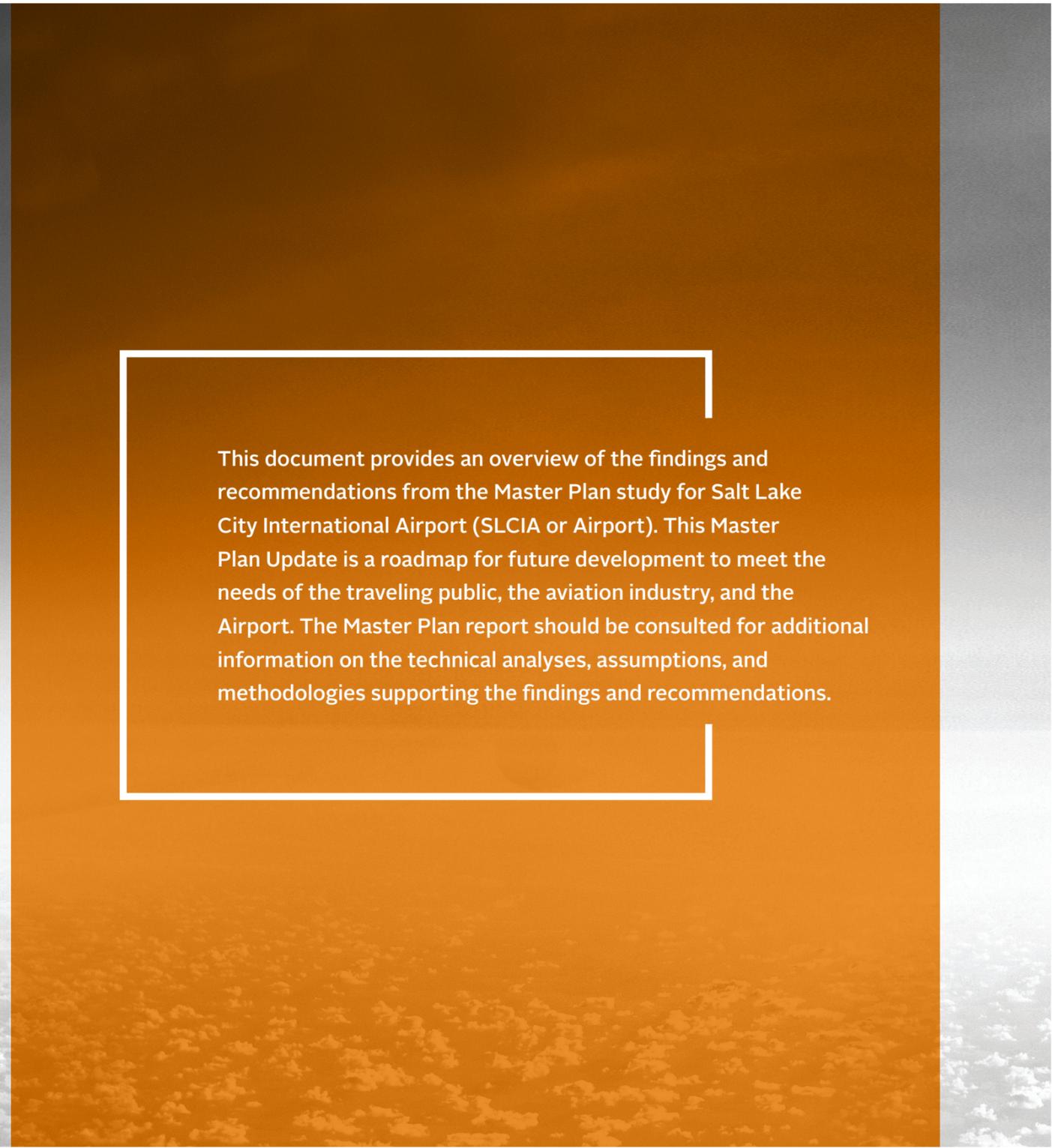




SLC

INTERNATIONAL

EXECUTIVE SUMMARY | 2022



This document provides an overview of the findings and recommendations from the Master Plan study for Salt Lake City International Airport (SLCIA or Airport). This Master Plan Update is a roadmap for future development to meet the needs of the traveling public, the aviation industry, and the Airport. The Master Plan report should be consulted for additional information on the technical analyses, assumptions, and methodologies supporting the findings and recommendations.

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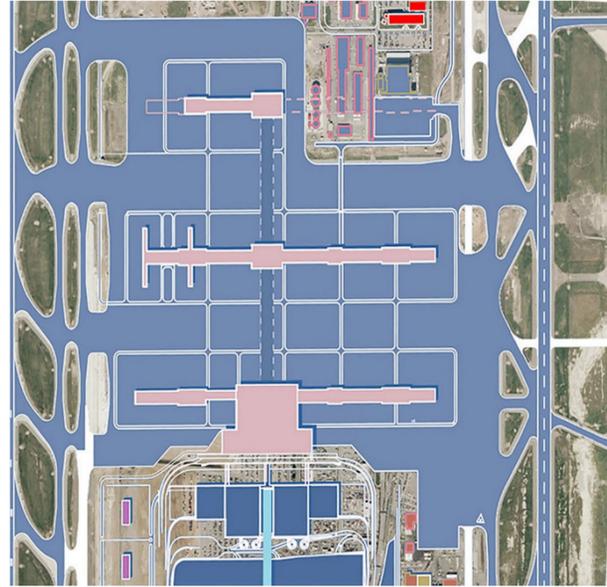
INTRODUCTION

The previous Master Plan conducted for SLCIA in 1998 set forth the Vision for new terminal and concourse facilities. Over the past two decades, the Salt Lake City Department of Airports (SLCDA) has focused on implementing that Vision.

As SLCDA actively implements its historic Airport Redevelopment Program (ARP) (Previously known as the Terminal Redevelopment Program), this study updated their comprehensive airport facility plan to accommodate the expected growth over the next 20 years. The emphasis of this study was to find an ultimate balance between the airfield and supporting facilities to match passenger demand anticipated throughout the planning period.

The SLCIA Master Plan Update (Master Plan) was completed per FAA guidelines and includes all study elements necessary to develop a comprehensive airport plan that meets forecast aviation demand for a 20-year planning horizon while ensuring optimum compatibility with the surrounding community. The planning process includes six key elements: public involvement/stakeholder coordination; inventory of existing conditions; FAA-approved forecast of future aviation activity; assessment of facility requirements necessary to meet demand; development and evaluation of alternative options for required facilities; and implementation and finance planning to describe development phasing, timing, estimated costs, and funding mechanisms for airport improvements. The final product of the study is the Master Plan report and an FAA-approved Airport Layout Plan (ALP) drawing set, which serves as a “blueprint” for proposed airport development.

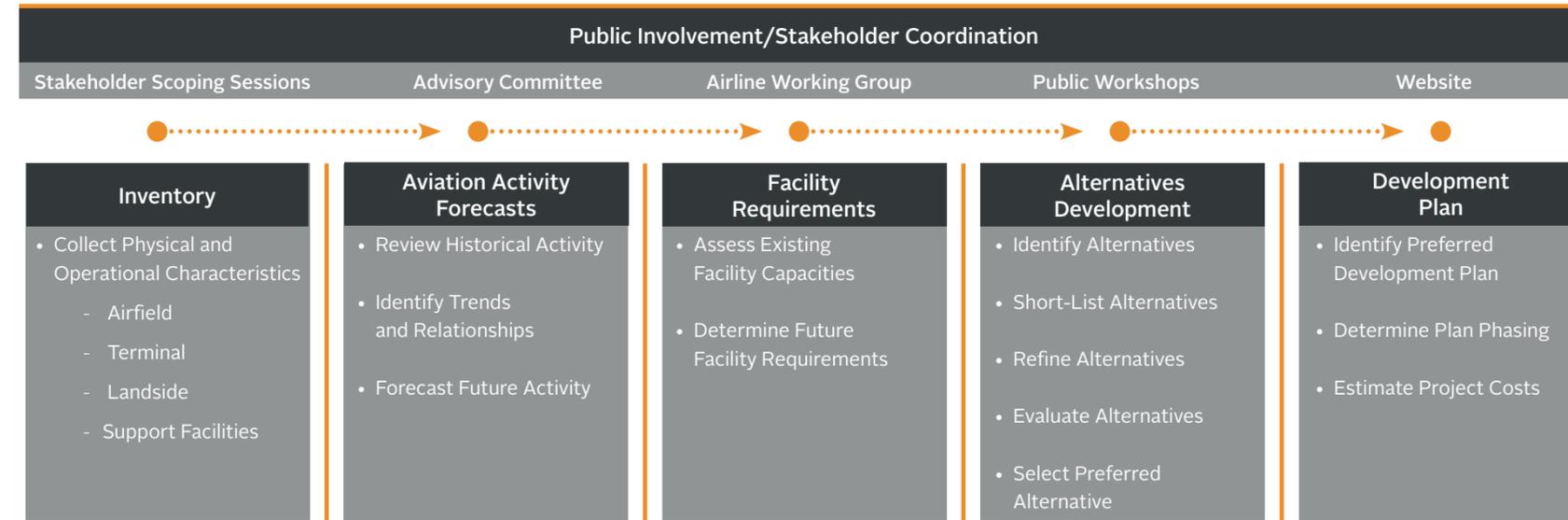
1998 Master Plan Vision



2019 Existing Condition



Master Planning Process



Whose project is this?

The Master Plan was prepared by the Salt Lake City Department of Airports and their consultants. The SLCDCA contracted with the firm RS&H to lead the Master Plan process.

The preparation of this document was financed in part through a planning grant from the Federal Aviation Administration (FAA) as provided under Section 505 of the Airport and Airways Improvement Act of 1982, as amended by the Airway Safety and Capacity Expansion Act of 1987. The contents do not necessarily reflect the official views or policy of the FAA. Acceptance of this report by the FAA does not in any way constitute a commitment on the part of the United States to participate in any development depicted therein, nor does it indicate that the proposed development is environmentally acceptable in accordance with applicable public laws.

What is a Master Plan?

According to the FAA, "an airport master plan is a comprehensive study of an airport and usually describes the short-, medium-, and long-term development plans to meet future aviation demand." FAA Advisory Circular 150/5070-6B Airport Master Plans

The master plan process included an inventory of existing conditions at the Airport, a summary of the forecast of future demand, an assessment of future facility requirements, development and evaluation of alternatives, and creation of an implementation plan. The demand forecast and facility requirements indicate that facility upgrades and future development projects will be needed within the 20-year planning horizon of the Master Plan. Following a detailed evaluation of required future projects and alternatives, the master plan team formulated a plan for future development based on a demand-driven, phased approach. The technical analysis was complemented by a thorough public involvement process. The Plan for Future Development reflects public and stakeholder input received during the public involvement process.

PUBLIC INVOLVEMENT

The SLCIA Master Plan analysis was guided by several committees: A Technical Advisory Committee, a Policy Advisory Committee, an Airport Staff Working Group, and the Airport Board Advisory Group. Each committee was comprised of stakeholders representing a broad spectrum of interests. Entities participating in the master plan study included: airport users, airport tenants, aviation service providers, air carriers, general aviation organizations, the FAA, state and local planning organizations, environmental interest groups, airport staff, and elected and appointed officials representing local municipalities.

Before beginning the master plan analysis, multiple visioning meetings were held with stakeholders to identify critical issues that needed to be resolved during the study and establish goals and objectives to be included in the final recommendations. The most important goals and objectives are listed below.

- Enhance safety by minimizing the potential for runway incursions
- Determine ultimate terminal and concourse area requirements
- Determine airfield improvements needed to increase airport capacity, hourly throughput, and operational efficiencies.
- Improve operational performance and determine runway length requirements
- Determine landside parking and rental car facility requirements
- Identify opportunities to expand corporate general aviation facilities
- Minimize environmental impacts of proposed airport development
- Prepare an implementation plan that supports the financial sustainability of the SLCDA

Public involvement improves the decision-making process by discussing the needs and interests of participants. In recognition of the importance of involving the public in the planning process, the Master Plan Update team implemented a thorough Public Involvement Program to seek public feedback during all phases of the project and at all key decision points.

SLCDA was one of the only owners of a large airport in the U.S. conducting a master plan during the COVID-19 Pandemic. In an effort to contain the spread of COVID-19, the State of Utah, SLCDA leadership, and Salt Lake City Mayor Erin Mendenhall followed the guidelines established by the Centers for Disease Control and Prevention (CDC), and decided that Master Plan study efforts and stakeholder engagement would be conducted virtually. In some regards, the virtual setting created an more equitable and interactive experience for the community and stakeholders to remain engaged in the planning process.

Visioning 3-20-2018



PIM #1 7-17-2019



PIM #2 Virtual Meeting 7-9-2020



PIM #3 6-17-2021



Did you know...

There was 1 Virtual Engagement Room, 3 Public Information Meetings, 7 Airport Board updates, 6 working papers posted, 40 technical meetings, 65 stakeholder meetings, 350 public participants, and over 20,000 hours of planning conducted during the process.

Where can I learn more?

Go to www.slairport.com/about-the-airport/master-plan/. The website contains links to all the study documentation, including presentations and video.

INVENTORY

SLCIA is owned by Salt Lake City Corporation (SLC) and managed by the SLCDCA. SLCIA is the largest Airport in Utah and provides commercial air carrier service for Utah, southeastern Idaho, and southwestern Wyoming. The SLCIA is an economic engine for the community that provides invaluable air transportation services for the government, corporations, recreation and tourism industries, and the public. The Airport allows travelers within the intermountain region to connect easily to communities throughout the United States, Europe, and Asia.

To establish the baseline of conditions as they existed at the beginning of the master plan study, an inventory of all existing facilities, financial data, aviation activity levels, operational procedures, design standard compliance, and environmental characteristics was performed. The status of existing conditions establishes the reference point from which all master plan analysis is compared.

The FAA designates SLCIA as a Large Hub airport because it enplanes (boards) more than 1 percent of all revenue passengers enplaned annually in the United States. In 2017, the Airport enplaned 11,515,639 million passengers (24 million total passengers) and accommodated 325,093 aircraft operations. SLCIA provides approximately 373 average daily departures to 98 non-stop destinations. The Airport is situated on over 8,239 acres of land located 6 miles west of the central business district of Salt Lake City, immediately adjacent to the wetlands of Great Salt Lake. The Airport is served by a single, multi-level main terminal that was constructed in 2020. The terminal is supported by two parallel concourses, Concourse A and Concourse B, currently accommodating 47 aircraft parking positions for narrow- and wide-body commercial aircraft that could be expanded by 16 additional gates.

The Airport has two parallel air carrier runways, (16R-34L and 16L-34R), a non-parallel air carrier runway (RW 17-35), and a small general aviation runway (14-32). The runways are supported by an extensive system of taxiways and aprons that provide access between the runways and various airport functional elements including the terminal and concourses, general aviation hangars and tie-downs, cargo facilities, airline support buildings, and military services.

SLCIA maintains a comprehensive arrangement of support facilities to sustain all forms of aviation activity, including domestic and international commercial air carriers, cargo, military, corporate aviation, helicopter, small/light general aviation aircraft, commercial aircraft parts manufacture and assembly, and air carrier aircraft maintenance and repair.



2018-19

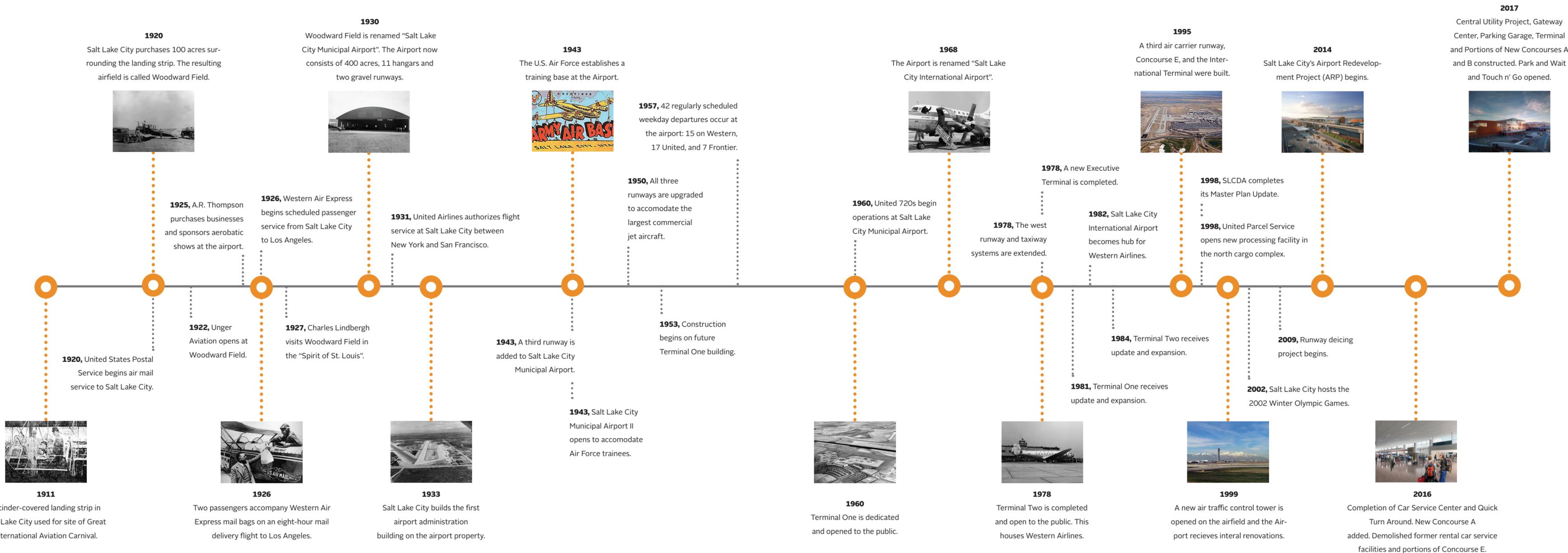
- Central Utility Project, Gateway Center, Parking Garage, Terminal and portions of New Concourses A and B construction continues.
- Break ground on New Concourse B-west.

2020

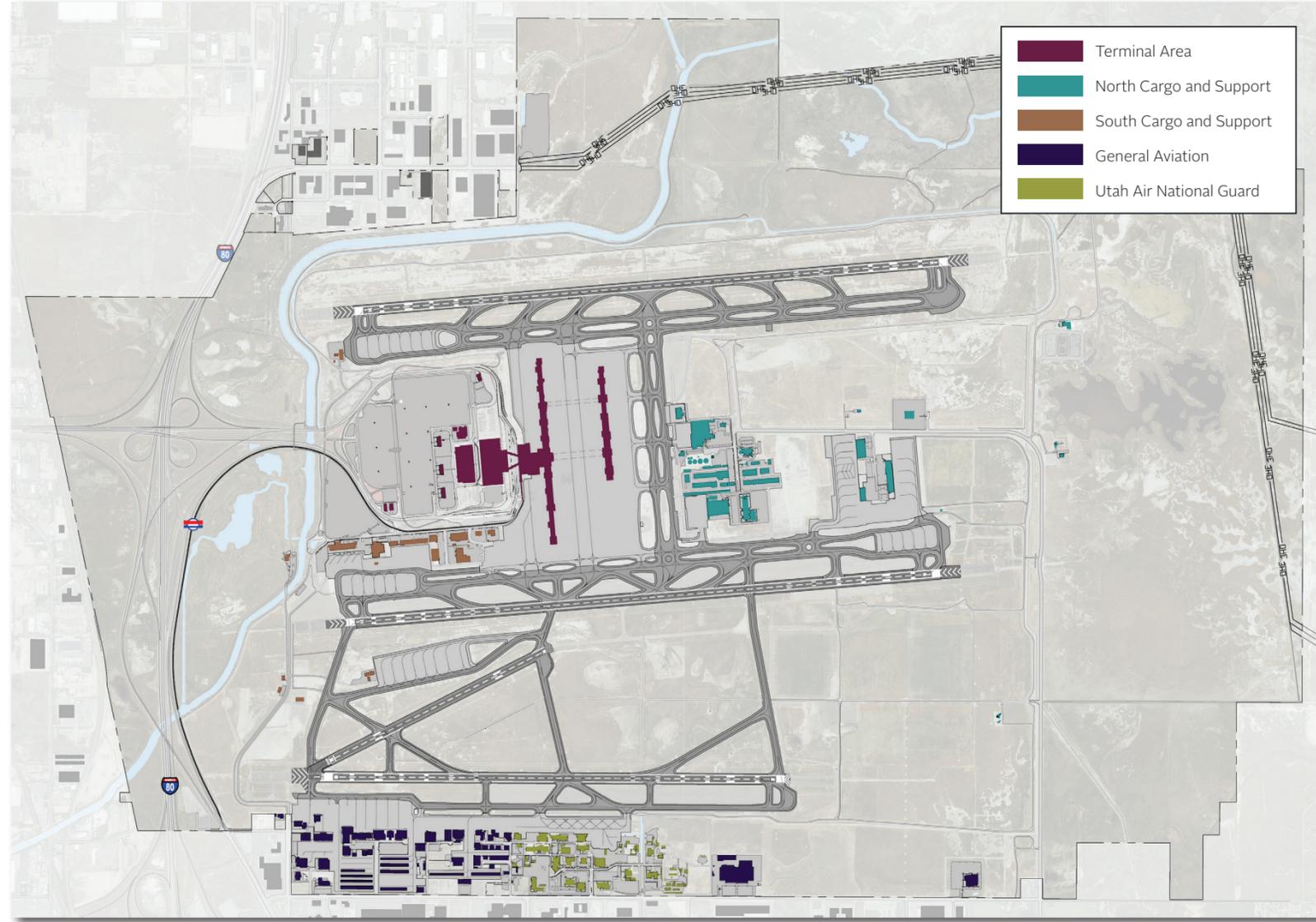
- Completion of Gateway Center, Parking Garage, Terminal, New Concourse A-west.
- Demolish existing parking garages and former Terminals 1 and 2 / former Concourses A and E.

2021-24

- New Concourse B-west opens
- New Concourses A and B-east construction
- Former Concourses B an C demolished
- Project completion



Existing Conditions



AVIATION ACTIVITY FORECASTS

The forecast of aviation demand provides a basis for determining future facility requirements including the type, size, and timing of aviation development. Consequently, the forecast influences virtually all phases of the planning process. The forecast of aviation activity demand includes:

- Annual passenger boardings
- Annual landings and take-offs
- Annual cargo tonnage
- Annual airfield capacity and delay

Derivative forecasts were also prepared to provide greater detail regarding peak hour aviation demand, number of domestic and international passengers, and number of aircraft operations by operational type (commercial, cargo, military, and general aviation).

The baseline year of the Master Plan Forecast was 2017, and activity was forecast through 2037. The forecast of aviation activity for the planning horizon was presented at three planning activity levels (PALs). PALs represent future levels of activity used to assess facility requirements. PALs are not tied to specific years and could occur earlier in time or later in time than forecasts predict, depending on actual rates of growth over time.

Annual Passenger Boardings

Total enplaned passengers (passengers boarding aircraft) are forecast to grow at an average annual rate of 2.1 percent during the planning period. Total passengers include enplaned, deplaned, and transit (passengers remaining on aircraft) passengers. Total passengers are forecast to grow from approximately 23 million passengers in 2017 to 37 million passengers at PAL 3.

Annual Cargo Tonnage

Total cargo tonnage is forecast to grow at an average annual rate of 2.36 percent during the 20-year planning period. Total cargo tonnage is forecast to grow from approximately 382 Million pounds in 2017 to 745 Million pounds at PAL 3.

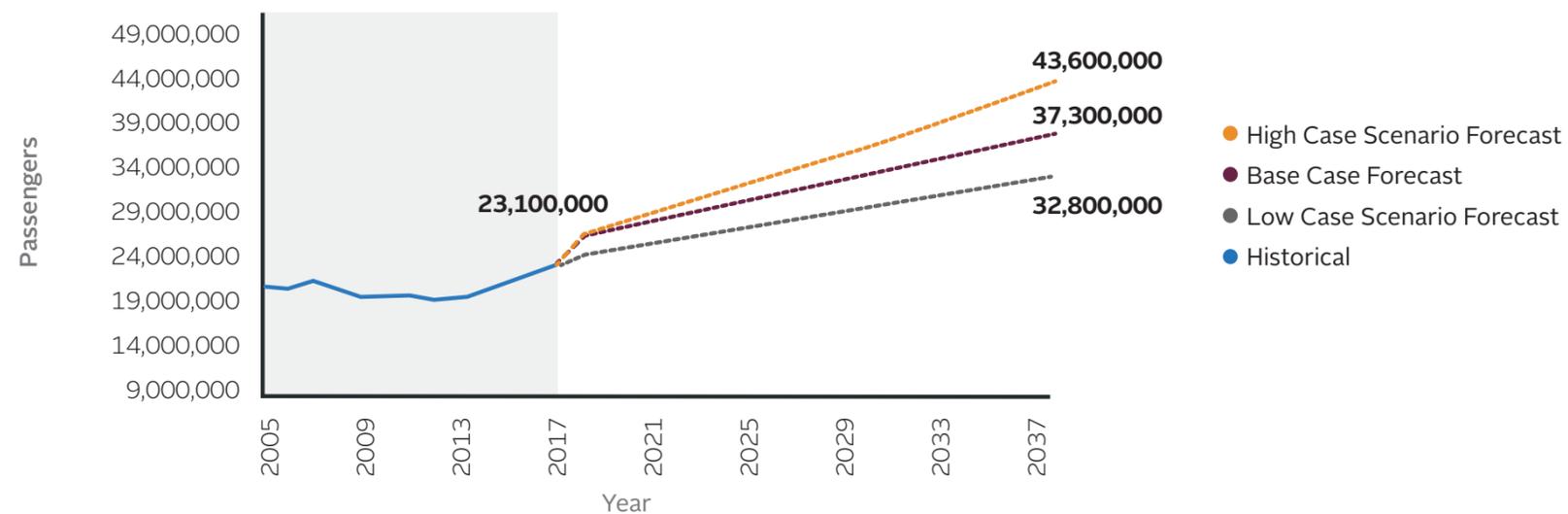
Annual Aircraft Landings and Take-offs

Annual landings and take-offs are forecast to grow at an average annual rate of 1.4 percent. Total landings and take-offs are forecast to grow from approximately 325,000 landings and take-offs in 2017 to 435,000 landings and take-offs at PAL 3.

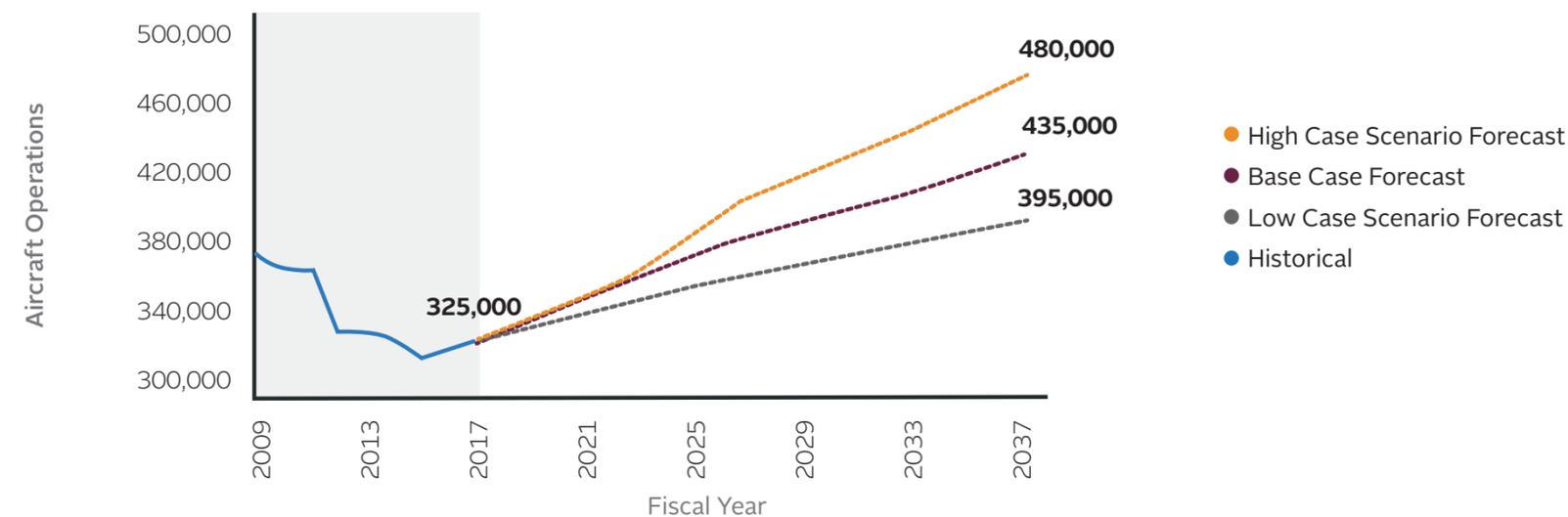
Annual Airfield Capacity and Delay

Airport capacity is the number of aircraft an airport system can accommodate in a period of time (e.g., hourly, daily, annually). As an airport reaches its capacity, there is an increase in the number of aircraft delays. At SLCIA, the average annualized delay increases exponentially as aircraft landing and take-offs increase towards maximum capacity. An inflection point is expected at around 1,800 daily operations at which time peak hour delay may exceed the industry standard five-minute threshold of acceptable delay. Through PAL 3, SLCIA is forecasted to remain below the five-minute threshold.

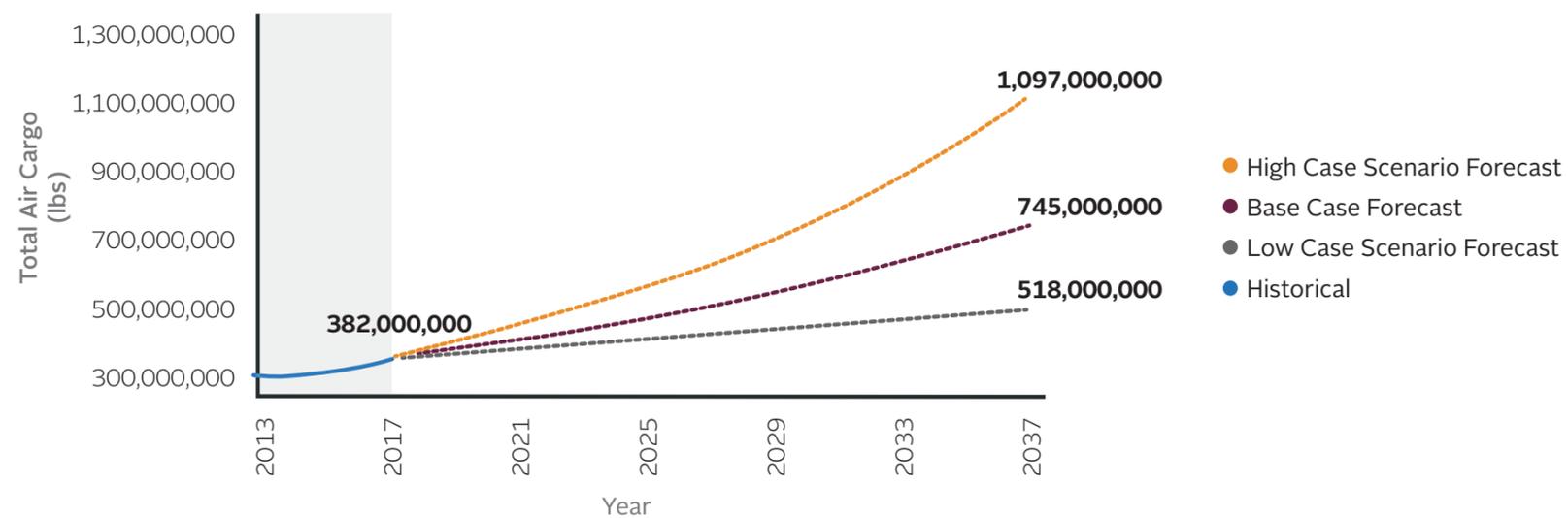
Passengers



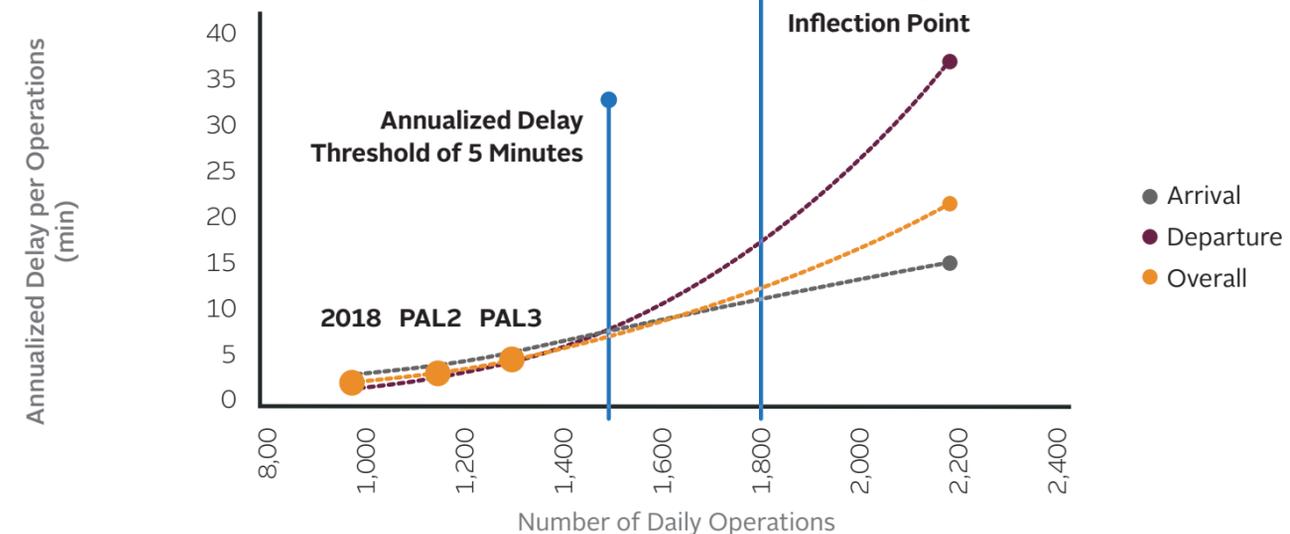
Aircraft Operations



Air Cargo



Airfield Capacity



FACILITY REQUIREMENTS

Future airport facility requirements, including the type, size, and quantity, are dependent on future aviation activity levels projected in the aviation demand forecasts. The need for new or expanded facilities is often driven by capacity shortfalls that leave an airport unable to accommodate forecasted growth or desired levels of service using existing facilities.

The requirements for new or improved facilities can also be driven by other circumstances, such as updated FAA standards or other regulatory agencies, an evolving strategic vision for the airport, the replacement of inadequate facilities, or the desire to introduce new services and facilities. The facility requirements analysis uses the forecast aircraft operation and passenger enplanement demand levels to define PALs, which trigger the need for investment to accommodate that user demand and maintain an acceptable level of service. The combination of these factors and the analyses conducted provided the basis for the assessment of future facility requirements.

The adjacent figure represents the future facility needs. The bars shown for each major component indicate the predicted level of customer service experienced by tenants and users throughout the planning horizon. They also give an indication of when capacity-enhancing efforts should be initiated to accommodate demand. Three main colors are shown in the figure. The green-shaded areas indicate that facility space and/or configuration are adequate to meet demand and desired service expectations. Yellow-shaded areas indicate where demand is nearing capacity. Red-shaded areas indicate when a deficit occurs for the respective facility. Note that each facility deficiency is not dependent on the others, and some metrics may be reached sooner than others. For example, if cargo operations grow faster than passenger enplanements, then cargo parking positions may need attention before the capacity deficit in the passenger terminal needs to be addressed.

Concourse C isn't required by PAL 3, but the need for an initial phase of Concourse C may be required just beyond this study's planning horizon. Additional airfield capacity is expected to be required to support traffic demand associated with even a partial Concourse C build-out.

Future Facility Requirements

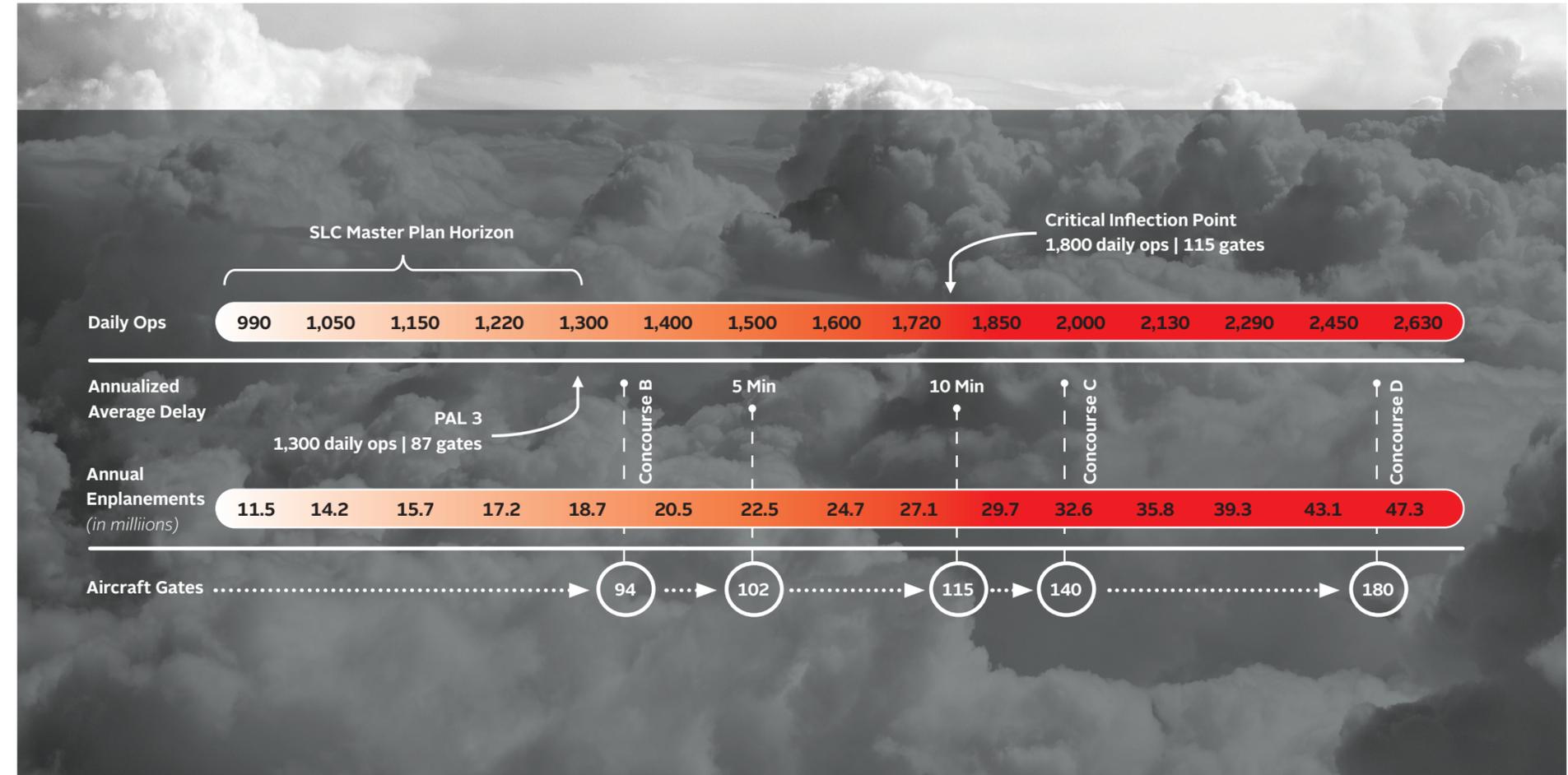
	2017	PAL 1	PAL 2	PAL 3
PAL	Annual Operations	325,000	355,000	385,000
	Passengers	24 Million	28 Million	32 Million
Airfield	Hourly Throughput			
	Runway Length			
Terminal	Airfield Meets FAA Standards			
	Terminal Capacity			
Landside	Terminal Roadways			
	Parking and Rental Car Spaces			
Cargo	Dedicated Air Cargo			
	Support			

BALANCED AIRPORT

The last master plan provided the vision for a new terminal area complex that would bring a world class terminal to Salt Lake City. Over the past two decades, the SLCDCA has been focused on formalizing that vision, known as the Airport Redevelopment Plan (ARP). SLCDCA has finished the first phase of the vision with construction of a new 78-gate passenger terminal facility, rental car center, central utility plant, elevated roadway system, and new parking garage. These new facilities move SLCIA into a new era of global connectivity. The ARP was designed for near-term build out of two concourses, Concourse A and Concourse B. The ARP also included planning for a future third concourse to meet long-term demand, which could add another 62 gates for a total of 140. To properly plan for ultimate requirements, the Master Plan examined a 180-gate terminal complex which would include full build out of Concourses C and D.

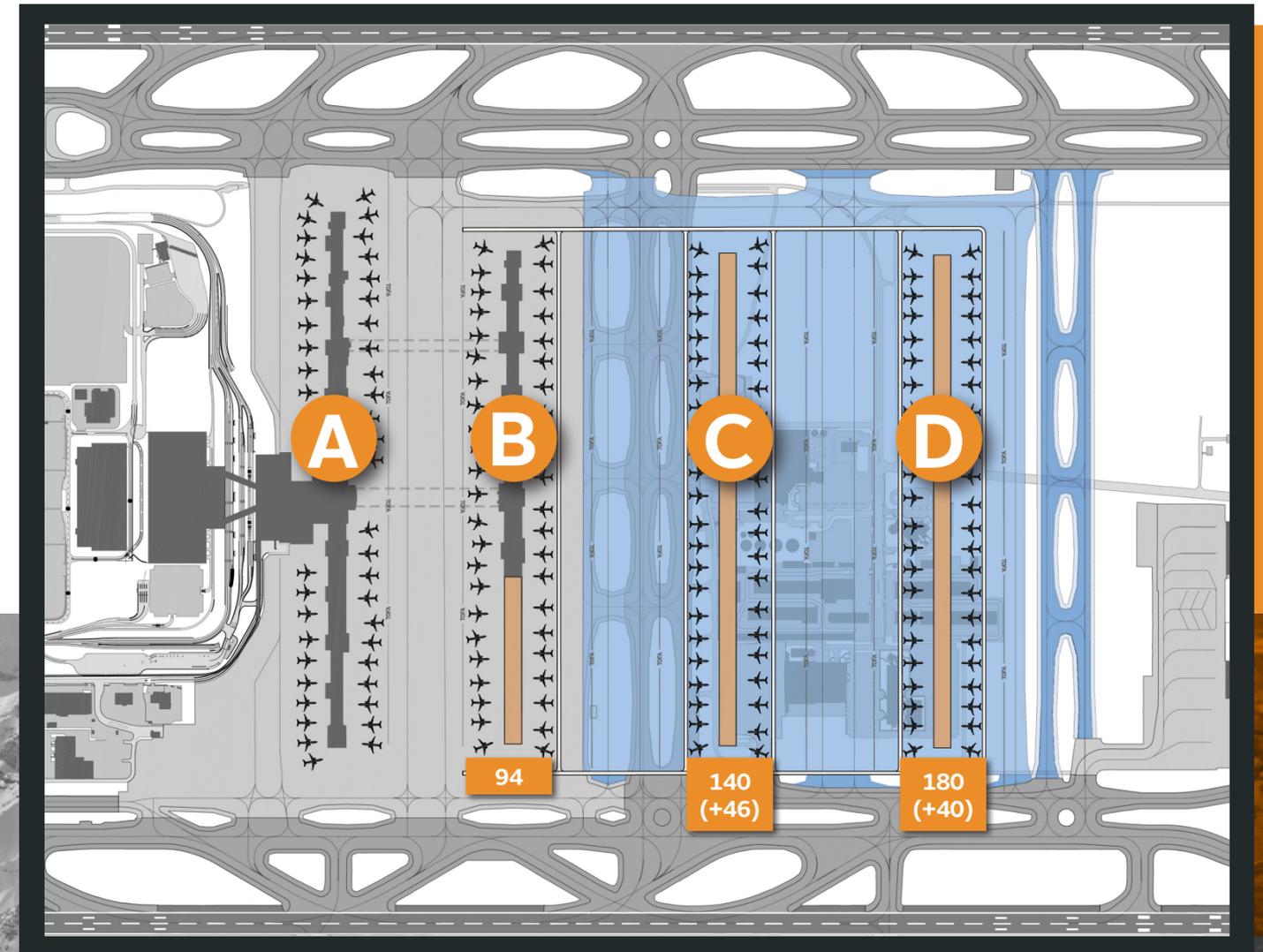
A comparison of SLCIA with other large hub airports brought into question whether the three-air carrier runway system has the throughput capacity to support a 180-gate terminal complex. The Master Plan undertook an effort to ensure the terminal complex and airfield, and other support facilities will be in balance with each other over the long-term. The first part of the analysis reevaluated an additional west parallel runway (currently shown on the ALP) as the next major capacity enhancement project. That option was compared to realigning existing Runway 17-35 to be parallel to the other north-south parallel runways. After extensive airfield and airspace simulation analysis, it was determined that the realignment of Runway 17-35 provided the best return on investment, while minimizing environmental impacts. An airfield capacity analysis determined that the three parallel runway system and airspace can handle 1,400 daily operations. This assumed an industry accepted annual average delay of five minutes per operation.

The airfield capacity was then compared to the aircraft parking capacity if concourses were incrementally expanded to ultimately four concourses. The forecast horizon for this study was 20 years, and planning activity levels (PALs) were established throughout the planning horizon. PAL 3 roughly equates to the end of the 20-year horizon. At PAL 3, passenger demand at SLCIA is projected to reach 32 million annual passengers and 1,300 daily operations, requiring 87 gates. Full build-out and utilization of Concourse B with 93 gates would equate to 1,400 daily operations, which balances with the long-term airfield capacity.



With the mountainous terrain surrounding the Airport, it is unlikely major airfield capacity enhancements, like another runway, could be accommodated at SLCIA due to the constrained airspace. However, it is possible that future air traffic control and aircraft performance technology will provide some incremental increase in airfield capacity. In addition, SLCIA could accept higher delay levels comparable to airports like Chicago O'Hare and Atlanta. Both would increase the throughput capacity of the airfield and allow full utilization of additional gates. It is estimated that acceptance of a higher delay would allow the airfield to accommodate 1,800 daily operations and a total of 115 gates. For this reason, the Master Plan recommends that SLCIA maintain the flexibility to build Concourse C in the long-term.

Likewise, the Master Plan does not recommend keeping Concourse D as part of the ultimate terminal layout because airspace and airfield operational limitations would occur before another concourse would be needed. The benefit to SLCDA is that the airport support and FAA facilities north of the terminal in the general area of where another concourse might otherwise be located, do not have to be relocated in the 20-year planning horizon. As facilities in this area reach their useful life, SLCDA will have to decide whether to rebuild in this area or relocate to a new area. The Master Plan identifies areas for these facilities to be relocated.



Future Building Future Taxiway Future Apron Future Vehicle Roadway

AIRFIELD

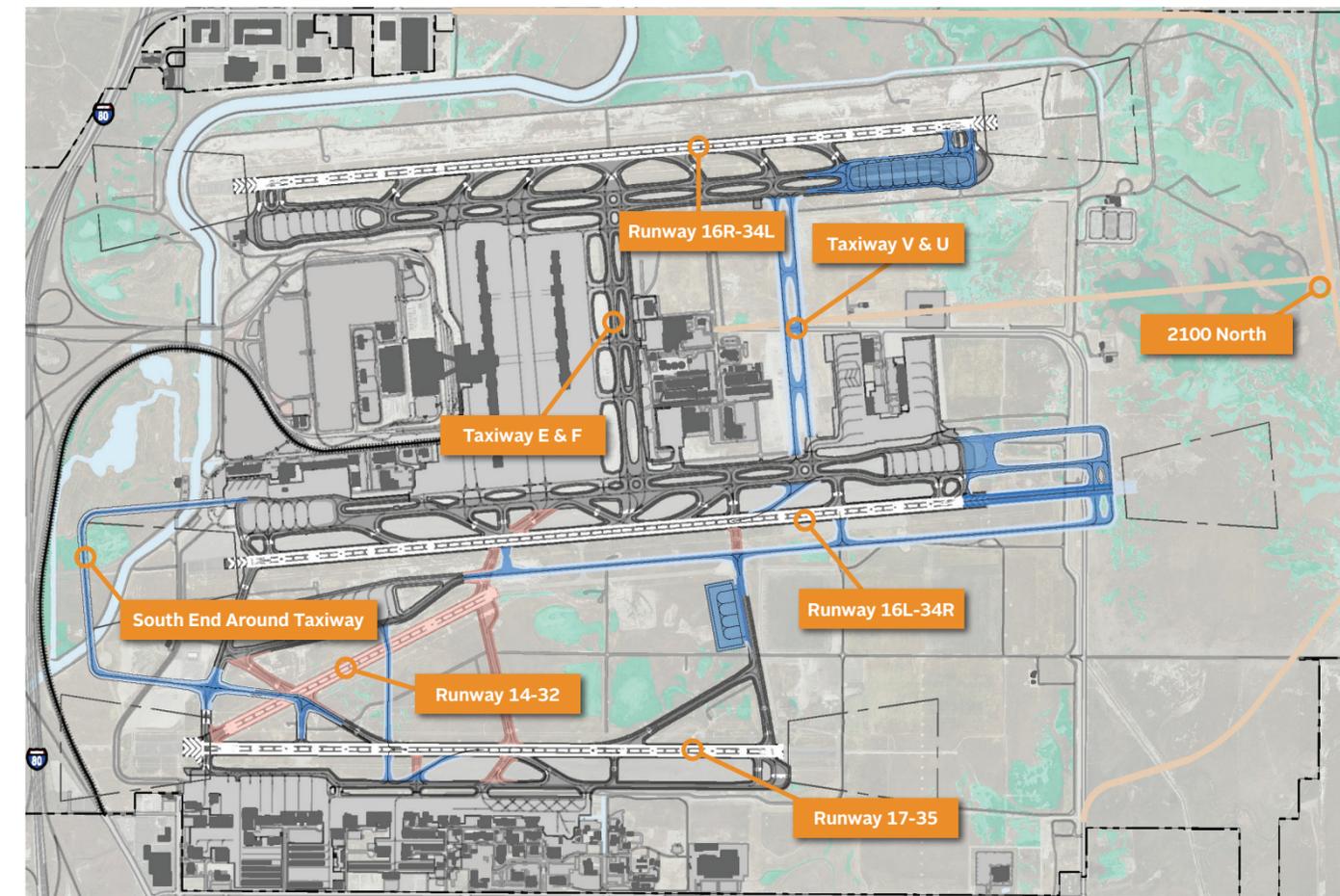
The airfield at SLCIA consists of runways, taxiways, apron areas, deicing pads, navigational aids, vehicle service roads, and support facilities. The Airport currently has a four-runway airfield with all four runways generally oriented in a north-south configuration. Runways 16L-34R and 16R-34L are parallel 12,000-foot runways that flank the terminal complex. Runway 17-35 is 9,596 feet long, separated from Runway 16L-34R by roughly 3,000 feet to the east, and is slightly canted from the two parallel runways. A fourth runway, Runway 14-32, is 4,893 feet long and serves small general aviation and cargo aircraft. Runway 14-32 is located between Runways 16L-34R and 17-35.

Runway 14-32 has two "Hot Spots" identified by the FAA as having a greater potential for runway incursions. The Master Plan evaluated Runway 14-32 for wind coverage, capacity, and usefulness and determined it should be removed. The FAA has slated the removal as a high priority because it directly relates to the safety of the airfield.

Runway 16L-34R is recommended to be extended from 12,000 feet to 14,500 feet to improve operational take-off efficiencies created by allowing reduced thrust departures which, as an added benefit, reduces carbon emissions. This extension will also improve the performance capabilities of long-haul international commercial aircraft, making these routes more financially feasible. Construction of a dual crossfield taxiway connection (Taxiways U and V) between Runways 16L-34R and 16R-34L facilitates safer and more efficient movement of cargo traffic, relieves congestion from the terminal area, and ultimately enables the development of Concourse C. Taxiways U and V will also provide taxi routing redundancy during snow removal operations which is critical to ensuring operational efficiency and overall airfield operational capacity in all weather conditions at SLCIA.

A full-length inboard parallel taxiway for Runway 16L-34R extending north from the L Deice Pad was incorporated for future implementation. This taxiway will serve multiple functions, including allowing aircraft deiced on L Deice Pad to taxi to Runway 17 or Runway 16L without requiring a runway crossing. It will also provide additional flexibility and connection for aircraft taxiing between the terminal area and Runway 17-35.

A South End-Around Taxiway (SEAT) is proposed to reduce runway crossings and the risk of runway incursions, reduce air traffic controller workload, provide for more timely and predictable gate arrivals, reduce fuel consumption and emissions, and increase runway capacity and hourly throughput. The SEAT will allow commercial passenger aircraft landing or departing on Runway 17-35 to taxi to and from the terminal area without crossing Runway 16L-34R. Similarly, aircraft taxiing between the terminal and the L Deice Pad can use the SEAT instead of crossing Runway 16L-34R. Use of the SEAT will decrease, or potentially eliminate, runway restrictions during crossing operations.



Why should Runway 14/32 be closed and Runway 16L-34R be extended?

Runway 14-32 has two FAA hot spot locations and numerous non-standard geometry challenges. The runway accommodated 3,350 annual aircraft operations in 2017, which is only 1 percent of total aircraft operations at SLCIA. The predominant users of the runway are small cargo feeder aircraft landing in the evening. The Runway is unnecessary in the SLCIA runway system to meet FAA-defined wind coverage requirements and thus is not eligible for federal funding assistance. This means the entire cost of corrective solutions would be paid by SLCDA. Through engagement with SLCDA staff and stakeholders, it was determined the cost to correct the runway hot spots outweighs the benefit the runway provides to the airport system. With this conclusion, the final solution brought forward for implementation is the removal of Runway 14-32.

Runway 16L-34R is recommended to be extended because it would improve departure capacity for all users by allowing intersection departures and would reduce environmental impacts by accommodating reduced thrust take-offs. This translates to less noise and lower carbon emissions. An extension to 14,500 feet would also provide a greater payload range offering improved passenger service for the community. Runway 16L-34R, which is the airport's primary departure runway, was validated as the runway to extend to 14,500 because no other runway in the airport system can be extended and provide reduced thrust take-off advantages on a consistent basis due to terrain constraints.

TERMINAL AND AIRCRAFT GATES

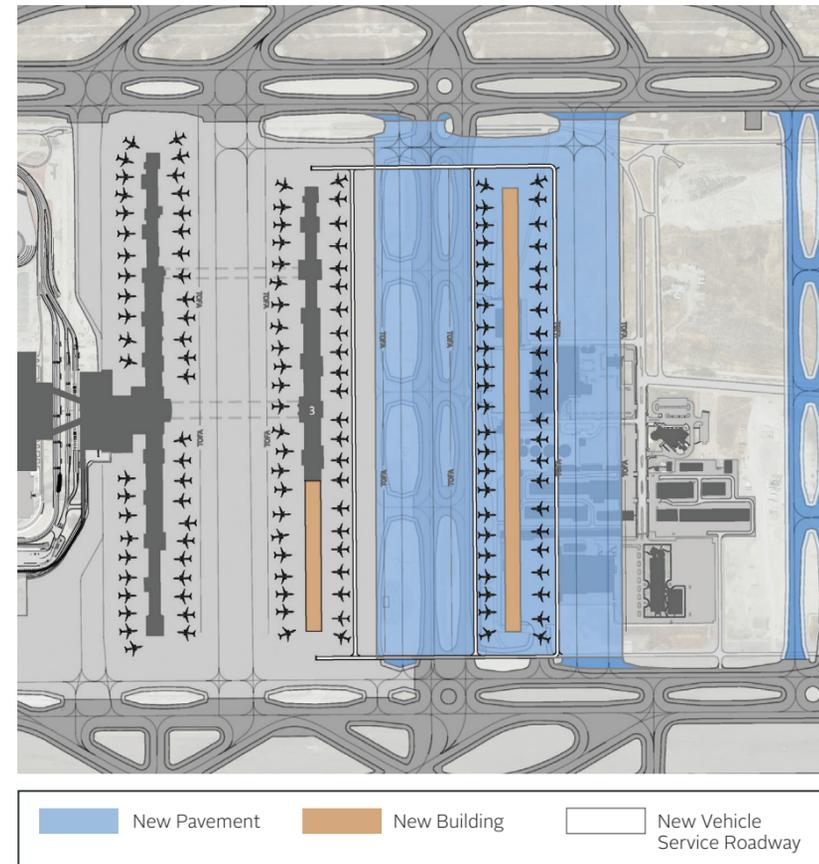
In 2012, SLCDA initiated the first construction phase of the new passenger terminal and Concourse A. In 2017, Concourse B began construction. Since these projects were underway when this Master Plan began, the terminal and both concourses are considered existing at the onset of the study. The new passenger terminal is located west of the former passenger terminal facility and is scheduled for completion in 2024. Level 1 of the new terminal building houses many of SLCIA's support functions. A significant portion of Level 1 is used for Federal Inspection Services and is occupied by Customs and Border Protection. This includes areas for international arrival document control, two international baggage carousels, and customs inspection services. Terminal Level 2 holds the TSA security screening checkpoint, accommodating 14 security screening lanes and a large passenger queuing area. The south end of Terminal Level 2 contains eight sloped-bed, baggage claim units and two additional baggage claim units for oversized items. Terminal Level 3 supports departing passenger services, including passenger ticketing and check-in facilities. The Gateway Building is a two-story accessory structure attached to the parking garage and connected via two pedestrian sky bridges to the terminal building. The sky bridges allow movement between the terminal and Gateway buildings and completely removes the need for passengers to cross any curb roads. The Gateway Building contains rental car customer services and includes rental car counters and queuing space, rental car offices, public circulation, and restrooms.

Concourse A is 3,700 feet long and contains "bump-out nodes" to provide additional space for vertical circulation, terminal support functions, and public restrooms. Concourse A is oriented linearly in an east-west configuration and directly connected to the terminal at its mid-point, divided into east and west halves. The western half of Concourse A has 25 gates. Six of the gates on the north side of Concourse A are also designated for international flights. The eastern half of Concourse A has 22 gates, bringing the total Concourse A gates to 47. Concourse B is a satellite concourse located approximately 1,100 feet north of the terminal building, in an east-west orientation parallel to Concourse A. While Concourse B is only 2,250 feet long, it is similar in design to Concourse A. Together, Concourse A and B provide SLCDA with 78 aircraft gates. Future expansion beyond 2024 is programmed for Concourse B to extend facilities in the same linear pattern to the east and will include 16 additional gates.

This Master Plan also anticipated constructing a third parallel satellite concourse north of Concourse B. This new east-west oriented Concourse (C) would mirror the existing concourses, be connected via tunnel extensions, and would be located 1,800 feet north of Concourse B.

An imbalance between the capacity of the new terminal complex and the existing airfield infrastructure became evident early in the planning process when it was determined that the terminal could support more airline gates than the airfield and airspace could efficiently serve. The analysis indicated that a third concourse (140 total gates) could be accommodated, but a fourth concourse (180 gates) may result in more hourly operations than the existing airfield and constrained airspace could effectively accommodate.

Terminal Concourses A, B and Future C



LANDSIDE

SLCIA's landside facilities provide commercial passengers access to the terminal building. Additionally, the landside system provides ground access to all airport facilities for airport employees, tenants, and other airport users. The landside system at SLCIA begins at numerous regional access points stemming from roads, rail, and pedestrian/bicycle paths. These regional access points connect to on-airport circulation roadways, the terminal building, a SLCIA TRAX station, parking facilities, and rental car services. Like the terminal building and concourses, the landside airport facilities under construction during the master plan were considered existing.

Most of the roadway segments will operate well throughout the planning period, providing levels of service A-C. However, the area is constrained within a defined envelope bounded by the terminal building, I-80, and the two surrounding runways and adjacent aeronautical land use. Moving forward, SLCDA must remain diligent in optimizing their limited space to maximize safety, efficiency, and ease of use for their customers.

Access to the North Support Area of the Airport is provided by 2100 North, via Interchange 25 on I-215. A mile west of 2200 West Street, 2100 North Street passes through the existing runway protection zone (RPZ) for Runway 16L-34R. Before Runway 16L-34R can be extended to 14,500 to improve aircraft take-off performance, 2100 North will need to be realigned. The roadway realignment must stay out of the future RPZ of the extended runway. Its alignment should be set to serve the evolving best land uses in the North Support Area, particularly the expansion of cargo facilities.

Additional public and employee parking and improving rental car facilities are the primary and immediate focus for SLCDA. To meet future needs in PAL 3, the public parking in the terminal campus needs to increase from 14,000 to over 20,000 spaces. To obtain this increase in public parking, SLCDA will expand the parking garage, add additional surface parking, and relocate the rental car services stations. These improvements would increase the parking positions by about 50 percent while maintaining the

highest level of customer service. Lastly, the preferred employee parking lot location is on the eastern half of the open space, south of Crossbar Road and the canal.

Ideally, all rental cars would be stored at SLCIA, near the customer, to minimize/eliminate wait times. Given the competition for land at the terminal campus, this may not be feasible over the life of the airport. Nonetheless, more on-airport rental car storage spaces are needed and have been programmed into the development of a combined Quick Turn-Around (QTA) and storage garage facility.



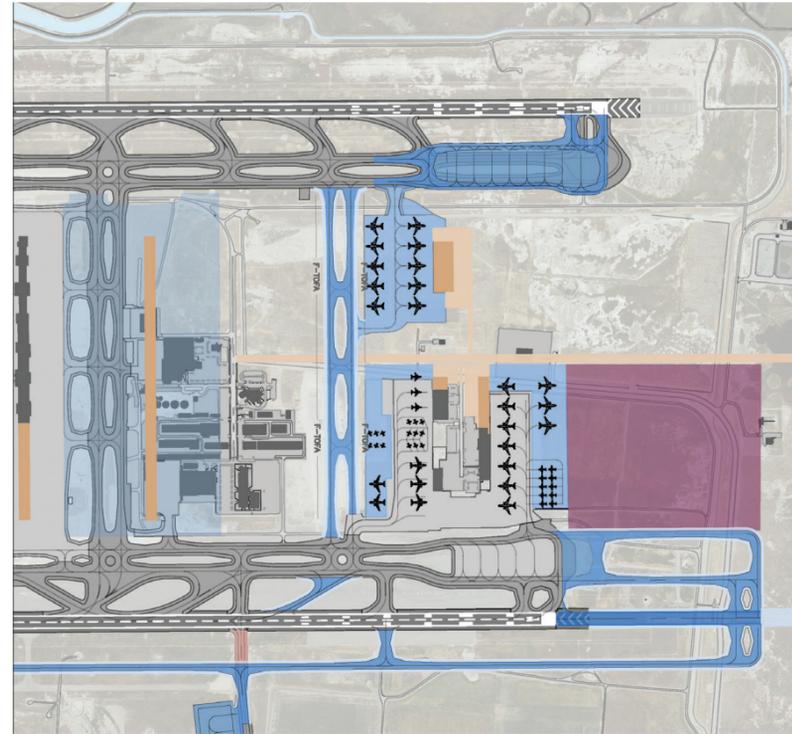
CARGO AND SUPPORT

Air cargo at SLCIA includes the movement of freight and mail. Over 380 million pounds of cargo move through the airport annually. The majority of cargo facilities are located near the approach end of Runway 16L. This area currently accommodates three primary tenants (UPS, FedEx, and DHL).

E-commerce is accelerating quickly and has become an increasingly important part of global trade. SLCIA is poised to capitalize on this global cargo boom due to its undeveloped aeronautical land in prime locations (which is not true of most other airport cargo hubs), its runway lengths, and its central location in North America. With the expected growth in air cargo, each operator requires additional room for expansion. In addition, new cargo tenants are anticipated in the short-term, which will also require new dedicated facilities and more apron for aircraft parking.

Other aviation support facilities are located adjacent to the north air cargo facilities. These facilities include an air traffic control tower, aircraft rescue and firefighting (ARFF), airline support, fuel facilities, aircraft de-icing, airport maintenance, and snow removal equipment storage. The long-range need for Concourse C will require relocating ARFF Station #12, the fuel storage area, and airline maintenance facilities. However, airport maintenance (and snow removal) facilities should be expanded to the north of the Concourse C envelope as soon as practical to accommodate near-term needs.

Aircraft deicing enhancements were determined to be necessary to improve aircraft ground movements during poor weather conditions. This includes new deicing pads adjacent to the Runway 16R threshold and Taxiway S and new facilities on the 16L deicing pad. These enhancements will reduce aircraft delays and optimize airline and air cargo operator performance, thereby increasing overall capacity.



GENERAL AVIATION

SLCIA serves a wide variety of general aviation aircraft users, including corporate, law enforcement, fire rescue, medical air evacuation, recreational, flight training, air charters, government aviation, and military aviation. General aviation facilities at SLCIA are located along the east side of the airfield.

SLCDA also manages two additional airports, South Valley Regional (U42) and Tooele Valley (TVY). Because SLCDA manages a system of airports, the future development of general aviation facilities at SLCIA must balance matters of land use management, operational compatibility, and financial responsibility with consideration to the primary needs of all airport users, as well as strive to enact solutions that support the full range of GA aircraft in the most efficient and cost-effective manner. Throughout the planning period, SLCIA is expected to experience:

- Increasing demand for corporate general aviation activities
- Expanding airspace requirements for commercial aviation and small general aviation aircraft that increase airspace congestion and ground delays as a result of mixing in aircraft with slower operating speeds and greater separation requirements
- Increasing safety regulations designed to minimize runway incursions caused by small general aviation aircraft at large hub airports

Given the future opportunities and space constraints along the east side of the airfield, economics and market forces will support demolition of smaller T-hangars to provide sufficient space to meet the projected demand of corporate aviation. To meet the growing demand, SLCDA will provide enhanced facilities and services at both U42 and TVY to attract and support amenities desired by the smaller general aviation aircraft at their reliever airports.



ENVIRONMENTAL OVERVIEW

The Master Plan environmental review process included evaluation of existing and future airport development and provided information to assist SLCDCA in expediting subsequent environmental processing.

The Master Plan documented the existing environmental conditions on and surrounding SLCIA in accordance with FAA's resource categories identified in FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures*. Potential environmental impacts associated with the alternatives were considered through the alternatives evaluation process and informed the plan for future development. The SLCDCA will assess the environmental impacts of individual development projects, and determine which projects will be subject to review under the National Environmental Policy Act (NEPA). To assist SLCDCA with determining which projects will likely be subject to NEPA documentation, a NEPA strategy was generated to ensure connected actions (projects that do not have independent utility from another project) are included in the same environmental documentation, and projects that are connected in place and/or time are also considered in the same NEPA analysis. This results in a more comprehensive environmental review and assessment and optimizes SLCDCA resources.

The completed Master Plan does not authorize SLCDCA to begin construction of recommended development projects since many projects require environmental analysis to be performed in accordance with the NEPA. For example, such analysis is required on FAA-funded projects before approvals from the FAA and other regulatory agencies can be issued. Before the environmental analysis can begin, the Airport would need to reach triggering demand levels that establish a need, and additional technical analysis and preliminary engineering would also be required. It is only after environmental approvals are obtained that final design could begin.



Environmental Resource	Description
Air Quality	The Airport is in a maintenance area for Carbon Monoxide (CO) and Particulate Matter-10 (PM ₁₀), and in a nonattainment area for Particulate Matter-2.5 (PM _{2.5}), 8-Hour Ozone (O ₃), and Sulfur Dioxide (SO ₂).
Biological Resources	There are federal- and state-threatened and –endangered species, and migratory birds in the Airport area. There is no critical habitat at the Airport.
Climate	There are greenhouse gas (GHG) emissions produced at the Airport.
Coastal Resources	The Airport is not within a coastal zone and there are no Coastal Barrier Resource System (CBRS) segments within airport property.
Department of Transportation Act, Section 4(f)	There is one Section 4(f) property on airport property.
Farmlands	The Airport contains farmland of statewide importance and prime farmland soil types.
Hazardous Materials, Solid Waste and Pollution Prevention	The Airport is considered a hazardous waste site. SLCDCA is required under its Utah Pollutant Discharge Elimination System (UPDES) stormwater discharge permit (UPDES Permit #UT0024988, approved on March 14, 2014) to have a Stormwater Pollution Prevention Plan (SWPPP). SLCDCA additionally has a Spill Prevention, Control, and Countermeasure Plan (SPCC). Salt Lake County Landfill is the only municipal solid waste landfill in Salt Lake County.
Historical, Architectural, Archaeological and Cultural Resources	There are no known historic resources located at the Airport.



Environmental Resource	Description
Land Use	Future development plans would occur entirely on airport property; therefore, would be compatible with surrounding land uses.
Natural Resources and Energy Supply	Electricity is supplied to the airport by Rocky Mountain Power, natural gas is supplied by Dominion Energy, and water and sewer is supplied by the Salt Lake City Department of Public Utilities. None of the natural resources or energy supplies used at the Airport are in rare or short supply.
Noise and Noise-Compatible Land Use	There are no noise-sensitive land uses within the updated DNL 65 dBA noise contour.
Socioeconomics, Environmental Justice, Children's Environmental Health and Safety Risks	The Airport is located within the Salt Lake City, Utah Metropolitan Area, as defined by the U.S. Census Bureau.
Visual Effects	Light emissions at the airport currently result from airfield, building, access roadway, parking, and apron area lighting fixtures required. The visual resources and visual character of the Airport currently includes the terminal building, fixed base operators, hangars, and maintenance buildings.
Water Resources	The airport property does contain wetlands. There are 100-year floodplains located on airport property. Three canals exist on airport property: the Surplus Canal, the North Point Canal, and a city drain. In addition, two unnamed ponds are in the southern portion of airport property. The airport property is within the Crystal Creek and Jordan River watersheds. The airport property does not contain any wild and scenic rivers.

FUTURE DEVELOPMENT

The Master Plan study is comprehensive, intending to create an Implementation Plan that provides recommendations for relative timing and sequencing of future facility improvements. After preparing the forecast of aviation activity and evaluating facility requirements, multiple conceptual plans were developed to describe the infrastructure improvements that could be implemented to meet forecasted demand, FAA design standards, and other facility needs. Each concept depicted various locations and alternative configurations of the proposed facilities. Airport staff, tenants, and other stakeholders, including the public, considered the various concepts and selected preferred solutions for each facility.

The preferred solution for each facility was combined into a comprehensive preferred alternative. The plan for future development identifies short-term (0 to 5 years), mid-term (6 to 10 years), and long-term (11 to 20 years) projects. The division between short-, mid-, and long-term projects was established through an evaluation process based on priority, need, and the SLCD Vision. The following priorities were established to guide the sequencing of the projects in the Implementation Plan:

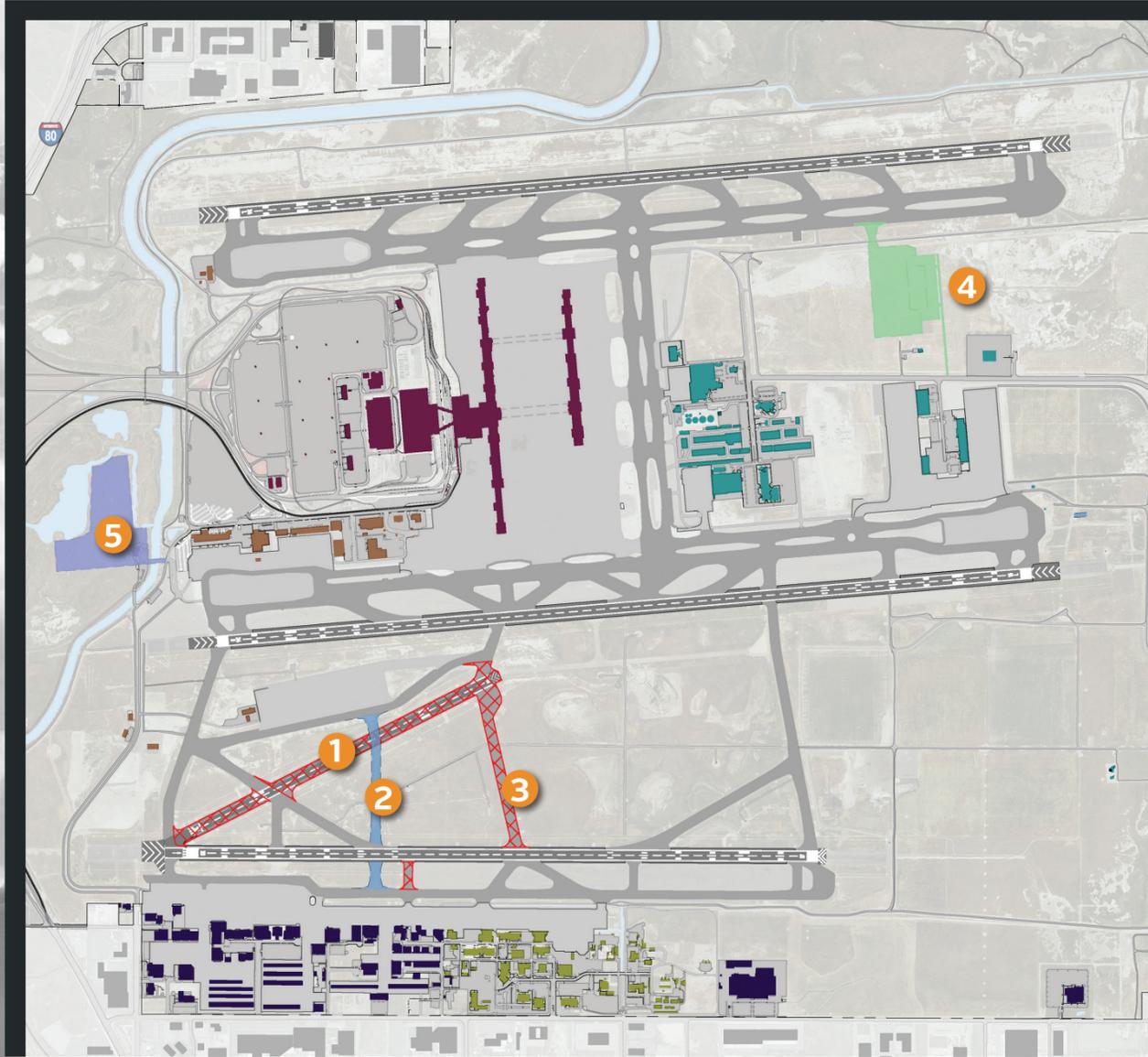
- **Priority 1** – Address all safety and design deficiencies
- **Priority 2** – Maximize the capacity and efficiency of SLCIA
- **Priority 3** – Utilize demand reduction techniques to delay major capacity enhancements
- **Priority 4** – Provide additional runway capacity

It is essential to recognize that the project implementation schedule is approximate and dynamic. Short-term projects are needed to meet existing demand or accommodate forecasted activity within PAL 1. Mid- and long-term projects are expected to be necessary after the short-term projects are implemented and accommodate additional forecasted demand in the later years of the planning period. Many of the long-term projects will undergo further analysis regarding their ultimate configuration and timing as demand continues to increase and technology associated with the processing of passengers and aircraft evolves.

The following phased approach describes the projects needed during the short-term, mid-term, and long-term phases of airport development.

Short-Term
Enhance Airfield Safety and Expand Support Facilities

Projects in the short-term phase of airport development focus on modifications to the airfield that enhance airport operational safety. These projects address changes in runways and taxiways needed to reduce the potential for runway incursions and comply with current FAA airport design standards. The Airport also requires additional gates to handle the number of aircraft and passengers during peak hours. Concourses are currently being expanded to meet gate parking requirements through the planning horizon. The passenger security screening checkpoint will need to be enhanced to meet future demands. The terminal and concourses are new facilities which will provide high levels of customer service. Expansion of employee parking will be necessary to meet current demand. In addition, the Short-term Phase 1 identifies secondary priority projects needed to meet current levels of demand and the immediate needs of airport tenants. Short-term projects include expansion of cargo facilities, increases in general aviation tenant space, and apron capacity for corporate aircraft. This is driven by an increase in jet aircraft through the planning horizon. Lastly, airport maintenance facilities will require expansion and replacement of aging buildings.

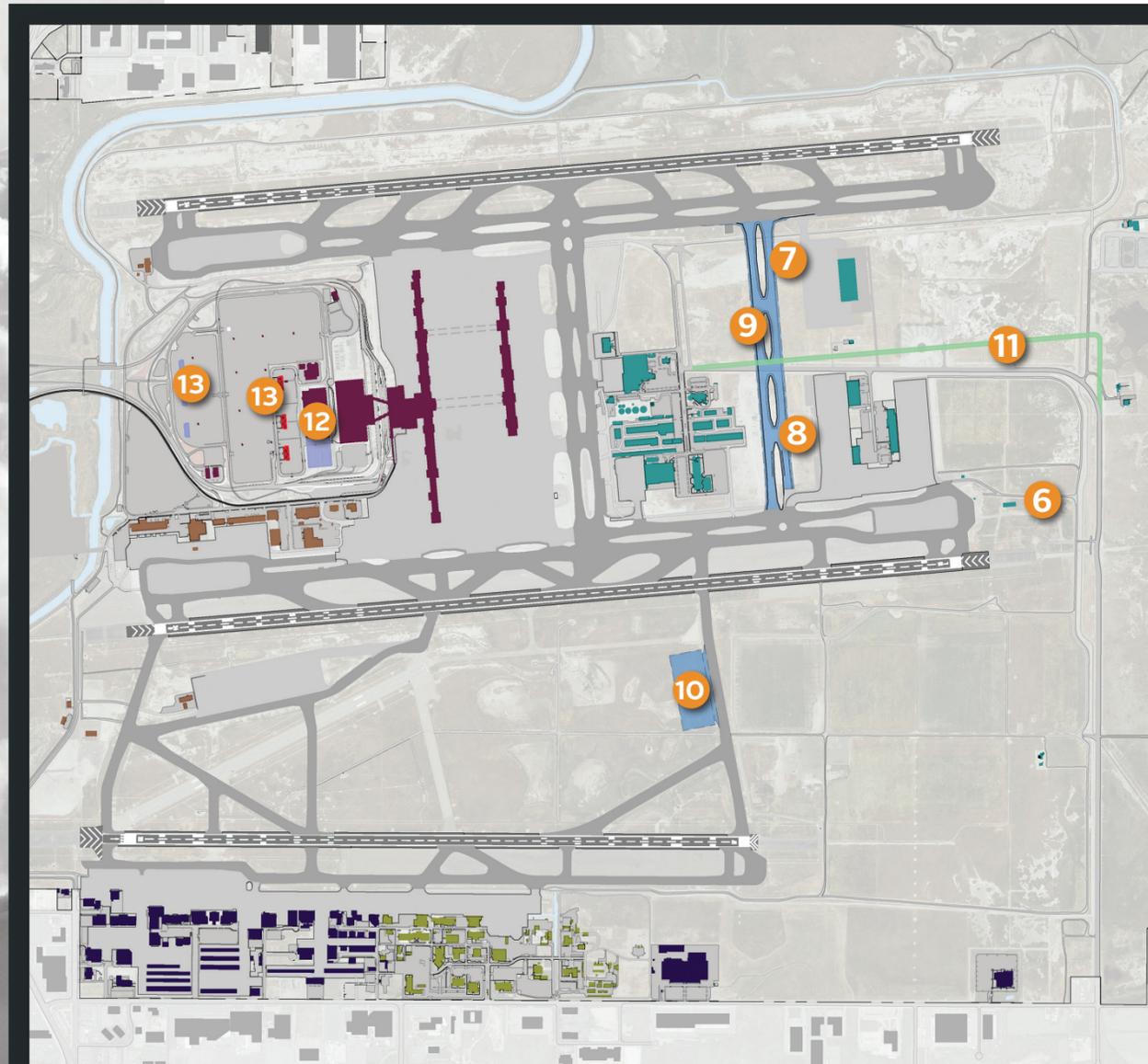


Short-Term (0-5 Year) Projects

- 1. Remove Runway 14-32
- 2. Taxiway K2 Crossfield Connector
- 3. Taxiway Q Removal
- 4. North Cargo Expansion
- 5. Public Parking Phase I - Employee Lot

Mid-Term
Improve Airfield Operational Efficiency and Expand Landside Capacity

Mid-term projects are focused on meeting forecasted demand in passenger enplanements and aircraft operations by providing new facilities to improve the efficiency of airfield operations and increase landside vehicle parking and rental car capacity. Airfield efficiency will be improved by developing additional taxiways and deicing facilities to provide new infrastructure that can be used during peak times. Mid-term develops a second crossfield taxiway system (Taxiways U and V) between the cargo support area and existing concourses and a new deicing pad to serve operations on Runway 17-35. Taxiways U and V and the Deicing Pad on Taxiway S will provide alternative taxi routes to improve aircraft circulation and ensure efficiency during snow removal operations on Taxiways E and F. Landside capacity is proposed to be expanded by reconfiguring south deice pad, public parking and rental car operations. Additional rental car storage and quick turnaround (QTA) facilities will be developed in a new parking structure adjacent to the parking garage and rental car service sites will be relocated to the southern portion of land within the terminal loop roadway. Lastly, 4000 West Street will be realigned to provide additional expansion area for air cargo.



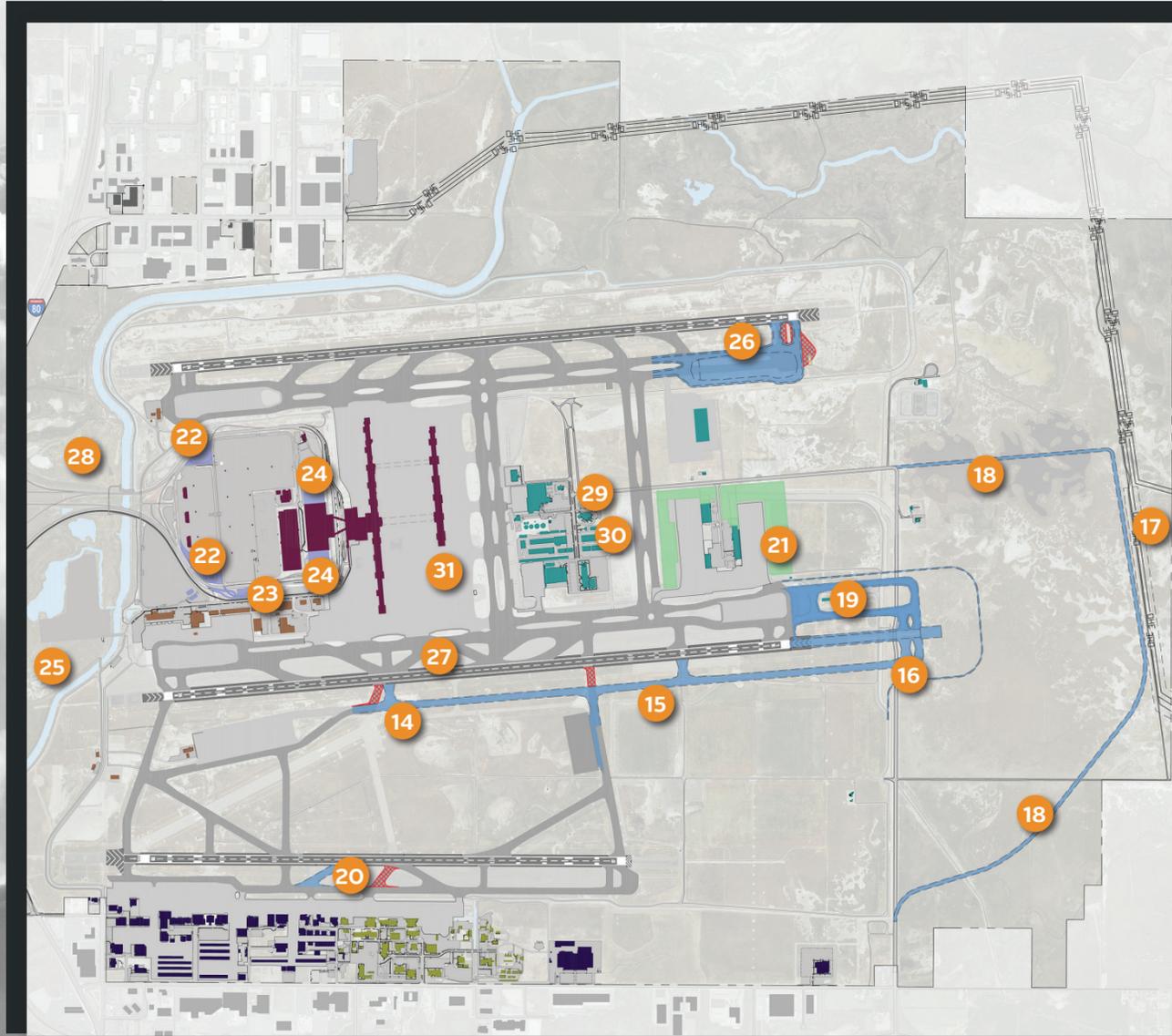
Mid-Term (6-10 Year) Projects

- 6. Runway 16L Deice Pad Facility Upgrades
- 7. West Portion of Taxiway V
- 8. East Portion of Taxiway V with Tunnel
- 9. Full Taxiway U
- 10. Taxiway S Deice Pad
- 11. Initial 4000W Roadway Relocation
- 12. RAC QTA/Storage
- 13. Public Parking Phase II - RSS Relocation

Long-Term
Expand Airfield and Landside Infrastructure to Meet Demand

This phase addresses the need to meet the highest levels of forecasted demand in passenger enplanements and the operational needs of air carriers. The long-term phase increases landside capacity by expanding the existing parking garage to the east and west and further expands surface public parking lots within the existing terminal loop roadway.

Runway 16L-34R is proposed to be extended from 12,000 feet to 14,500 feet to improve operational take off efficiencies created by allowing reduced thrust departures which, as an added benefit, reduces carbon emissions. This extension will also improve long-haul international commercial operations. The runway extension is supported by a parallel taxiway system and an expanded aircraft deicing pad. Several enabling projects, such as relocating 2100 North Street and relocating power transmission lines, will be required before the runway can be extended.



Long-Term (11-20+ Year)
Projects

- 14. Taxiway L Extension Phase I
- 15. Taxiway L Extension Phase II
- 16. Taxiway L Extension Phase III
- 17. Power Line Mitigation
- 18. 2100 North Realignment
- 19. Runway 16L-34R and Taxiway Extension
- 20. Taxiway K5 Enhancement
- 21. Cargo Apron Expansion
- 22. Public Parking Phase III - Service Center Relocation
- 23. CV Staging and Park 'n' Wait
- 24. Public Parking Phase IV - Garage Parking Expansion-
- 25. South End Around Taxiway
- 26. 16R Deicing Pad
- 27. RWY 16L-34R High-Speed Taxiway Optimization
- 28. Rental Car / Public Parking Expansion
- 29. ARFF Relocation
- 30. Airport Maintenance Relocation
- 31. Concourse B Build Out

SUSTAINABILITY

SLCDA has been a leader in sustainability planning, operations, and implementation. The focus of this Master Plan is to take a holistic approach to sustainability through a commitment to enhancing the Airport's economic viability, operational efficiency, natural resource conservation, and social responsibility. SLCDA's primary goal is to continue being a leader in the community and airport industry by preserving and enhancing its financial, human, natural, and energy resources.

SLCDA emphasizes implementing sustainability practices establishing the following goals:

- Energy - Reduce total energy use and demand of the SLCIA and increase renewable energy generation on SLCIA property.
- Air Quality and Climate Change - Reduce criteria air pollutants and greenhouse gas emissions to improve public health and reduce environmental impact.
- Water Resources - Assist in the region's efforts to sustain its water resources for current and future generations.
- Recycling & Material Management - Reduce waste generation and increase diversion from landfills.
- Planning & Building Design - Promote green building, energy efficiency, and operational efficiency.
- Community Health & Safety - Maintain a safe and healthy environment for passengers, employees, and the community.

These practices, and many other projects (whether labeled as sustainability projects or simply projects that yield environmental gains), have produced documented, real-world environmental benefits.

While the development of Master Plan alternatives was primarily focused on addressing identified facility shortfalls, all alternatives consider and incorporate sustainability elements. Each project was examined relative to SLCDA's four sustainability goal areas (energy, water, emissions, and waste) to determine qualitative benefits and opportunities. SLCDA is committed to incorporating these sustainability aspects, and others yet to be identified, into the design of these projects upon implementation, as deemed financially realistic. As Master Plan components are identified for more detailed planning and coordination in the future, the construction and financial feasibility of incorporated sustainability concepts will be thoroughly analyzed for each individual project.



To be a leader in the community and airport industry by preserving and enhancing Salt Lake City Department of Airport's financial, human, natural, and energy resources.



Project	Energy Conservation	Air Quality and Climate Change	Water Resources	Waste Recycling	Energy Efficiency	Community Health and Safety
Examples of Sustainability Aspects	Incorporate efficient lighting and energy efficient equipment. Use low-E glass, Capture ambient lighting, Renewable Energy.	Improved operational efficiencies, Encourage low emission vehicle use, Heat-Island Reduction, Reduce Vehicle Miles Traveled, Electric Vehicle Charging Stations	Harvest rainwater, Use permeable pavements, Install low flow fixtures, Stormwater protection (SWPPP and BMP Implementation), Recover and recycle deicing fluid, Incorporate native plantings	Reuse and salvage resources, Use of recycled materials, Facilitate recycling through design, Construction waste recycling, asphalt milling, Utilize low embodied carbon materials, Balanced earthwork	Promote green building, energy efficiency, and operational efficiency, LEED certification, Envision Sustainable Infrastructure Framework	Enhance passenger experience, Procure local materials, Install electric vehicle charging stations in public parking projects, Protect wetlands
Airfield Projects						
Remove Runway 14-32		x	x	x	x	x
Deicing Pads Facilities Upgrades and Expansions	x	x		x	x	x
Taxiway U, V, and L Construction	x	x		x	x	
4000W & 2100N Roadway Relocation	x	x	x	x	x	x
Runway 16L-34R and Taxiway Complex Extension	x	x		x	x	x
South End Around Taxiway Construction	x	x		x	x	x
Public Parking Improvements		x	x	x	x	x
Parking Garage Expansion	x	x		x	x	x
Powerline Mitigation			x	x	x	x
North Cargo Area Expansion / RON	x			x	x	

DEVELOPMENT COSTS

The projects described in the short-, mid- and long-term time frames were programmed considering SLCDA's anticipated funding capacity. SLCDA anticipates a funding capacity of \$25M per year for capital projects within the first five years as the Airport recovers from the capital outlay associated with building the new terminal. Beyond five years, it is anticipated that capital funding capacity will return to approximately \$40M per year, which is typical of years before building the new terminal. The adjacent table illustrates the development costs for proposed facility improvements. The order of projects is based on SLCDA's funding capacity per year, considering other planned capital projects, such as recurring maintenance projects. The order is also sequenced by priority of the projects and phasing implications. It is recognized that some years have funding requirements beyond the target. Those years of high funding requirements have years with less capital outlay before or after in an effort to allow capital or expense to carry over to the next year as needed.

This analysis indicates that funding will be available to plan, design, and construct the projects identified in the Master Plan. A total of over \$900M in capital projects has been identified, of which about \$58M are programmed in the first five-year period. This financial analysis is based on the SLCDA anticipated funding capacity and continued FAA support. Based on the assumptions and the analyses presented herein, the capital plan is considered practicable, and it is anticipated that the SLCDA will be able to construct necessary aviation facilities at SLCIA over the 20-year planning period to accommodate demand.

Year	Program	ROM	Project
<i>Short-Term 1-5 Years</i>			
2022	Cargo Expansion Program	\$ 25,000,000	North Cargo Area Expansion
2023	Runway / Taxiway Safety Program	\$ 1,900,000	Remove Runway 14-32
2023	Runway / Taxiway Safety Program	\$ 1,100,000	TWY Q Removal
2025	Landside Program	\$ 30,000,000	Public Parking Phase I - Employee Lot
<i>Mid-Term 6-10 Years</i>			
2026	Deicing Enhancement Program	\$ 11,000,000	16L North Deicing Pad Facilities Upgrades
2028	Taxiways U&V Program	\$ 30,000,000	4000 W Realignment and Tunnel Construction
2029	Taxiways U&V Program	\$ 26,500,000	Full Taxiway V Construction
2030	Taxiways U&V Program	\$ 40,000,000	Full Taxiway U Construction
<i>Long-Term 11-20+ Years</i>			
2031	Runway 16L-34R Extension Program	\$ 25,700,000	Roadway Relocation Phase I
2032	Airport Enhancement & Readiness Program	\$ 40,000,000	Powerline Mitigation
2033	Runway 16L-34R Extension Program	\$ 53,000,000	Runway & Taxiway Complex Extension Phase II
2037	Runway 16L-34R Extension Program	\$ 25,000,000	16L Deice Pad Extension
2038	Taxiway L Extension Program	\$ 15,000,000	Taxiway L Extension Phase I
2039	Taxiway L Extension Program	\$ 30,000,000	Taxiway L Extension Phase II
<i>Demand Driven Airfield Projects Not Programmed</i>			
	Deicing Enhancement Program	\$ 107,000,000	16R North Deicing Pad
	Airfield Enhancement Program	\$ 105,400,000	SEAT Construction

Source: RS&H Analysis, SLCDA, 2021

Note: All costs in 2020 dollars. ROM (Rough Order of Magnitude) costs include construction costs, and soft costs at the following percentage of construction: Design 10 percent; CA/Admin/QA/QC 10 percent; Contingency 30 percent.

STRATEGIC VISION

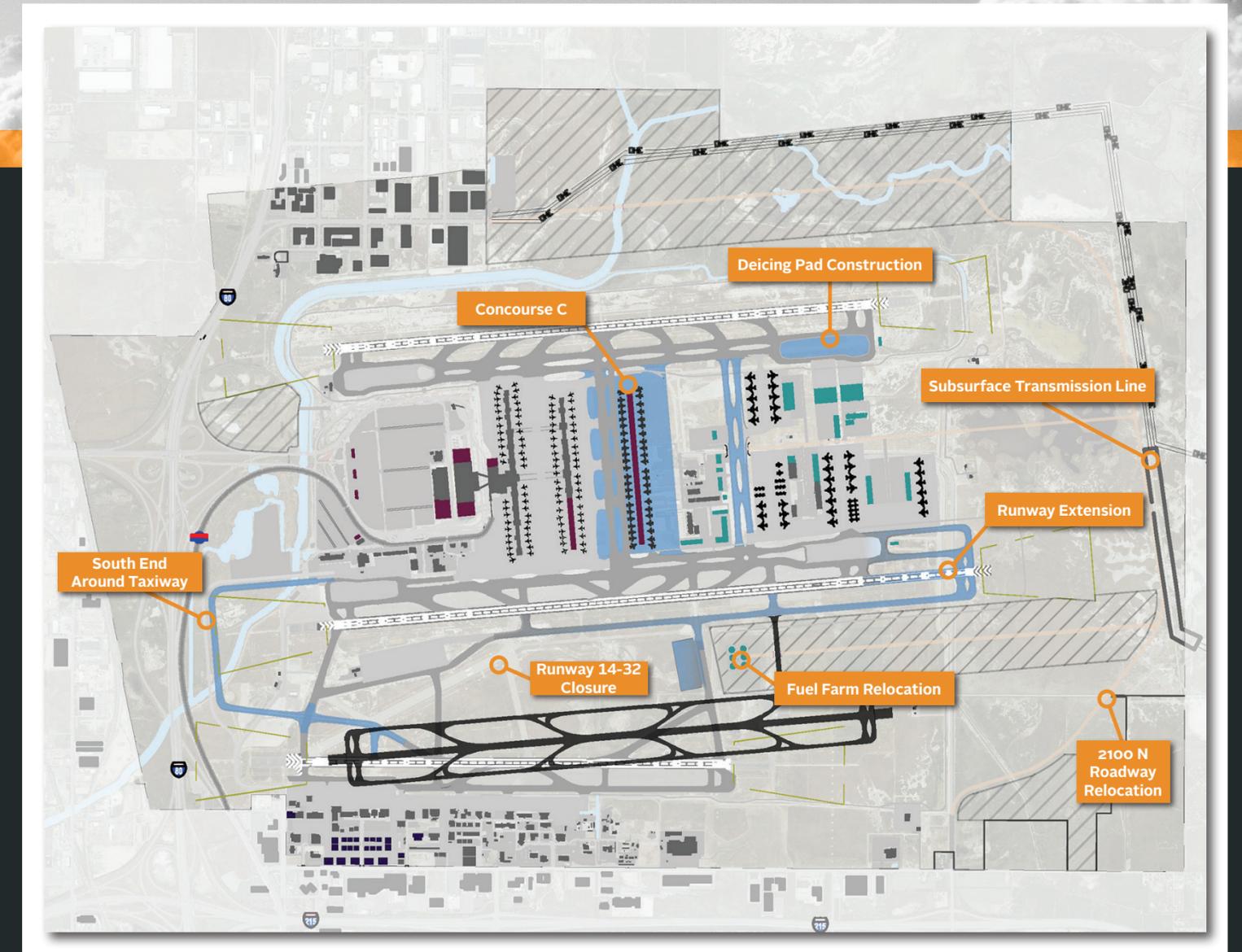
The 1998 Master Plan study set forth the path for new terminal and concourse facilities. This 2021 Master Plan's strategic vision strikes a strategic balance of airfield and support facilities improvements to match passenger demand anticipated within and beyond the planning period.

This strategic vision illustrates how SLCDA will balance passenger demand with airfield projects that improve operational efficiency, enhance safety, and increase overall airfield capacity. The primary objective within this vision is to optimize ground operations and improve airfield and airspace capacity.

Additionally, this strategic vision includes preserving land for the ultimate realignment of Runway 17-35 to create a third parallel runway. The Master Plan analyzed the potential performance characteristics of a realigned Runway 17-35 using airside modeling software paired with airspace capacity analysis. Analysis results supported the realignment of Runway 17-35 to achieve a level of separation between 3,000 and 3,600 feet east of Runway 16L-34R. Anything less would introduce air traffic control challenges and dependencies that do not exist today and would substantially reduce the achievable capacity benefits. Overall, 3,000 feet separation provided the best balance between benefit and impact to east side aeronautical facilities. The realignment of Runway 17-35 is critical to unlocking additional aircraft capacity necessary to support the construction of Concourse C, reduce airfield delay, and improve airfield operational efficiency.

The strategic vision depicted on the adjacent image is only achieved through incremental development that directly aligns with this long-term strategy. The implementation of these facility improvements does not have a rigid timeline. They are dependent on the growth and demand experienced at SLCIA. Projects should be implemented when demand warrants to allow SLCDA to remain fiscally responsible and flexible to changing market conditions. Each facility improvement depicted corresponds to an objective, and improvements to various facilities may begin concurrently.

Although a realigned Runway 17-35 and Concourse C are not needed within the planning horizon, the plan reserves land area to sustainably accommodate these future facilities. This ensures that if they are needed and approved through the appropriate federal and local processes in the future, no other development will complicate or inhibit full implementation. If the activity does not materialize as quickly as anticipated, the projects remain valid, although the timing of their implementation may change. This strategic vision serves as a pragmatic long-range guide for the community and SLCDA leadership to use as passenger demand continues to grow throughout the planning period and beyond.





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