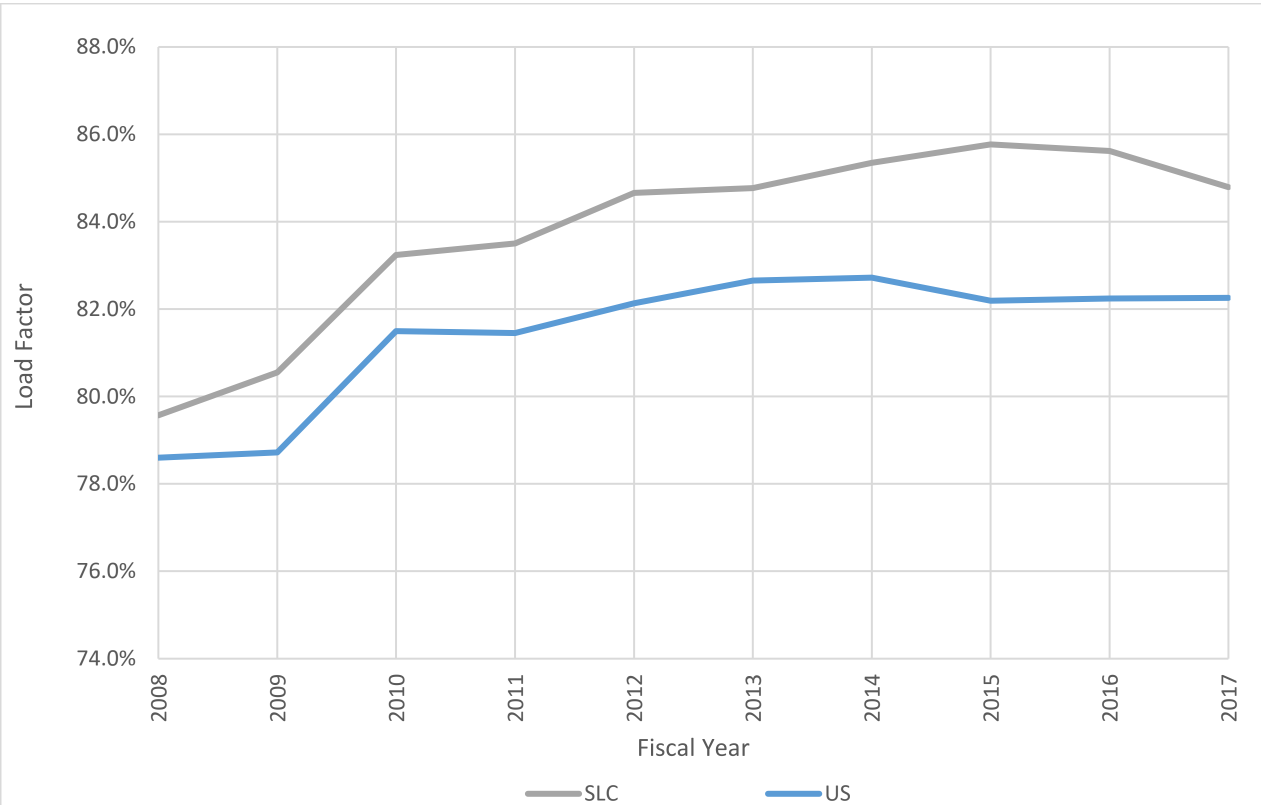
[21] Load factors were taken from BTS T-100 market segment data, and rounded in some cases for comparative purposes.

[22] Average FY load factors were calculated by taking the average load factor for the FY analyzed.

Load factors are also unique to markets, airlines, and routes. An analysis of the T-100 load factors by air carriers at SLC showed that many of the top SLC markets for all passengers had outbound load factors near the Airport's average of 84.8%.

- LAX = 83.3%
- DEN = 83.2%
- PHX = 75.3%
- ATL = 92.2%
- SEA = 79.9%
- LAS = 77.9%

FIGURE 2-20
HISTORIC LOAD FACTORS



Source: Bureau of Transportation Statistics T-100 segment data, 2018

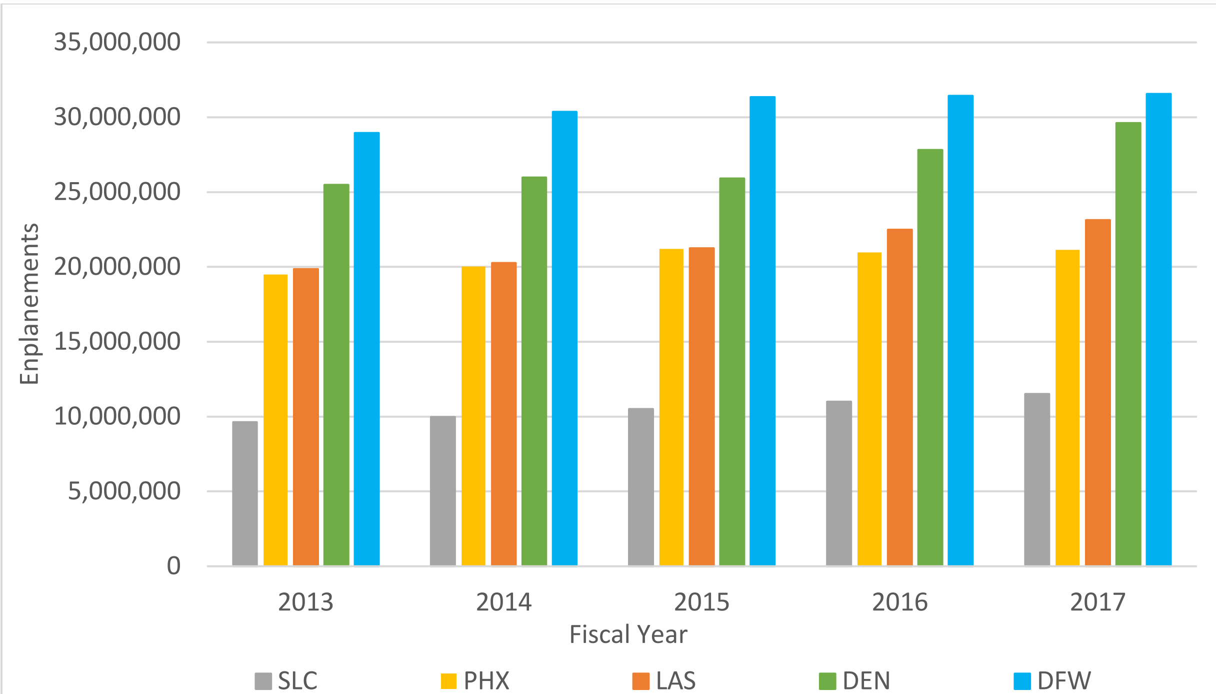
2.4.2.5 Comparative Airport Analysis

2.4.2.5.1 Regional Large Hub Market Share Comparison

FIGURE 2-21 compares the total enplanements for four of the other large hub airports in the general region over the past five fiscal years. These airports include Denver International Airport (Denver, Colorado-DEN), McCarran International Airport (Las Vegas, Nevada-LAS), Phoenix Sky Harbor International Airport (Phoenix, Arizona-PHX), and Dallas-Fort Worth International Airport (Dallas/Fort Worth, Texas-DFW).

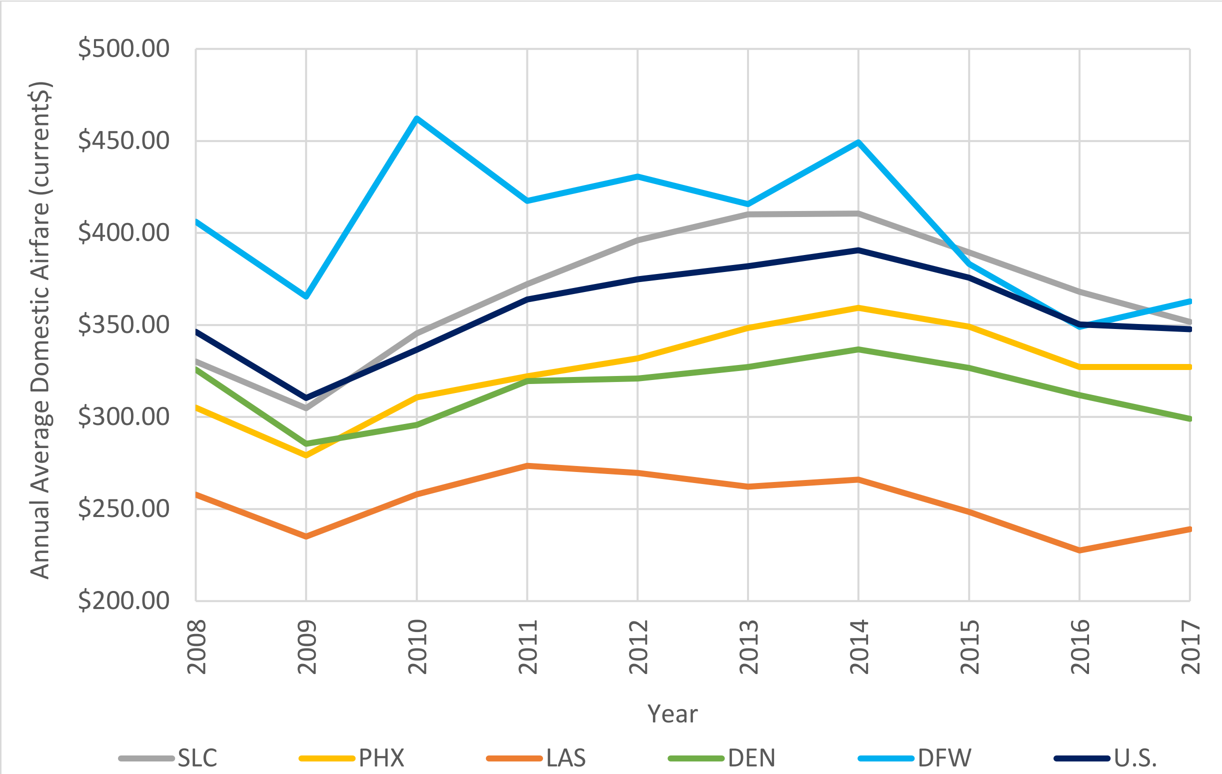
The average air fares of these airports were also compared in **FIGURE 2-22**. From 2008-2017 SLC had a greater average airfare than three of the four large hub airports compared with the exception of DFW. It also had higher annual average airfares than the United States' average as a whole, except for the years of 2008 and 2009.

FIGURE 2-21
COMPARISON OF REGIONAL LARGE HUB AIRPORT ENPLANEMENTS (2013-2017)



Source: FAA TAF, 2017, Published January, 2018

FIGURE 2-22
ANNUAL AVERAGE DOMESTIC AIRFARE COMPARISON AMONG SIMILARLY SIZED REGIONAL AIRPORTS



Note: Average air fare shown in dollar value current to each year
Source: Bureau of Transportation Statistics, 2018

2.4.2.6 SLC Market Analysis

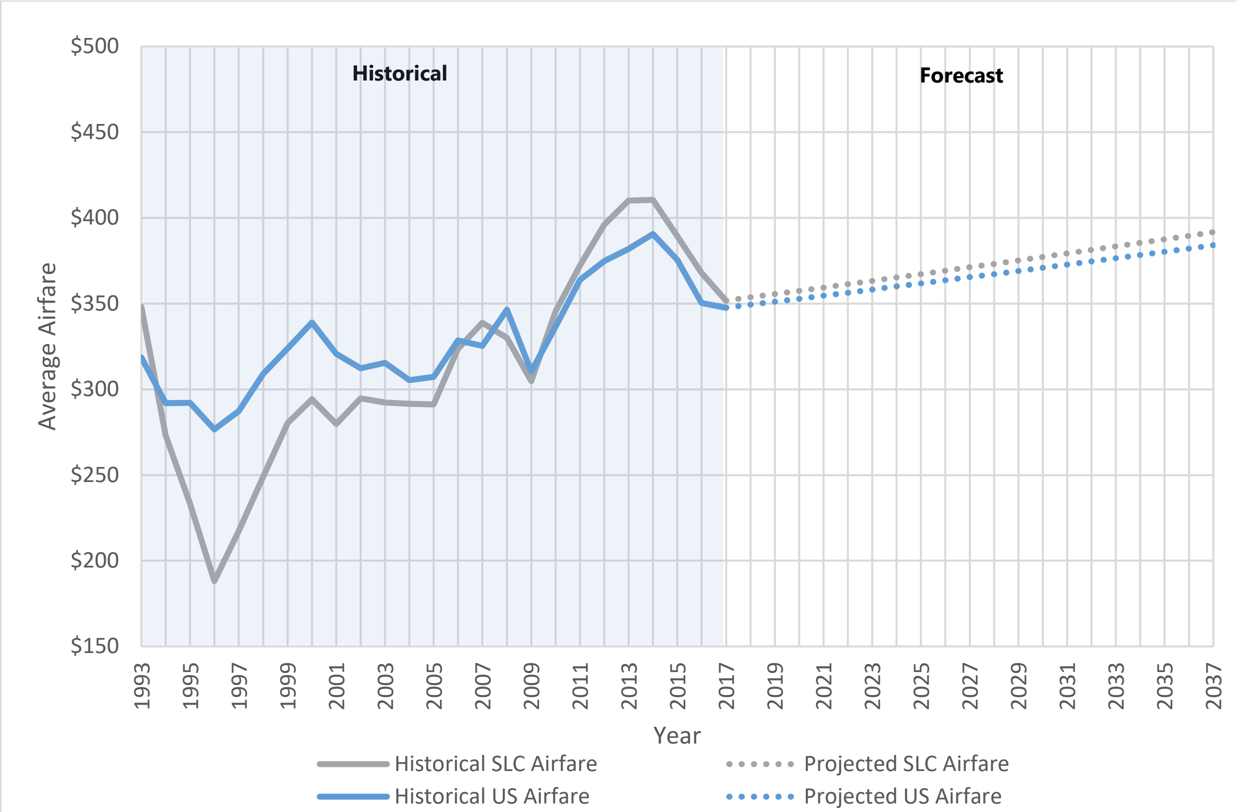
2.4.2.6.1 Average Airfares

Average airfare data for each airport is provided by the Bureau of Transportation Statistics. The averages provided for each airport are based on a 10% sample of all airline tickets for U.S. carriers at that airport. The airfares[23] are "itinerary in type", meaning they include round trip costs, unless a one way ticket is purchased. Each average airfare is in current US dollars for the year that it is listed.

Since 1993, SLC has been below the U.S. average for airfare until 2007. However, airfares for the U.S. as a whole and SLC have both increased very similarly over the past 25 years. The historical AAGR for SLC's average airfare and the U.S. is 0.5%. **FIGURE 2-23** shows the historical and projected airfares for SLC and the U.S. The projected growth rates of airlines for this Forecast were derived using the same historical AAGRs.

[23] Average air fares do not include charter air travel or baggage and optional services that an airline may provide at additional costs.

FIGURE 2-23
HISTORICAL AND PROJECTED AVERAGE DOMESTIC AIRFARE (1993-2037)



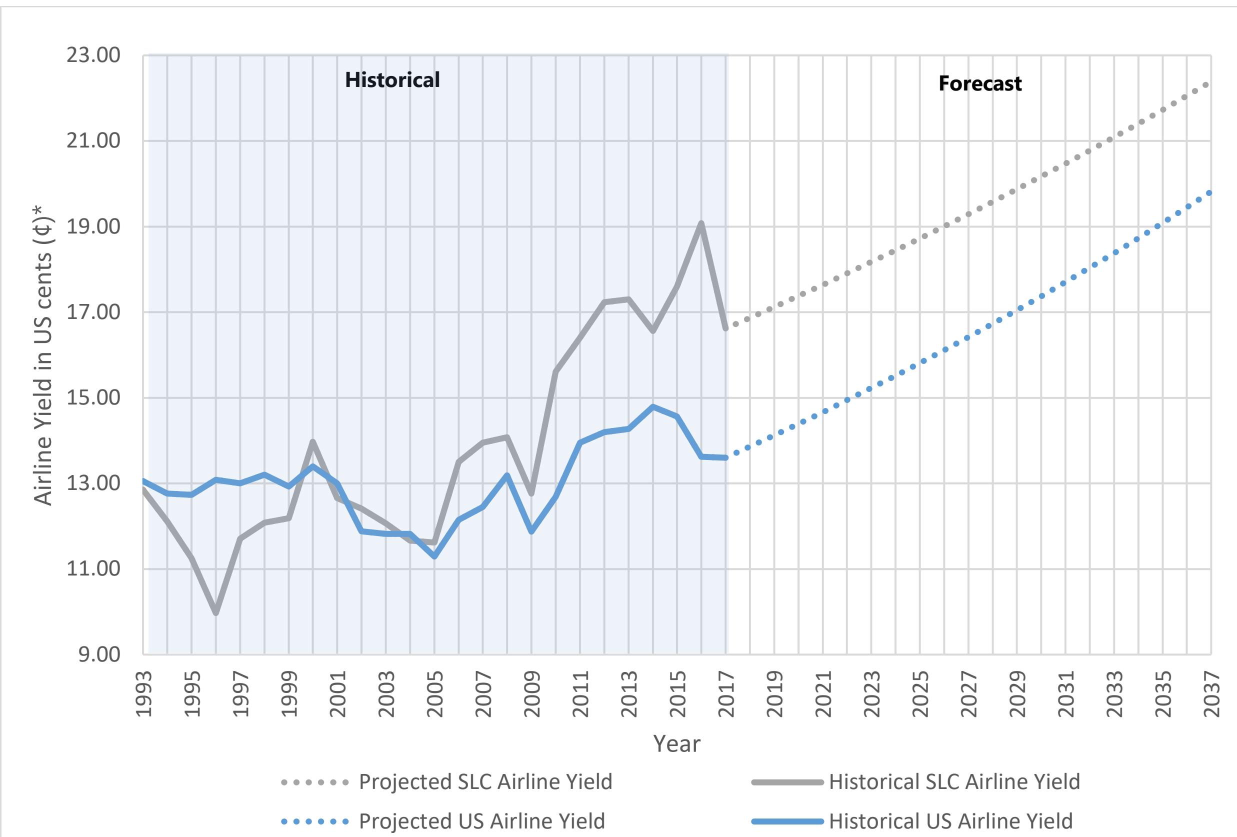
Note: Average Annual Air Fares shown in current U.S. dollars to the year listed
Source: Bureau of Transportation Statistics, 2018

2.4.2.6.2 Airline Yield

Airline yield like airfare, is also a good indicator for projecting airport enplanement growth. Airline yield is the average airfare per passenger per mile. Often times, airline yield can be used as a surrogate for airfares, if the airfare variable is not usable or unavailable. Airline yield is determined by taking the revenue seat miles and dividing them by total revenue. Airline yield is reported in cents (¢) and the assumption can be made that when yield is higher the number of enplanements is usually lower.

For this Forecast, the historical (1.5%) AAGR for SLC airline yields from 1993-2017 was used, although the U.S. used the (1.9%) AAGR projected in the *FAA Aerospace Forecast for FY 2018-2038*. The U.S. airline yield is shown for comparison purposes only. **FIGURE 2-24** shows the historical airline yields for SLC and the U.S. from 1993-2017, and the yields forecast over the planning horizon.

FIGURE 2-24
HISTORICAL AND PROJECTED AIRLINE YIELD (1993-2037)



*Airline yields are shown in US cents for the year that they are referenced

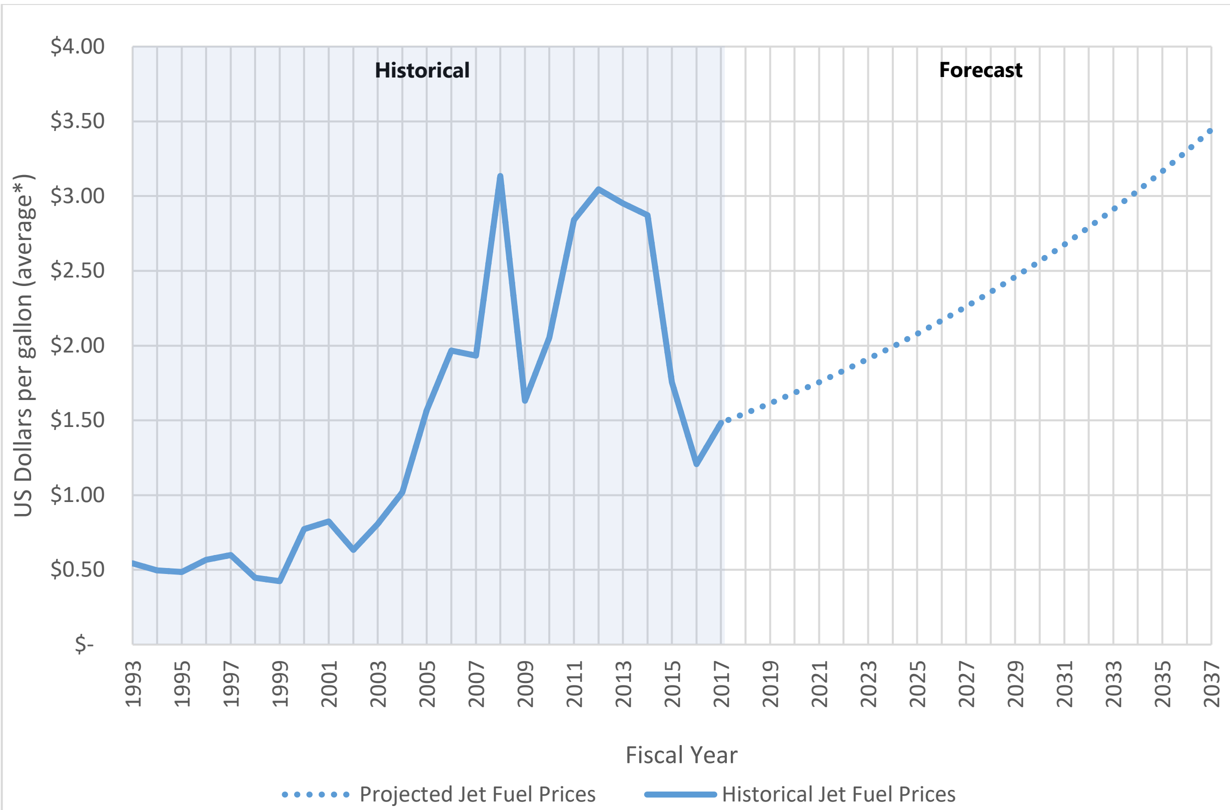
Note: Projected airline yields were interpolated using the historical AAGR (1.5%) from 1993-2017 for SLC, and the projected (1.9%) AAGR given in the FAA Aerospace Forecast FY 2018-2038 for the US.

Source: RS&H, 2018; Bureau of Transportation Statistics T-100 segment data, 2018, Salt Lake City Master Plan Update, 2006; FAA Aerospace Forecast FY 2018-2038

2.4.2.6.3 Jet Fuel Prices Analysis

Jet fuel prices are a highly important variable to consider when analyzing enplanements. Fuel prices may impact the cost of a passenger's ticket; higher fuel prices often result in higher airfares which translates into decreases in discretionary travel. This Forecast uses the U.S. Energy Information Administration for historical jet fuel prices and the projected 4.3% AAGR for Jet Fuel Prices over the planning horizon from the *FAA Aerospace Forecast FY 2018-2038*. **FIGURE 2-25** shows the historical and projected jet fuel prices.

FIGURE 2-25
HISTORICAL AND PROJECTED JET FUEL PRICES (1993-2037)



*Jet fuel prices are shown in US dollars for the year that they are referenced
Note: Projected Jet Fuel Prices are interpolated using the FAA Aerospace Forecast FY 2018-2038 AAGR of 4.3% from 2018-2037
Source: U.S. Energy Information Administration, 2018; FAA Aerospace Forecast FY 2018-2038; RS&H, 2018

2.4.2.6.4 Passenger Aircraft Fleet Mix Trend Analysis

Anticipated trends for the Airport's passenger aircraft fleet mix over the planning horizon are identified in this section. Some of these changes are anticipated due to the age of existing aircraft or potential requirements, while others are based on trends in upgauging, or increased performance and efficiency. The following changes are intended to only reflect each listed airline's SLC fleet mix, and is not necessarily intended to be representative for the airline as a whole.

- Delta Air Lines
  - Airbus 220-100, -300
  - Airbus 320-Airbus 321 → Airbus320neo/Airbus321neo
  - Boeing 737-700, -800, -900 → Boeing 737 MAX 7, MAX 8, MAX 9
  - Boeing 747-400 → Airbus 350-900
  - Boeing 777-200
- Frontier Airlines
  - Airbus 319-Airbus 321 → Airbus 321neo
- JetBlue Airways
  - Airbus 320-Airbus 321 → Airbus 320neo/321neo
- KLM Royal Dutch Airlines
  - Boeing 777-200/Boeing 787-900
- United Airlines
  - Airbus 319-320 → Airbus 320neo/Airbus 321neo

2.4.2.6.5 Short, Medium, and Long Range Global Potential

It is anticipated that SLC will slowly add new nonstop domestic city pairs in the future. In terms of international routes, the largest number of non-stop markets unserved are those in Asia. There may be incremental new city pairs to North American markets such as to Canada or Mexico and potentially Latin America or the Caribbean. Another possibility is a South American city pair. At this time, there are no additional non-stop routes anticipated to Europe.

2.4.3 Passenger Enplanement Forecasts

2.4.3.1 Methodology

This section provides the methodology for developing passenger enplanement forecasts. This involves the formulation and use of three multiple regression models with different growth assumptions to develop the most likely forecast, referred to as the Base Case Forecast, and the alternate forecasts presenting High Case and Low Case Scenarios. Each model incorporates various combinations of independent variables with statistical significance based on the standard alpha P-value[24] of 0.05. The output of these models (or dependent variable) is a projected number of O&D enplanements for each of the 20 years over the planning horizon. The independent variables that were tested and selected ranged from:

- » Socioeconomic characteristics unique to the SLC service area
- » Economic indicators such as national jet fuel prices, average airfare, and airline yield
- » Qualitative variables[25] , which are unique events that have a noticeable impact on aviation activity locally at SLC or nationally.

The general practice in forecasting enplanements is the use of a multiple variable regression analysis that ultimately provides the "best fit" model[26] for the data. The best fit regression model identified as the Base Case Forecast makes projections for enplanements based on the projected growth rates that have been derived from the data sources used, FAA projections, or historical AAGRs when applicable. Often times, the Base Case model's variables adjust their projected growth rates to generate derivative scenario forecasts to reflect Low and High ranges. For example, if the Base Case variables that produces the most statistically relevant equation with the highest correlations includes population, GRP, and airline yield, then the Low Case could decrease the rate of GRP growth and increase airline yield, whereas the rate of GRP growth could be increased and airline yield would be decreased to generate the High Case.

For Salt Lake City, the same approach was applied but in greater detail. For the Base Case and derivative Low and High Cases, the same 11 predictor variables were analyzed for use. The Low and High Case Scenario variables selected for each model, include adjustments to some of the projections so that they could better reflect the nature of the scenario. For instance, the Low Case Scenario included projections that were decreased by ten percent, and the High Case Scenario includes projections that were increased by ten percent. There was also one instance where a different source for projecting population and employment over the planning horizon was used[27].

[24] A standard alpha P-value of 0.05 is the value commonly used in social sciences for accepting or rejecting null hypotheses regarding multivariate regression models. When a P-value is less than the alpha 0.05, the null hypothesis (that states the regression model is not impacted by the selected independent variables) can be rejected. This conclusion, enables the model with a P-value less than 0.05 to be accepted at the 95% confidence level.
[25] For this Forecast qualitative variables are also known as "binomial" or "dummy' variables.
[26] Designation of a "Best Fit" regression model is supported by the model or models that have the greatest R Square value, along with other supporting statistics that are statistically significant for the tests performed.
[27] In the High Case Scenario, the University of Utah Kem C. Gardner Policy Institute data were used in lieu of increasing Woods & Poole population and employment growth rates for regional area.

To further validate the forecasts and take into consideration random error, Monte Carlo Simulation was used to test results (see discussion of Monte Carlo below). The simulation results prove with a 95% probability that the models all have the potential to predict future enplanements.

In summary, the results of this process identifies a unique set of variables for each scenario while using the same overall data set for each scenarios. The results is a best fit equation for each scenario derived from the variables that correlate best with that scenario's enplanement projections.

2.4.3.1.1 Regression Models and Statistics

The following three regression models were selected as the Base Case, Low Case Scenario, and High Case Scenario Forecasts. The equation and statistics of each forecast are provided below.

- *Base Case Forecast*
  - *R Square*[28]= 0.989
  - *Adjusted R Square*[29]= 0.972
  - *Equation*[30]= 3052880.55391373 + (-7358.77682732965*AIRFARE) + (141401.285712933*FUEL)+(41.8884116094778*GRP)+(-228537.429647365*RECESS) + (-523832.531871583*9/11)
  - *Degrees of Freedom*[31]=5
  - *Significance (F)*[32]= <0.01
  - *Durbin-Watson*[33]=2.002
  - *Variables*[34]=
    - AIRFARE= Average airfare of SLC (P-value=< 0.01)
    - FUEL= National Jet Fuel Prices (P-value=0.037)
    - GRP= Gross Regional Product of SLC Service Area (P-Value= <0.01) value
    - RECESS= Recession qualitative variable ("1" given for those years affected by the 2009 Recession) (P-value= 0.020)
    - 9/11= Terrorists attacks of 9/11 qualitative variable ("1" given for the year of 9/11 and all years thereafter)

The forecast variables, or predictors[35] that generated the "best fit" equation to estimate the future level of O&D enplanements for the Base Case Forecast, are projections of average airfares, jet fuel prices, SLC Service Area GRP, and variables that account for unanticipated local, national, or world events.

---

[28] The R Square value is a percentage that indicates how well the data points fit the regression model. If R Square values are closer to 1.0, then the regression model can be regarded as a good model for fitting the data.
[29] The Adjusted R Square value is also a percentage indicating goodness of fit in the regression model, but unlike the R Square value it is based on the importance of each of the independent variables that are used in the model, therefore if it differs greatly from the R Square value, there are a greater number of insignificant variables in the model.
[30] The multivariate regression model uses the equation $Y=b_0 + b_1*X_1 + b_2*X_2$...
[31] Degrees of Freedom represent the number of coefficients which are free to vary, or (n-1) where n=the number of independent variables.
[32] The Significance F of the regression, tells what the probability of the regression output is by chance. If it is below the alpha P-value of 0.05, then there is a greater than 95% probability the model's output is not by chance.
[33] The Durbin-Watson statistic tests for autocorrelations in a data sample, or correlations between data over time. It produces a value between 0 and 4, and a value of 2 indicates that there is no autocorrelation in the sample.
[34] Variables listed in each of the models are the coefficients used in the regression model, each with significant P-values.
[35] Also known as independent variables.

- *Low Case Scenario Forecast*
    - *R Square*= 0.976
    - *Adjusted R Square*= 0.971
    - *Equation*=1964317.012+(-7240.154096*AIRFARE) +(6.90256294*EMPLOY)+(-2.404449617*POP)+ (90651.2393*YIELD)
    - *Degrees of Freedom*=4
    - *Significance (F)*= <0.01
    - *Durbin-Watson*=1.723
    - *Variables*=
        - AIRFARE= Average airfare of SLC (P-value=< 0.01)
        - EMPLOY= Employment of SLC Service Area (P-Value= <0.01)
        - POP= Population of SLC Service Area (P-Value= <0.01)
        - YIELD= SLC Airline Yield (P-value=<0.01)

The forecast variables that best represent a forecast of slower growth in O&D enplanements in the SLC market for the Low Case are an increase in airfares and airline yield and a slowing of growth in population and employment over the Base Case.

- *High Case Scenario Forecast*
    - *R Square*= 0.869
    - *Adjusted R Square*= 0.843
    - *Equation*= -4214297.74147306 + (-871241.946536854*MERGE) + (5.84509052639647*POP) + (-185318.820602199*YIELD) + (-1037476.00386821*9/11)
    - *Degrees of Freedom*=4
    - *Significance (F)*= <0.01
    - *Durbin-Watson*=1.495
    - *Variables*=
        - MERGE= Delta Air Lines-Northwest Airlines Merger of 2008 ("1" given for the year of the merge in 2008, and every year thereafter) (P-Value= <0.01)
        - POP= Population of SLC Service Area (with University of Utah Population Growth Rate) (P-Value= <0.01)
        - YIELD= SLC Airline Yield (decreased by 10%) (P-value=<0.01)
        - 9/11= Terrorists attacks of 9/11 qualitative variable ("1" given for the year of 9/11 and all years thereafter)

The forecast variables that best represent an increase in O&D enplanements for the High Case Scenario Forecast is assumed increases in the rate of population growth over the Base Case, a decline in airline yield, the ongoing effect of airline mergers, and variables that account for unanticipated local, national, or world events.

After the three regression models were selected, the O&D projections were given a proportion of all enplanements relevant to specific historical trends of O&D and connecting enplanement distributions out of SLC. Because SLC is a hub, the existing 61.4% of enplanements being O&D, is not anticipated to continue, instead each forecast anticipates a transition back to more even distribution between O&D and connecting enplanements. Therefore, the three scenario distributions reflect more of a hub-type distribution[36].

2.4.3.1.2 Monte Carlo Simulations

Monte Carlo simulation was used to evaluate each of the three scenarios.

The software developer[37] of Monte Carlo simulation refers to the software as a probability simulation. It is a technique used to understand the impact of risk and uncertainty in forecasting models.

In developing a forecast, certain assumptions are made in order to identify that a future value, for example, enplanements, will occur in a particular year. Since this is a forecast, the best one can do is to estimate an expected value based upon historical data, future trends information, or experience. The greater the number of variables that are used to generate a forecast, the greater the number of potential ranges of outcomes. Typically, several variables produce the best overall statistical correlations. Using a range of possible values can generate a more realistic future.

Monte Carlo simulation provides an estimate of the probability of the likelihood of a resulting outcome based upon the range of variables. Because it is a simulation technique, each set of variables can be tested against each other to identify ranges of probability.

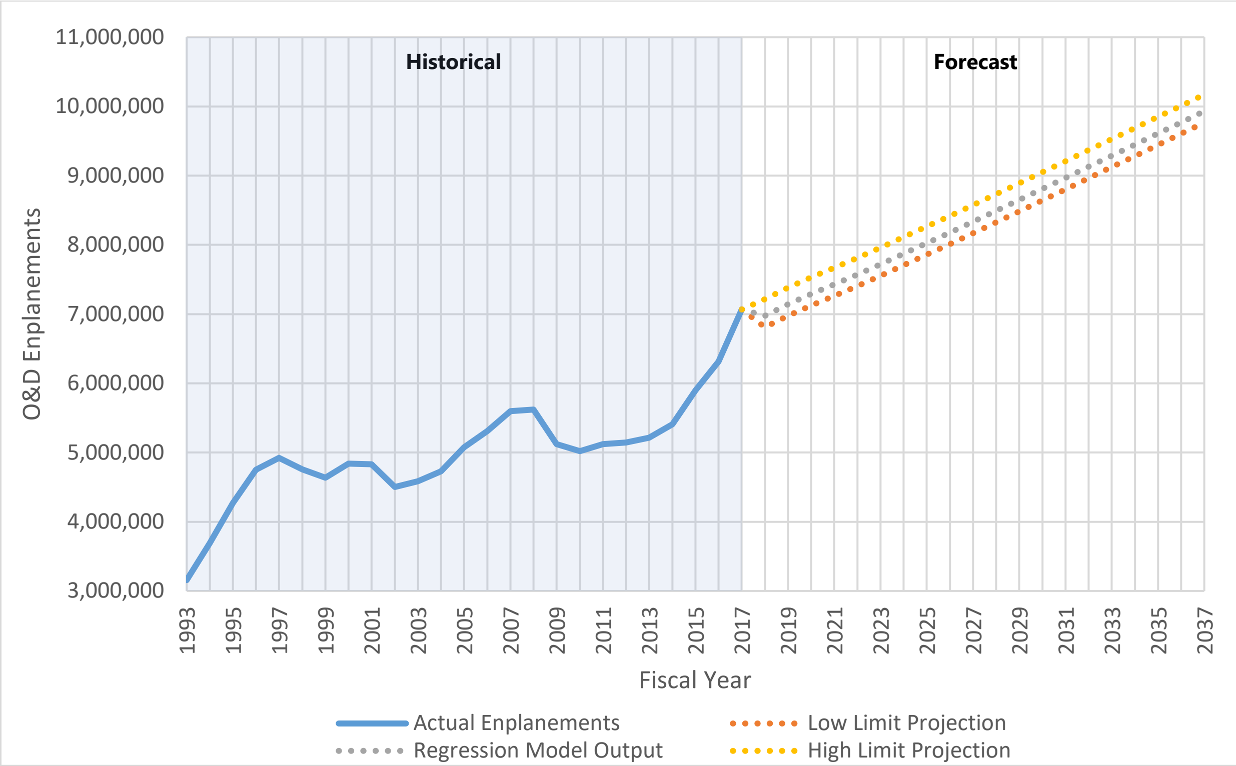
For this Forecast, the simulation compared the projections of the regression model within the Monte Carlo simulation's 95% probability range. Each Monte Carlo simulation run completed a total of 10,000 iterations of all input variables. The results which include random error, verify that each of the three forecast models are generated within a 95% confidence level.

FIGURE 2-26 shows the Base Case Forecast regression model and identifies the upper and lower limits with a 95% probability confidence level. After inserting the Monte Carlo simulation predicted O&D enplanements, and establishing the AAGRs over the planning horizon, some of the annual growth rates were adjusted to provide a smooth transition from the previous distribution to the new hub type distributions. Results for the Low and High Scenario regressions within a 95% probability confidence level look almost exactly like the one depicted in **FIGURE 2-26**.

---

[36] In this Forecast, a "hub-type" distribution refers to a more balanced breakdown of O&D and connecting enplanements.
[37] Internet, www.riskamp.com, November 13, 2018.

FIGURE 2-26
BASE CASE FORECAST REGRESSION MODEL AND MONTE CARLO SIMULATION LIMITS



Source: RS&H, 2018

2.4.3.2 O&D Enplanements Forecasts

The Base Case Forecast for O&D has an AAGR of 1.7% over the planning horizon. The model was built using the SLC service area's GRP, average airfare for the Airport, national jet fuel prices, and two qualitative variables that reflect the impacts of the Terrorist Attacks of 9/11 and the Recession of 2009. Using this model, the number of annual O&D enplanements will increase from approximately 7.1 million in 2017, to 9.9 million in 2037.

The Low Case Scenario Forecast model is built using the SLC service area's population and employment, as well as the airline yield and average airfare for the Airport; please see Section 2.4.3.1 Methodology. The Low Case Scenario model projects an AAGR of 1.4% over the planning horizon, increasing the annual O&D enplanements from approximately 7.1 million in 2017, to 9.2 million in 2037.

Lastly, the High Case Scenario Forecast model was based on population growth for the SLC service area, but instead of using the Woods & Poole projections, it used the slightly higher University of Utah's AAGR (1.5%). The other variables include the projected airline yield for SLC, but in this scenario it is decreased by 10%, and finally the two qualitative variables which include the Terrorist Attacks of 9/11 and the Northwest Airlines and Delta Air Lines Merge of 2008. The High Case Scenario model projects an AAGR of 2.4% over the planning horizon, increasing the annual O&D enplanements from approximately 7.1 million in 2017, to 11.3 million in 2037.

TABLE 2-10 shows the projected O&D enplanements for each forecast, and the distribution or share of O&D enplanements versus connecting enplanements as a percentage from 2018-2037.

2.4.3.3 Connecting Enplanements Forecasts

As of 2017, the connecting enplanements represented 38.6% of all passengers departing from SLC. During its time as a hub airport, the distribution of connecting versus O&D passengers has fluctuated over the past 25 years, but it has always been in the vicinity of a 50-50 split. A major factor influencing the annual connecting enplanements, and ultimately total annual enplanements, is the distribution percentages of O&D and connecting passengers. The SLC city pair for each airline will have its own connecting ratio based upon the number of O&D passengers available on that route and that airline's policy.

There are two typical ways that connecting passengers are estimated. One is to hold the number of enplanements constant over the course of the forecast period or, based on more in depth analysis, forecast the existing O&D/connecting mix per route. Essentially holding the current level constant is a weighted average for that point in time.

At this point in SLC's history, the connecting ratio is near its historical low point. It is unknown whether this is a long-term phenomenon, a trend that could be reversed with the additional capacity afforded by the new terminal along with the potential for upgauging that this building brings, or is reflective of this point in SLC's history.

The number of connecting passengers is generally dictated by the operational policies of the major hub carrier at an airport, in this case Delta. For 2017, the O&D to connecting ratio of approximately 61/39 percent is an outlier and the connecting share of 39% is much lower than historical trends. In conversations with Delta, it has been their general policy to maintain a higher overall level of connecting passengers at SLC than exists at the present time. In addition, Delta has been using SLC as a connect point to west coast markets and there are opportunities for this trend to expand in the future. At the same time, there is not expected to be much change in the way the other airlines operate at SLC which indicates those airlines' average O&D to connecting ratios will not change appreciably. It is also anticipated that once the new airline terminal opens in 2020, there will be more space available for upgauging aircraft and thereby providing more seating capacity to accommodate connecting passengers.

These factors all point to the potential for increasing numbers of connecting passengers, although there is no expectation that the O&D to connecting ratio will return to a 50/50 split. The three forecast scenarios for O&D to connecting passenger ratios are patterned after historical time frames at SLC and their O&D to connecting ratios. The Base Case reflects the dynamic period since 2000 that includes periods both of fast-paced and declining economic growth. The Low Case reflects a lower connecting ratio and fewer enplanements whereas the High Case reflects a slightly higher connecting ratio than the Base Case with greater enplanement levels:

» Base Case Forecast- 53.2% O&D and 46.8% Connecting Passengers reflect the average percentages of SLC Passengers from FY 2000-2017. This is a higher level of connections than currently but does reflect the ongoing effects of airline mergers (anticipated to be completed) as well as upheaval in events such as an unforeseen global event and a recession. As a midlevel of connections, it is used with the Base Case Scenario and generates an increase in the number of annual connecting enplanements from approximately 4.5 million in 2017 to 8.7 million in 2037.

» Low Case Scenario Forecast- 56.5% O&D and 43.5% Connecting Passengers reflect the average percentages of SLC Passengers from FY 2013-2017. This level of connections is similar to today's level and reflects a solid SLC Market Service Area economy and maintaining the ratio of seats for O&D versus connecting passengers at the higher O&D levels. As an overall lower level of connections, it is used with the Low Case Scenario and generates an increase in the number of annual connecting enplanements from approximately 4.5 million in 2017 to 7.1 million in 2037.

» High Case Scenario Forecast- 51.9% O&D and 48.1% Connecting Passengers reflect the average percentages of SLC Passengers from FY 1993-2017. This level of connections represents the long-term historical level. As an overall higher level of connections, it is used in the High Case Scenario and generates an increase in the number of annual connecting enplanements from approximately 4.5 million in 2017 to 10.5 million in 2037.

TABLE 2-11 shows the projected connecting enplanements for each forecast scenario, and the distribution or share of connecting enplanements versus O&D enplanements as a percentage from 2017-2037.

2.4.3.4 International and Domestic Forecast

SLC has increased its international share of annual enplanements from 1.0% in FY 2003 to 3.9% in 2017 with accelerated growth since 2013 by Delta. A historical analysis of international O&D and connecting enplanements from FY 2013-2017 showed that the distribution of O&D and connecting enplanements does not deviate greatly from the domestic enplanements. Therefore, the same distributions of O&D and connecting enplanements were used in each of the international enplanement forecasts as was used for domestic enplanements.

Over the past few years, Delta through its code share partners has continued to increase its international service from SLC by providing new nonstop service to some of the most popular destinations such as London, Amsterdam, and Mexico City. It is not anticipated that the accelerated rate of the past five years will continue as robustly into the future now that service is provided to all ten of the top ten international markets from SLC but the trend toward increasing the percentage of international enplanements compared to all enplanements is anticipated to continue slowly.

In terms of future service, it is common knowledge in the industry that Delta has increased its ownership share in Aeroméxico which will provide customers more opportunities of flying to destinations in Mexico, Central America, and the Caribbean. In addition, five of the Top 25 International Destinations (See TABLE 1-11) between #11 and #20 are Asian locations in Japan, Korea, and China. Currently, there is no non-stop service between SLC and Asia, although there has been some discussion it may be a possibility. As far as long-term new markets are concerned, it is not anticipated that there will be any more direct flights to

European destinations but it is not out of the realm of feasibility to think that a destination such as Lima, Peru could materialize.

Given these trends, there are expectations for continued growth on existing international routes as well as the potential for SLC to serve new international markets.

The Base Case assumes continued growth on existing routes and the incremental addition of new routes. This would have the impact of increasing the percentage number of international enplanements to total enplanements. Over the past five years, the number of international enplanements to total enplanements has doubled, i.e., from 1.9% to approximately 3.8%. The Low Case assumes a lower rate of growth that would accompany a slowdown in domestic and international economic activity. In addition to growth in current markets, the High Case assume initiation of new international routes at a faster rate with more time for growth in those markets over the forecast period. As a result the percent of international enplanements to total enplanements would be greater than the Base Case.

TABLE 2-9 shows the distributions of international and domestic enplanements for each forecast scenario over the planning horizon. While each distribution differs slightly, each scenario forecast shows growth in the number of international enplanements over the planning horizon, although the percentage of international enplanements to total enplanements differ.

TABLE 2-12 shows the projected international and domestic enplanements out of SLC over the planning horizon. **FIGURE 2-27** compares the international enplanement forecast scenarios, and **FIGURE 2-28** compares the domestic enplanement forecast scenarios over the planning horizon.

TABLE 2-9
INTERNATIONAL/DOMESTIC ENPLANEMENT FORECAST DISTRIBUTION (2017-2037)

FY	Low Case Scenario Forecast		Base Case Forecast		High Case Scenario Forecast	
	% International	% Domestic	% International	% Domestic	% International	% Domestic
2017	3.9%	96.1%	3.9%	96.1%	3.9%	96.1%
2022	3.6%	96.4%	4.1%	95.9%	4.1%	95.9%
2027	3.5%	96.5%	4.3%	95.8%	4.5%	95.5%
2032	3.5%	96.5%	4.3%	95.8%	4.6%	95.4%
2037	3.5%	96.5%	4.3%	95.8%	4.6%	95.4%

Source: RS&H, 2018

2.4.3.5 Total Enplanements Forecast

The total enplanements projected in each forecast scenario are a combination of the output of the O&D enplanement forecasts and historical hub-type distributions. Therefore, not only does each model inform the rate of growth for O&D enplanements and total enplanements, but as the O&D and connecting distribution becomes more even, the greater the total enplanements will be also.

In the Base Case Forecast, it is assumed that the Airport would maintain a 53.2% O&D to 46.8% connecting hub-type distribution over the planning horizon. This yields a 2.77% AAGR over the planning horizon, increasing the total annual enplanements by over 5.5 million in 2037.

The Low Case Scenario Forecast assumes a 56.5% O&D to 43.5% connecting hub-type distribution over the planning horizon. This yields a 1.78% AAGR over the planning horizon, which would increase the total annual enplanements by over 4.8 million in 2037.

Lastly, the High Case Scenario Forecast assumes a 51.9% O&D to 48.1% connecting hub-type distribution over the planning horizon. This yields a 3.71% AAGR over the planning horizon, which would increase the total annual enplanements by over 10.2 million in 2037.

TABLE 2-13 shows the year-by-year total enplanements for each of the three forecast scenarios, as well as the FAA TAF 2017. **FIGURE 2-29** compares each forecast with the FAA TAF 2017 from 2018-2037.

TABLE 2-10
O&D ENPLANEMENT FORECASTS (2017-2037)

Fiscal Year	Low Case Scenario Forecast	% O&D	Base Case Forecast	% O&D	High Case Scenario Forecast	% O&D
2017	7,065,996	61.4%	7,065,996	61.4%	7,065,996	61.4%
2018	6,843,216	57.5%	6,976,958	53.9%	7,201,366	53.3%
2019	7,002,191	57.2%	7,142,807	53.7%	7,336,736	53.0%
2020	7,136,649	57.0%	7,292,447	53.6%	7,472,105	52.7%
2021	7,268,551	56.9%	7,430,107	53.5%	7,607,475	52.4%
2022	7,403,102	56.7%	7,571,925	53.3%	7,742,845	52.2%
2023	7,532,369	56.5%	7,721,692	53.2%	7,878,215	51.9%
2024	7,662,685	56.5%	7,872,937	53.2%	8,099,023	51.9%
2025	7,794,392	56.5%	8,025,538	53.2%	8,323,277	51.9%
2026	7,926,922	56.5%	8,179,033	53.2%	8,551,062	51.9%
2027	8,057,849	56.5%	8,334,593	53.2%	8,782,420	51.9%
2028	8,187,290	56.5%	8,492,480	53.2%	9,017,426	51.9%
2029	8,315,456	56.5%	8,651,201	53.2%	9,256,101	51.9%
2030	8,442,061	56.5%	8,810,727	53.2%	9,498,528	51.9%
2031	8,566,628	56.5%	8,970,546	53.2%	9,744,750	51.9%
2032	8,688,609	56.5%	9,130,470	53.2%	9,994,864	51.9%
2033	8,807,732	56.5%	9,290,414	53.2%	10,248,866	51.9%
2034	8,924,402	56.5%	9,450,469	53.2%	10,506,870	51.9%
2035	9,039,025	56.5%	9,610,840	53.2%	10,768,911	51.9%
2036	9,151,398	56.5%	9,771,610	53.2%	11,035,077	51.9%
2037	9,261,464	56.5%	9,932,837	53.2%	11,305,420	51.9%
Average Annual Growth Rates (AAGR)						
2018-2022	1.0%		1.4%		1.9%	
2023-2027	1.7%		1.9%		2.6%	
2028-2037	1.4%		1.8%		2.6%	
2018-2037	1.4%		1.7%		2.4%	

Source: RS&H, 2018; FAA TAF, 2017; BTS T-100 Segment Data, 2013-2017

TABLE 2-11
CONNECTING ENPLANEMENTS FORECASTS (2017-2037)

Fiscal Year	Low Case Scenario Forecast	% Connecting	Base Case Forecast	% Connecting	High Case Scenario Forecast	% Connecting
2017	4,449,643	38.6%	4,449,643	38.6%	4,449,643	38.6%
2018	5,271,609	42.5%	6,133,258	46.1%	6,321,832	46.7%
2019	5,393,490	42.8%	6,279,149	46.3%	6,511,109	47.0%
2020	5,496,615	43.0%	6,410,789	46.4%	6,703,399	47.3%
2021	5,597,755	43.1%	6,531,893	46.5%	6,898,666	47.6%
2022	5,700,917	43.3%	6,656,648	46.7%	7,097,024	47.8%
2023	5,800,045	43.5%	6,788,398	46.8%	7,298,516	48.1%
2024	5,899,990	43.5%	6,921,451	46.8%	7,503,135	48.1%
2025	6,000,984	43.5%	7,055,681	46.8%	7,710,988	48.1%
2026	6,102,581	43.5%	7,190,726	46.8%	7,922,103	48.1%
2027	6,202,982	43.5%	7,327,564	46.8%	8,136,510	48.1%
2028	6,302,216	43.5%	7,466,458	46.8%	8,354,305	48.1%
2029	6,400,523	43.5%	7,606,086	46.8%	8,575,514	48.1%
2030	6,497,599	43.5%	7,746,413	46.8%	8,800,183	48.1%
2031	6,593,084	43.5%	7,887,008	46.8%	9,028,393	48.1%
2032	6,686,632	43.5%	8,027,699	46.8%	9,260,166	48.1%
2033	6,777,980	43.5%	8,168,397	46.8%	9,495,571	48.1%
2034	6,867,421	43.5%	8,309,201	46.8%	9,734,701	48.1%
2035	6,955,334	43.5%	8,450,279	46.8%	9,977,541	48.1%
2036	7,041,492	43.5%	8,591,703	46.8%	10,224,233	48.1%
2037	7,125,882	43.5%	8,733,537	46.8%	10,474,783	48.1%
Average Annual Growth Rates (AAGR)						
2018-2022	5.3%		9.2%		10.8%	
2023-2027	1.7%		1.9%		2.8%	
2028-2037	1.4%		1.8%		2.6%	
2018-2037	2.4%		3.7%		4.7%	

Source: RS&H, 2018

TABLE 2-12
INTERNATIONAL AND DOMESTIC ENPLANEMENTS FORECASTS (2017-2037)

Year	Low Case Scenario Forecast		Base Case Forecast		High Case Scenario Forecast	
	International Enplanements	Domestic Enplanements	International Enplanements	Domestic Enplanements	International Enplanements	Domestic Enplanements
2017	448,031	11,067,608	448,031	11,067,608	448,031	11,067,608
2018	484,198	11,931,138	519,033	12,789,504	527,405	12,995,793
2019	483,153	12,131,796	537,123	13,026,588	548,375	13,299,470
2020	482,402	12,313,403	554,946	13,249,688	569,855	13,605,649
2021	480,063	12,494,614	572,629	13,462,392	591,851	13,914,290
2022	477,547	12,678,023	589,312	13,679,748	612,887	14,226,982
2023	475,968	12,856,461	607,973	13,902,120	635,905	14,540,826
2024	474,694	13,088,000	628,762	14,165,629	663,092	14,939,069
2025	482,838	13,312,537	640,951	14,440,255	692,680	15,341,590
2026	491,032	13,538,466	653,215	14,716,543	723,172	15,749,990
2027	499,128	13,761,679	665,642	14,996,514	754,585	16,164,358
2028	507,133	13,982,386	678,255	15,280,681	786,939	16,584,781
2029	515,059	14,200,905	690,935	15,566,353	820,254	17,011,350
2030	522,889	14,416,784	703,678	15,853,463	841,740	17,456,965
2031	530,590	14,629,134	716,446	16,141,111	863,564	17,909,572
2032	538,132	14,837,082	729,222	16,428,945	885,731	18,369,281
2033	545,500	15,040,204	741,999	16,716,812	908,245	18,836,204
2034	552,714	15,239,105	754,786	17,004,877	931,112	19,310,453
2035	559,803	15,434,561	767,598	17,293,525	954,338	19,792,142
2036	566,750	15,626,109	780,441	17,582,878	977,929	20,281,388
2037	573,558	15,813,804	793,321	17,873,047	1,001,889	20,778,309
Average Annual Growth Rates (AAGR)						
2018-2022	1.3%	2.8%	5.8%	4.5%	6.6%	5.3%
2023-2027	0.9%	1.7%	2.5%	1.9%	4.3%	2.6%
2028-2037	1.4%	1.4%	1.8%	1.8%	2.9%	2.5%
2018-2037	1.3%	1.8%	2.9%	2.5%	4.2%	3.3%

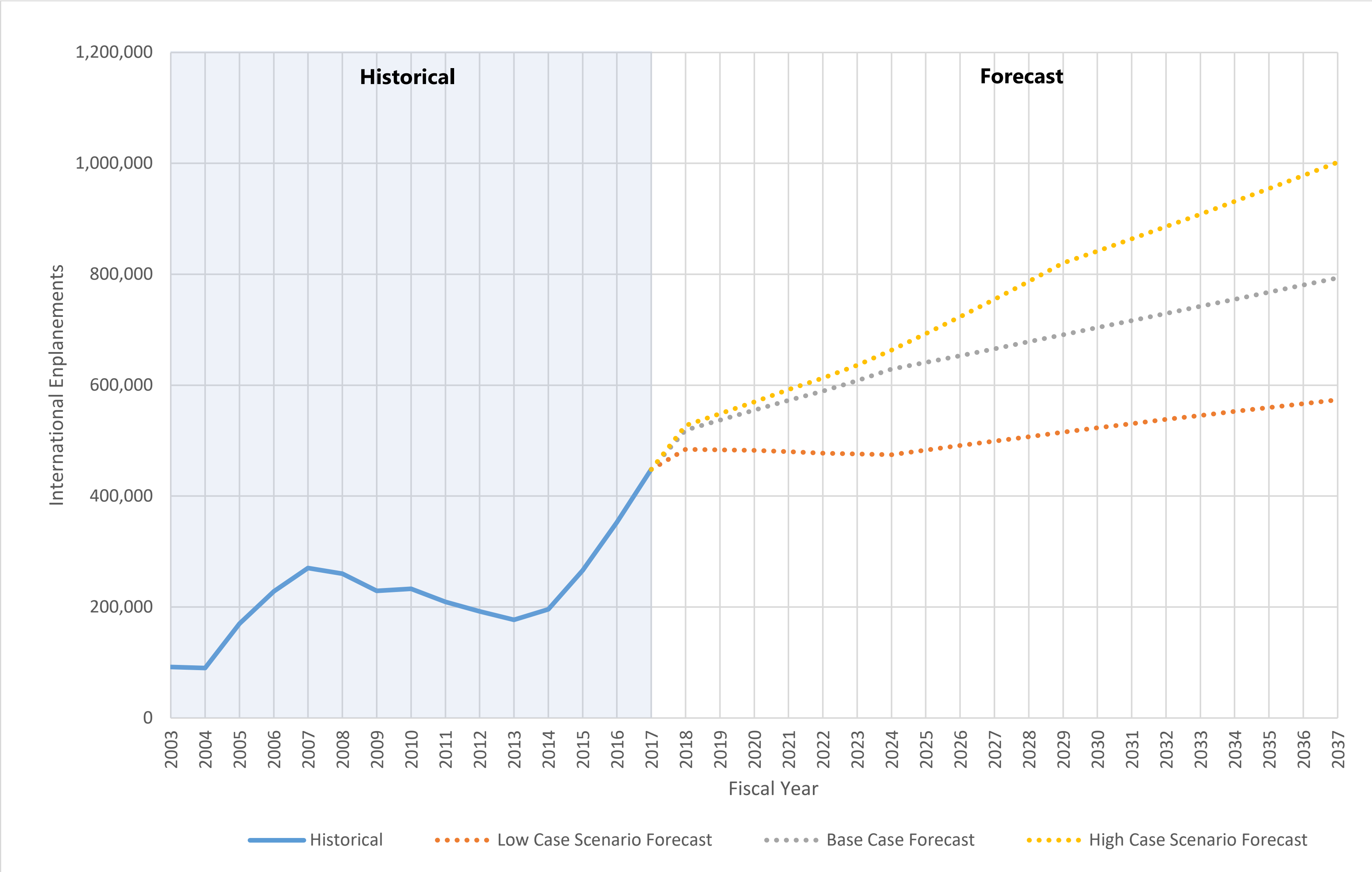
Source: RS&H, 2018

TABLE 2-13
TOTAL ENPLANEMENTS FORECASTS (2017-2037)

Fiscal Year	FAA TAF 2017	Low Case Scenario Forecast	Base Case Forecast	High Case Scenario Forecast
2017	11,515,639	11,515,639	11,515,639	11,515,639
2018	11,960,071	12,114,825	13,110,216	13,523,198
2019	12,284,399	12,395,681	13,421,956	13,847,845
2020	12,575,476	12,633,264	13,703,235	14,175,504
2021	12,847,704	12,866,306	13,962,000	14,506,141
2022	13,121,857	13,104,019	14,228,573	14,839,869
2023	13,391,866	13,332,415	14,510,090	15,176,732
2024	13,662,276	13,562,675	14,794,388	15,602,158
2025	13,931,873	13,795,376	15,081,219	16,034,266
2026	14,212,655	14,029,503	15,369,759	16,473,165
2027	14,499,142	14,260,831	15,662,157	16,918,931
2028	14,796,623	14,489,506	15,958,938	17,371,731
2029	15,100,690	14,715,979	16,257,287	17,831,614
2030	15,405,642	14,939,660	16,557,139	18,298,711
2031	15,715,354	15,159,712	16,857,553	18,773,142
2032	16,022,593	15,375,242	17,158,168	19,255,030
2033	16,326,068	15,585,712	17,458,811	19,744,437
2034	16,638,974	15,791,823	17,759,671	20,241,571
2035	16,963,658	15,994,359	18,061,119	20,746,451
2036	17,293,073	16,192,889	18,363,313	21,259,310
2037	17,623,339	16,387,346	18,666,374	21,780,203
Average Annual Growth Rates (AAGR)				
2018-2022	2.7%	2.6%	4.4%	5.4%
2023-2027	2.0%	1.7%	3.1%	4.4%
2028-2037	2.0%	1.4%	1.8%	2.6%
2018-2037	2.2%	1.8%	2.8%	3.7%

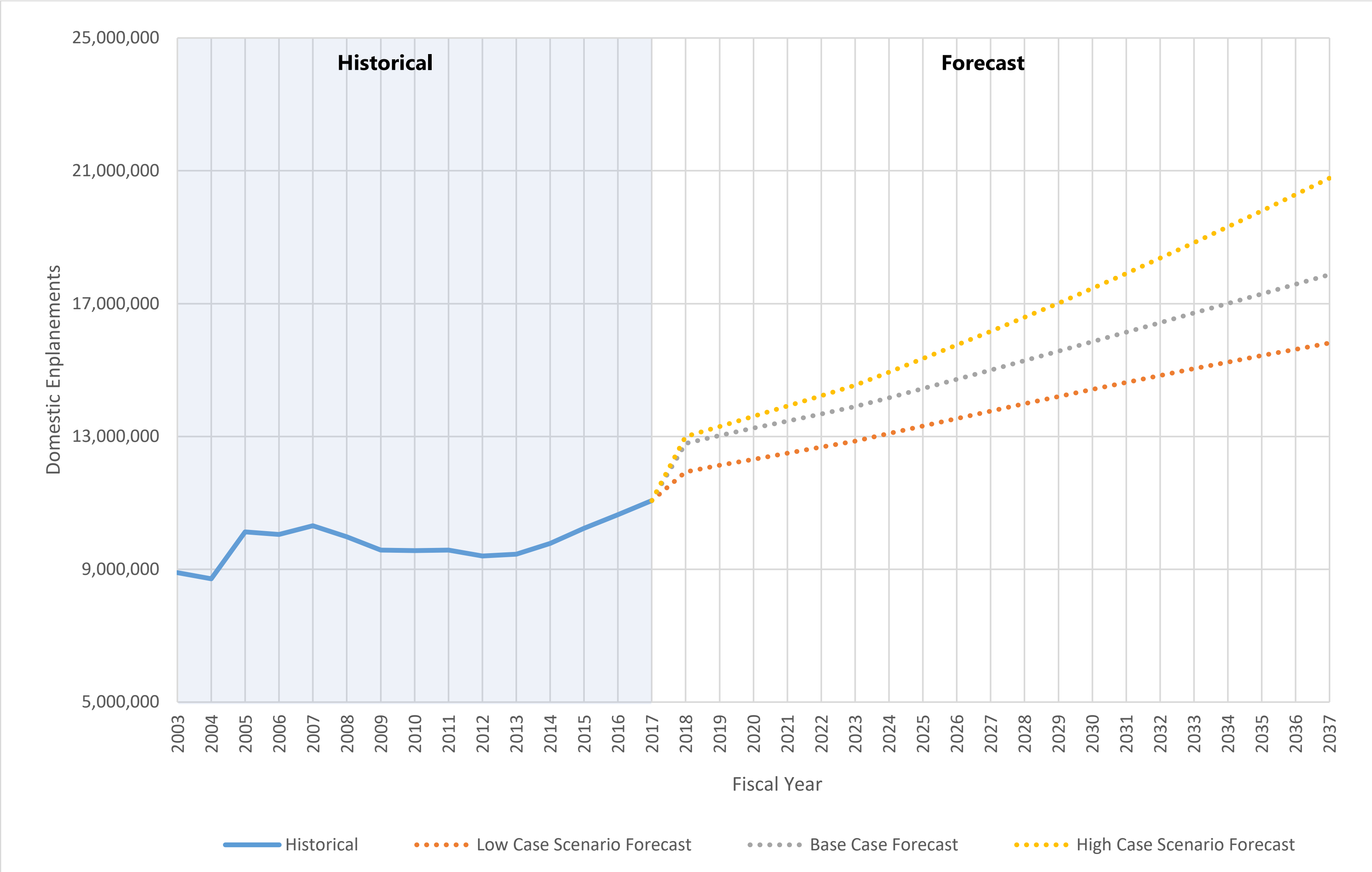
Source: RS&H, 2018

FIGURE 2-27
INTERNATIONAL ENPLANEMENTS – HISTORICAL (2003-2017) AND FORECAST (2018-2037)



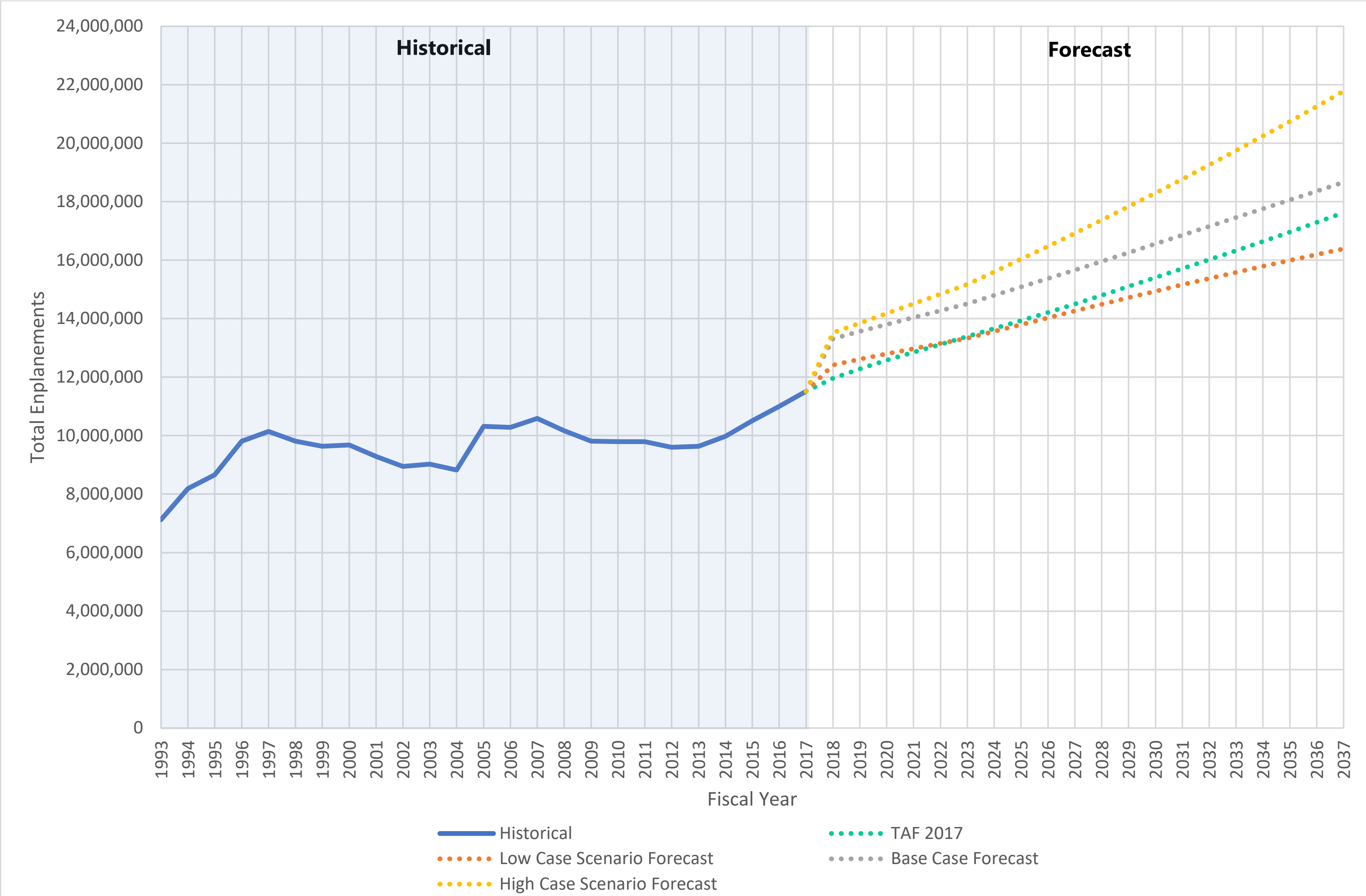
Source: RS&H, 2018

FIGURE 2-28
DOMESTIC ENPLANEMENTS – HISTORICAL (2003-2017) AND FORECAST (2018-2037)



Source: RS&H, 2018

FIGURE 2-29
TOTAL ENPLANEMENTS- HISTORICAL (1993-2017) AND FORECAST (2018-2038)



Source: RS&H, 2018

2.5 PLANNING DAY MODEL

2.5.1 Planning Day Model Methodology

The demand for an airport is identified by incorporating all of the characteristics that express how a total number of enplanements can be achieved. In order to recognize each of them, a daily planning model is often created. Planning models, are very useful tools in establishing facility requirements, as they represent the frequency of arriving and departing aircraft for an Average Day of the Peak Month (ADPM). In addition, they also recognize the equipment used, and how full the planes are.

Four planning model schedules (2022, 2027, 2032, and 2037) were produced for each planning scenario, Base, Low, and High Cases. Each planning model schedule was based upon the assumed average day of the peak month for 2018 which was July 19, 2018[38] that had 377 arrivals and departures.

Each schedule scenario for the Base, Low, and High Cases used initial load factors that were provided by Delta for June 1-June 12, 2018 and applied to all Delta flights by market. Initial load factors for all other airlines were obtained from BTS T-100 Segment Data, 2013-2017.

Forecast assumptions included:

- Addition of new markets, as reflected from conversations with Airport staff, airline representatives, research about future industry trends, comments made during the Expert Panel session, and other related research conducted, in an effort to make each planning day model more robust.
- Addition of incremental frequencies were added to existing markets where the base schedule load factor exceeded 85%, and to new markets with an initial 80% load factor. All incremental frequencies were added at times of the day that complemented existing schedules.
- Flights were added at times respecting the current structure of Delta's banks of arrivals and departures.
- Equipment changes were upgauged based upon existing airline fleets, orders, and options with highest load factor flights by market being upgraded first. Load factors for equipment upgrades largely remained the same as on the prior equipment, assuming high load factors existing prior to the upgrade would fill the larger aircraft over the five-year interval between forecasts.

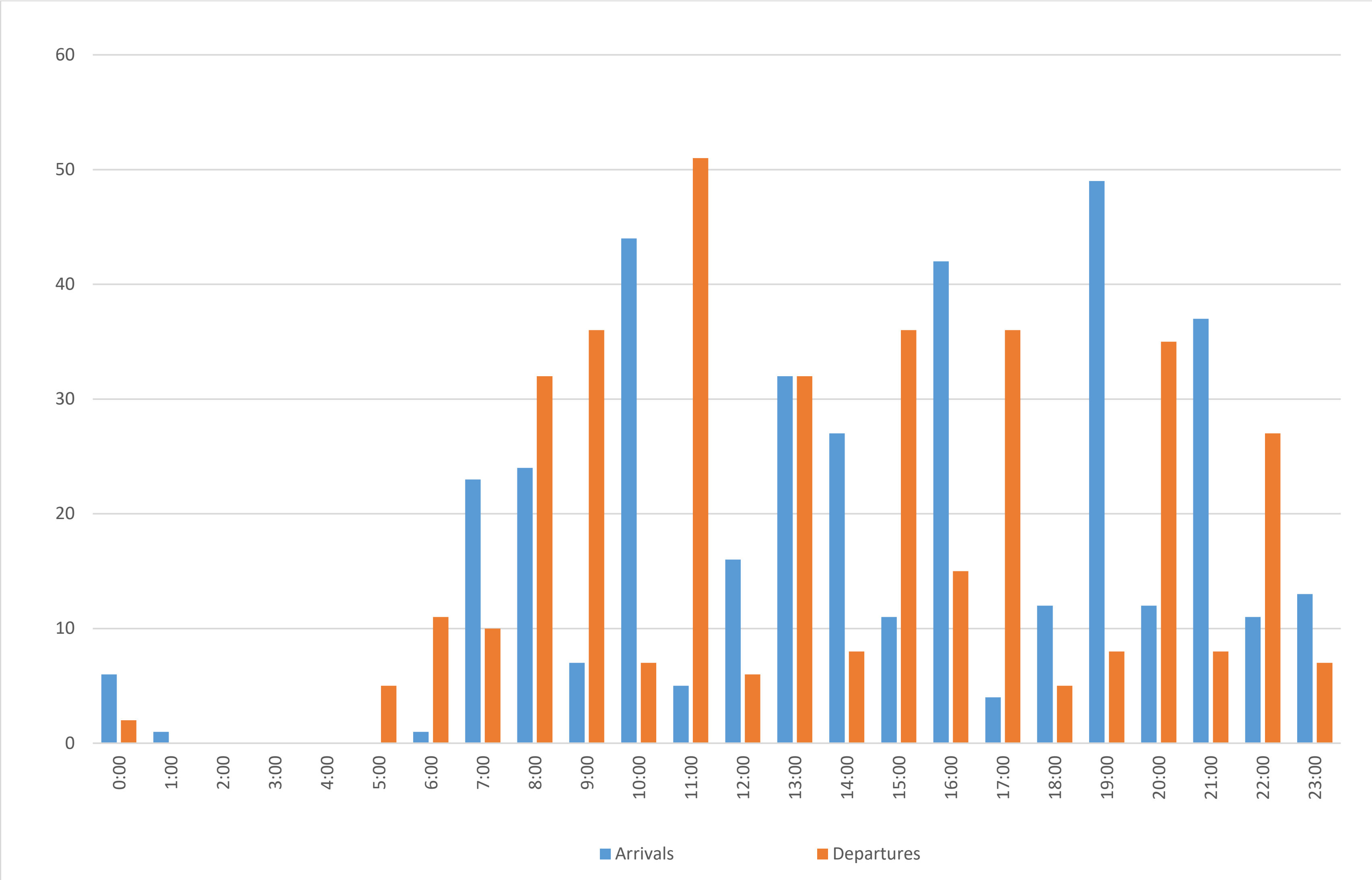
2.5.2 Baseline Flight Schedule 2018

The flight schedule for an ADPM in 2018, identified a total of 377 arriving and 377 departing commercial service operations, with 12 of the arrivals and 12 of the departures being international flights. The peak hour for arrivals was 7:00 pm with 49 operations, and the peak hour for departures was 11:00 am with 51 operations. For international operations, 12:00 pm, 1:00 pm, and 6:00 pm each had two arrivals; and 9:00 am and 11:00 am each had three departures. The peak hour for combined departures and arrivals was at 1:00 pm with 64 total operations.

[38] An analysis of the enplanements by month over the past five fiscal years identified July as the Airport's peak month.

FIGURE 2-30 shows the ADPM for the Baseline Flight Schedule of July 19, 2018. **TABLE 2-14** shows a summary of the mainline carrier's operations for the planning day model with a list of each type of equipment used.

FIGURE 2-30
TOTAL OPERATIONS ADPM BASELINE SCHEDULE (2017)



Source: Mary A. Lynch, 2018

TABLE 2-14
BASELINE SCHEDULE 2018 AIRLINE SUMMARY

Airline	Arrivals	Departures	Equipment (IATA Code)
Aeroméxico	1	1	E90
Alaska Airlines	12	12	739, 73H, 73J, E75
American Airlines	20	20	319, 321, 738, CR7, E75
Delta Air Lines	277	277	319, 320, 321, 717, 738, 739, 757, 76W, CRJ, CR7, CR9, E75, E7W, M90
Frontier Airlines	4	4	320, 321
JetBlue Airways	7	7	320
Southwest Airlines	33	33	73H, 73W
United Airlines	23	23	319, 320, 739, 73G, CRJ, CR7, E70, E7W, 73H, 73W
Total	**377**	**377**	

Source: Mary A. Lynch, 2018

2.5.3 Planning Day Model Base Case Forecast

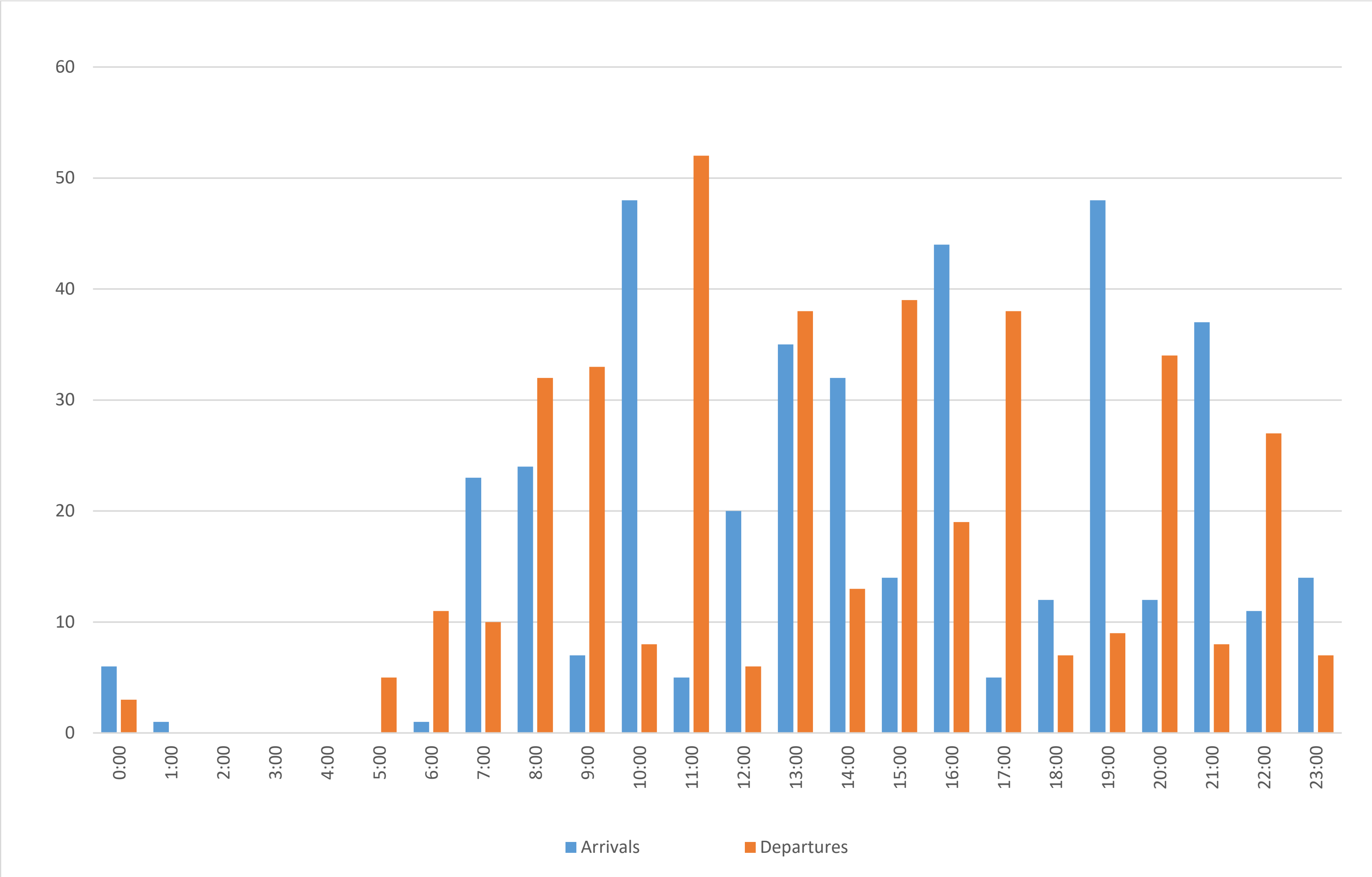
The Base Case Forecast Planning Day Model summarizes the operational counts and times for the four forecast years listed below:

- FY 2022 projects a total of 413 arriving and 413 departing commercial service operations, with 14 of the arrivals, and 14 of the departures being international flights. The peak hour for total arrivals is 10:00 am with 50 operations, and total departures is 11:00 am with 56 operations. For international operations, 10:00 am, 12:00 pm, 1:00 pm, 4:00 pm, and 6:00 pm each have two arrivals, and 11:00 am has four departures. The peak hour for combined departures and arrivals is at 1:00 pm with 76 total operations. Average day peak month FY 2022 domestic operations are shown in **FIGURE 2-31**, international operations are shown in **FIGURE 2-35**, and total operations are shown in **FIGURE 2-39**.
- FY 2027 projects a total of 453 arriving and 453 departing commercial service operations, with 19 of the arrivals, and 19 of the departures being international flights. The peak hour for total arrivals is 10:00 am with 55 operations, and total departures is 11:00 am with 60 operations. For international operations, 10:00 am, 12:00 pm, and 6:00 pm each have three arrivals, and 11:00 am has four departures. The peak hour for combined departures and arrivals is at 1:00 pm with 82 total operations. Average day peak month FY 2027 domestic operations are shown in **FIGURE**

2-32, international operations are shown in **FIGURE 2-36**, and total operations are shown in **FIGURE 2-40**.

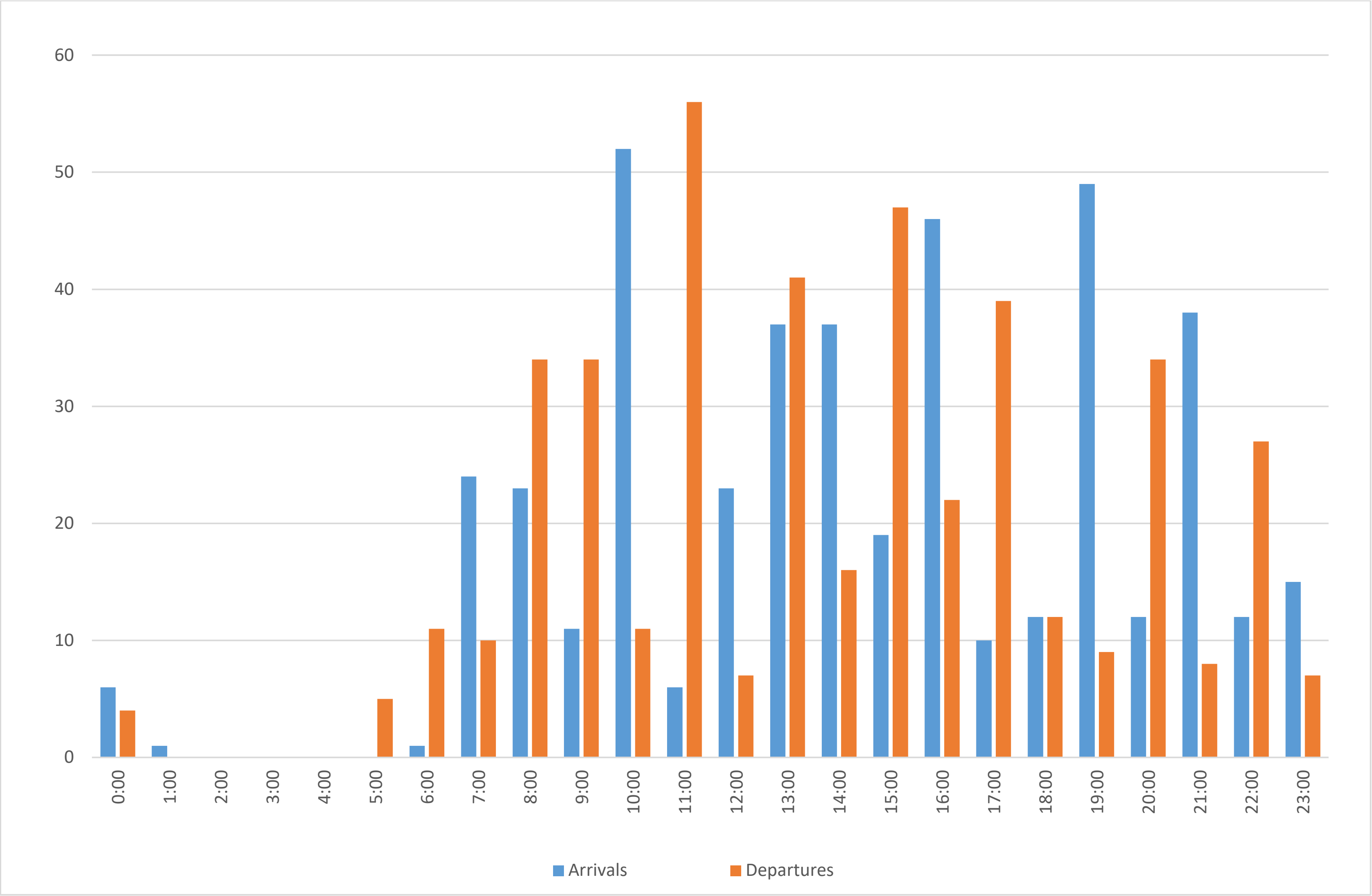
- FY 2032 projects a total of 475 arriving and 475 departing commercial service operations, with 24 of the arrivals, and 24 of the departures being international flights. The peak hour for total arrivals is 10:00 am with 57 operations, and total departures is 11:00 am with 62 operations. For international operations, 6:00 pm has four arrivals, and 11:00 am and 8:00 pm each have four departures. The peak hour for combined departures and arrivals is at 1:00 pm with 84 total operations. Average day peak month FY 2032 domestic operations are shown in **FIGURE 2-33**, international operations are shown in **FIGURE 2-37**, and total operations are shown in **FIGURE 2-41**.
- FY 2037 projects a total of 503 arriving and 503 departing commercial service operations, with 27 of the arrivals, and 27 of the departures being international flights. The peak hour for total arrivals is 10:00 am with 58 operations, and total departures is 11:00 am with 63 operations. For international operations, 1:00 pm and 6:00 pm each have four arrivals, and 11:00 am and 8:00 pm each have four departures. The peak hour for combined departures and arrivals is at 1:00 pm with 94 total operations. Average day peak month FY 2037 domestic operations are shown in **FIGURE 2-34**, international operations are shown in **FIGURE 2-38**, and total operations are shown in **FIGURE 2-42.**

FIGURE 2-31
DOMESTIC OPERATIONS ADPM BASE CASE FORECAST (2022)



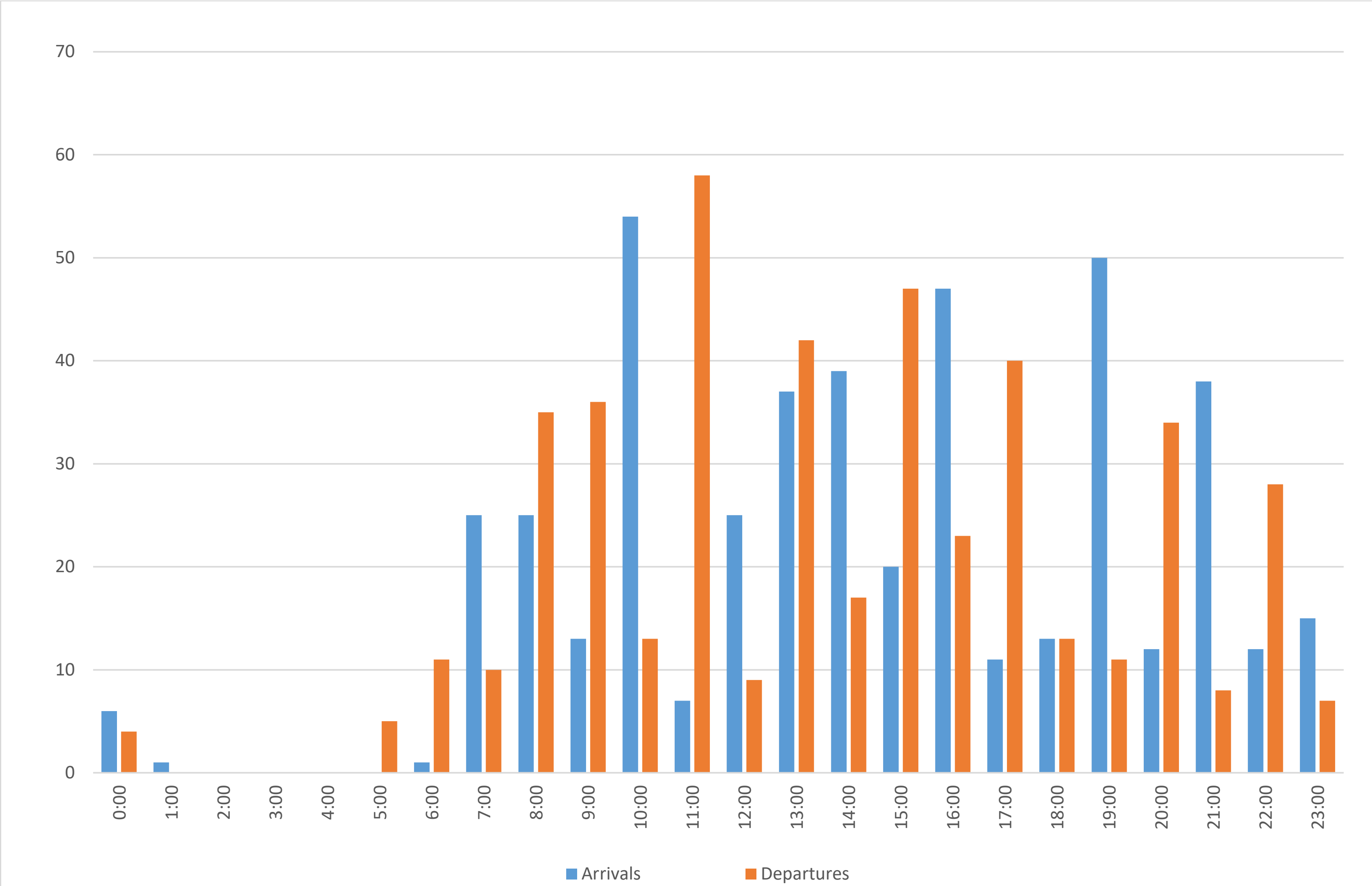
Source: Mary A. Lynch, 2018

FIGURE 2-32
DOMESTIC OPERATIONS ADPM BASE CASE FORECAST (2027)



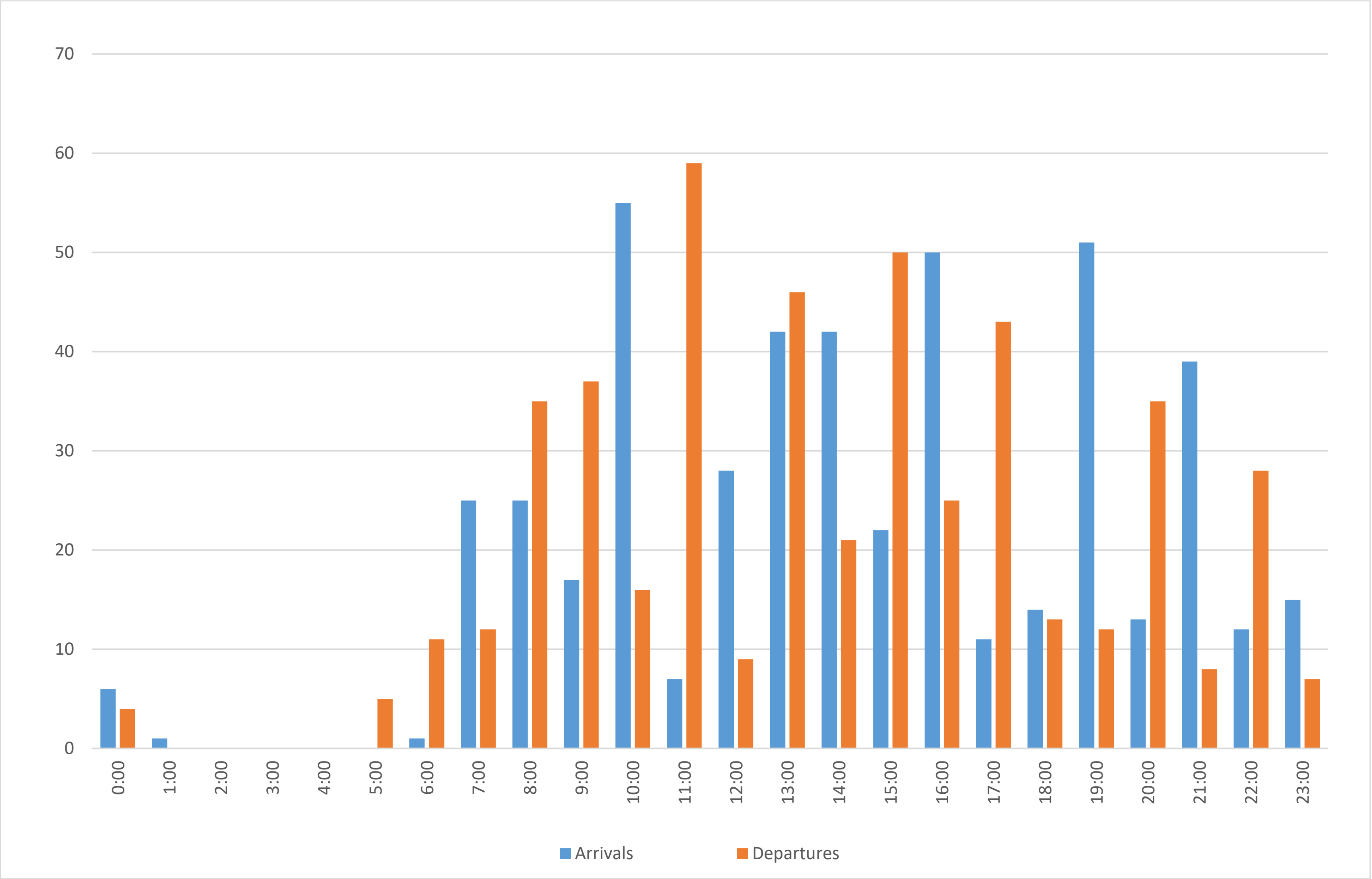
Source: Mary A. Lynch, 2018

FIGURE 2-33
DOMESTIC OPERATIONS ADPM BASE CASE FORECAST (2032)



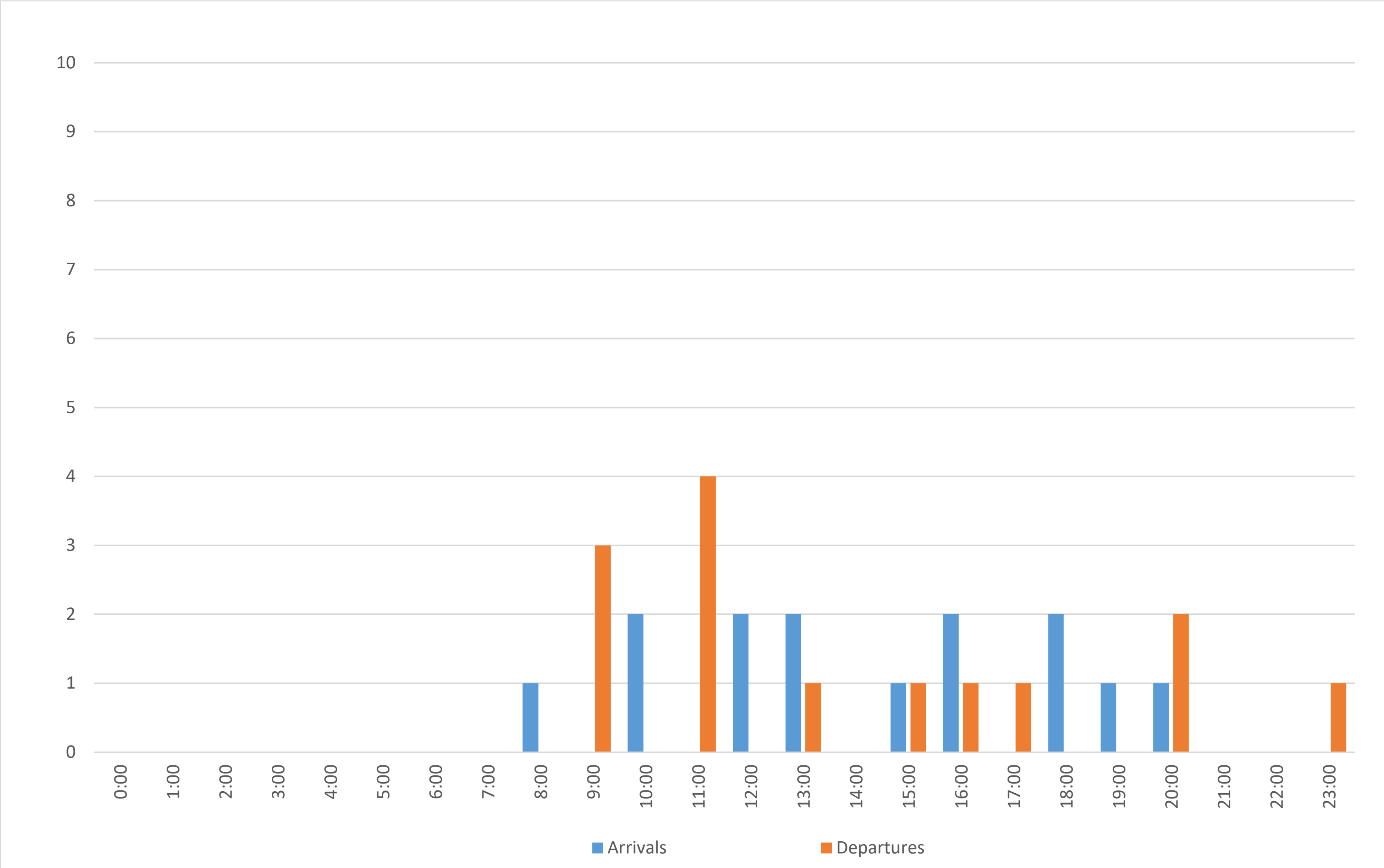
Source: Mary A. Lynch, 2018

FIGURE 2-34
DOMESTIC OPERATIONS ADPM BASE CASE FORECAST (2037)



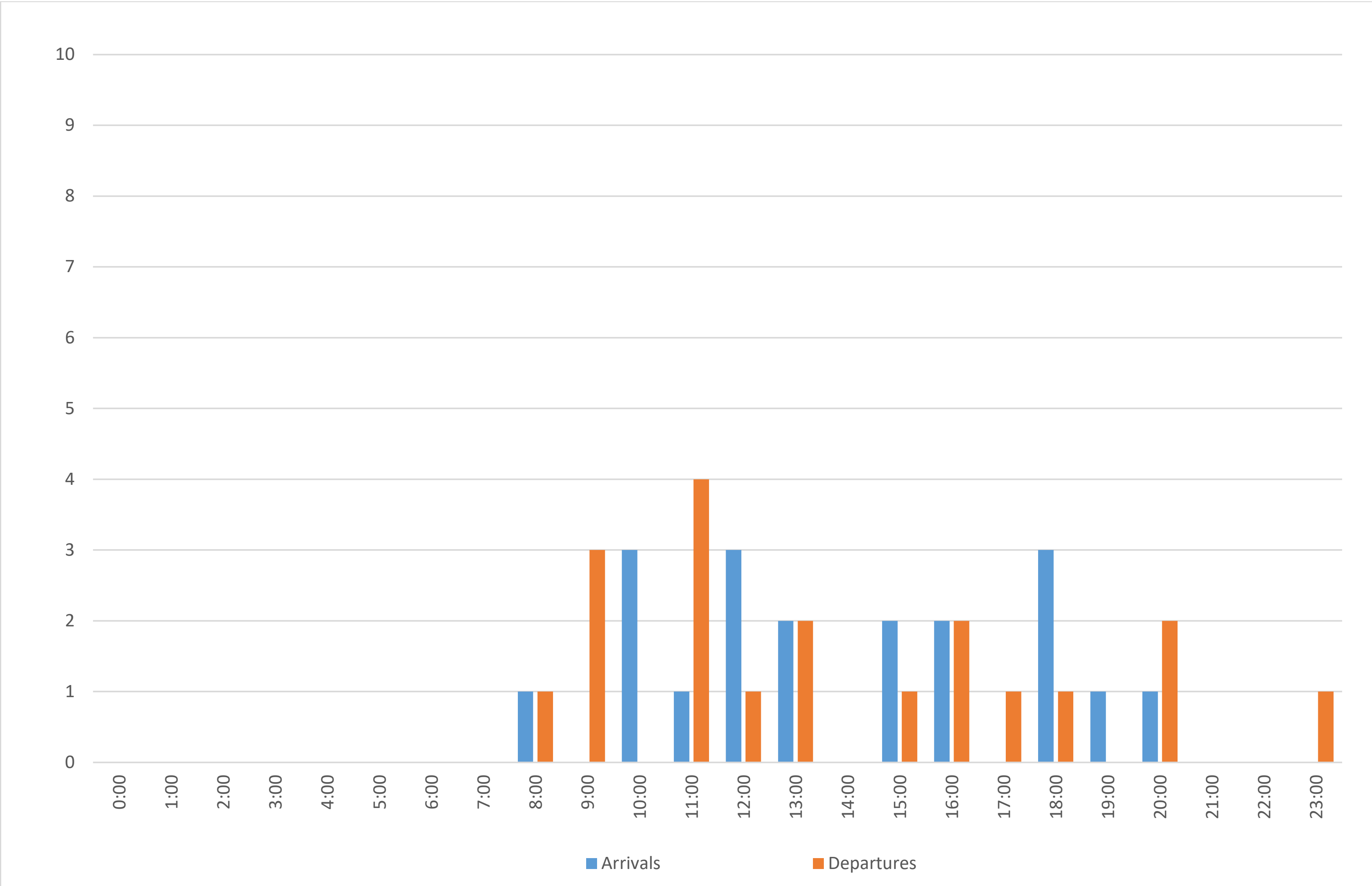
Source: Mary A. Lynch, 2018

FIGURE 2-35
INTERNATIONAL OPERATIONS ADPM BASE CASE FORECAST (2022)



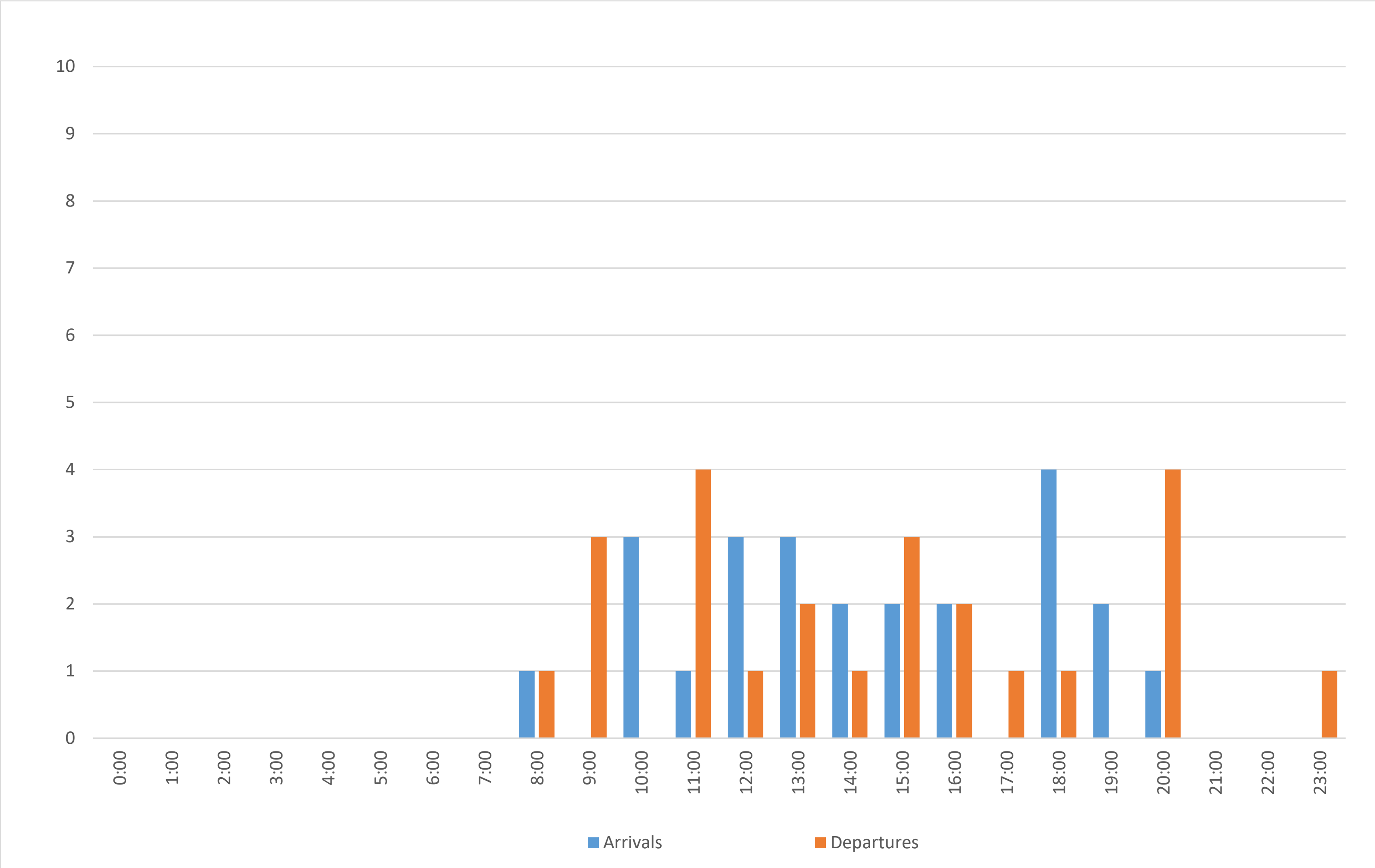
Source: Mary A. Lynch, 2018

FIGURE 2-36
INTERNATIONAL OPERATOINS ADPM BASE CASE FORECAST (2027)



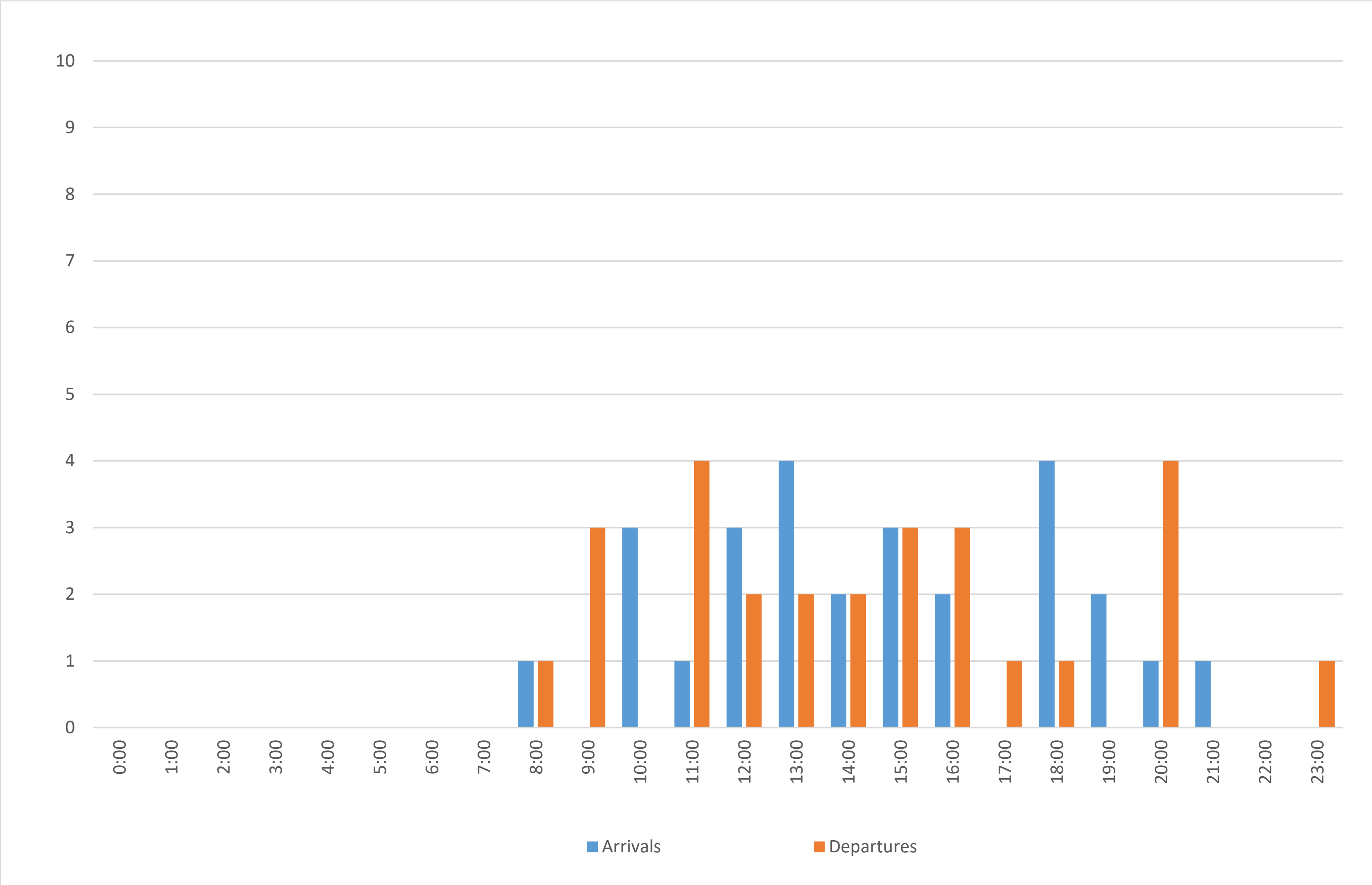
Source: Mary A. Lynch, 2018

FIGURE 2-37
INTERNATIONAL OPERATIONS ADPM BASE CASE FORECAST (2032)



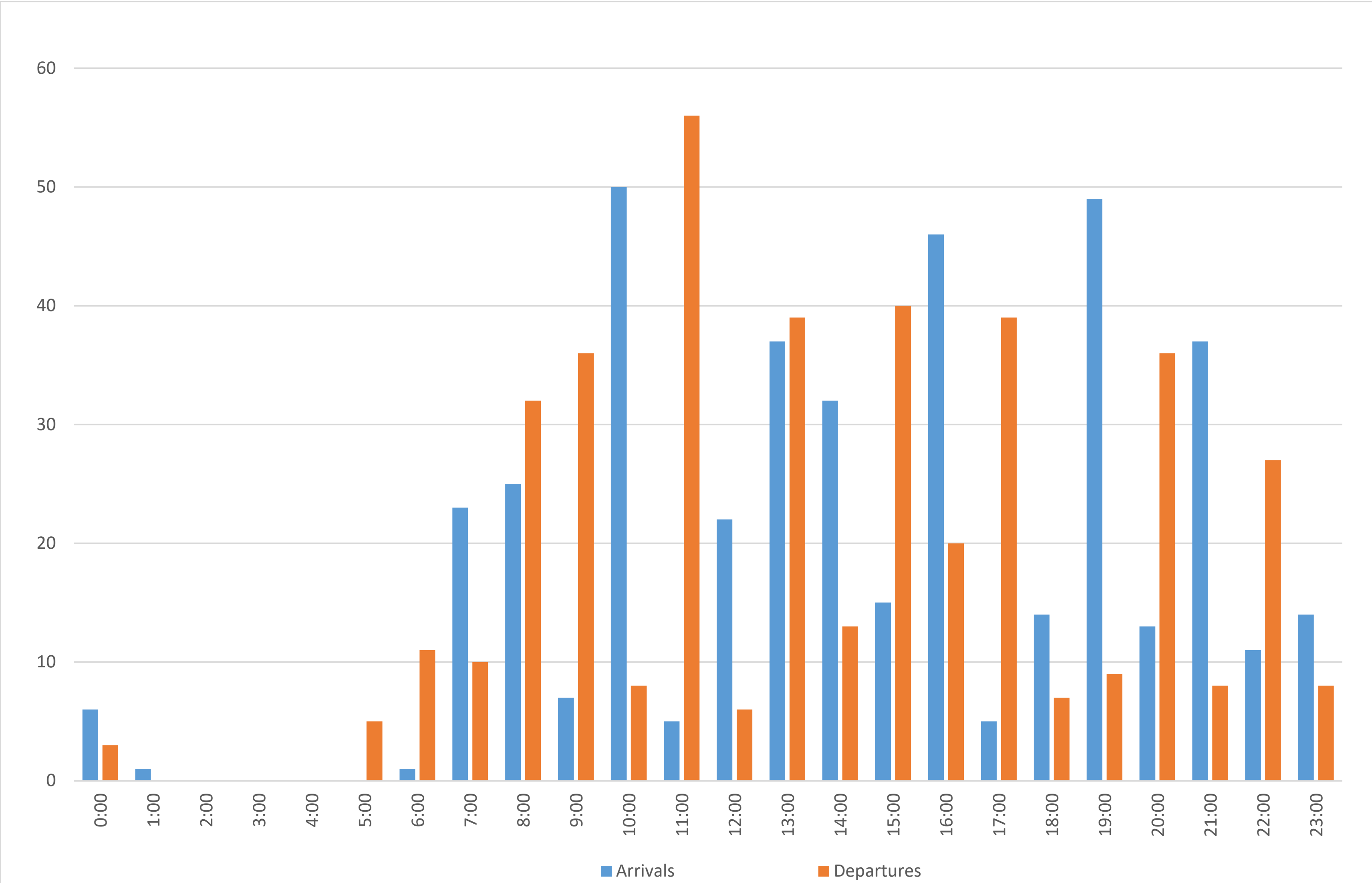
Source: Mary A. Lynch, 2018

FIGURE 2-38
INTERNATIONAL OPERATIONS ADPM BASE CASE FORECAST (2037)



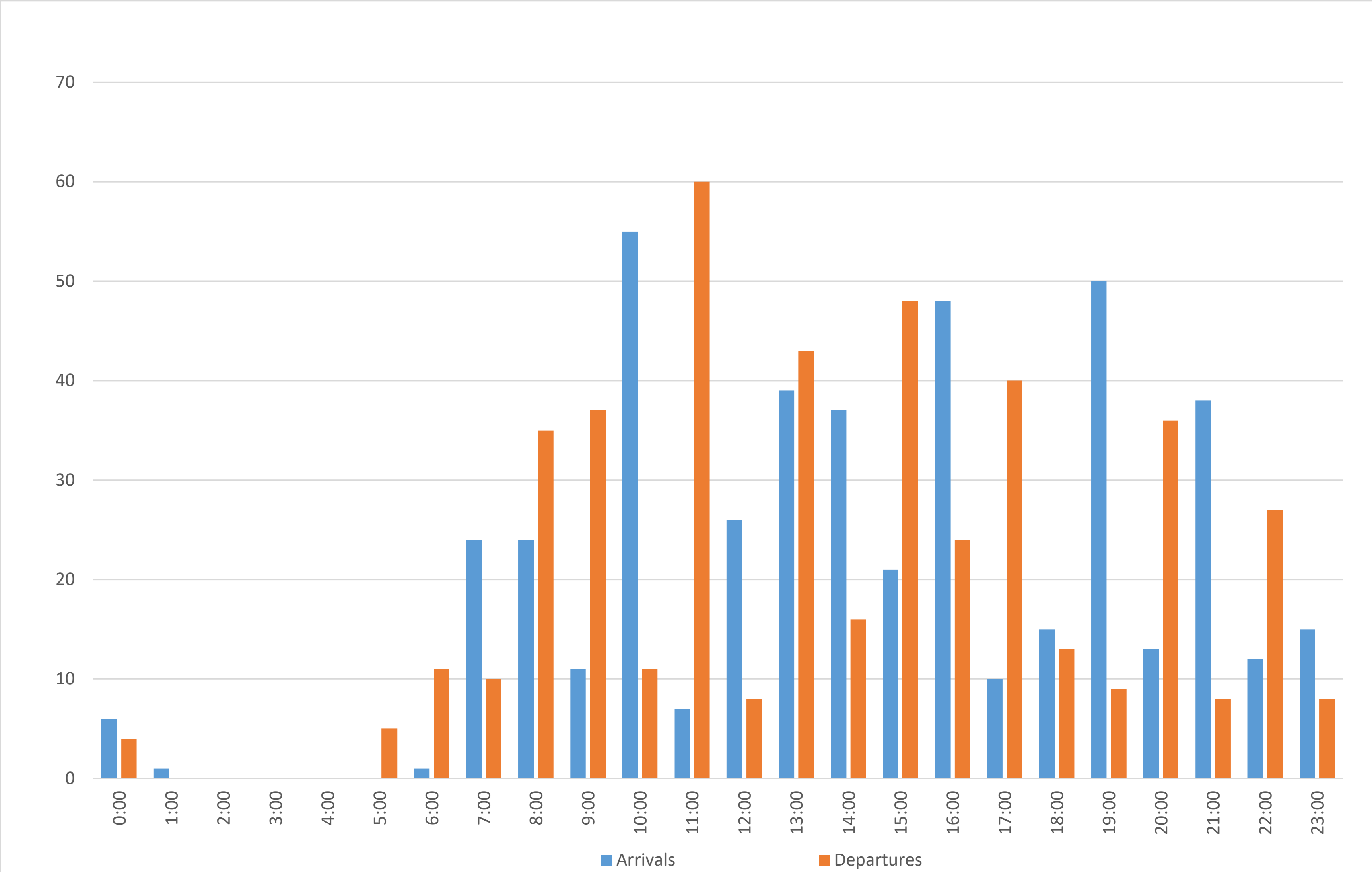
Source: Mary A. Lynch, 2018

FIGURE 2-39
TOTAL OPERATIONS ADPM BASE CASE FORECAST (2022)



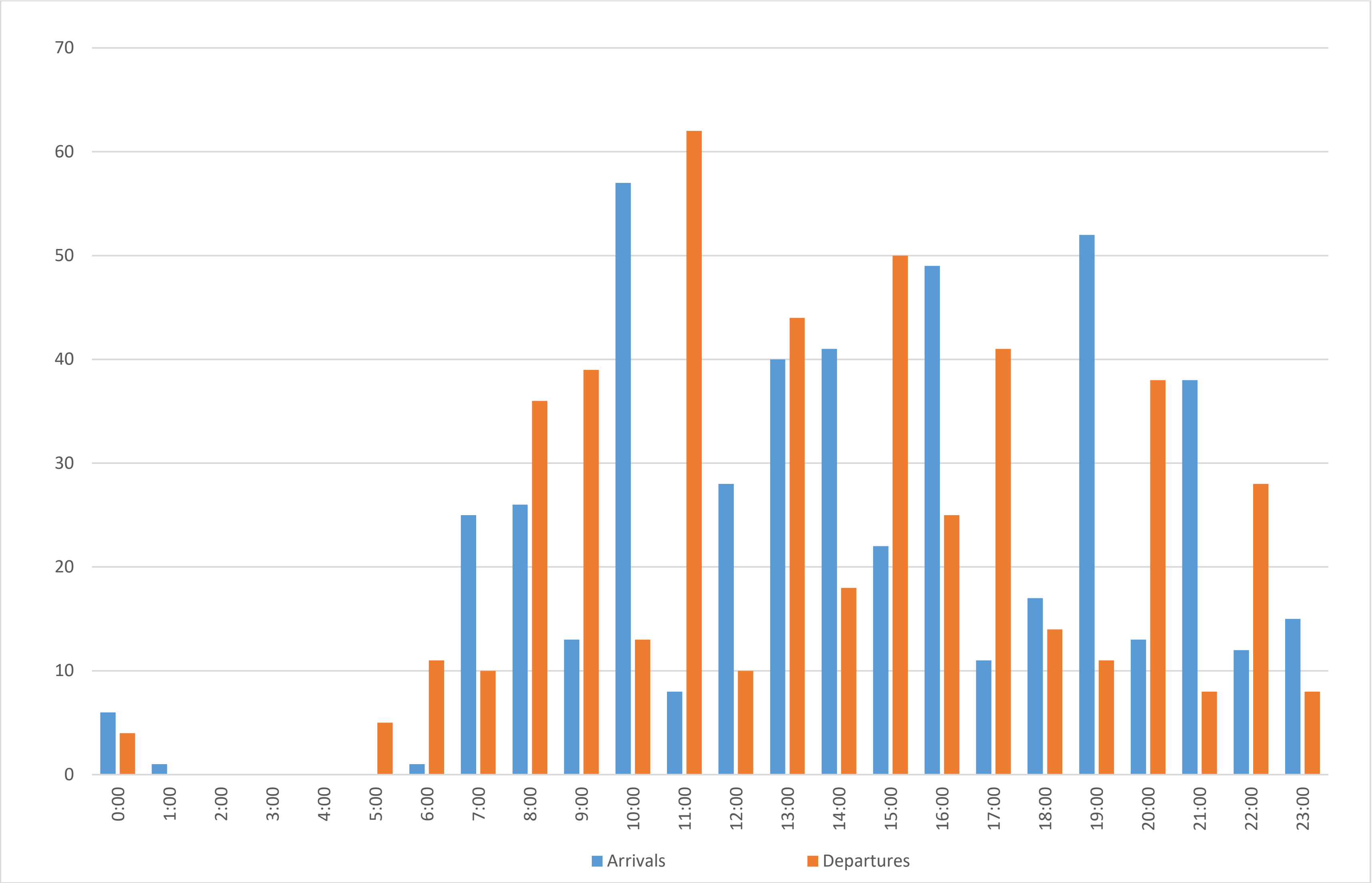
Source: Mary A. Lynch, 2018

FIGURE 2-40
TOTAL OPERATIONS ADPM BASE CASE FORECAST (2027)



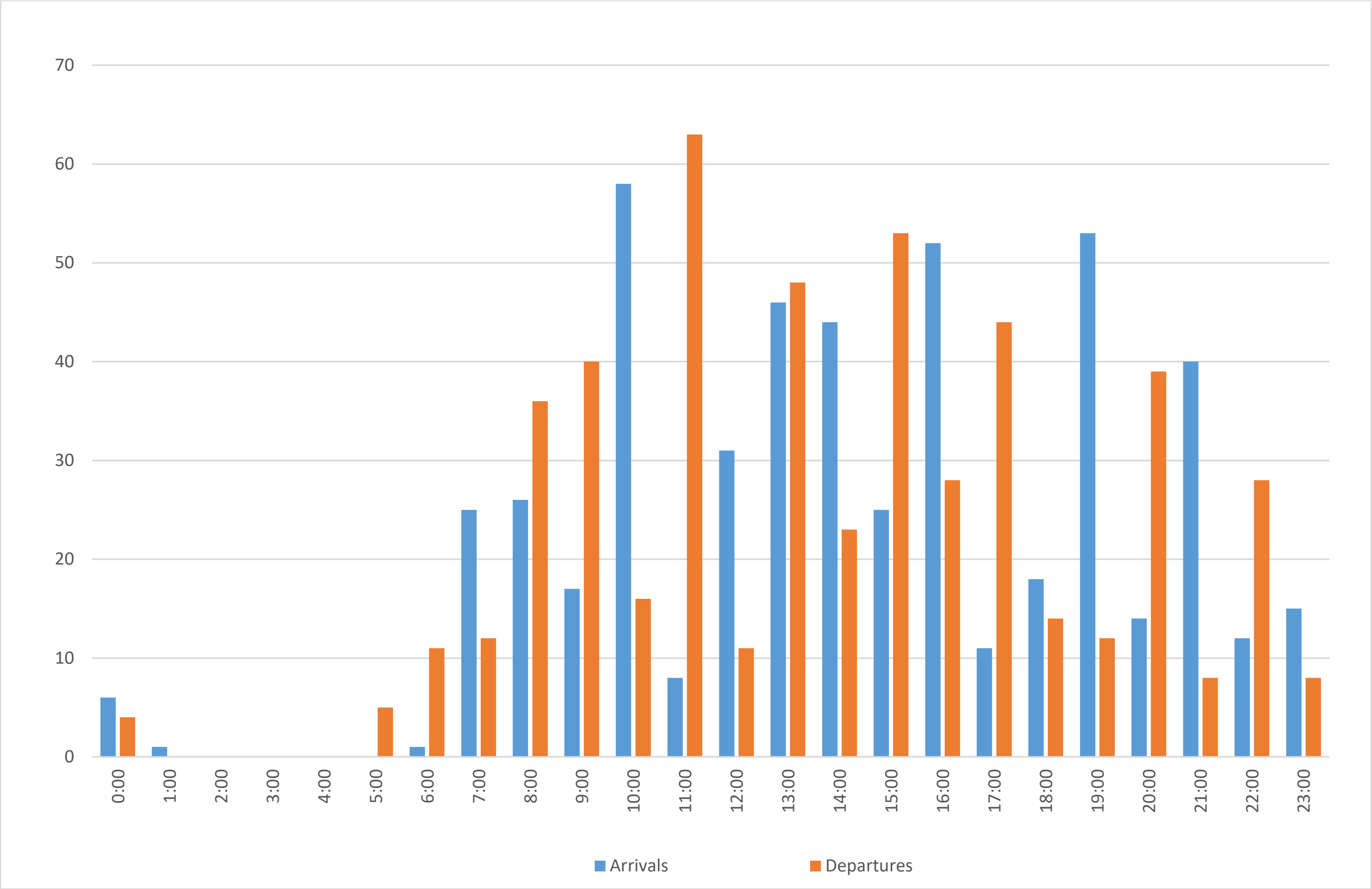
Source: Mary A. Lynch, 2018

FIGURE 2-41
TOTAL OPERATIONS ADPM BASE CASE FORECAST (2032)



Source: Mary A. Lynch, 2018

FIGURE 2-42
TOTAL OPERATIONS ADPM BASE CASE FORECAST (2037)



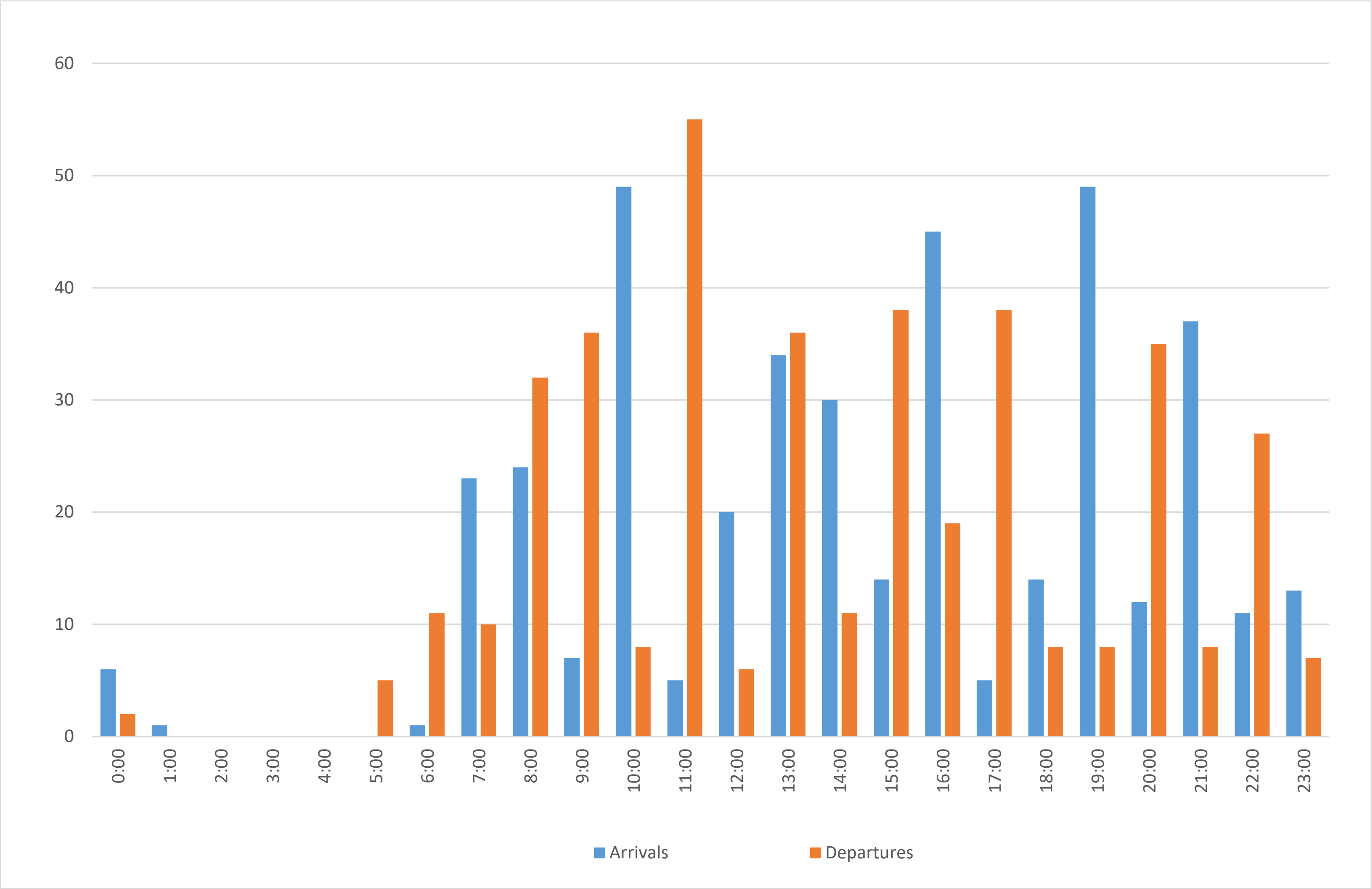
Source: Mary A. Lynch, 2018

2.5.4 Planning Day Model Low Case Scenario Forecast

The Low Case Scenario Forecast Planning Day Model projects the following operational counts and times for the forecast years listed below:

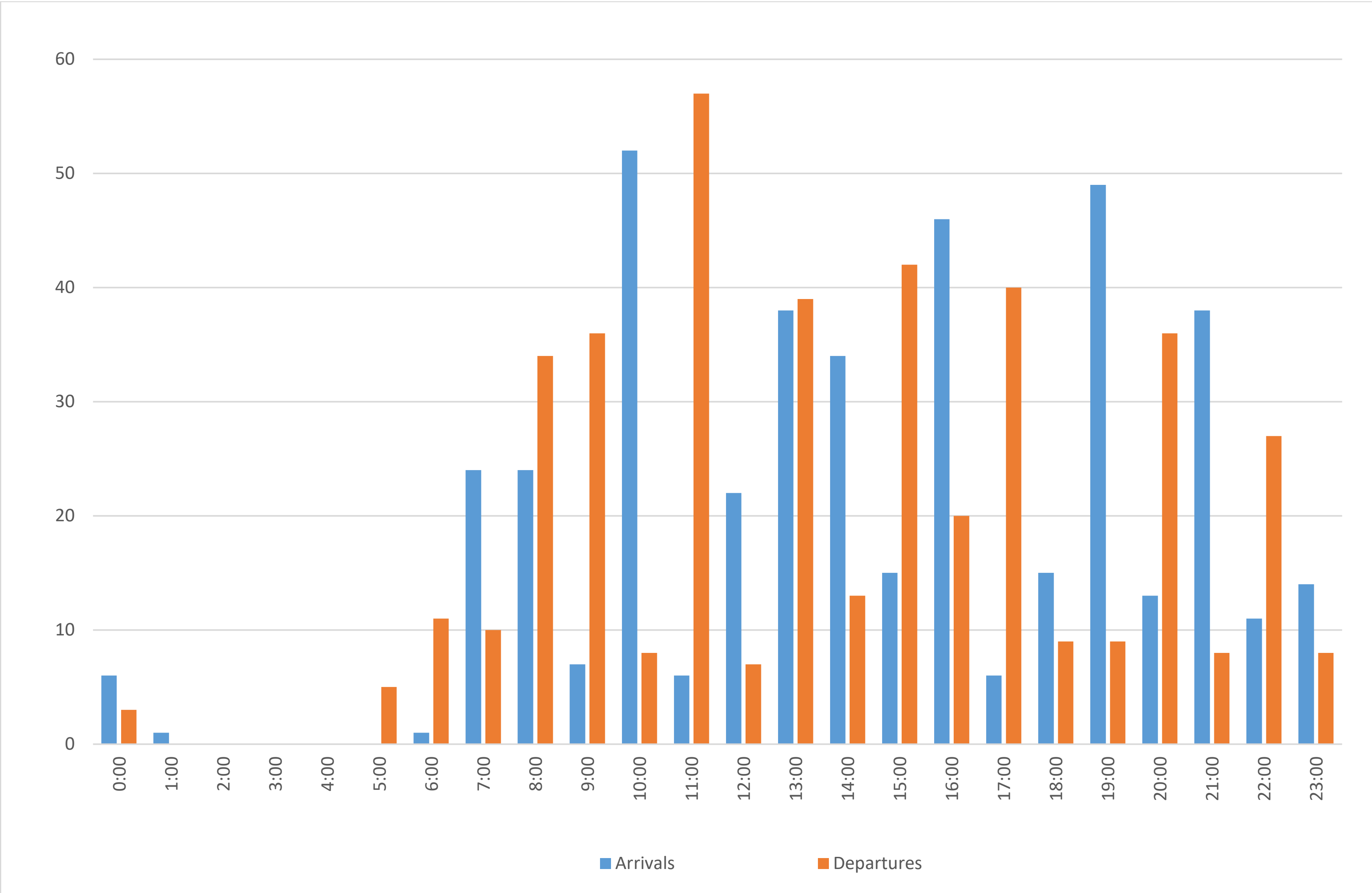
- FY 2022 projects a total of 400 arriving and 400 departing commercial service operations, with 13 of the arrivals, and 13 of the departures being international flights. The peak hour for total arrivals is 10:00 am and 7:00 pm, with each having 49 operations, and total departures is 11:00 am with 55 operations. For international operations, 10:00 am, 12:00 pm, 1:00 pm, 4:00 pm, and 6:00 pm each have two arrivals, and 11:00 am has four departures. The peak hour for combined departures and arrivals is at 1:00 pm with 70 total operations. Total operations for the average day of peak month in FY 2022 are shown in **FIGURE 2-43**.
- FY 2027 projects a total of 422 arriving and 422 departing commercial service operations, with 16 of the arrivals, and 16 of the departures being international flights. The peak hour for total arrivals is 10:00 am with 52 operations, and total departures is 11:00 am with 57 operations. For international operations, 10:00 am and 6:00 pm each have three arrivals, and 11:00 am has four departures. The peak hour for combined departures and arrivals is at 1:00 pm with 77 total operations. Total operations for the average day of peak month in FY 2027 are shown in **FIGURE 2-44**.
- FY 2032 projects a total of 438 arriving and 438 departing commercial service operations, with 18 of the arrivals, and 18 of the departures being international flights. The peak hour for total arrivals is 10:00 am with 54 operations, and total departures is 11:00 am with 60 operations. For international operations, 10:00 am and 6:00 pm each have three arrivals, and 11:00 am has four departures. The peak hour for combined departures and arrivals is at 1:00 pm with 79 total operations. Total operations for the average day of peak month in FY 2032 are shown in **FIGURE 2-45**.
- FY 2037 projects a total of 450 arriving and 450 departing commercial service operations, with 20 of the arrivals, and 20 of the departures being international flights. The peak hour for total arrivals is 10:00 am with 54 operations, and total departures is 11:00 am with 60 operations. For international operations, 10:00 am, 12:00 pm, and 6:00 pm each have three arrivals, and 11:00 am has four departures. The peak hour for combined departures and arrivals is at 1:00 pm with 83 total operations. Total operations for the average day of peak month in FY 2037 are shown in **FIGURE 2-46**.

FIGURE 2-43
TOTAL OPERATIONS ADPM LOW CASE SCENARIO FORECAST (2022)



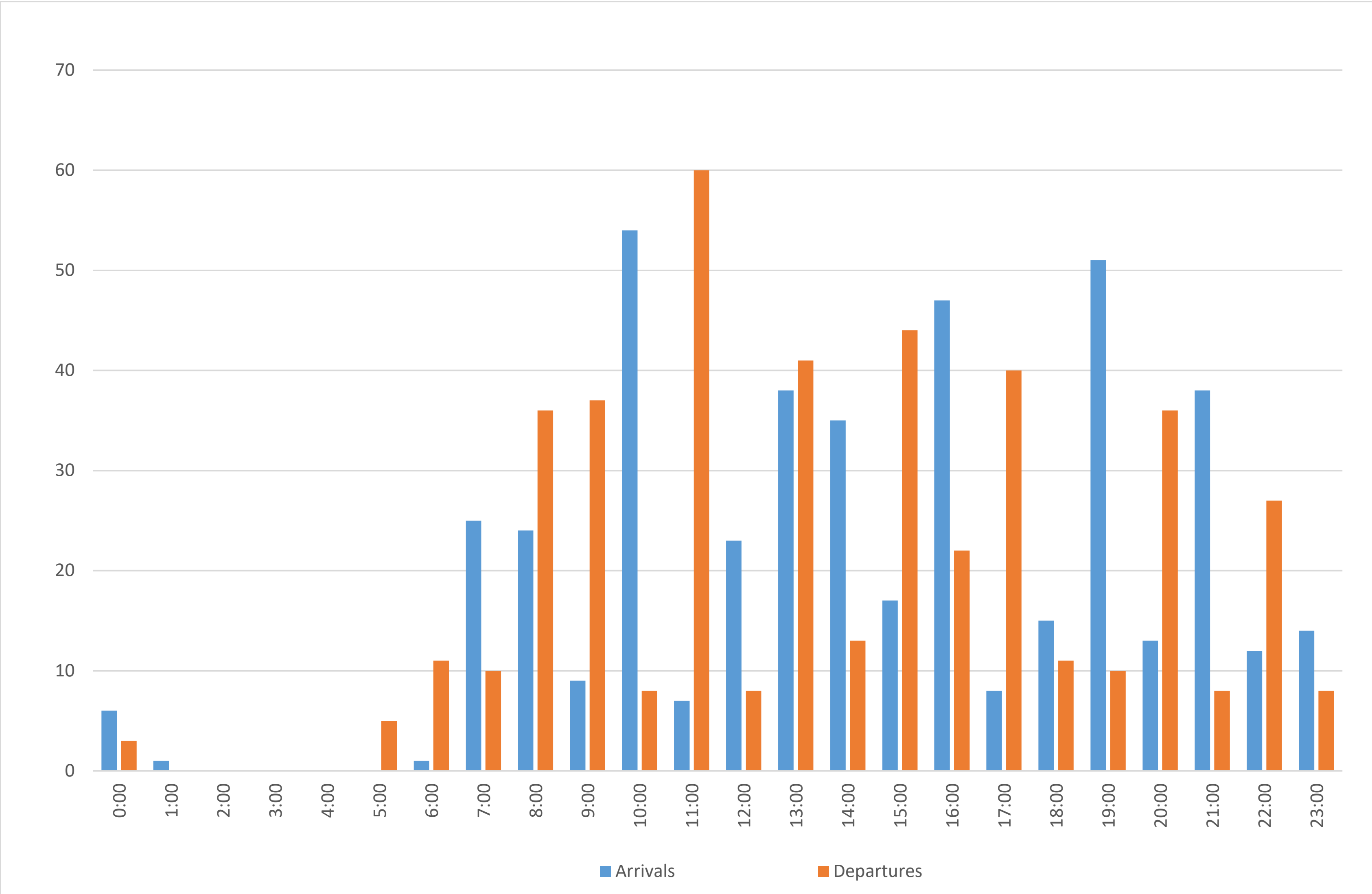
Source: Mary A. Lynch, 2018

FIGURE 2-44
TOTAL OPERATIONS ADPM LOW CASE SCENARIO FORECAST (2027)



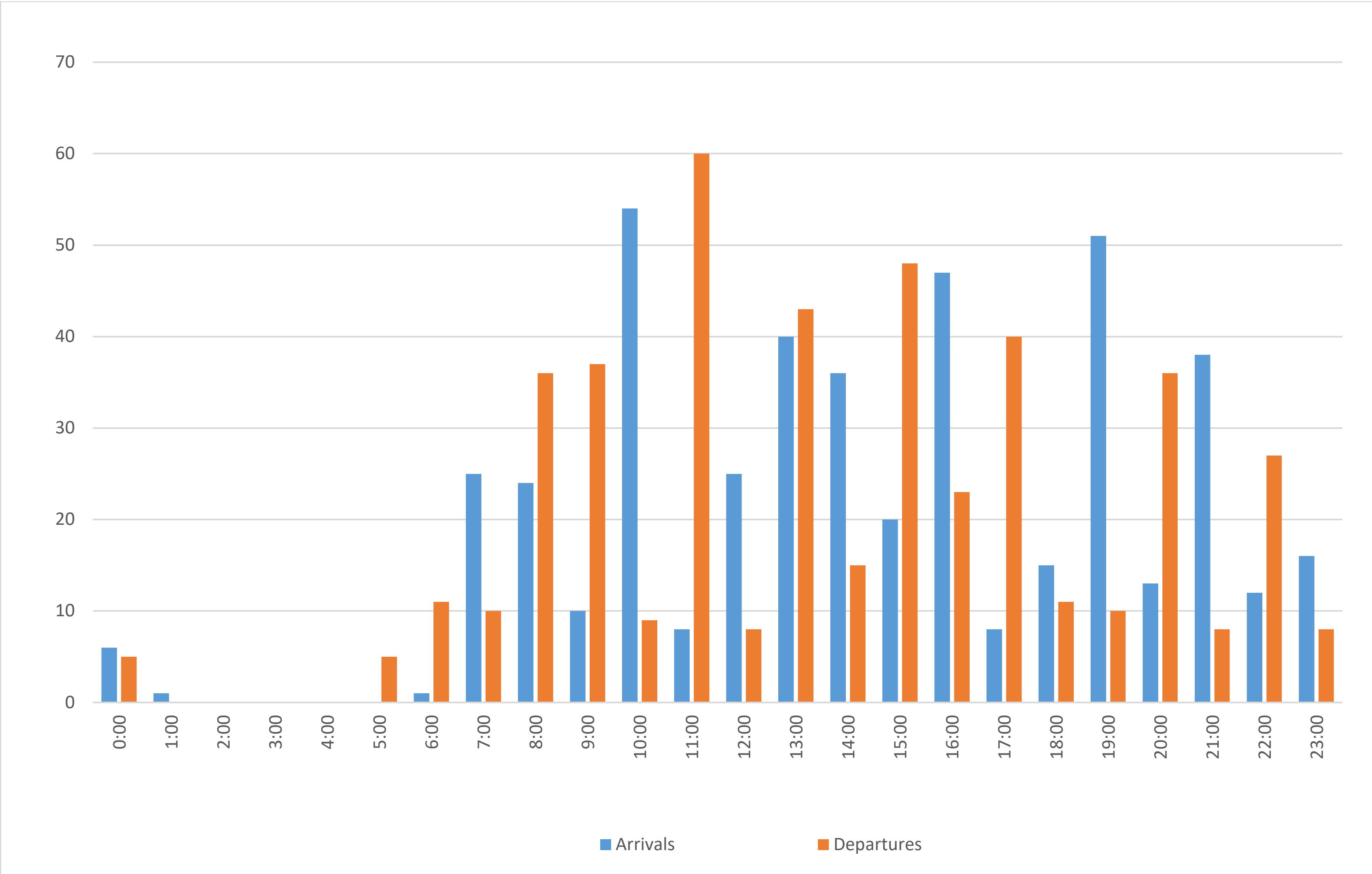
Source: Mary A. Lynch, 2018

FIGURE 2-45
TOTAL OPERATIONS ADPM LOW CASE SCENARIO FORECAST (2032)



Source: Mary A. Lynch, 2018

FIGURE 2-46
TOTAL OPERATIONS ADPM LOW CASE SCENARIO FORECAST (2037)



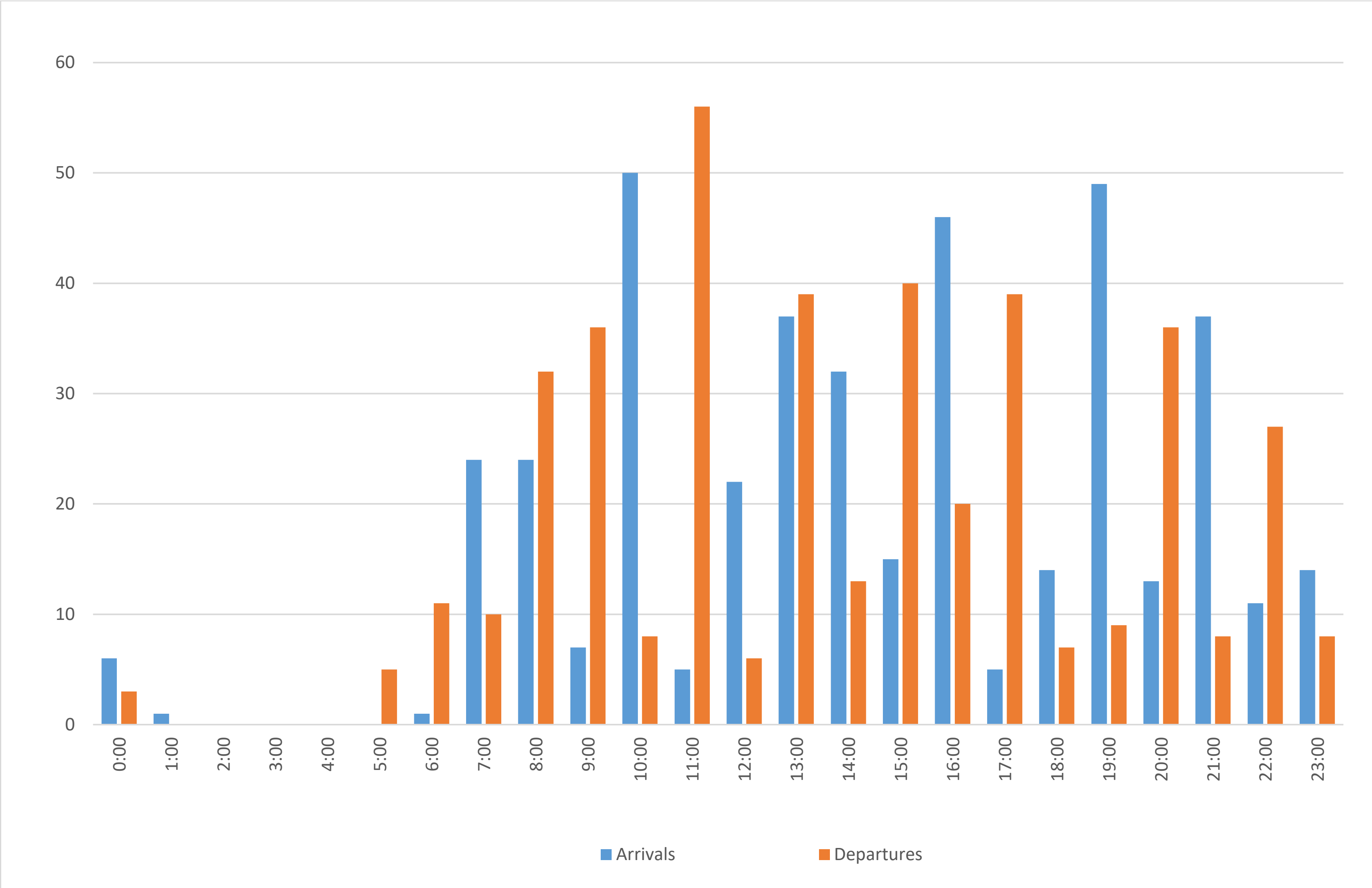
Source: Mary A. Lynch, 2018

2.5.5 Planning Day Model High Case Scenario Forecast

The High Case Scenario Forecast Planning Day Model projects the following operational counts and times for the forecast years listed below:

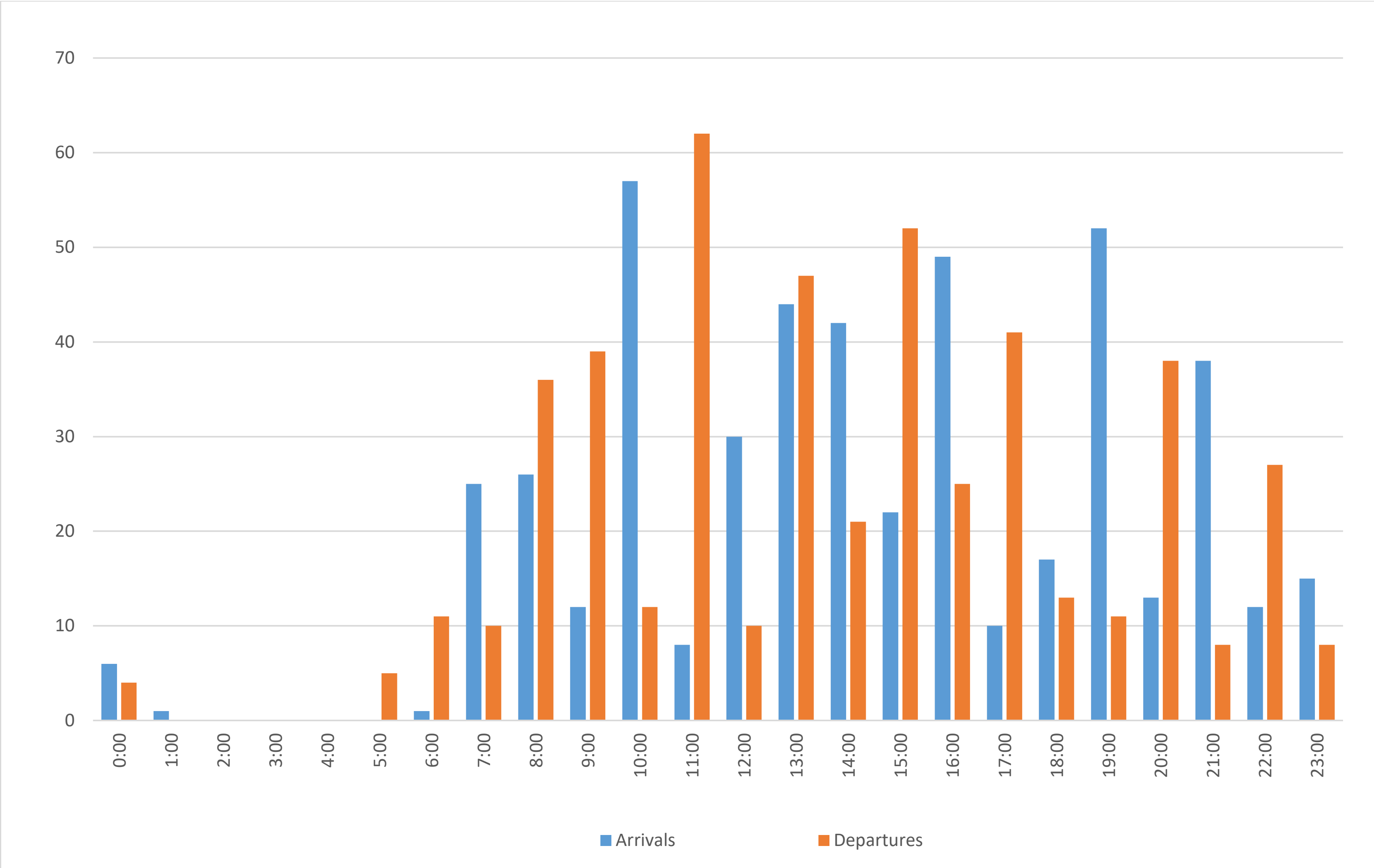
- FY 2022 projects a total of 413 arriving and departing commercial service operations, with 14 of the arrivals, and 14 of the departures being international flights. The peak hour for total arrivals is 10:00 am with 50 operations, and total departures is 11:00 am with 56 operations. For international operations, 10:00 am, 12:00 pm, 1:00 pm, 4:00 pm, and 6:00 pm each have two arrivals, and 11:00 am has four departures. The peak hour for combined departures and arrivals is at 1:00 pm with 76 total operations. **FIGURE 2-47** shows the total operations of average day and peak month for FY 2022.
- FY 2027 projects a total of 480 arriving and departing commercial service operations, with 24 of the arrivals, and 24 of the departures being international flights. The peak hour for total arrivals is 10:00 am with 57 operations, and total departures is 11:00 am with 62 operations. For international operations, 1:00 pm and 6:00 pm each have four arrivals, and 11:00 am has four departures. The peak hour for combined departures and arrivals is at 1:00 pm with 91 total operations. **FIGURE 2-48** shows the total operations of average day and peak month for FY 2027.
- FY 2032 projects a total of 517 arriving and departing commercial service operations, with 29 of the arrivals, and 29 of the departures being international flights. The peak hour for total arrivals is 10:00 am with 58 operations, and total departures is 11:00 am with 63 operations. For international operations, 1:00 pm has five arrivals, and 11:00 am and 4:00 pm each have four departures. The peak hour for combined departures and arrivals is at 1:00 pm with 103 total operations. **FIGURE 2-49** shows the total operations of average day and peak month for FY 2032.
- FY 2037 projects a total of 561 arriving and departing commercial service operations, with 32 of the arrivals, and 32 of the departures being international flights. The peak hour for total arrivals is 10:00 am with 62 operations, and total departures is 11:00 am with 66 operations. For international operations, 1:00 pm has five arrivals, and 11:00 am, 1:00 pm, 3:00 pm, and 4:00 pm each have four departures. The peak hour for combined departures and arrivals is at 1:00 pm with 111 total operations. **FIGURE 2-50** shows the total operations of average day and peak month for FY 2037.

FIGURE 2-47
TOTAL OPERATIONS ADPM HIGH CASE SCENARIO FORECAST (2022)



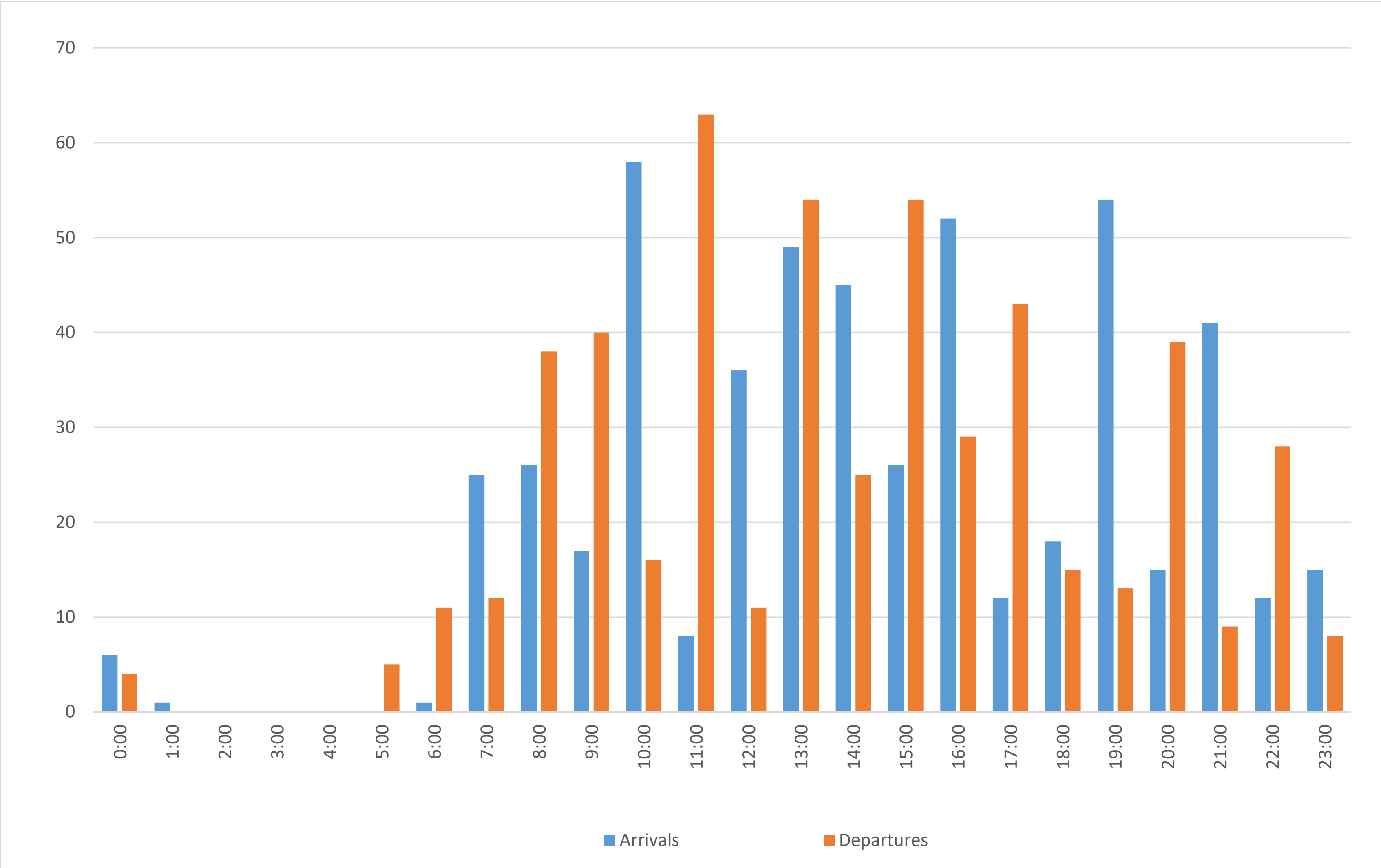
Source: Mary A. Lynch, 2018

FIGURE 2-48
TOTAL OPERATIONS ADPM HIGH CASE SCENARIO FORECAST (2027)



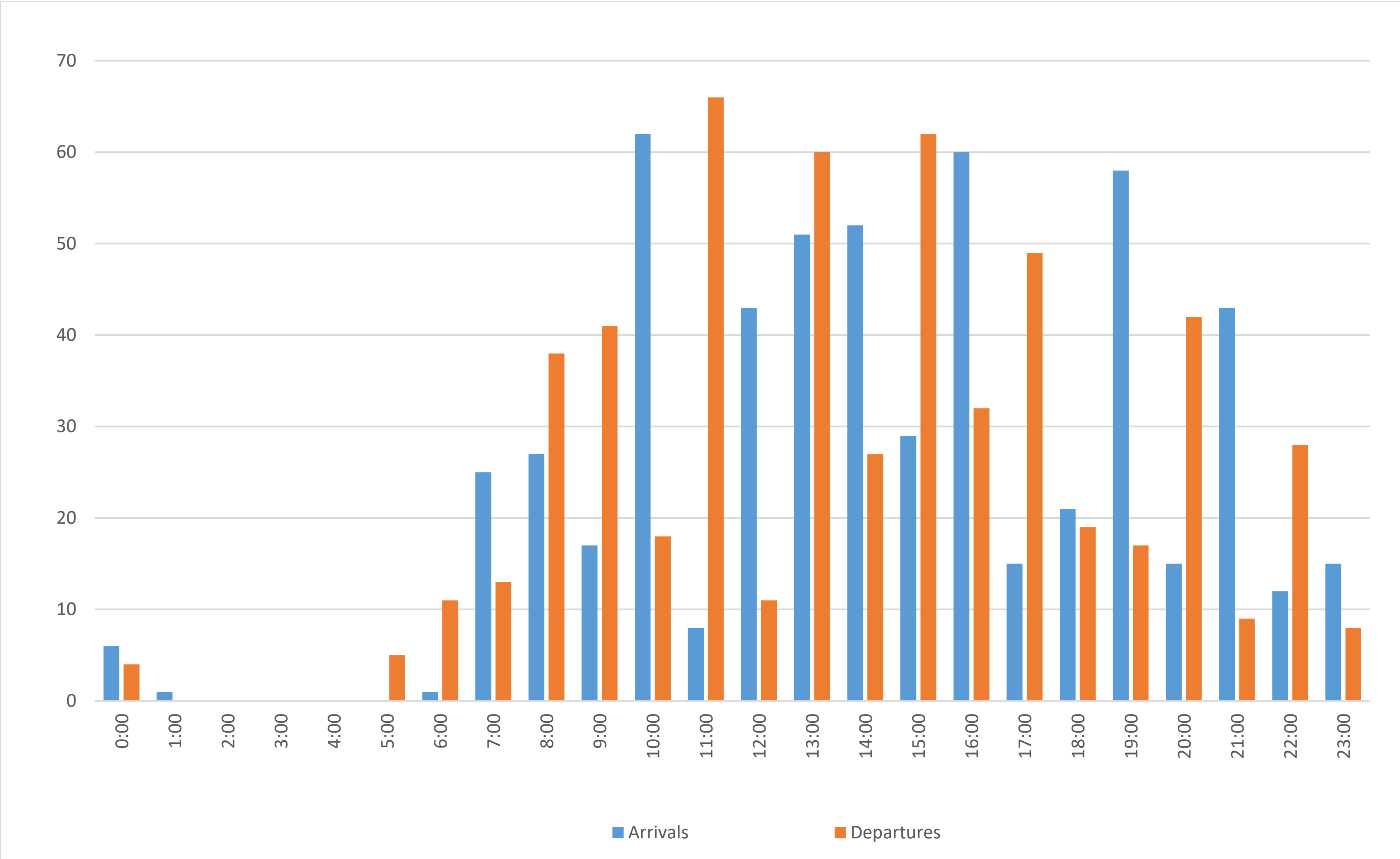
Source: Mary A. Lynch, 2018

FIGURE 2-49
TOTAL OPERATIONS ADPM HIGH CASE SCENARIO FORECAST (2032)



Source: Mary A. Lynch, 2018

FIGURE 2-50
TOTAL OPERATIONS ADPM HIGH CASE SCENARIO FORECAST (2037)



Source: Mary A. Lynch, 2018

2.5.6 Peak Day and Total Passenger Air Carrier Operations

Peak day passenger carrier operations forecasts were built off of the planning design day models of each forecast scenario. Total passenger air carrier operations were derived from the planning design day models by using the most recent five year average of peak month enplanements to annual enplanements or 9.5% peak month to annual.

There are two primary reasons for the dip in air carrier passenger operations between 2017 and 2018. The 2018 peak day operations were built off of actual schedules and there was a noticeable upgauge from one year to the next. In addition, 2017 operational figures were based upon the National Offload Program that included a number of on-demand operations that were classified as air passenger that are not reflected in the schedule.

TABLE 2-15 shows a comparison of the ADPM passenger operations by forecast from 2018-2037. **TABLE 2-16** shows a comparison of the operations by passenger aircraft type operations from 2022-2037, and **FIGURE 2-51** compares the total passenger operations from 2018-2037.

TABLE 2-15
SUMMARY OF ADPM PASSENGER CARRIER OPERATIONS FORECASTS (2018-2037)

	Low Case Scenario Forecast		Base Case Forecast		High Case Scenario Forecast	
FY	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures
2018	377	377	377	377	377	377
2022	400	400	413	413	413	413
2027	422	422	453	453	480	480
2032	438	438	475	475	517	517
2037	450	450	503	503	561	560

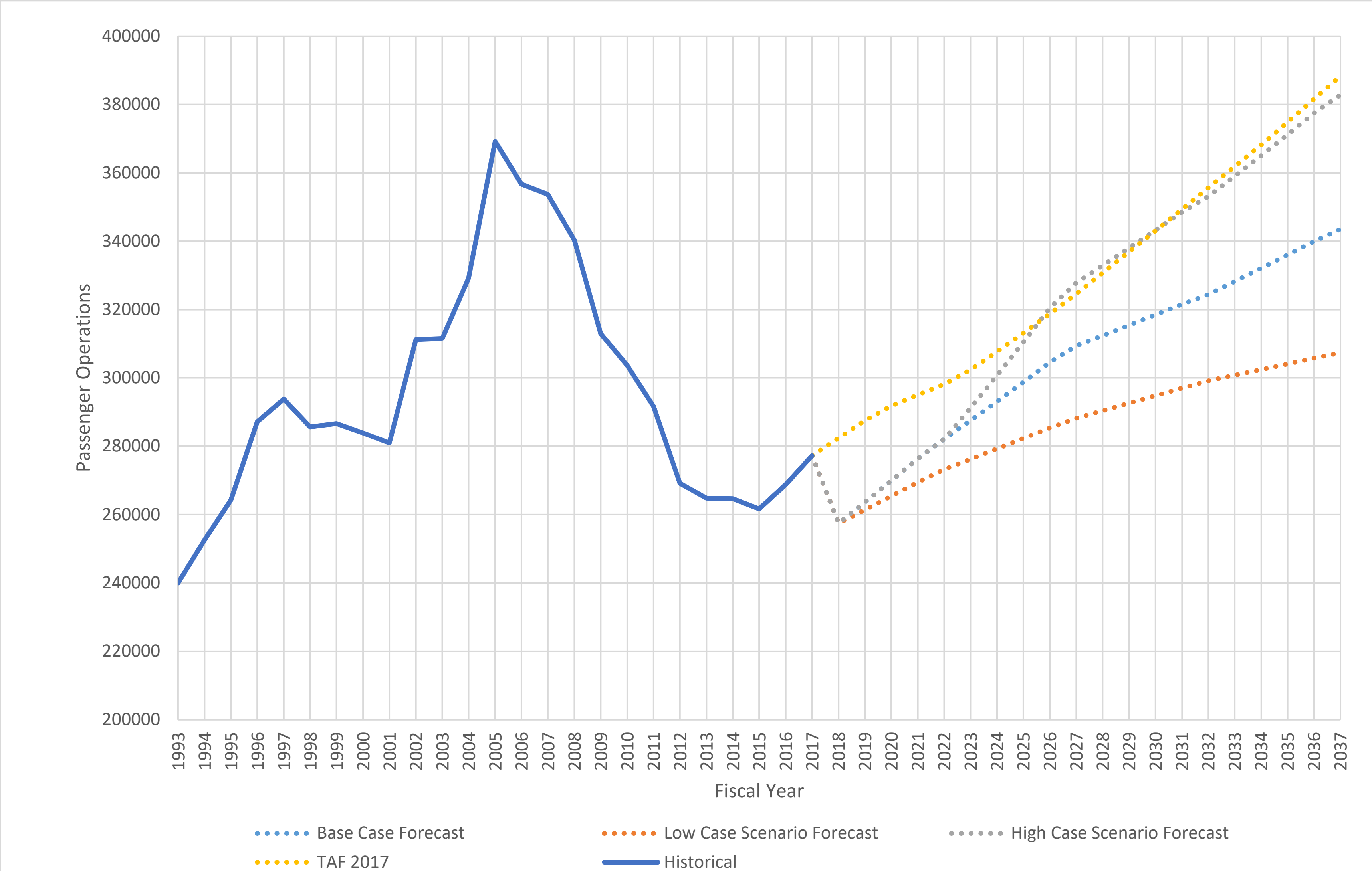
Source: Mary A. Lynch, 2018

TABLE 2-16
SUMMARY OF AIR CARRIER OPERATIONS FORECASTS BY AIRCRAFT TYPE (2022-2037)

	Low Case Scenario Forecast				Base Case Forecast				High Case Scenario Forecast			
Passenger Aircraft	2022	2027	2032	2037	2022	2027	2032	2037	2022	2027	2032	2037
A220	-	4,781	6,830	6,830	3,415	7,513	13,660	19,124	3,415	14,343	23,222	30,052
A319	10,928	10,928	10,245	683	11,611	11,611	683	683	11,611	11,611	683	683
A320	21,856	2,049	-	-	16,392	2,049	1,366	1,366	16,392	2,049	-	-
A320neo	-	21,856	33,467	46,443	6,147	30,052	43,711	51,907	6,147	32,101	49,858	51,907
A321	18,441	16,392	14,343	15,709	16,392	18,441	16,392	16,392	16,392	18,441	16,392	17,758
A321neo	4,098	4,781	8,196	8,196	4,781	8,196	12,977	14,343	4,781	10,928	17,075	24,588
A330	-	683	683	683	683	683	683	683	683	683	683	683
A339	-	3,415	4,098	4,781	3,415	4,098	4,781	4,781	3,415	4,781	4,781	5,464
A359	-	-	-	-	-	-	-	-	-	-	683	683
712	12,294	12,294	12,294	-	12,294	12,294	12,294		12,294	12,294	12,294	-
737	22,539	22,539	16,392	16,392	22,539	16,392	14,343	14,343	22,539	16,392	14,343	10,928
738	40,297	41,663	28,686	14,343	41,663	44,394	15,026	14,343	41,663	44,394	15,026	15,026
739	20,490	5,464	5,464	2,732	21,173	5,464	6,147	3,415	21,173	6,147	6,147	3,415
MAX7	-	-	-	12,294	-	-	-	12,977	-	-	-	12,977
MAX8	683	19,807	41,663	59,420	2,732	31,418	64,201	70,348	2,732	34,833	73,080	86,740
763	2,732	-	-	-	-	-	-	-	-	-	-	-
CRJ	3,415	3,073	3,073	3,073	2,732	2,732	2,732	2,732	2,732	2,732	2,732	3,415
CR7	45,760	46,102	33,808	33,808	46,443	47,809	47,809	47,809	46,443	10,586	10,245	10,928
CR9	17,075	17,075	32,101	32,784	17,075	19,124	19,124	19,124	17,075	56,347	56,688	56,688
E170	683	683	683	683	683	683	683	683	683	683	683	683
E175	43,029	45,760	45,760	47,126	43,029	45,077	45,077	45,760	43,029	45,760	45,760	47,809
E90	1,366	1,366	1,366	1,366	1,366	1,366	2,732	2,732	1,366	2,732	2,732	2,732
M90	7,513	7,513	-	-	7,513	-	-	-	7,513	-	-	-
Total	273,197	288,223	299,151	307,346	282,076	309,395	324,421	343,545	282,076	327,836	353,107	383,159

Source: Mary A. Lynch, 2018; RS&H, 2018

FIGURE 2-51
PASSENGER OPERATIONS FORECASTS (1993-2037)



Source: Mary A. Lynch, 2018; RS&H, 2018

2.5.7 Electric Vertical Takeoff and Landing Operations

The concept of autonomous and on-demand ridesharing air taxis or, Electric Vertical Takeoff and Landing (eVTOL) aircraft, is continuing to progress as one potential solution to urban congestion and increased mobility. In Uber Elevate's white paper, titled *Fast-Forwarding to a Future of On-Demand Urban Air Transportation*[39], some of the details for how an eVTOL system could function and what resources might be needed are described. In the paper, the use of the terms "vertiports" and "vertistops" are used to provide the means for connecting passengers from one destination to another. The vertiports and vertistops[40], could potentially use the flat rooftops of existing buildings and facilities within already-built up urban and suburban areas or adjacent flat areas to these facilities. Overall, the concept aims to provide efficient service within urban and suburban environments using the eVTOL equipment. Uber Elevate assumes the maximum VTOL distance would be 120 miles, and the en route speed would be approximately 170 mph.

2.5.7.1 eVTOL Operations Forecast

It is important that this Forecast recognize the eVTOL technology so that thought can be given to potential locations for facilities to serve these operations. However, it is felt the technology is so new that it is premature to provide an enplanements forecast.

In addition, the timing for the technology is also speculative. This Forecast assumes operations will not begin at airports like SLC until a few years after the technology becomes available. Given some of the Uber concepts and assumptions, this Forecast assumes that SLC would integrate regular eVTOL service to at least two or three destinations within 50 miles of the Airport and near the end of the planning horizon (2032-2037).

Even though certification and approval of eVTOL operations are anticipated to be sometime after 2022, the first active year with steady demand and ridership of eVTOL operations out of SLC is grossly estimated to be sometime after 2027 and will be part of the operations forecast by 2032. While the cost of the service is expected to be highest in its initial phases, increased ridership and success will likely lower fares over the long-term, adding to the overall number of passengers and operations.

TABLE 2-17 provides an initial estimate of potential activity based upon what would need to be a profitable venture. At this point, these forecasts are conjecture and are not included in the summary of total operations for SLC. Operations forecasts are based upon 10 percent of arrival air passenger operations generating commuter eVTOL operations with a fast-paced growth to 20 percent by 2037.

---

[39] Uber Elevate (October 27, 2016) Retrieved online November 11, 2018 at: https://www.uber.com/elevate.pdf/

[40] Uber Elevate identifies vertiports as sites for eVTOLs with multiple takeoff and landing pads, and vertistops as a single takeoff and landing pad.

TABLE 2-17
EVTOL OPERATIONS FORECAST (2022-2037)

Year	Low Scenario Forecast eVTOL Operations	Base Case Forecast Total eVTOL Operations	High Scenario Forecast Total eVTOL Operations
2022	0	0	0
2027	0	0	0
2032	15,998	17,349	18,883
2037	32,873	36,744	40,981

Source: RS&H, 2018

2.6 AIR CARGO

2.6.1 Historical Air Cargo

Over the past decade, SLC has shown continual growth in its air cargo activity. The following historical[41] analysis and forecasts define the Airport's air cargo activity, which is made up of freight and belly cargo, with air mail being a subcategory of the total belly cargo poundage. **TABLE 2-18** provides the annual totals of air cargo by type, with **TABLE 2-19** showing the total air cargo processed by the largest air cargo carriers and all others combined. **FIGURE 2-52** compares the shares of total air cargo by the largest air cargo carriers, and **FIGURE 2-53** compares the total enplaned and deplaned cargo from 2008 to 2017.

2.6.1.1 Historical Freight

Since 2008, Federal Express (FedEx) and the United Parcel Service (UPS) have maintained their roles as the most active integrated cargo carrier operators out of SLC. **FIGURE 2-54** compares the largest shares of air cargo freight at SLC in 2008 and 2017. During the past ten years UPS has increased its total freight share at the Airport by 12% going from 66,340,875 lbs to 117,415,471 lbs Meanwhile, FedEx the largest cargo operator at the Airport, has decreased its total freight share by over 5%, however, it still maintains the greatest quantity of total freight processed by any integrated cargo carrier. The annual enplaned and deplaned freight totals out of SLC has remained somewhat consistent in quantity over the past 10 years, with the totals never differing by more than 10.7%. **TABLE 2-18** and **FIGURE 2-55** provides the enplaned, deplaned, and total freight annually from 2008-2017. Finally, **TABLE 2-19** shows the annual freight poundage processed by the largest cargo carriers at SLC from 2008-2017.

2.6.1.2 Historical Belly Cargo

The two mainline carriers (Delta Air Lines and Southwest Airlines) with the greatest number of enplanements at SLC, have also maintained the greatest amount of belly cargo poundage processed from 2008-2017. The belly cargo poundage deplaned has consistently been greater than the poundage enplaned, although both annual quantities are similar in size. In base year 2017, DL increased its share of belly cargo at SLC from 2008 by over 9%, and WN decreased its share by over 4% during the same time. **FIGURE 2-56** compares the largest shares of belly cargo out of SLC. **TABLE 2-18** and **FIGURE 2-57** show the historical enplaned and deplaned belly cargo from 2008 to 2017.

2.6.1.3 Historical Air Mail

The air mail processed into/out of SLC is carried by both combination and integrated cargo carriers. While statistics track the number of pounds (lbs) of mail, there are no totals differentiating specific amount of mail carried by particular airlines, whether a combination of passenger and belly cargo by passengers airlines or freight by the all-cargo airlines. Therefore, these forecasts do not identify a separate forecast of airmail and assume forecasts of belly cargo and all-cargo include air mail. Air mail has changed in type over the past ten years. In 2008, the enplaned air mail was 22.5% greater than deplaned air mail. Today, the enplaned air mail is 72.3% greater than the deplaned air mail. **TABLE 2-18** provides annual air mail and belly cargo totals, and **FIGURE 2-58** shows the historical enplaned and deplaned air mail from 2008-2017.

[41] Historical air cargo data is in calendar year (CY)

TABLE 2-18
HISTORICAL CARGO ACTIVITY (2008-2017)

Calendar Year	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Freight										
Enplaned	151,358,775	125,888,128	130,459,300	146,249,045	153,946,751	154,977,560	152,917,822	153,099,983	151,307,031	160,318,645
Deplaned	149,477,489	121,447,154	130,955,226	140,983,568	145,182,640	140,001,183	140,295,248	150,331,450	167,428,531	179,459,334
Total	300,836,264	247,335,282	261,414,526	287,232,613	299,129,391	294,978,743	293,213,070	303,431,433	318,735,562	339,777,979
Belly Cargo										
Enplaned	19,352,125	18,830,160	20,708,863	19,249,059	20,279,288	17,548,078	15,886,630	15,553,022	14,499,148	18,138,413
Deplaned	24,436,588	23,233,411	27,936,108	24,481,006	24,794,930	24,133,275	19,524,528	20,523,272	20,513,034	24,286,719
Total	43,788,713	42,063,571	48,644,971	43,730,065	45,074,218	41,681,353	35,411,158	36,076,294	35,012,182	42,425,132
Air Mail*										
Enplaned	5,184,840	5,030,709	7,101,860	11,822,427	16,220,471	20,302,479	18,786,949	24,111,040	20,338,710	23,476,276
Deplaned	4,230,725	4,522,865	3,481,273	5,849,551	8,509,006	9,693,709	9,444,067	12,739,257	10,079,570	13,618,441
Total	9,415,565	9,553,574	10,583,133	17,671,978	24,729,477	29,996,188	28,231,016	36,850,297	30,418,280	37,094,717
Total Air Cargo*										
Enplaned	170,710,900	144,718,288	151,168,163	165,498,104	174,226,039	172,525,638	168,804,452	168,653,005	165,806,179	178,457,058
Deplaned	173,914,077	144,680,565	158,891,334	165,464,574	169,977,570	164,134,458	159,819,776	170,854,722	187,941,565	203,746,053
Total	344,624,977	289,398,853	310,059,497	330,962,678	344,203,609	336,660,096	328,624,228	339,507,727	353,747,744	382,203,111

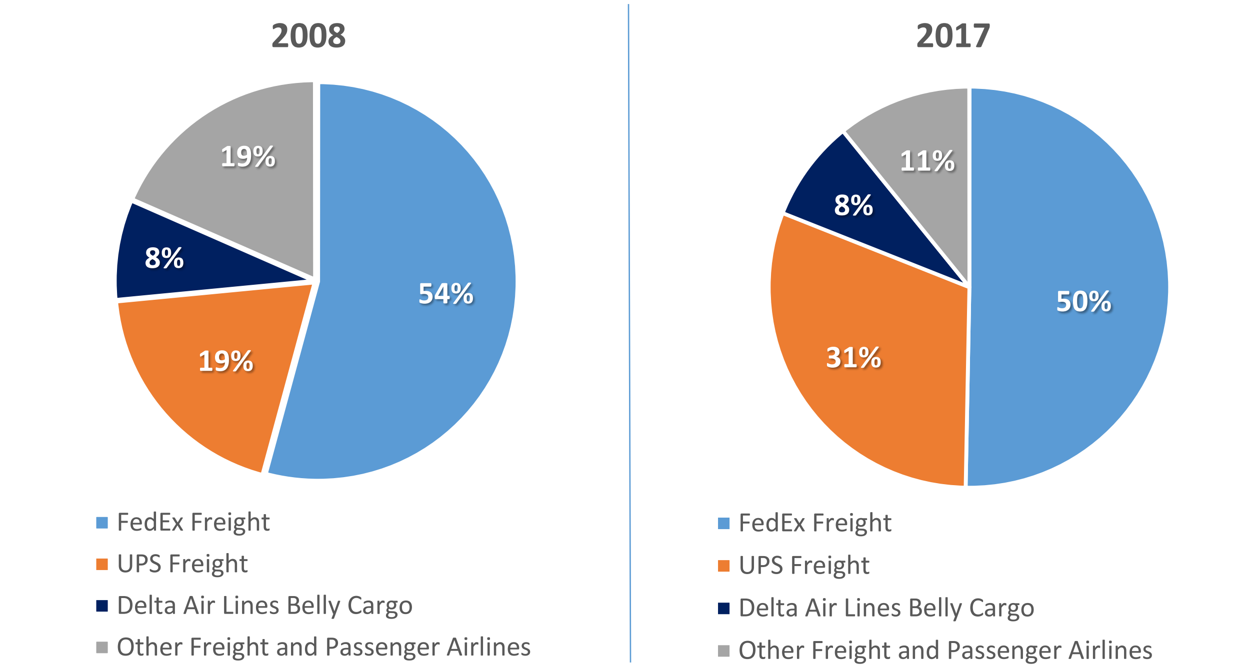
*Air Mail at SLC is included in both belly cargo freight poundage and excluded from forecast Total Air Cargo totals
Source: SLCDA, 2018

TABLE 2-19
HISTORICAL AIR CARGO BY CARRIER

Calendar Year	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Integrated Carriers										
FedEx	186,846,219	164,621,549	176,198,518	182,587,926	182,793,312	170,870,817	165,032,042	171,737,401	186,826,728	192,239,391
UPS	66,340,875	63,716,259	63,671,501	81,101,715	94,029,660	101,287,129	104,334,465	105,648,851	107,749,530	117,415,471
Other Carriers	47,649,170	18,997,474	21,544,507	23,542,972	22,306,419	22,820,797	23,846,563	26,045,181	24,159,304	30,123,117
Combination Carriers										
Delta Air Lines	27,983,228	29,576,421	38,276,631	33,386,676	34,098,357	30,608,258	25,017,569	24,911,023	23,489,368	31,159,354
Southwest Airlines	10,577,817	8,575,911	8,125,865	8,395,082	9,656,258	9,772,120	9,134,636	9,561,364	8,969,857	8,378,975
Other Carriers	5,227,668	3,911,239	2,242,475	1,948,307	1,319,603	1,300,975	1,258,953	1,603,907	2,552,957	2,886,803

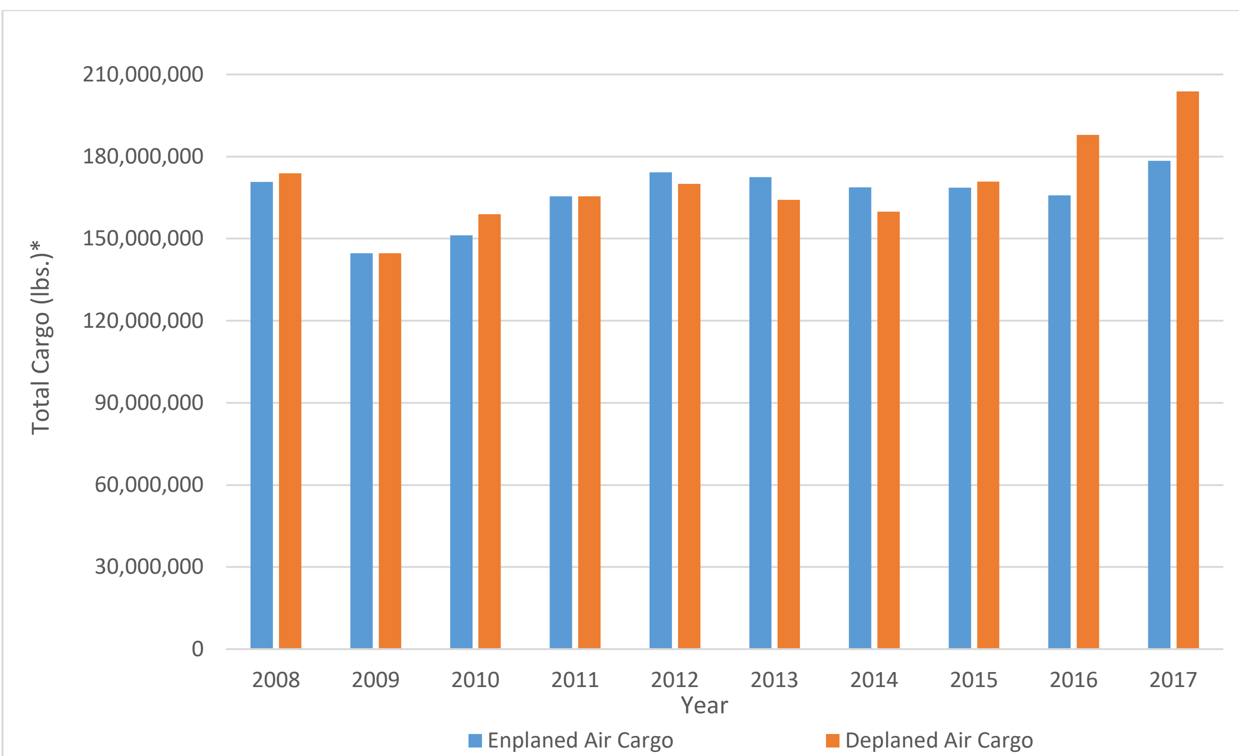
Source: SLCDA, 2018

FIGURE 2-52
COMPARISON OF TOTAL AIR CARGO SHARES BY CARRIER (2008 & 2017)



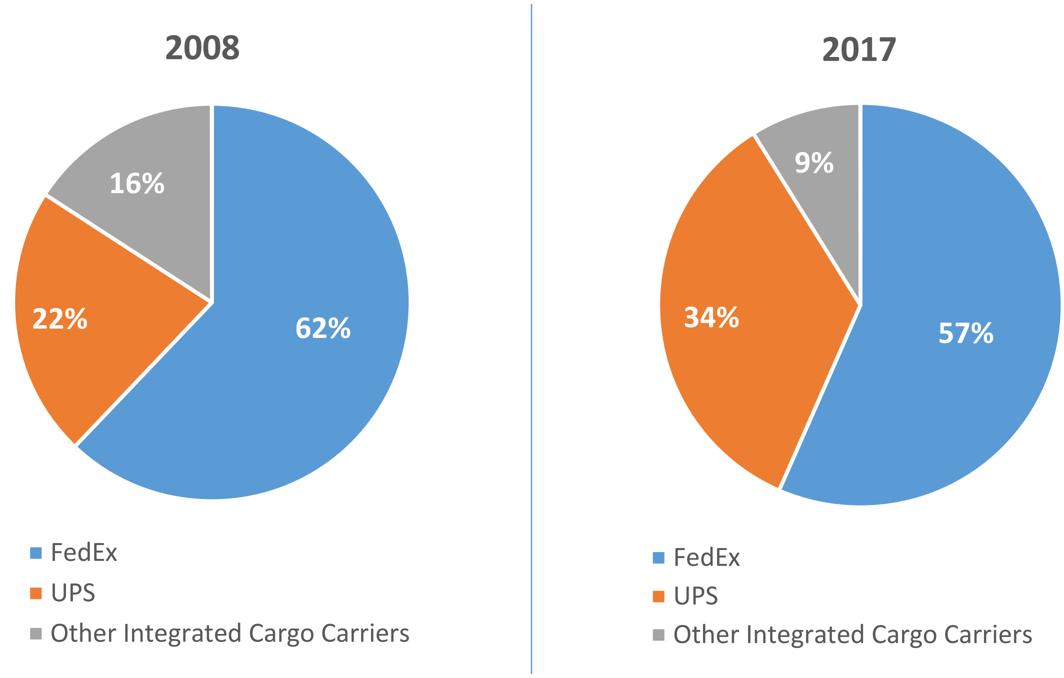
Source: SLCDA, 2018

FIGURE 2-53
HISTORICAL TOTAL AIR CARGO (2008-2017)



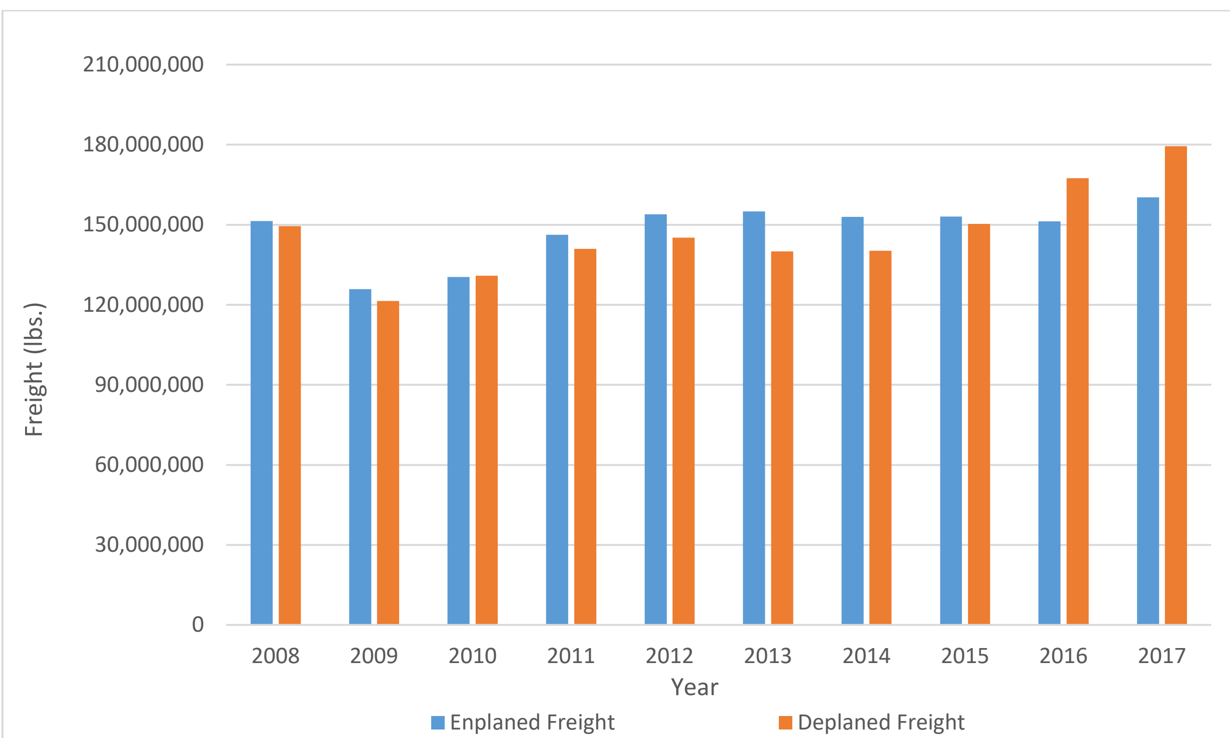
Source: SLCDA, 2018

FIGURE 2-54
COMPARISON OF FREIGHT CARGO SHARES BY CARRIER (2008 & 2017)



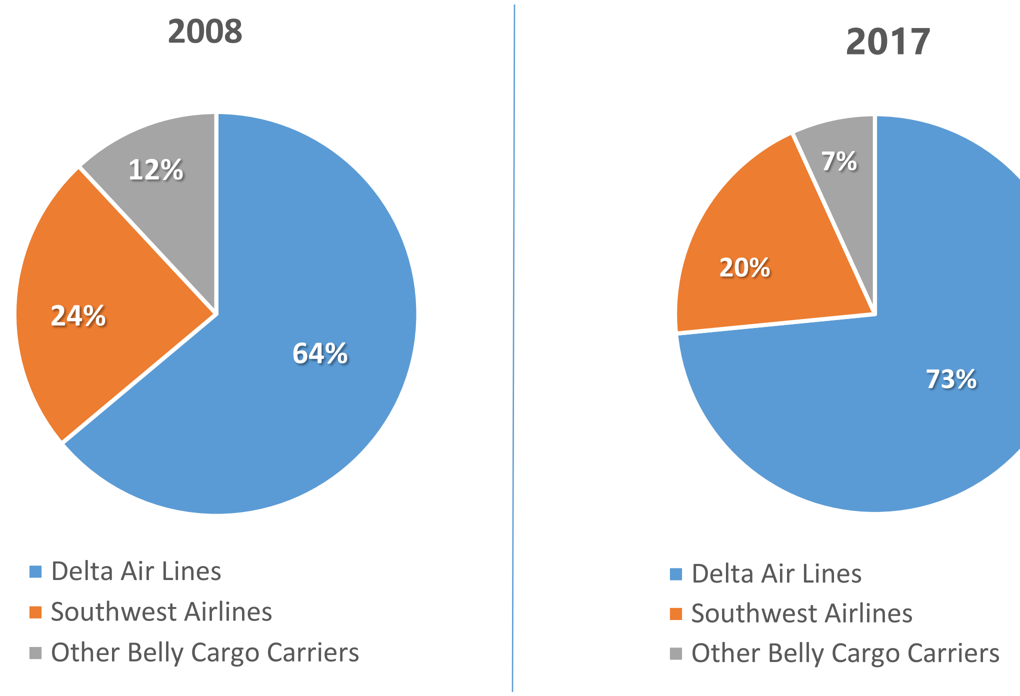
Source: SLCDA, 2018

FIGURE 2-55
HISTORICAL FREIGHT (2008-2017)



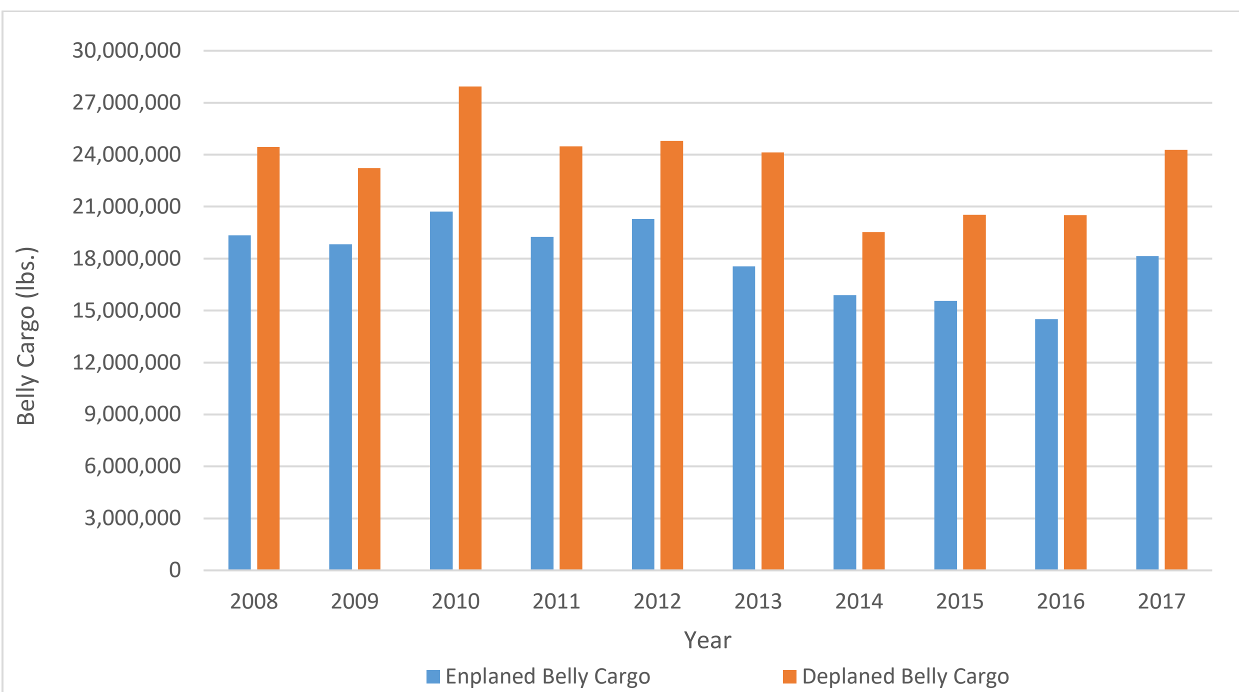
Source: SLCDA, 2018

FIGURE 2-56
COMPARISON OF BELLY CARGO SHARES BY CARRIER (2008 & 2017)



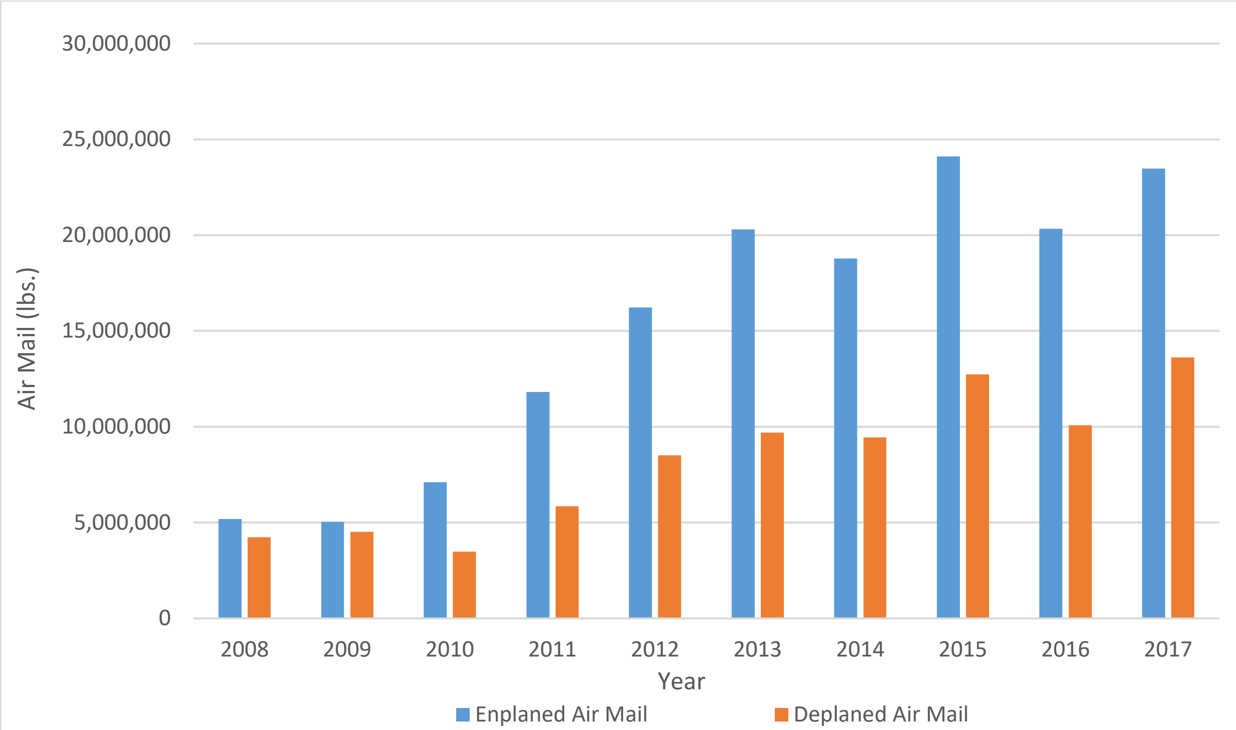
Source: SLCDA, 2018

FIGURE 2-57
HISTORICAL BELLY CARGO (2008-2017)



Source: SLCDA, 2018

FIGURE 2-58
HISTORICAL AIR MAIL (2008-2017)



Source: SLCDA, 2018

2.6.1.4 Historical Air Cargo Peak Month

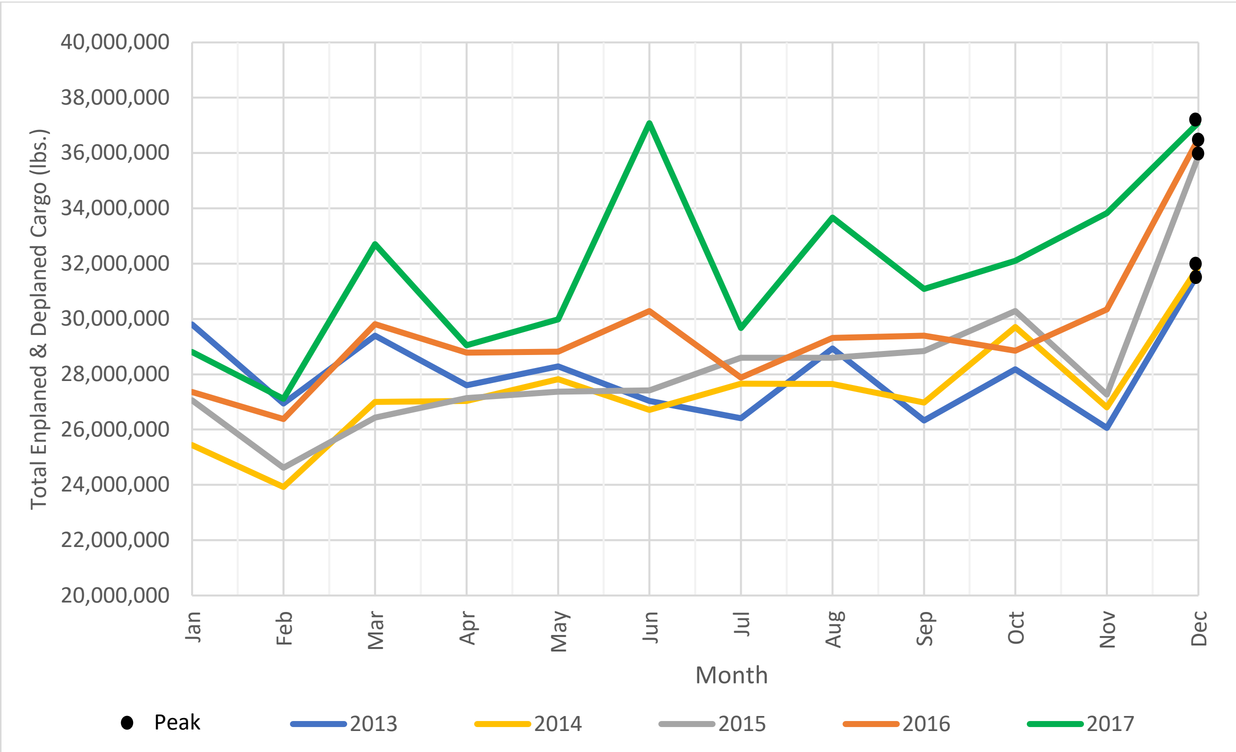
The total historical air cargo was compared on a monthly basis from 2013-2017. During those years, the Airport showed consistent balance as no month ever dropped below 7% of the yearly total. The highest month of any year during that period was 10.57% in December, 2015. The analysis confirmed that December, is the peak air cargo month at SLC, likely due to fulfillment orders for the holidays. It is interesting to note that in 2017, June had 37,077,806 lbs of total cargo, or 9.70%, and December had 37,097,455 lbs or 9.71% making it the closest alternative month to December over the past five years. **TABLE 2-20** and **FIGURE 2-59** show the total monthly air cargo by month out of SLC from 2013-2017.

TABLE 2-20
AIR CARGO PROCESSED BY MONTH (2013-2017)

CY		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2013		29,800,841	26,940,868	29,391,583	27,605,363	28,288,634	27,040,027	26,415,727	28,933,808	26,334,221	28,186,057	26,060,500	31,662,467
		8.9%	8.0%	8.7%	8.2%	8.4%	8.0%	7.9%	8.6%	7.8%	8.4%	7.7%	9.4%
2014		25,443,398	23,924,434	27,004,935	27,040,438	27,821,637	26,707,931	27,660,644	27,650,980	26,974,235	29,712,209	26,800,812	31,882,575
		7.7%	7.3%	8.2%	8.2%	8.5%	8.1%	8.4%	8.4%	8.2%	9.0%	8.2%	9.7%
2015		27,061,527	24,620,591	26,431,303	27,143,281	27,369,468	27,417,151	28,595,556	28,594,636	28,843,187	30,287,128	27,262,764	35,881,135
		8.0%	7.3%	7.8%	8.0%	8.0%	8.0%	8.4%	8.4%	8.5%	8.9%	8.0%	10.6%
2016		27,354,310	26,381,449	29,815,741	28,781,732	28,822,798	30,285,538	27,884,788	29,318,809	29,400,339	28,847,122	30,347,128	36,507,990
		7.7%	7.5%	8.4%	8.1%	8.2%	8.6%	7.9%	8.3%	8.3%	8.2%	8.6%	10.3%
2017		28,809,066	27,112,995	32,707,931	29,044,665	29,990,574	37,077,806	29,672,343	33,664,372	31,090,161	32,106,170	33,829,573	37,097,455
		7.5%	7.1%	8.6%	7.6%	7.9%	9.7%	7.8%	8.8%	8.1%	8.4%	8.9%	9.7%

Note: Percentages are rounded to the nearest 0.1.
Source: SLCDA, 2018

FIGURE 2-59
PEAK MONTH TOTAL CARGO (2013-2017)



Source: SLCDA, 2018

2.6.2 Air Cargo Fleet Mix-Baseline 2017

The air cargo fleet mix baseline, identifies the most commonly used fleet of aircraft by the Airport's integrated carriers in 2017. These aircraft include:

Airbus
- Airbus 300-600

ATR
- ATR-43 Cargo
- ATR-72 Cargo

Beech
- Beech King Air 1900
- Beech 99 Airliner

Boeing
- Boeing 737-400F
- Boeing 757-200F
- Boeing 767-300F

Cessna
- Cessna 208 Caravan
- Cessna 402

Embraer
- Embraer 120

Fairchild Swearingen
- Fairchild Swearingen 4 Metro

McDonnell Douglas (Boeing)
- McDonnell Douglas DC-10
- McDonnell Douglas MD-11

2.6.3 Local Cargo Forecasts

The local belly cargo forecasts project the combined enplaned and deplaned belly cargo, whereas the local freight forecasts project the combined enplaned and deplaned freight.

2.6.3.1 Belly Cargo Forecast

There are no FAA forecasts for growth in air cargo pounds. Instead, the forecast will use revenue ton miles (RTM) as a surrogate. The AAGR for domestic airlines belly cargo forecast RTM ranges from 1.0 percent to 1.2 percent over the course of the 20-year planning period[42]. Forecasts of belly cargo RTM carried on international routes is more robust and is anticipated to average about 3.4 percent over the same period[43]. Due to the larger cargo capacities of international airlines' aircraft that use a greater percentage of wide body equipment, it is common that the average cargo capacity of international passenger aircraft is significantly greater than U.S. domestic aircraft. While percentages vary widely, studies have indicated that U.S. airport belly cargo represents from 10-15 percent of all cargo whereas the percentage at international airports is almost evenly split[44].

Over the past ten years, belly cargo growth at SLC has been approximately 1.25 percent AAGR which is very similar to the FAA forecast for domestic RTMs. Over the past five years, as the percent of international enplanements has doubled at SLC, belly cargo growth has been 3.5 percent AAGR which is very similar to the long-term forecast of international belly cargo RTMs for the U.S.

In conversations with both passenger and air cargo carriers, including Delta, Federal Express, and UPS, these airlines have equated general growth for the next few years to be in line with the growth in U.S. GDP.

For the belly cargo forecasts, the rate of GDP growth is used for the Base Case Forecast (1.7 percent). This rate of growth is a hybrid between the previous five and ten year growth rates in belly cargo at SLC and is in line with the potential for increased belly cargo capacity from upgauging.

The Low Case belly cargo forecast assumes a rate of GDP growth associated with belly cargo to be 20 percent lower than the Base Case which rate is slightly larger than the growth FAA forecast for long-term domestic belly cargo RTMs (approximately 1.4 percent).

The High Case belly cargo forecast assumes a rate of 40 percenter higher GDP rate of growth than the Base Case. Two primary reasons are assumed for the High Case growth rate: (1) anticipation that new international flights on larger aircraft will provide more belly cargo capacity, as a result of carrying a growing number of passengers relative to all enplanements on larger aircraft, and (2) an outgrowth of the first, an anticipated initiation of international service from SLC to Asia, the fastest air cargo growth market in the world, that would provide more opportunity for belly air cargo growth.

---

[42] FAA Aerospace Forecast: Fiscal Years 2018-2038, Federal Aviation Administration, Table 19 – U.S. Commercial Air Carriers Air Cargo Revenue Ton Miles, p. 84.

[43] FAA Aerospace Forecast: Fiscal Years 2018-2038, Federal Aviation Administration, Table 19 – U.S. Commercial Air Carriers Air Cargo Revenue Ton Miles, p. 84.

[44] Airport Cooperative Research Program, *Air Cargo Facility Planning and Development Final Report*, 2015.

TABLE 2-21 shows the belly cargo forecasts from 2017-2037.

TABLE 2-21
BELLY CARGO FORECAST-TOTAL POUNDS (2017-2037)

Year	Low Case Scenario Forecast	Base Case Forecast	High Case Scenario Forecast
2017	42,425,132	42,425,132	42,425,132
2018	43,006,356	43,154,844	43,439,093
2019	43,595,543	43,897,108	44,477,287
2020	44,192,802	44,652,138	45,540,294
2021	44,798,244	45,420,155	46,628,707
2022	45,411,980	46,201,381	47,743,133
2023	46,034,124	46,996,045	48,884,194
2024	46,664,791	47,804,377	50,052,526
2025	47,304,099	48,626,612	51,248,782
2026	47,952,165	49,462,990	52,473,628
2027	48,609,110	50,313,753	53,727,747
2028	49,275,055	51,179,150	55,011,841
2029	49,950,123	52,059,431	56,326,623
2030	50,634,439	52,954,854	57,672,830
2031	51,328,131	53,865,677	59,051,210
2032	52,031,327	54,792,167	60,462,534
2033	52,744,156	55,734,592	61,907,589
2034	53,466,751	56,693,227	63,387,180
2035	54,199,245	57,668,350	64,902,134
2036	54,941,775	58,660,246	66,453,295
2037	55,694,477	59,669,202	68,041,529
Average Annual Growth Rate (AAGR)			
2018-2037	1.37%	1.72%	2.39%

Source: RS&H, 2018

2.6.3.2 Freight Forecast

The annual local freight forecasts were based on historical and anticipated changes for FedEx and UPS individually as well as the remainder of the integrated cargo carriers combined into the "Others" group.

Rates of growth were mainly determined from interviews with the individual carriers for the short term. FedEx and UPS indicated that they expected to grow in line with U.S. GDP AAGRs over the short-term and into the future. In addition, the forecasts also include consideration for a potential expansion in the SLC market based upon serving Amazon whether through expansion of service with integrated carriers or initiation of individual service that primarily serves Amazon.

The Base Case air cargo forecast assumes continuation of growth for the next five years based upon rates over the past five years plus the potential growth that might be associated with Amazon. While, there are no specific indicators regarding the potential for Amazon growth, it is accounted through assumptions of experiencing growth rates greater than GDP. The Low Case scenario assumes growth that is based upon a decrease in the U.S. GDP by ten percent. The High Case Scenario Forecast builds on the Base Case Forecast by assuming a growth rate 20 percent over the Base Case. This assumes the potential for greatly expanded service that would be due to, in part a sustained economy, but also the possibility of a new airline operated for or by Amazon.

TABLE 2-22 shows the total freight forecasts from 2017-2037.

TABLE 2-22
FREIGHT FORECAST-TOTAL POUNDS (2017-2037)

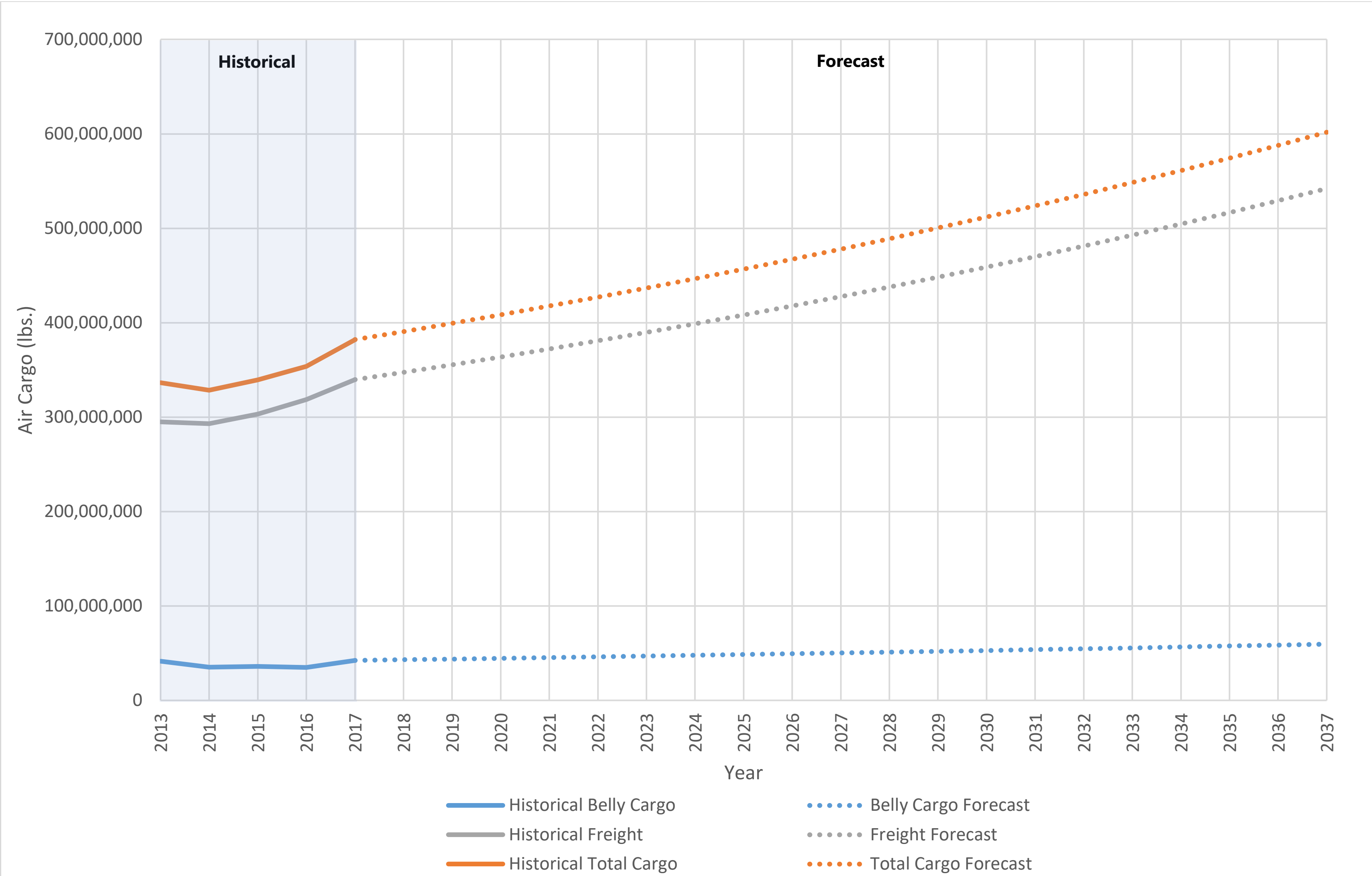
Year	Low Case Scenario Forecast	Base Case Forecast	High Case Scenario Forecast
2017	339,777,979	339,777,979	339,777,979
2018	345,005,312	347,593,221	350,008,670
2019	350,313,065	355,610,674	360,558,000
2020	355,702,475	363,836,141	371,436,252
2021	361,174,799	372,275,605	382,654,054
2022	366,731,312	380,935,231	394,222,390
2023	372,373,310	389,821,380	406,152,609
2024	378,102,107	398,940,605	418,456,447
2025	383,919,040	408,299,667	431,146,028
2026	389,825,463	417,905,536	444,233,888
2027	395,822,754	427,765,398	457,732,983
2028	401,912,310	437,886,666	471,656,708
2029	408,095,552	448,276,982	486,018,908
2030	414,373,920	458,944,230	500,833,897
2031	420,748,878	469,896,537	516,116,472
2032	427,221,912	481,142,290	531,881,932
2033	433,794,531	492,690,135	548,146,096
2034	440,468,266	504,548,992	564,925,317
2035	447,244,674	516,728,062	582,236,506
2036	454,125,334	529,236,836	600,097,148
2037	461,111,850	542,085,104	618,525,325
Average Annual Growth Rate (AAGR)			
2018-2037	1.54%	2.36%	3.04%

Source: RS&H, 2018

2.6.4 Total Air Cargo Forecast

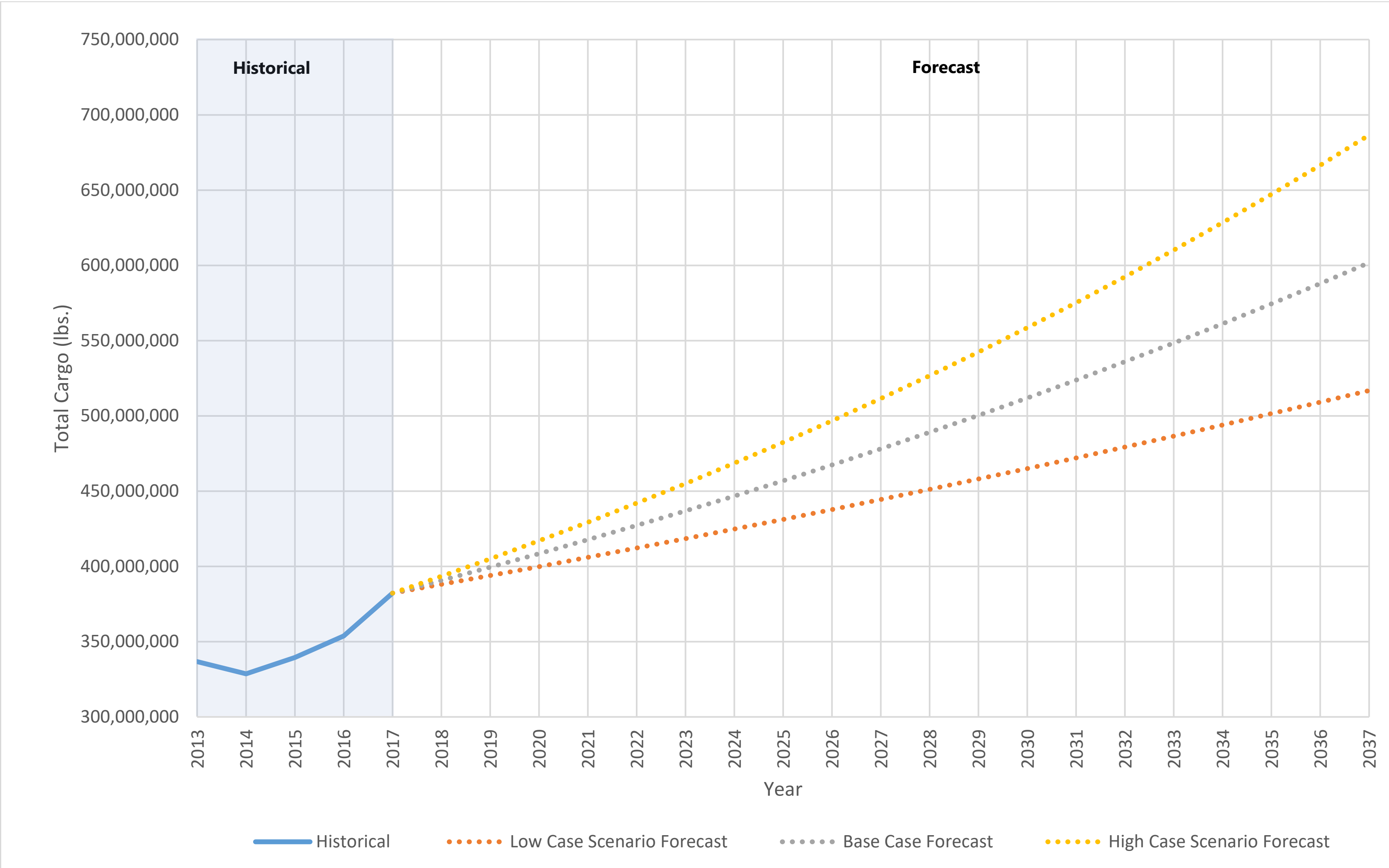
The total air cargo forecasts take a bottom up approach, in which the total enplaned and deplaned air cargo in pounds (lb.) is projected based on the growth of both enplaned and deplaned belly cargo and enplaned and deplaned freight. **FIGURE 2-60** provides a breakdown of belly cargo versus freight cargo forecasts for the Base Case Forecast. **FIGURE 2-61** compares the projected total air cargo poundage of the three forecast scenarios through 2037.

FIGURE 2-60
BASE CASE FORECAST OF AIR CARGO BY TYPE (2013-2037)



Source: RS&H, 2018

FIGURE 2-61
TOTAL AIR CARGO (LBS.) FORECAST COMPARISON (2013-2037)



Source: RS&H, 2018

2.6.5 Air Cargo Operations Forecast (Integrated Carriers)

To accurately reflect operations by aircraft type, interviews were conducted with the largest passenger and integrated cargo carriers.

Trends and market factors that may affect cargo operations out of SLC are:

- Surveyed responses from major cargo providers including FedEx, UPS, Delta Air Lines, Southwest Airlines, and American Airlines
  - Examination of changes in fleet mix (e.g. anticipated retirements of passenger aircraft, usage of small vs. large aircraft)
  - Belly cargo versus dedicated freighter cargo demand and anticipated changes in air cargo fleets by integrated carriers
- Economic political and demographic trends that will have potential impacts on the Airport's market share growth in the short, medium, and long-term

A detailed analysis was performed of cargo load factors by air cargo aircraft type by integrated carrier for September and December 2017 to calibrate load factors to be used in forecasting future operations forecasts for integrated carriers. Increased potential for belly cargo uplift is assumed by the air passenger forecasts.

Each integrated carrier indicated that it would be upgauging aircraft in the future, with plans for additional parking positions for both their air carrier fleet and feeder fleets and could be constrained if more space is not available. In general, there would be a move away from older aircraft such as the B-757, MD-11, and DC-10s to more frequencies by B767-300. In terms of feeder aircraft, wherever possible the use of existing aircraft in the fleet would grow over time with upgauging where possible to handle additional load. A separate sub-forecast of integrated carriers was developed for feeder aircraft and which derived operational forecasts for those aircraft. This is included within the identified forecasts. For example, instead of adding an additional ATR-43 to a route, the aircraft would be upgauged to an ATR-72 when the air cargo load factor increased to the 2017 level. Existing air cargo airline load factors were maintained over the forecast period based upon 2017 load factors.

In terms of the future fleet beyond upgauging to B-767s or increasing B-767 frequencies, the long-term forecasts consider larger aircraft that are not currently being anticipated to handle increasing volumes of air cargo. For that reason, aircraft such as the B-777 and A330 could be introduced to increase capacity per flight as opposed to increasing frequencies. There are no other apparent new generation aircraft that would increase capacity for feeder aircraft to a point that could offset the need for an increased frequencies of operations[45]. Should this happen, the number of feeder aircraft frequencies would be less than forecast.

TABLE 2-23, **TABLE 2-24**, and **TABLE 2-25** provide air cargo operations forecast for the Base, Low, and High Cases.

[45] All-cargo versions of CRJ-200 exist but have approximately the same air cargo capacity as the ATR-72.

TABLE 2-23
AIR CARGO OPERATIONS BY AIRCRAFT-BASE CASE FORECAST (2017-2037)

Base Case Forecast - Air Cargo Operations by Aircraft						
Aircraft	**2017**	**2018**	**2022**	**2027**	**2032**	**2037**
Airbus 300-600	2,177	2,392	2,496	3,068	2,148	1,344
Airbus 330-300	0	0	0	0	440	1,360
Boeing 777F	0	0	254	384	522	1,018
Boeing 767-300F	489	538	1,720	3,532	6,374	7,836
Boeing 757-200SF	1,370	2,300	2,206	742	0	0
Boeing 737-400F	986	1,002	1,096	1,168	1,272	1,384
McDonnell Douglas MD-11	1,846	1,944	1,358	1,122	328	0
McDonnell Douglas DC-10	331	436	312	116	0	0
ATR-72 Cargo	28	276	356	652	1,182	1,460
ATR-43 Cargo	377	450	540	548	906	996
Embraer 120	620	452	338	220	214	0
Fairchild Swearingen 4 Metro	1,391	1,420	1,574	750	300	0
Beech 99 Airliner	3,392	3,458	3,796	4,310	4,894	5,556
Beech King Air 1900	3,168	3,236	3,544	4,024	4,570	5,188
Cessna 402	495	608	716	758	1,328	1,620
Cessna 208 Caravan	2,736	2,776	2,816	2,886	2,956	3,380
Total	**19,406**	**21,288**	**23,122**	**24,280**	**27,434**	**31,142**

Source: RS&H, 2018

TABLE 2-24
AIR CARGO OPERATIONS BY AIRCRAFT-LOW CASE SCENARIO FORECAST (2017-2037)

Low Case Scenario Forecast - Air Cargo Operations by Aircraft						
Aircraft	**2017**	**2018**	**2022**	**2027**	**2032**	**2037**
Airbus 300-600	2,177	2,440	2,496	3,068	1,700	1,218
Airbus 330-300	0	0	0	0	104	408
Boeing 777F	0	0	268	422	528	942
Boeing 767-300F	489	1,228	2,094	3,612	6,424	7,170
Boeing 757-200SF	1,370	1,574	1,690	474	0	0
Boeing 737-400F	986	1,000	1,062	1,166	1,240	1,360
McDonnell Douglas MD-11	1,846	1,768	1,042	606	0	0
McDonnell Douglas DC-10	331	322	312	104	0	0
ATR-72 Cargo	28	320	338	448	1,034	1,154
ATR-43 Cargo	377	486	518	564	616	670
Embraer 120	620	504	350	202	104	0
Fairchild Swearingen 4 Metro	1,391	1,408	1,494	504	0	0
Beech 99 Airliner	3,392	3,432	3,794	3,808	4,308	4,694
Beech King Air 1900	3,168	3,222	3,498	3,510	4,026	4,384
Cessna 402	495	710	1,014	1,114	1,264	1,356
Cessna 208 Caravan	2,736	2,750	2,852	3,098	3,444	3,942
Total	**19,406**	**21,164**	**22,822**	**22,700**	**24,792**	**27,298**

Source: RS&H, 2018

TABLE 2-25
AIR CARGO OPERATIONS BY AIRCRAFT-HIGH CASE SCENARIO FORECAST (2017-2037)

High Case Scenario Forecast - Air Cargo Operations by Aircraft						
Aircraft	**2017**	**2018**	**2022**	**2027**	**2032**	**2037**
Airbus 300-600	2,177	2,236	3,512	3,150	2,498	0
Airbus 330-300	0	0	0	208	416	1,288
Boeing 777F	0	0	358	388	416	832
Boeing 767-300F	489	1,332	3,802	6,028	7,870	10,012
Boeing 757-200SF	1,370	1,186	240	0	0	0
Boeing 737-400F	986	1,026	1,104	1,128	1,270	1,476
McDonnell Douglas MD-11	1,846	1,660	194	0	0	0
McDonnell Douglas DC-10	331	312	312	0	0	0
ATR-72 Cargo	28	150	576	954	1,328	1,570
ATR-43 Cargo	377	390	566	670	792	938
Embraer 120	620	532	466	0	0	0
Fairchild Swearingen 4 Metro	1,391	1,174	898	598	0	0
Beech 99 Airliner	3,392	3,508	3,958	4,680	5,538	6,552
Beech King Air 1900	3,168	3,276	3,694	4,372	5,176	6,114
Cessna 402	495	512	746	1,746	2,144	2,688
Cessna 208 Caravan	2,736	2,830	3,218	3,658	4,226	4,788
Total	**19,406**	**20,124**	**23,644**	**27,580**	**31,674**	**36,258**

Source: RS&H, 2018

2.7 GENERAL AVIATION AND MILITARY

2.7.1 General Aviation Forecast

2.7.1.1 Based Aircraft

The Salt Lake City Department of Airports General Aviation Strategy Plan (SLCDA GASP) was prepared to examine the Salt Lake City Department of Airports General Aviation (SLCDA GA) System of Airports. The report determined a total of 290 based aircraft at SLC, including 178 single-engine, 42 multi-engine, 51 jets, and 19 helicopters. This reflects a decrease in total based aircraft by 109 since 2008, mainly in single engine aircraft (-92), jet (-18), and multi-engine (-7). Helicopter is the only category of aircraft that has increased during that time (+8). During this time nationally, jet, turboprop, and helicopters are increasing as a part of the fleet whereas single/multi-engine piston are decreasing.

The forecast prepared in the *General Aviation Strategy Plan* report for based aircraft at SLC was built off of the actual 2017 totals, and used the AAGRs derived from the FAA Aerospace Forecast for FY 2018-2038 as its means for change. Using the trends of the FAA Aerospace Forecast, the single-engine aircraft category is the only type of based aircraft anticipated to decrease with a -1.0% AAGR, while jets are projected to increase the fastest with a 2.2% AAGR from 2018-2037. **TABLE 2-26** shows the historical based aircraft fleet at SLC by type from 2008-2017, as well as the forecast for the Base Case projections over the planning horizon.

TABLE 2-26
GENERAL AVIATION BASED AIRCRAFT HISTORICAL AND FORECAST (2008-2037)

Salt Lake City International Airport					
Year	**Single-Engine**	**Multi-Engine**	**Jet**	**Helicopter**	**Total**
2008	270	49	69	11	399
2009	250	46	55	15	366
2010	250	46	55	15	366
2011	204	36	46	15	301
2012	204	36	46	15	301
2013	186	41	70	31	328
2014	186	41	70	31	328
2015	186	41	70	31	328
2016	203	46	62	31	342
2017	178	42	51	19	290
2022	171	47	56	20	294
2027	163	48	62	22	295
2032	155	50	69	24	298
2037	147	52	77	27	303
Average Annual Growth Rate (AAGR)					
2008-2017	-4.3%	-0.9%	-3.7%	5.3%	-3.2%
2018-2037	-1.0%	0.8%	2.2%	1.8%	0.2%

Source: Salt City Department of Airports, General Aviation Strategic Vision and Immediate Action Plan, 2019

2.7.1.2 General Aviation Operations

The SLCDA GA Forecast for GA operations over the planning horizon used a methodology of combining operations per based aircraft (OPBA) and the *FAA Aerospace Forecast for FY 2018-2038: Active General Aviation and Air Taxi Hours Flown* AAGRs. Each of the GA designated aircraft categories and their operations were classified by based aircraft type using the categories supplied by the FAA Aerospace Forecast which included: single-engine piston, multi-engine piston, single-engine turboprop, multi-engine turboprop, jet, and helicopter. Data from the FAA's National Offload Program was then gathered to identify the operations of the fleet mix for SLC in FY 2017. FAA Aerospace Forecast AAGRs were used to project the aircraft category's growth through 2037.

TABLE 2-28 shows the forecast of operations by GA aircraft type, in which some of the Airport's specific aircraft types were identified.

Local GA operations increased at the rate of single engine piston aircraft hours flown, while still maintaining the same number of OPBA for single engine pistons in 2017. This results in the local GA operations decreasing from 2,104 in 2017 to 1,686 in 2037 with a -1.1% AAGR. However, the itinerant GA operations are projected to increase from 38,372 annual operations in 2017 to 51,121 operations in 2037 with a 1.5% AAGR largely attributed to an increase in jet operations at the Airport.

TABLE 2-27 shows the itinerant and local GA operations forecast for 2018-2037.

TABLE 2-27
ITINERANT AND LOCAL GA OPERATIONS HISTORICAL (2008-2017) AND FORECAST (2018-2037)

Year	Itinerant Operations	Local Operations	Total Operations
2008	60,027	2	60,029
2009	58,444	511	58,955
2010	58,700	2,385	61,085
2011	57,701	10,869	68,570
2012	55,118	3,531	58,649
2013	60,346	3,751	64,097
2014	55,022	3,221	58,243
2015	46,180	3,069	49,249
2016	39,710	2,408	42,118
2017	38,372	2,104	40,476
2018	38,832	2,081	40,913
2019	39,284	2,081	41,365
2020	39,799	2,035	41,834
2021	40,308	2,013	42,321
2022	40,834	1,991	42,825
2023	41,378	1,969	43,347
2024	41,940	1,947	43,888
2025	42,521	1,926	44,447
2026	43,121	1,905	45,026
2027	43,741	1,884	45,624
2028	44,380	1,863	46,243
2029	45,040	1,842	46,883
2030	45,721	1,822	47,544
2031	46,424	1,802	48,226
2032	47,148	1,782	48,931
2033	47,896	1,763	49,658
2034	48,666	1,743	50,409
2035	49,460	1,724	51,184
2036	50,278	1,705	51,983
2037	51,121	1,686	52,807
Average Annual Growth Rate (AAGR)			
2018-2037	1.5%	-1.1%	1.4%

Source: SLCDA, General Aviation Strategic Vision and Immediate Action Plan, 2019.

TABLE 2-28
GA OPERATIONS BY AIRCRAFT TYPE FORECAST SUMMARY (2017-2037)

Aircraft	2017	2018	2022	2027	2032	2037
Pistons	**11,166**	**12,747**	**10,657**	**10,173**	**9,714**	**9,279**
Cessna 172	4,816	5,498	4,557	4,312	4,080	3,860
Cirrus SR22	989	1,129	936	885	838	793
Cessna 182	751	857	711	672	636	602
Cessna 206	343	392	325	307	291	275
Cessna 185	334	381	316	299	283	268
Piper 28A	330	377	312	295	280	265
Diamond DA-40	287	328	272	257	243	230
Cessna 340	333	380	328	323	318	314
Piper-44	287	328	283	278	274	270
Other Pistons	2,696	3,078	2,618	2,543	2,472	2,403
Turboprops	**9,341**	**10,663**	**9,426**	**9,549**	**9,714**	**9,923**
Pilatus PC-12	5,225	5,965	4,871	4,679	4,495	4,318
Piper 46T	273	312	320	307	295	283
Beechcraft Super King Air	2,996	3,420	3,266	3,571	3,904	4,268
Other Turboprops	847	967	969	992	1,020	1,053
Jet	**17,324**	**19,778**	**19,794**	**22,614**	**25,836**	**29,518**
Cessna Citation	6,990	7,980	7,464	8,528	9,743	11,131
Gulfstream IV	1,734	1,979	1,852	2,115	2,417	2,761
Hawker 800	966	1,103	1,032	1,179	1,346	1,538
Hawker 400	334	381	413	472	539	616
Challenger 300	1,354	1,547	1,676	1,915	2,188	2,500
Challenger 350	345	394	427	488	557	637
Challenger 650	760	868	940	1,074	1,227	1,402
Falcon 900	359	410	444	507	580	662
Falcon 2000	455	519	563	643	735	839
LearJet 35	475	542	588	671	767	876
LearJet 45	253	289	313	358	409	467
LearJet 60	416	475	515	588	672	768
Other Jets	2,883	3,291	3,567	4,075	4,656	5,319
Helicopter	**2,645**	**2,949**	**2,949**	**3,288**	**3,666**	**4,087**
Agusta A109SP	994	1,108	1,108	1,236	1,378	1,536
Bell 206	577	643	643	717	800	892
Robinson R22	440	491	491	547	610	680
Robinson R44	302	337	337	375	419	467
Other Helicopters	332	370	370	413	460	513
Total	**40,476**	**46,137**	**42,826**	**45,624**	**48,930**	**52,807**

Source: SLCDA, General Aviation Strategic Vision and Immediate Action Plan, 2019

2.7.2 Military Forecast

2.7.2.1 Military Operations

The itinerant and local military aircraft that operate out of SLC represented only 2.2% of all 325,093 operations as identified within TAF 2017. This Forecast does not make any changes to the number of local or itinerant military operations. Instead, as is a customary practice, it holds the existing count of 7,348 operations for local and itinerant military operations constant from 2017-2037. **TABLE 2-29** shows the military operations and represents military operations forecasts for the Base, Low, and High Cases.

TABLE 2-29
MILITARY OPERATIONS FORECAST (2017-2037)

Operations by Military Aircraft					
Aircraft	**2017**	**2022**	**2027**	**2032**	**2037**
A-7D Corsair 2	4	4	4	4	4
F-18S Super Hornet	2	2	2	2	2
T-38 Talon	4	4	4	4	4
C-23 Sherpa	2	2	2	2	2
F-18 Hornet	100	100	100	100	100
C-17 Globemaster III	10	10	10	10	10
C-130 Hercules	10	10	10	10	10
C-12 Huron	200	200	200	200	200
C-20 Gulfstream	200	200	200	200	200
Pilatus PC-12	200	200	200	200	200
KC-135 Stratotanker	6,580	6,580	6,580	6,580	6,580
V-22 Osprey	32	32	32	32	32
AH-64 Apache	4	4	4	4	4
Total	**7,348**	**7,348**	**7,348**	**7,348**	**7,348**

Source: FAA, TAF 2018; SLC ATC, 2018 and TAC Air, 2018

2.8 SUMMARY OF AIRCRAFT OPERATIONS

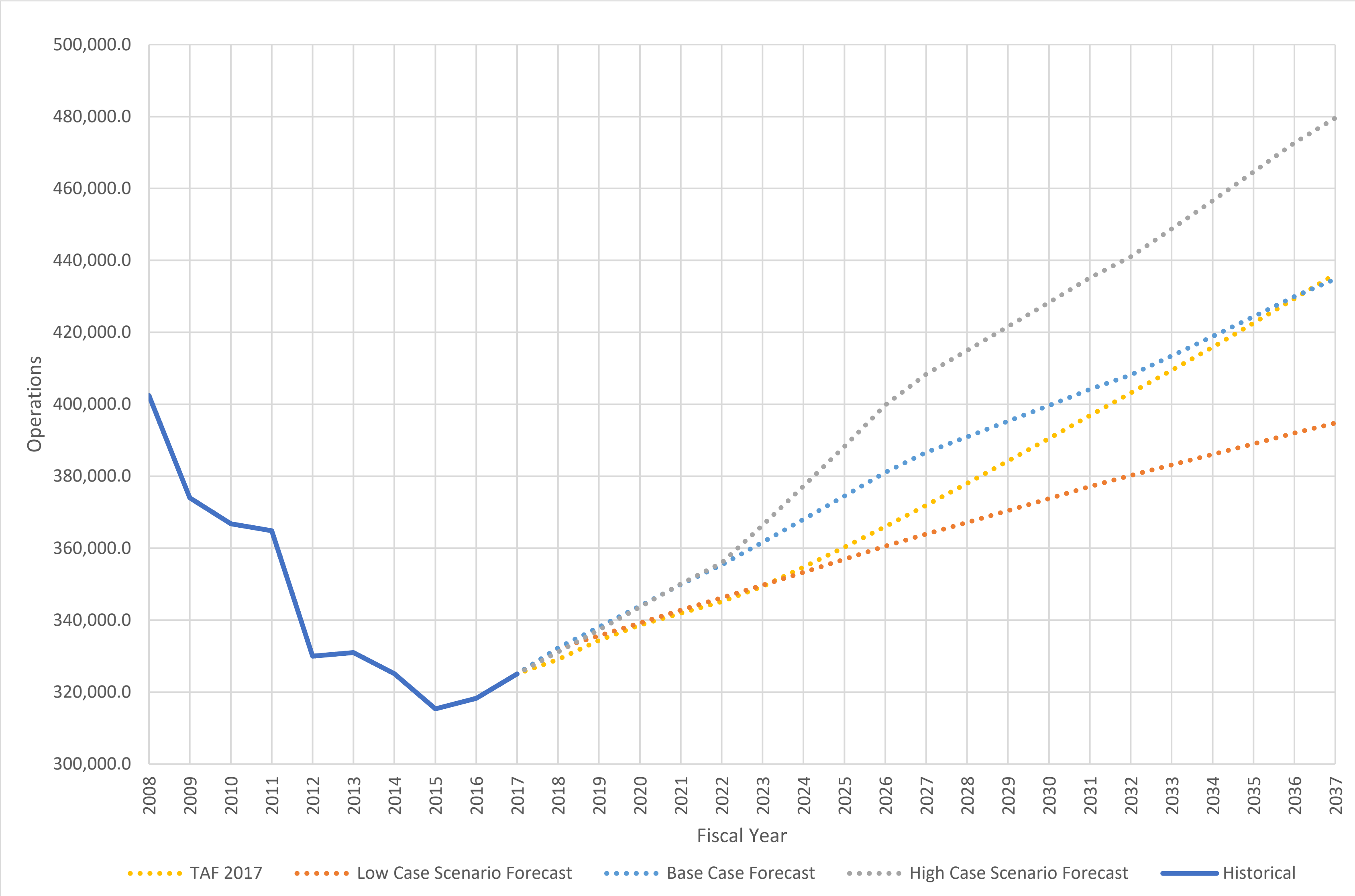
The forecast of total operations for the Airport are a summation of the passenger, air cargo, GA, and military operation forecasts presented in previous sections. Also mentioned above, the forecast of eVTOL operations is not included at this time. **TABLE 2-30** and **FIGURE 2-62** show the projected totals from 2017-2037 for each scenario.

TABLE 2-30
COMPARISON OF TOTAL ANNUAL OPERATIONS FORECASTS (2017-2037)

FY	TAF 2017	Base Case Forecast	Low Case Scenario Forecast	High Case Scenario Forecast
2017	325,093	325,093	325,093	325,093
2018	329,087	332,261	332,137	331,097
2019	334,320	338,039	335,651	337,296
2020	338,635	343,917	339,203	343,612
2021	341,941	349,897	342,792	350,045
2022	345,110	355,372	346,194	355,894
2023	349,378	361,627	349,734	366,393
2024	354,722	367,992	353,310	377,201
2025	360,257	374,469	356,923	388,329
2026	366,020	381,060	360,573	399,784
2027	371,900	386,647	363,894	408,388
2028	378,003	390,944	367,159	414,922
2029	384,244	395,289	370,454	421,561
2030	390,514	399,682	373,778	428,306
2031	396,873	404,124	377,132	435,159
2032	403,191	408,133	380,220	441,059
2033	409,446	413,473	383,136	448,761
2034	415,899	418,882	386,074	456,598
2035	422,591	424,363	389,035	464,572
2036	429,371	429,915	392,018	472,685
2037	436,164	434,832	394,799	479,571

Source: RS&H, 2018; SLCDA General Aviation Strategy Plan, 2018; Mary A. Lynch, 2018

FIGURE 2-62
TOTAL OPERATIONS FORECASTS (2018-2037)



Source: RS&H, 2018

2.8.1.1 Base Case Forecast Summary of Total Operations by Category

Table 2-31 provides projections of the number of Air Carrier/Air Taxi, Cargo, GA, and Military operations for each forecast year. Each category of operation forecast was developed in the sections above.

TABLE 2-31
BASE CASE FORECAST SUMMARY OF TOTAL OPERATIONS BY CATEGORY (2018-2037)

Year	Air Carrier/ Air Taxi[1]	Cargo	GA[2]	Military	Total
2018	257,488	21,288	46,137	7,348	332,261
2022	282,076	23,122	42,827	7,348	355,372
2027	309,395	24,280	45,624	7,348	386,647
2032	324,421	27,434	48,930	7,348	408,133
2037	343,545	31,142	52,807	7,348	434,842

[1] Air carrier/Air taxi operations include on-demand and miscellaneous commercial operations in addition to air carrier passenger operations. See table 2-15 for the total number of passenger operations in the ADPM.
[2] GA includes helicopter operations.
Source: RS&H, 2018

2.8.1.2 Base Case Forecast Summary of ADPM Operations by Category

Table 2-32 provides projections of the number of Air Carrier/Air Taxi, Cargo, GA, and Military operations for an average day of the peak month (ADPM) for each forecast year. The total SLC fleet mix and operations were obtained from the 2017 FAA National Offload Program and annualized to reflect the FAA TAF 2018, published in January, 2017. Afterwards, the 2018 ADPM totals were developed using the SLC aviation activity forecast, while maintaining the 2017 ADPM proportion. The Cargo and GA operations maintained their proportionate share of 2017, and align with total operations for each forecast year. Military operations remained constant over the planning horizon.

However, the passenger[46] operations were obtained using the design day forecast flight schedule for commercial passenger air carriers. They were then adjusted to include the on-demand and miscellaneous commercial operations identified in 2017.

TABLE 2-32
BASE CASE FORECAST SUMMARY OF ADPM OPERATIONS BY CATEGORY (2018-2037)

FY	Air Carrier/ Air Taxi[1]	Cargo	GA[2]	Military	Total
2018	822	68	147	23	1,060
2022	907	71	146	23	1,147
2027	988	77	145	23	1,233
2032	1,042	88	157	23	1,310
2037	1,097	99	168	23	1,387

[1] Air carrier/Air taxi operations include on-demand and miscellaneous commercial operations in addition to air carrier passenger operations. See table 2-15 for the total number of passenger operations in the ADPM.
[2] GA includes helicopter operations.
Source: RS&H, 2018

[46] Passenger operations were identified as "Air Carrier/Air Taxi" in this analysis.

2.8.2 IFR and VFR Operations

The SLC Terminal Radar Approach Control (TRACON) provided a distribution of the existing IFR and VFR itinerant operations for SLC. For Base Year 2017, the Airport had 78.5%, of its operations identified as instrument flight rules (IFR) itinerant, and 21.5% of operations identified as visual flight rules (VFR) itinerant. Holding the 2017 distribution constant, the IFR and VFR operations projected for each of the forecast years are compared in **TABLE 2-33**.

TABLE 2-33
IFR AND VFR FORECASTS (2018-2037)

	Base Case Forecast		Low Case Scenario Forecast		High Case Scenario Forecast	
FY	IFR	VFR	IFR	VFR	IFR	VFR
2018	260,966	71,295	260,869	71,268	260,052	71,045
2022	279,118	76,254	271,909	74,285	279,528	76,366
2027	303,682	82,965	285,811	78,083	320,758	87,630
2032	320,558	87,575	298,634	81,586	346,419	94,640
2037	341,528	93,304	310,085	84,714	376,667	102,904

Source: RS&H, 2018; FAA Opsnet, 2018; SLC TRACON, 2018

2.8.2.1 Annual Instrument Approaches

Annual instrument approaches represent the number of approaches that use IFR procedures annually. The number of annual instrument approaches can be identified as 50% of the IFR operations projected for the Airport in each forecast. **TABLE 2-34** shows the forecasts for annual instrument approaches for the forecast years of 2022, 2027, 2032, and 2037.

TABLE 2-34
ANNUAL INSTRUMENT APPROACHES FORECASTS (2018-2037)

FY	Base Case Forecast	Low Case Scenario Forecast	High Case Scenario Forecast
2018	130,483	130,434	130,026
2022	139,559	135,955	139,764
2027	151,841	142,906	160,379
2032	160,279	149,317	173,209
2037	170,764	155,042	188,333

Source: RS&H, 2018; FAA Opsnet, 2018; SLC TRACON, 2018

2.9 CRITICAL AIRCRAFT

The existing critical aircraft are determined by the usage of each of the Airport's four runways. It is defined as the most demanding aircraft with 500 or more operations annually. A representative group type can be used in some cases if no single aircraft model has sufficient operations to achieve the threshold. The dimensions of existing critical aircraft are depicted in **FIGURE 2-63**.

2.9.1.1 Runway 14-32 Critical Aircraft

- Existing: Beechcraft 1900D
  - Aircraft Approach Group - B
  - Aircraft Design Group - II
  - Taxiway Design Group - 2
- Future: Beechcraft 1900D
  - Aircraft Approach Group - B
  - Aircraft Design Group - II
  - Taxiway Design Group – 2

2.9.1.2 Runway 16L-34R Critical Aircraft

- Existing: Airbus A330/Boeing 737-9
  - Aircraft Approach Group - D
  - Aircraft Design Group - V
  - Taxiway Design Group - 5
- Future: Airbus A350/Boeing 777-3
  - Aircraft Approach Group - D
  - Aircraft Design Group - V
  - Taxiway Design Group - 6

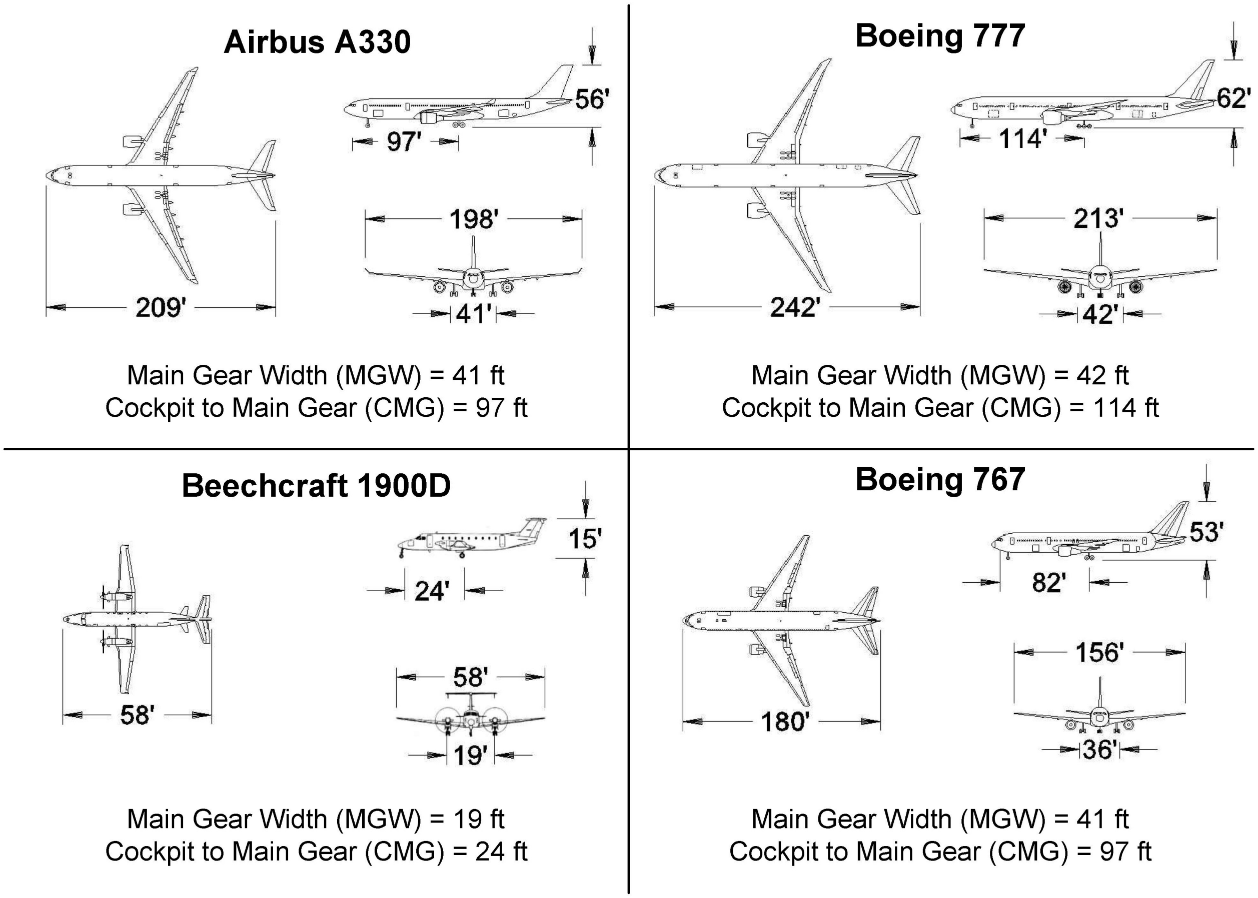
2.9.1.3 Runway 16R-34L Critical Aircraft

- Existing: Airbus A330/Boeing 737-9
  - Aircraft Approach Group - D
  - Aircraft Design Group - V
  - Taxiway Design Group - 5
- Future: Airbus A350/Boeing 777-3
  - Aircraft Approach Group - D
  - Aircraft Design Group - V
  - Taxiway Design Group - 6

2.9.1.4 Runway 17-35 Critical Aircraft

- Existing: Boeing 757/767
  - Aircraft Approach Group - D
  - Aircraft Design Group - IV
  - Taxiway Design Group - 5
- Future: Boeing 767
  - Aircraft Approach Group - D
  - Aircraft Design Group - IV
  - Taxiway Design Group - 5

FIGURE 2-63
EXISTING CRITICAL AIRCRAFT DIMENSIONS



2.10 AVIATION ACTIVITY FORECASTS SUMMARY

2.10.1 Comparison with FAA TAF

This section compares the FAA TAF 2017 published January 2018 with the Base Case Forecast. In accordance with FAA Order 5050.4B, National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions, paragraph 706.b(3), the FAA uses the following parameters to assess aviation forecasts, including those prepared for airport master plans. To be consistent with the FAA TAF:

- The 5-year forecast should be within 10 percent of the TAF; and,
- The 10-year forecast should be within 15 percent of the TAF.[47]

Each of the forecasts used fiscal years for enplanements and operations to be directly comparable with the FAA TAF.

The Base Case Forecast of enplanements was generated through an extensive analysis of regional socioeconomic statistics, trends, and sources as well as in-depth interviews with key stakeholders within the Salt Lake City regional area. Based on these inputs, a best-fit model was produced using a multiple variable regression analysis and then evaluated using Monte Carlo simulation. In addition to the Base Case Forecast, alternative Low and High Case Scenario Forecasts were also produced in a similar manner for comparison.

Operation forecasts and derivatives were created using planning design day models for an ADPM passenger schedule from July, 2018. The projected passenger and air cargo operation projections align with the enplanement projections of the forecast scenarios. Existing and anticipated load factors, equipment, and markets were all considered, as well as industry-wide trends, and interviews with representatives of several of the larger passenger airlines as well as integrated carriers at SLC. The Base Case Forecast also adopts the Base Case *SLCDA General Aviation Strategy Plan* GA based aircraft and operations forecasts. Like the enplanement forecasts, alternative based aircraft and operations forecasts were identified and detailed in these forecasts. The existing military operations from TAF 2017 are projected to remain constant over the 20-year planning horizon.

A comparison of the FAA TAF 2017 is shown in **TABLE 2-35** and was also presented in **TABLE 2-1** at the beginning of this document. In all cases the preferred Base Case Forecast meets the 5 year and 10 year percent parameters established by the FAA for assessing forecast differences.

[47] December 23, 2004, memorandum from the FAA Director, Airport Planning and Programming, entitled Revision to Guidance on Review and Approval of Aviation Forecasts.

TABLE 2-35
BASE CASE FORECAST COMPARISON WITH FAA TAF 2017

	2017		2022		2027		2037	
Category	**Base Case**	**TAF 2017**	**Base Case**	**TAF 2017**	**Base Case**	**TAF 2017**	**Base Case**	**TAF 2017**
Enplanements	11,515,639	11,515,639	14,228,574	13,121,857	15,662,157	14,499,142	18,666,369	17,623,339
Passenger Operations	257,863	277,269	282,077	298,163	309,395	324,653	343,535	388,313
Cargo Operations	19,406		23,122		24,280		31,142	
GA Operations	40,476	40,476	42,825	39,599	45,624	39,899	52,807	40,503
Military Operations	7,348	7,348	7,348	7,348	7,348	7,348	7,348	7,348
Total Operations	325,093	325,093	355,372	345,110	386,647	371,900	434,832	436,164
GA Based Aircraft[1]	290	359	294	387	295	415	303	478
Comparison with FAA TAF 2017 (percent different)								
Enplanements	0.0%		7.8%		7.4%		5.6%	
Commercial Operations[2]	0.0%		2.3%		2.7%		-3.6%	
GA Operations	0.0%		7.5%		12.5%		23.3%	
Military Operations	0.0%		0.0%		0.0%		0.0%	
Total Operations	0.0%		2.9%		3.8%		-0.3%	
GA Based Aircraft	-23.8%		-31.6%		-40.7%		-57.8%	

[1]The discrepancy between the Base Case Forecast and FAA TAF 2017 in GA Based Aircraft is the result of a verified count completed in mid-2018
[2] Commercial Operations are defined as scheduled air carrier passenger and cargo
Source: RS&H, 2018; FAA TAF, 2017

2.10.2 Forecast Usage within the Master Plan

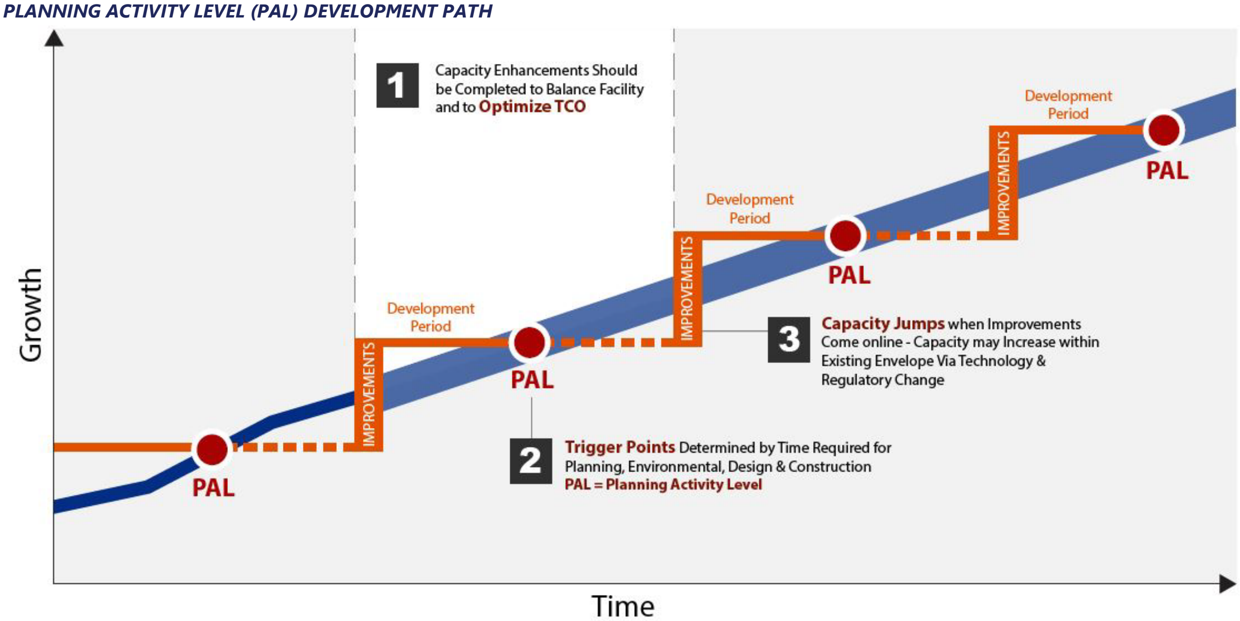
This forecast studied historical SLC aviation data, as well as Airport trends, while analyzing current and anticipated economic impacts within the industry. Since airport activity levels are heavily influenced by economic events and changes in the industry, planning recommended facility expansions or required upgrades on specific years can be challenging. It is generally accepted that new facility constructed should be initiated only when specific activity levels have been reached that necessitate the improvement, rather than being initiated based on reaching a calendar date.

Therefore, three planning activity levels (PALs) will be used in the Facility Requirements chapter to identify the threshold for required changes to the Airport's facilities, instead of defining a particular year. These PALs represent a trigger level of activity that could occur sooner or later than the year associated with that level of activity in this forecast document. For planning purposes, the subsequent three PALs (PAL 1, PAL 2, and PAL 3) correspond to the forecast years (2022, 2027, and 2037).

As shown in **FIGURE 2-64**, the distance between one PAL and another is an unspecified length of time. In theory, the time difference between each PAL is five years but it can be much longer; in times of fast economic growth or new airline service the next PAL level could be achieved in less than five years.

During this unspecified length of time, an expected Level of Service (LOS) begins to erode with increasing demand. In general terms, planning for the next level of improvements begins at approximately 60 percent of the difference between one PAL and another. Design would occur at the 80 percent level and the facility would be fully operational prior to achieving the next PAL level. At that time of facility improvement, the capacity of the facility increases and the LOS is enhanced to design parameters. Facility improvements are designed to meet the threshold of efficiency and cost effectiveness for that facility. Meaning facilities are constructed at an acceptable cost and LOS but not developed until they are needed.

FIGURE 2-64
PLANNING ACTIVITY LEVEL (PAL) DEVELOPMENT PATH



This Page Intentionally Left Blank

APPENDIX C

BASELINE OPERATIONS BY FLEET MIX

Aircraft Code	Operations by Type				Total Operations
	Passenger	Air Cargo	GA	Military	
A124	2	0	0	0	2
A300	0	1,083	0	0	1,083
A306	0	1,083	0	0	1,083
A319	15,654	0	0	0	15,654
A320	30,378	0	0	0	30,378
A321	3,205	0	0	0	3,205
A330	161	0	0	0	161
A332	489	0	0	0	489
A333	339	0	0	0	339
ASTR	0	0	47	0	47
B38M	12	0	0	0	12
B712	15,766	0	0	0	15,766
B722	6	0	0	0	6
B732	10	0	0	0	10
B733	532	0	0	0	532
B734	290	986	0	0	1,276
B735	8	0	0	0	8
B737	20,434	0	0	0	20,434
B738	31,105	0	0	0	31,105
B739	16,405	0	0	0	16,405
B744	3	0	0	0	3
B752	5,674	1,381	0	0	7,055
B753	256	0	0	0	256
B762	72	0	0	0	72
B763	2,326	1,293	0	0	3,619
B764	4	0	0	0	4
B767	2	0	0	0	2
B772	4	0	0	0	4
B788	3	0	0	0	3
B789	188	0	0	0	188
BE40	0	0	334	0	334
C25A	0	0	290	0	290
C25B	0	0	497	0	497
C25C	0	0	352	0	352
C25M	0	0	39	0	39
C500	0	0	14	0	14
C501	0	0	30	0	30
C510	0	0	470	0	470
C525	0	0	968	0	968
C550	344	0	0	0	344

Continued on next page

Aircraft Code	Passenger	Air Cargo	GA	Military	Total Operations
C560	0	0	989	0	989
C56X	0	0	1,503	0	1,503
C650	0	0	173	0	173
C680	0	0	849	0	849
C68A	0	0	146	0	146
C700	0	0	2	0	2
C750	0	0	668	0	668
CL30	0	0	1,405	0	1,405
CL35	132	0	345	0	477
CL60	150	0	760	0	910
CRJ2	39,044	0	0	0	39,044
CRJ7	21,772	0	0	0	25,689
CRJ7	3,917	0	0	0	
CRJ9	18,442	0	0	0	18,442
DC10	0	178	0	0	178
DC91	6	0	0	0	6
DC93	2	0	0	0	2
E135	168	0	0	0	168
E145	31	0	0	0	31
E170	1,268	0	0	0	1,268
E175	246	0	0	0	246
E190	270	0	0	0	270
E35L	35	0	0	0	35
E45X	495	0	0	0	495
E50P	571	0	0	0	571
E545	105	0	0	0	105
E550	438	0	0	0	438
E55P	423	0	0	0	423
E75L	13,041	0	0	0	13,041
E75S	3,298	0	0	0	3,298
EA50	0	0	198	0	198
F18S	0	0	0	2	2
F2TH	0	0	455	0	455
F900	0	0	359	0	359
FA10	0	0	30	0	30
FA20	0	0	22	0	22
FA50	0	0	236	0	236
FA7X	0	0	66	0	66
G150	294	0	100	0	394
G280	104	0	60	0	164
G5	0	0	4	0	4

Continued on next page

Aircraft Code	Passenger	Air Cargo	GA	Military	Total Operations
GALX	264	0	100	0	364
GL5T	143	0	0	0	143
GLEX	177	0	0	0	177
GLF2	0	0	3	0	3
GLF3	60	0	53	0	113
GLF4	0	0	1,734	0	1,734
GLF5	314	0	115	0	429
GLF6	0	0	85	0	85
H25A	0	0	6	0	6
H25B	0	0	966	0	966
H25C	0	0	19	0	19
HA4T	0	0	129	0	129
HDJT	0	0	190	0	190
J328	0	0	19	0	19
L39	0	0	0	4	4
LJ24	0	0	2	0	2
LJ25	0	0	2	0	2
LJ31	0	0	131	0	131
LJ35	0	0	475	0	475
LJ40	0	0	56	0	56
LJ45	0	0	253	0	253
LJ55	0	0	61	0	61
LJ60	0	0	416	0	416
LJ75	0	0	55	0	55
LR35	0	0	2	0	2
MD11	0	1,195	0	0	1,195
MD82	231	0	0	0	231
MD83	725	0	0	0	725
MD90	2,957	0	0	0	2,957
MU30	0	0	4	0	4
PRM1	0	0	138	0	138
SBR1	0	0	16	0	16
SF50	0	0	54	0	54
SJ30	0	0	6	0	6
T38	0	0	0	4	4
WW24	0	0	6	0	6
AA5	0	0	20	0	20
AT43	0	375	0	0	375
AT45	0	0	1	0	1
AT72	2	38	0	0	40
AT8T	0	0	1	0	1

Continued on next page

Aircraft Code	Passenger	Air Cargo	GA	Military	Total Operations
B17	0	0	3	0	3
B190	0	2,193	0	0	2,193
B350	725	0	0	0	725
BE10	0	0	20	0	20
BE19	0	0	3	0	3
BE20	0	0	2,976	0	2,976
BE24	0	0	20	0	20
BE30	818	0	0	0	818
BE9	2	0	0	0	2
BE90	0	0	9	0	9
BE99	0	3,236	0	0	3,236
BE9L	919	357	0	0	1,276
BE9T	24	0	0	0	24
BL8	0	0	1	0	1
BN2A	0	0	2	0	2
BN2T	0	0	1	0	1
C160	0	0	1	0	1
C208	0	2,736	271	0	3,007
C425	0	0	34	0	34
C441	0	0	69	0	69
CH7A	0	0	6	0	6
CN35	6	0	0	0	6
CRUZ	0	0	13	0	13
DCH6	3	0	0	0	3
DH6	3	0	0	0	3
DH8B	1	0	0	0	1
DH8D	1,110	0	0	0	1,110
DHC5	0	0	2	0	2
DHC6	23	0	0	0	23
E120	0	612	0	0	612
EPIC	11	0	0	0	11
EXPR	0	0	1	0	1
F27	0	0	2	0	2
FDCT	0	0	30	0	30
HXA	0	0	3	0	3
J5	0	0	1	0	1
KODI	0	0	279	0	279
LANC	0	0	4	0	4
M4	0	0	1	0	1
M7	0	0	2	0	2
ML4	0	0	1	0	1

Continued on next page

Aircraft Code	Passenger	Air Cargo	GA	Military	Total Operations
MU2	0	0	74	0	74
MU20	0	0	3	0	3
P180	180	0	0	0	180
P28	0	0	1	0	1
P46T	121	0	152	0	273
PA18	0	0	3	0	3
PA20	0	0	5	0	5
PA22	0	0	6	0	6
PAY1	0	0	3	0	3
PAY2	149	0	0	0	149
PAY3	0	0	9	0	9
PAY4	0	0	4	0	4
PC12	595	0	5,225	0	5,820
RV12	0	0	44	0	44
S108	0	0	2	0	2
SB20	0	0	42	0	42
SH36	0	0	2	0	2
STAR	2	0	0	0	2
SW3	259	0	0	0	259
SW4	0	2,165	0	0	2,165
TBM7	0	0	156	0	156
TBM8	0	0	197	0	197
TBM9	115	0	0	0	115
AS350	0	0	166	0	166
B06	0	0	577	0	577
R44	0	0	302	0	302
R22	0	0	440	0	440
PA22	0	0	166	0	166
A109SP	0	0	994	0	994
AC11	0	0	6	0	6
AC50	0	0	13	0	13
AC60	0	0	4	0	4
AC68	0	0	5	0	5
AC80	0	0	71	0	71
AC90	0	0	76	0	76
AC95	0	0	11	0	11
AERO	0	0	3	0	3
AEST	0	0	106	0	106
B26	0	0	2	0	2
B36T	0	0	6	0	6
BE33	0	0	86	0	86

Continued on next page

Aircraft Code	Passenger	Air Cargo	GA	Military	Total Operations
BE35	0	0	144	0	144
BE36	0	0	62	0	62
BE50	0	0	11	0	11
BE55	0	0	26	0	26
BE58	0	0	24	0	24
BE60	0	0	10	0	10
BE76	0	0	8	0	8
BL17	0	0	10	0	10
BN2P	0	0	2	0	2
C0L4	0	0	36	0	36
C150	0	0	35	0	35
C152	0	0	34	0	34
C162	0	0	12	0	12
C170	0	0	2,855	0	2,855
C172	0	0	1,777	0	1,777
C177	0	0	70	0	70
C180	0	0	60	0	60
C182	0	0	746	0	746
C185	0	0	358	0	358
C195	0	0	3	0	3
C206	0	0	343	0	343
C207	0	0	3	0	3
C210	0	0	159	0	159
C240	0	0	28	0	28
C310	0	0	20	0	20
C320	0	0	5	0	5
C337	0	0	13	0	13
C340	0	0	333	0	333
C402	0	495	86	0	581
C414	0	0	112	0	112
C421	0	0	135	0	135
C82R	0	0	3	0	3
C82T	0	0	2	0	2
CH7B	0	0	17	0	17
COL3	0	0	8	0	8
COL4	0	0	39	0	39
DA20	0	0	2	0	2
DA40	0	0	308	0	308
DA42	0	0	141	0	141
DC3	0	0	2	0	2
DV20	0	0	51	0	51

Continued on next page

Aircraft Code	Passenger	Air Cargo	GA	Military	Total Operations
DV40	0	0	1	0	1
EVOT	0	0	4	0	4
EXP	0	0	5	0	5
GLAS	0	0	3	0	3
HROC	0	0	2	0	2
HSKY	0	0	4	0	4
HUKY	0	0	6	0	6
HUSK	0	0	50	0	50
HXB	0	0	19	0	19
HXC	0	0	2	0	2
L60	0	0	1	0	1
LAKE	0	0	1	0	1
LEG2	0	0	2	0	2
LNC2	0	0	4	0	4
LNC3	0	0	1	0	1
LNC4	0	0	16	0	16
LNCE	0	0	1	0	1
M020	0	0	5	0	5
M021	0	0	1	0	1
M20	0	0	6	0	6
M20F	0	0	2	0	2
M20J	0	0	4	0	4
M20M	0	0	1	0	1
M20P	0	0	170	0	170
M20T	0	0	82	0	82
M5	0	0	1	0	1
MAUL	0	0	3	0	3
MO20	0	0	30	0	30
MO21	0	0	4	0	4
P06T	0	0	111	0	111
P210	0	0	21	0	21
P28A	0	0	330	0	330
P28B	0	0	4	0	4
P28R	0	0	149	0	149
P28T	0	0	1	0	1
P32R	0	0	18	0	18
P32T	0	0	1	0	1
P337	0	0	1	0	1
PA23	0	0	2	0	2
PA24	0	0	62	0	62
PA27	0	0	25	0	25

Continued on next page

Aircraft Code	Passenger	Air Cargo	GA	Military	Total Operations
PA28	0	0	85	0	85
PA30	0	0	6	0	6
PA31	0	0	206	0	206
PA32	0	0	81	0	81
PA34	0	0	43	0	43
PA44	0	0	287	0	287
PA46	0	0	101	0	101
PA60	0	0	3	0	3
PARO	0	0	5	0	5
PAYE	0	0	1	0	1
PAZT	0	0	1	0	1
PIPE	0	0	1	0	1
PZ4M	0	0	2	0	2
RV10	0	0	2	0	2
RV6	0	0	3	0	3
RV7	0	0	7	0	7
RV7A	0	0	1	0	1
RV8	0	0	3	0	3
RV9	0	0	1	0	1
S22T	0	0	31	0	31
SPRT	0	0	1	0	1
SR20	0	0	76	0	76
SR22	0	0	989	0	989
T206	0	0	2	0	2
T210	0	0	4	0	4
TBM	0	0	17	0	17
TRIN	0	0	1	0	1
U16	0	0	2	0	2
WACF	0	0	1	0	1
WACO	0	0	2	0	2
ZZZZ	0	0	16	0	16
SD330	0	0	0	2	2
F18	0	0	0	100	100
C17	0	0	0	10	10
C130	0	0	0	10	10
C12	0	0	0	200	200
C20	0	0	0	200	200
PC12	0	0	0	200	200
KC-135	0	0	0	6,580	6,580
V22	0	0	0	32	32
H64	0	0	0	4	4
Total	**257,863**	**19,406**	**40,476**	**7,348**	**325,093**