Salina Regional SLN Airport

RECOMMENDED MASTER PLAN CONCEPT

Chapter Five

The airport master planning process for Salina Regional Airport (SLN) has progressed through a systematic and logical process with a goal of formulating a recommended 20-year development plan. The process began with an evaluation of existing and future operational demand which aided in creating an assessment of future facility needs. Those needs were then used to develop alternative facility plans to meet projected needs. Each of those steps in the planning process has included the development of draft working papers which were presented and discussed at two previous Planning Advisory Committee (PAC) meetings.

The PAC is comprised of several constituencies with an investment or interest in Salina Regional Airport. Included in the PAC were representatives from the Federal Aviation Administration (FAA), the Salina Regional Airport Authority (SAA), Saline County, City of Salina, Kansas Department of Transportation - Division of Aviation (KDOT), Kansas State University, Kansas National Guard, airport businesses, and local and national aviation associations. This diverse group has provided extremely valuable input into the recommended plan.

In the previous chapter, several development alternatives were analyzed to explore options for the future growth and development of Salina Regional Airport. The development alternatives have been refined into a single recommended concept for the master plan. This chapter describes, in narrative and graphic form, the recommended direction for the future use and development of Salina Regional Airport.

The recommended concept provides the ability to meet the disparate needs of the array of airport operators including commercial airlines, general aviation, and

the military. The goal of this plan is to ensure that the airport can continue to serve, and even improve, in the role of Mid-America's Fuel Stop and as a Forward Operating Location (FOL) for the military and other governmental agencies. The plan has also been specifically tailored to support existing and future growth of all forms of general aviation activity as the demand materializes.

The recommended master plan concept, as shown on **Exhibit 5A**, presents the ultimate configuration for the airport which preserves and enhances the role of the airport while meeting FAA design standards. The phased implementation of the recommended development concept is presented in Chapter Six - Capital Improvement Program. The following subsections will describe the recommended master plan concept in detail.

The Salina Regional Airport is classified by the FAA as a nonprimary commercial service airport, as designated in the *National Plan of Integrated Airport Systems* (NPIAS). NPIAS airports are considered important to the national aviation infrastructure and, as such, are eligible for development grant funding from the FAA. The FAA has further categorized the airport as a "Regional Airport" in its general aviation asset study. The airport is classified as a "Commercial Service Airport "in the Kansas Airport System Plan (KASP). The recommended plan developed in this planning process supports national and state classifications as well as the associated goals and objectives of each.

AIRSIDE CONCEPT

The airside plan generally considers those improvements related to the runway and taxiway system. SLN is currently served by four runways and six heliport helipads. These pavement surfaces position the airport to attract and support a wide array of aviation operations. The airport's primary function is to serve the civilian aviation fleet in which the airport functions ideally. The airport also serves to support military functions of the Kansas Air National Guard (ANG) as well as active national and international military units as they utilize Smoky Hill ANG Range.

DESIGN STANDARDS

The FAA has established design criteria to define the physical dimensions of runways and taxiways, as well as the imaginary surfaces surrounding them which protect the safe operation of aircraft at the airport. These design standards also define the separation criteria for the placement of landside facilities.

As discussed previously, the design criteria primarily center on the airport's critical design aircraft. The critical aircraft is the most demanding aircraft or family of aircraft which currently, or are projected to, conduct 500 or more operations (takeoffs and landings) per year at the airport. Factors included in airport design are an aircraft's wingspan, approach speed, tail height and, in some cases, the instrument approach visibility minimums for each runway. The FAA has established the Runway Design Code (RDC) to relate these design aircraft factors to airfield design standards. The most restrictive RDC is also considered the overall Airport Reference Code (ARC).

While airfield elements, such as safety areas, must meet design standards associated with the applicable RDC, landside elements can be designed to accommodate specific categories of aircraft. For example, a taxilane into a T-hangar area only needs to meet the object free area (OFA)

Salina Regional
SLNAirport

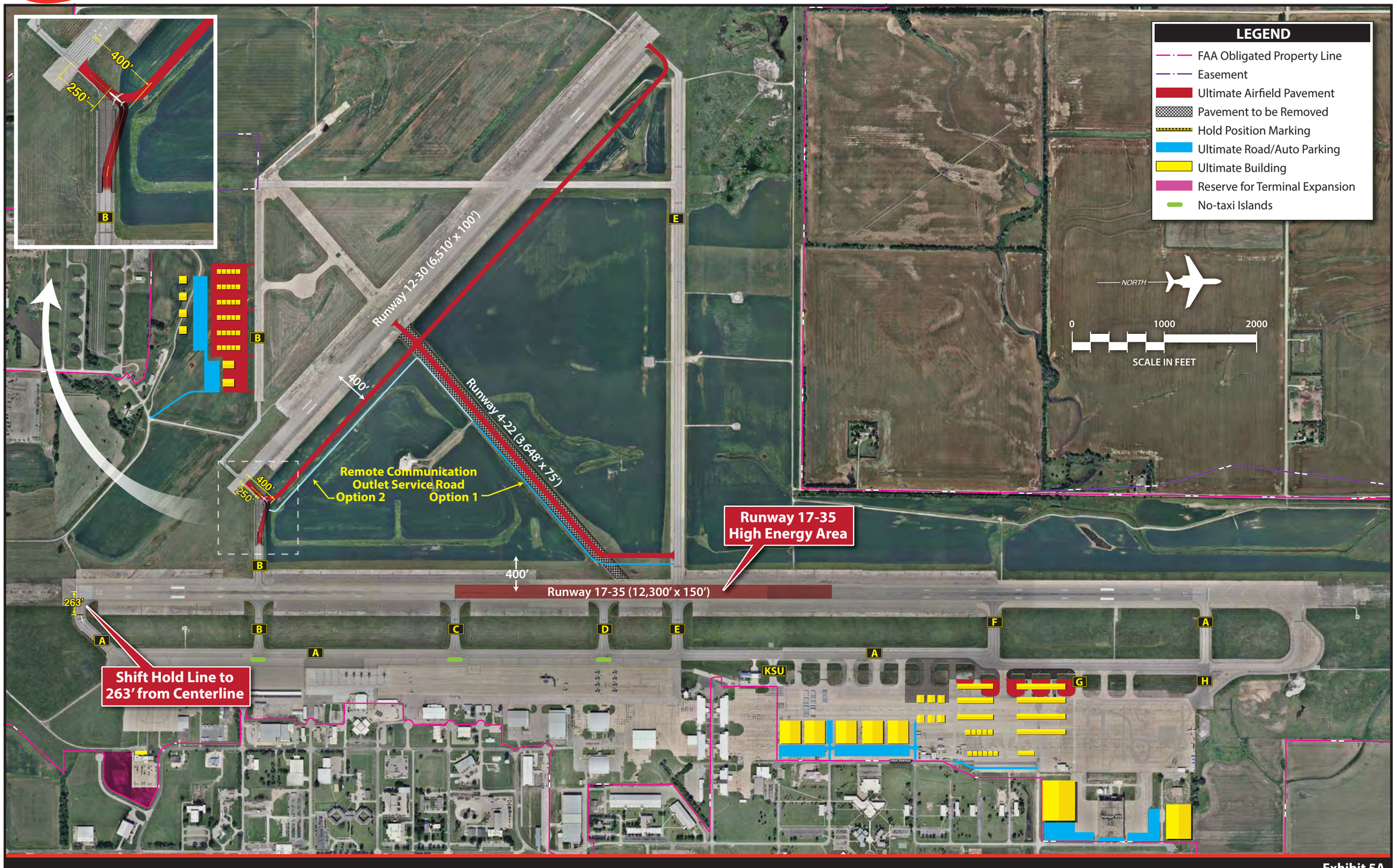

Exhibit 5A
RECOMMENDED DEVELOPMENT CONCEPT

width standard for smaller single and multi-engine piston aircraft expected to utilize the taxilane, not those standards for the larger business jets representing the overall critical aircraft for the airport.

DESIGN AIRCRAFT

As discussed at length in Chapter Three – Facility Requirements, the design aircraft is defined by that category of aircraft which accounts for 500 or more operations annually. The design aircraft is identified by its Aircraft Approach Category (AAC), Airplane Design Group (ADG) and Taxiway Design Group (TDG).

For Runway 17-35, the current design aircraft is identified as those aircraft that fall in C/D-II-3. Small- and medium-sized business jets, such as the Cessna Citation X (model 750), Hawker 800XP, and Lear 60, best represent this design aircraft family. The FAA has already acknowledged and approved the RDC and overall airport ARC of C/D-II for existing conditions. The RDC for Runway 17-35 is planned to increase to RDC C/D-III as aircraft such as the Boeing 737 are projected to increasingly utilize the airport in the future.

The RDC for Runway 12-30 is currently and projected to remain as C-II-3. This category includes design for most general aviation aircraft, such as the Hawker 800XP and all Cessna Citation models. Planning for this design will also allow the runway to accommodate use by larger transport aircraft on an infrequent basis as needed when the primary runway is closed for maintenance or for any other reason.

For Runway 18-36, the current and planned design aircraft is represented by those aircraft that fall in B-II-2. This category is best represented by small business jets and larger turboprop aircraft. An example aircraft would be the Beech King Air 350, a twin engine turboprop aircraft.

During the master planning process, the future disposition of Runway 4-22 was discussed. Chapter Four – Alternatives presented the advantages and disadvantages of continued maintenance of the runway or for its potential closure. The combined orientation of Runways 17-35 and 12-30 meets and exceeds FAA requirements for all crosswind component coverage. Local wind patterns do not generally support its use, and the existing length allows it only to serve the smallest of aircraft operating at the airport. Runway 4-22 is the airfield's shortest runway as it has been pared from its original length so as to remain within the boundaries of Runways 12-30 and 17-35. The runway pavement is failing and significant investment is required for it to remain operational. The FAA will not provide additional funding of the runway as it does not conform to any federal standard of being required. As a result, funds to support its continuance will need to come from the SAA. KDOT could offer some support as well; however, those funds would likely be spent on other higher priority projects.

All of these factors were evident prior to this planning process and supported the closure of the runway. Recent changes in FAA design standards have basically solidified the choice to close the runway. The existing runway alignment places it directly adjacent to the airport's two primary runways. As such, the runway safety areas beyond each end of Runway 4-22 overlap the other two runways. The FAA no longer supports such an alignment. The alternatives considered in the previous chapter would require either shorten-

ing the runway further or extending it through Runway 12-30 after rehabilitating the runway's existing pavement. Again, the cost of these improvements would fall squarely onto the SAA with limited aid potentially, though not guaranteed or even likely, from KDOT.

Having factored all arguments, Runway 4-22 is planned to be closed. The recommended plan does include converting the runway alignment into a taxiway as a means to offer a midfield exit to Runway 12-30, which would directly link to Taxiway E to the northeast, as depicted on **Exhibit 5A**. As such, the existing critical aircraft for Runway 4-22 is a Cessna 152, but ultimately the runway is to be closed.

Runway Design Code (RDC)

The RDC is an FAA code signifying the design standard to which the runway is to be built. This code includes the AAC, ADG, and the lowest instrument approach visibility planned. An RDC is applied to each runway.

Runway 17-35 is the airport's primary runway and serves a wide variety of aircraft. Based on the FAA's threshold for critical aircraft, the runway's RDC is currently C/D-II-2400. This C/D-II category was defined above, while the 2400 represents the ½-mile visibility minimums associated with the Runway 35 instrument landing system (ILS) approach procedure. The ultimate RDC for Runway 17-35 is C/D-III-2400 to account for forecast increases in larger transport aircraft operations.

Aircraft design for Runway 12-30 is planned to remain in C-II; however, a precision instrument approach procedure is planned for Runway 12. As such, the ultimate RDC for Runway 12-30 is C-II-2400. This code indicates that the runway is planned to have an instrument approach with ½-mile visibility minimums.

The current RDC for Runway 18-36 is B-II-5000. This indicates the runway is designed for those aircraft in B-II and is served by an instrument approach with not lower than 1-mile visibility minimums. The future RDC for Runway 18-36 is planned to remain B-II-5000.

Runway Reference Code (RRC)

The RRC is an FAA code signifying the current operational capabilities of a runway and associated parallel taxiway. The RRC is comprised of the AAC, ADG, and the lowest visibility minimum permissible based on the existing runway/taxiway separation. The RRC is not a design standard; instead, its sole function is to indicate the potential approach minimums allowable for the runway based on the runway to taxiway separation (centerline to centerline).

The RRC for Runway 17-35 is C/D/E-VI-1600 as parallel Taxiway A is located no closer than 650 feet from the runway centerline. This indicates that the runway can support a design aircraft in E-VI and can support an instrument approach with 1600-foot runway visual range (RVR) visibility minimums based solely on runway to taxiway separation. It is understood that the RRC far exceeds the existing and ultimate RDC; however, the RRC is only an indication that the existing runway/taxiway separation can support this classification. Moreover, the RRC is not an indication that there are no obstructions or other factors that may restrict the capability of the runway to actually serve this category of aircraft and/or approach minimums.

At present, only Runway 17-35 is served by a parallel taxiway. As such, the RRC standard is not applicable to Runways 12-30 and 18-36. Ultimate plans include the construction of a parallel taxiway located 400 feet to the east of Runway 12-30. Construction of this taxiway would allow Runway 12-30 to conform to RRC C/D/E-V-2400. This means that the existing runway/taxiway geometry is capable of supporting a design aircraft up to E-V and an instrument approach with visibility minimums as low as ½-mile. Runway 18-36 is not planned for a parallel taxiway and the RRC will remain as not applicable.

Runway Safety Areas

The Facility Requirements chapter discussed the requirements for the runway safety area (RSA), object free area (OFA), and obstacle free zone (OFZ). Of particular concern is the RSA, which must meet FAA design standard to the greatest extent possible. The RSA is an area surrounding the runway that must be cleared of all penetrating obstructions, graded, drained, and capable of supporting an aircraft veer-off or emergency vehicles.

The existing and ultimate RSA for Runways 17-35 and 12-30 is 500 feet wide extending 1,000 feet beyond each runway end. Only those navigational aids with frangible bases, such as runway edge lights and approach lights necessary for the safe operations of aircraft, are allowable within the RSA. The OFA must also be clear of penetrating obstructions, but it does not have to be capable of supporting an aircraft or emergency vehicle, like the RSA. The existing and ultimate OFA for these runways is 800 feet wide extending 1,000 feet beyond the runway ends. Ownership of the RSA by the airport is required, while ownership of the OFA is not required but highly recommended. If the OFA is not owned and contained on airport property, some control measures need to be in place. The RSA and OFA for both runways currently meet design standard.

For Runway 18-36, the existing and ultimate RSA is 150 feet wide extending 300 feet beyond the runway ends. The existing and ultimate OFA is 500 feet wide also extending 300 feet beyond the runway ends. Runway 18-36 currently conforms to RSA and OFA standards.

The OFZ for all runways at SLN is 400 feet wide and extends 200 feet beyond all runway ends. Generally, the OFZ falls within the RSA. Like the RSA, the OFZ precludes penetrating obstructions except for frangible navigational aids necessary for safe operation of aircraft at the airport. The OFZ design standards are currently met at the airport, which is a condition that should be maintained in the future.

Runway Protection Zones

The RPZ is a trapezoidal area beginning 200 feet beyond the runway ends. The function of the RPZ is to protect people and property on the ground. Typically, this is achieved through airport ownership of the RPZs, although proper land use control measures, such as easements, are acceptable. The RPZs should be cleared of any incompatible objects or activities. Prohibited land uses include residences and places of public assembly such as churches, schools, hospitals, office buildings, and shopping centers.

The FAA recommends that the airport sponsor own in fee simple the RPZ property. When fee simple ownership is not currently feasible, positive land use measures should be implemented in or-

der to protect the airport from encroachment by incompatible land uses or obstructions.

In September of 2012, the FAA published *Interim Guidance on Land Uses within a Runway Protection Zone*. The guidance addresses action necessary for new or modified RPZs. Any action that would introduce new land use incompatibilities into the RPZ will have to be specifically reviewed and approved by the FAA. Airport sponsors should follow existing guidance for meeting RPZ design standards for existing incompatibilities.

The existing and ultimate RPZ for all runways at SLN are fully contained on existing airport property. Furthermore, the RPZs do not contain any incompatible land uses, including public roads. As such, the existing and ultimate RPZs meet FAA standard and no further land acquisition and/or land use measures will be needed to conform to RPZ standards.

RUNWAY LENGTH

Runway 17-35 is the primary runway and measures 12,300 feet long by 150 feet wide. The current pavement length exceeds the demands of the airport's critical aircraft; however, the length is very important in serving as mid-America's fuel stop as well as in support of military and governmental agency operations (weather observation, etc.). Several hundred large aircraft operations occur at the airport each year due to the availability of the existing runway length. The FAA does not financially support the full runway length (only approximately 7,500 feet at present) as it exceeds the needs of the civilian critical aircraft; however, the runway has received state funding assistance for maintenance of pavements exceeding the federal supported need. The findings in the report support the continued maintenance of the runway at current length and width as long as it remains financially viable and supports the airport's missions, goals, and objectives.

Runway 12-30 is the primary crosswind runway measuring 6,510 feet long by 100 feet wide. The current runway measurements and orientation position it to be ideal for use by all airport operators when high crosswinds dictate or during periods when primary Runway 17-35 is closed. The runway is planned to remain in its current configuration with some enhancements to be detailed later in this chapter.

Runway 18-36 was constructed by the airport to offer a standalone runway environment for KSU aviation operations. The 4,301-foot long by 75-foot wide runway is ideally positioned to accommodate the intended role. The runway is also fully capable of supporting future expanded KSU unmanned aerial system (UAS) operations. The runway is also being planned to remain as is, which should continue to allow it to support future aviation demand.

RUNWAY STRENGTH

Runway 17-35 is strength rated at 75,000 pounds for single wheel loads (SW), 200,000 pounds for dual wheel loads (DW), 360,000 pounds for dual tandem wheel loading (DTW), and 600,000 pounds for double dual tandem wheel loading (DDTW). This strength fully meets the requirements of the critical aircraft family of business jets as well as most transport aircraft in the fleet today. The existing pavement strength is planned to be maintained. Routine maintenance and overlay of Runway 17-35 is planned.

Runway 12-30 is strength rated at 55,000 pounds SW, 68,000 pounds DW, and 125,000 pounds DTW. Outboard parallel Runway 18-36 is strength rated at 30,000 pounds SW. The pavement strength of both runways is adequate to meet the needs of the intended users and is planned to be maintained through routine maintenance in the future.

INSTRUMENT APPROACHES

The recommended concept includes the addition of two precision instrument approaches at some point in the planning period. Runway 35 is served by the airport's only precision approach, the ILS Runway 35 approach. Ultimately, the ILS on Runway 35 will likely be replaced entirely by a GPS vertically guided approach. Runway 17 is planned to be upgraded to a ½-mile GPS approach, which will require the installation of a runway alignment indicator light (RAIL) system to bolster the existing medium intensity approach lighting system (MALS). Runway 12 is also planned for a precision GPS approach supplemented by a MALSR.

The nonprecision instrument approach capability to Runway 30 with not lower than one mile visibility minimums is planned to be maintained. For Runway 18-36, nonprecision GPS approaches with not lower than one mile visibility minimums are planned. The plan considers the allowance for night-time approach capability, which could only occur if medium intensity runway lights (MIRL) are installed as proposed.

RUNWAY/TAXIWAY SEPARATION

There are two factors that primarily influence the FAA standards for runway/taxiway separation. The first is the type and frequency of aircraft operations as described by the applicable RDC, and the second is the capability of the instrument approaches available at the airport. The current RDC is C/D-II for Runway 17-35, C-II for Runway 12-30, and B-II for Runway 18-36. Runway 35 has a CAT-I ILS precision instrument approach with ½-mile visibility minimums.

Runways 12, 17, and 30 are served by non-precision instrument approaches with the Runway 17 approach having not lower than ¾-mile minimums and Runways 12 and 30 having 1-mile visibility minimums. Runways 12 and 17 are being planned for CAT I precision approaches in the future, while Runway 30 will remain as currently equipped.

Runway 18-36 is not served by an instrument approach procedure at present; however, the plan considers nonprecision GPS approaches to both ends of the runway in the future.

Taxiway A is the airport's only current parallel taxiway. Serving the east side of Runway 17-35, Taxiway A is situated no closer than 650 feet to runway. The FAA's greatest separation requirement is 550 feet for super large aircraft (SLA) design. Obviously, the current location of Taxiway A exceeds all design parameters and will adequately serve SLN operations through the planning period.

Runway 12-30 is being planned for a new precision instrument approach. FAA requires a full length parallel taxiway in order to implement a precision approach to the runway. As such, the recommended plan includes the construction of a parallel taxiway on the east side of Runway 12-30 to be situated 400 feet from the runway (centerline to centerline). This dimension adequately serves the existing and ultimate critical aircraft as well as

larger transport aircraft such as the Boeing 737 for times when the primary runway is closed.

TAXIWAYS

The recommended plan considers several modifications to the taxiway system at SLN, including the construction of two additional taxiways. As previously discussed, the plan proposes the construction of a parallel taxiway to serve Runway 12-30. The second new taxiway would be the conversion of Runway 4-22 to a taxiway. As depicted on **Exhibit 5A**, the new taxiway would route between Runway 12-30, approximately mid-field, and Taxiway E to the northeast. These improvements will support the opportunity for a precision instrument approach on Runway 12 and increased operational efficiency of the runway.

An extensive discussion of the taxiway design standards has been presented in previous chapters. Several taxiway elements, as they exist today, do not conform to the latest design standards. Each of these has been addressed in the master plan concept and are briefly described below.

High Energy Runway Crossings

Updated FAA standards contained in FAA AC 150/5300-13A, *Airport Design*, suggest that a taxiway designed to route aircraft across a runway should not be located in the middle third of such runway. The middle third of a runway is classified as the high energy area. The high energy area is an area on the runway where aircraft, either landing or departing, are commonly operating at high speeds. As such, aircraft in this area do not have the ability to readily avoid any aircraft entering the runway from an associated taxiway.

For Runway 17-35, exit Taxiways C, D, and E are located in the high energy area. Taxiway C and D do not offer runway crossings, although Taxiway E does. Taxiway E extends from parallel Taxiway A, through Runway 17-35, then more than 4,000 feet west to Runway 18. Alternatives in the previous chapter outlined methods of constructing a new taxiway system which would route aircraft around the high energy area; however, the options were considered expensive and likely would not offer significant safety enhancements over existing conditions. SLN is served by an airport traffic control tower (ATCT) which positively controls aircraft operations for the majority of the day (early morning through late evening). It is believed that the costs of modifying Taxiway E as a means to remove it from the high energy area would exceed any benefit(s) achieved. As such, the recommended plan considers Taxiway E remaining as it currently exists.

Hot Spot Mitigation

The FAA has identified two hot spots at SLN. The first is on Taxiway E between Runway 17-35 and parallel Taxiway A. The second is on the portion of Taxiway B spanning between Runways 35 and 30.

Taxiway E can be a very busy pavement location, especially during peak KSU training operations. The hot spot simply identifies that this intersection can be busy and serves as a reminder and warning to pilots to be vigilant in operation. Taxiway E, by design, is considered fixed by function, offering aircraft routing to the west airfield runway system. The recommended plan allows for it to remain as a runway crossing through the high

energy area with the understanding that most activity is positively controlled by ATCT.

Taxiway B has been planned to be modified. The modification of Taxiway B was planned to allow it to interface with Runway 30 at a 90-degree angle. The proposed redesign of Taxiway B, however, will improve pilot visibility and create a higher level of awareness for pilots. It has been designated as a hot spot due to its location being between two runway ends, thereby requiring aircraft to transition through two holding positions. The redesigned taxiway, as depicted on **Exhibit 5A**, will create the need for the aircraft to make a "dog-leg" turn which could increase pilot focus and situational awareness. Increased pilot focus and situational awareness is a means to reducing runway incursions.

Other Taxiway Issues

As discussed in Chapter Four – Alternatives, optimal airfield design would provide a 90-degree entrance taxiway to Runway 35. The current layout of entrance Taxiway A to the Runway 35 threshold does not allow a pilot of large aircraft to view back to the north. FAA standards suggest that a pilot should be allowed complete field of vision in both directions of the runway orientation. Two alternatives were considered in the previous chapter, and the recommended plan includes moving the holding position from 290 feet from the runway centerline to only 250 feet for approach category C aircraft or 263 feet for approach category D. This move allows aircraft a much greater field of vision to the north as the aircraft holds for departure clearance. Moreover, the 250/263 foot dimension from runway centerline is the recommended distance based on the runway's existing and planned RDC.

New FAA standards also stipulate that there should be no direct access between a runway and aircraft parking apron. Currently, direct access between Runway 17-35 and the main general apron is available via Taxiways B, C, and D. The FAA suggests that an impediment be created which requires the pilot to make at least one turn while traversing from an apron to the runway environment. The impediment is deemed a "No Taxiway Island." As presented on **Exhibit 5A**, three No Taxiway Islands are proposed on the east side of Taxiway A directly across from the three aforementioned taxiways serving Runway 17-35. The islands can be developed simply by paint and lighting or by removing existing pavement surfaces and lighting. The plan proposes the lighting and marking method.

VISUAL NAVIGATION AIDS

The visual navigational aids serving Runways 17-35 and 12-30 are adequate and should be maintained for their useful life. The plan does, however, include upgrading the MALS on Runway 17 to a MALSR as well as the installation of a MALSR on Runway 12. These improvements are designed to support precision instrument approach procedure development on those runways in the future.

The recommended plan also includes adding MIRL to Runway 18-36. The runway is not currently supported by runway lights and is closed for nighttime operations. The addition of a two box PAPI (PAPI-2) at each runway end is planned.

SUPPORT FACILITIES

The only remaining airside improvement is a change to a support facility. The current remote communication outlet (RCO) and communication air to ground (RCAG) antenna area is located between Runway 17-35 and Runway 12-30. FAA technicians are required to access this facility for routine maintenance and checks. The facility is currently accessed via a road which is directly linked to Runway 4-22. As such, the technicians utilize the runway and do so via crossing Runway 17-35 typically on Taxiway D (high energy area). The closure of Runway 4-22 raises the challenge of ground access to the facility.

The proposed plan offers two possible solutions. Option one would route a new access road from the facility north and adjacent the proposed taxiway to Taxiway E. The technicians could then cross Runway 17-35 on Taxiway E and then to their destination in the main terminal area. Option two would route traffic southwest toward Runway 12-30, then parallel to the runway, and finally back to Taxiway B where traffic could cross Runway 17-35 to the terminal area. Both options would sufficiently move traffic; however, Option 1 would require a high energy area crossing point (Taxiway E) on Runway 17-35. Option 2 would route traffic across Runway 17-35 outside of the high energy area. Option one is less costly. The choice will need to be made after further consultation with the FAA during the design process.

AIRSIDE CONCLUSION

Design standards for Salina Regional Airport are determined by the frequency of activity by the critical aircraft group and the sophistication of the instrument approaches. A design aircraft is determined for each runway with the most restrictive RDC also serving as the overall airport reference code (ARC). The current critical aircraft for Runway 17-35 falls in RDC C/D-II-2400 which is planned to increase to RDC C/D-III-2400 at some point in the planning period. For Runway 12-30, the current RDC is C-II-5000, which is planned to change to C-II-2400 with the proposed precision instrument approach addition. The current and future RDC for Runway 18-36 falls in RDC B-II-5000.

Runway 4-22 is planned to be closed. The closed runway pavement will be removed and a taxiway will be constructed in its place. The taxiway will offer a mid-field exit opportunity for Runway 12-30 and could route aircraft from the runway to Taxiway E and the northern portion of the terminal area. Runway 12-30 is also planned for a parallel taxiway 400 feet east of the runway centerline to support precision instrument operations.

Taxiway efficiency and safety is promoted through three projects. First, the holding position on Taxiway A adjacent to the Runway 35 threshold is to be relocated from 290 feet from runway centerline to 250 feet (AAC C) or 263 feet (AAC D). This modification will allow pilots greater field of view to the north awaiting departure clearance. Second, Taxiway B is planned to be rerouted with an angular section which will allow the taxiway to establish a 90-degree entrance to Runway 30. Third, the plan includes the creation of three “No Taxi Islands” perpendicular Taxiways B, C, and D to the east of parallel Taxiway A. These islands will be constructed using yellow paint outlines and green paint to designate the islands. Taxiway lights will outline the islands as well. The islands are proposed so as to impede direct access between Runway 17-35 and the main apron.

LANDSIDE CONCEPT

The primary goal of landside facility planning is to provide adequate aircraft storage space to meet forecast needs, while also maximizing operational efficiencies and land uses. Also important is identifying the overall land use classification of airport property in order to preserve the aviation purpose of the airport well into the future. Achieving these goals yields a development scheme which segregates aircraft activity levels while maximizing the airport's revenue potential. **Exhibit 5A** presents a large scale view of the planned landside development for the airport.

There are an unlimited number of potential facility layout concepts that could be considered at an airport the size of SLN. Several potential layouts were presented in the previous chapter. The future layout depicted is a compilation of the alternatives presented, but mostly reflective of previous planning efforts.

The plan presented maximizes potential aviation development space which is in close proximity to existing facilities. It also follows the design philosophy of co-locating facilities which would be intended for similar levels of activity. This philosophy considers reserving flight line property for high activity conventional hangars. Medium-activity box hangars are also grouped together and somewhat removed from the flight line. Low-activity T-hangars are also co-located and are set the farthest from the runway.

Future facility planning provides a strategy to optimize hangar types and locations over time. The following goals were high priorities when developing the recommended landside concept:

- Maximize existing development areas.
- Group planned new development by facility type.
- Locate high-activity hangars on the flight line.
- Offer large spaces for airport businesses and military operations.
- Provide dedicated vehicle parking for new and existing hangars where feasible.

The recommended development plan primary focuses all new development in the northern terminal area. The existing southern terminal area is mostly developed allowing for some small additional facility growth. The northern terminal, on the other hand, offers an abundance of flight line space to more than adequately serve forecast demand through the planning period.

As depicted on **Exhibit 5A**, the northern development area includes a mix of large conventional hangars with ample apron spaces adjacent to the hangar. These five large conventional hangars could house additional aviation businesses or large bulk storage facilities. Moving north, the plan includes the development of smaller corporate box hangars and T-hangars. At the far north apron, another area is available for large hangars. In all, the northern development area offers space far exceeding the needs projected in this study. As a result, the development of the northern terminal will likely extend well beyond the scope of this plan.

The existing airport terminal building is aged and could become undersized if commercial service requires the assistance of security screening in the future. At some point in the planning period, the building will likely require substantial maintenance or expansion to serve commercial service needs. As such, the plan offers the concept of remodeling and/or

expanding the facility in its current location. Obviously, demonstrated need will dictate such improvements as they will likely be costly and may not be supported by federal or state grant processes.

Military operations have been a mainstay of SLN since its inception which continues to current. As such, the plan offers a solution for providing aviation support facility development if the need were to present itself. As depicted on **Exhibit 5A**, the military could develop hangars as needed south of Taxiway B, west of Runway 30. The entire area is planned and reserved for military support facilities in support of the airport's role as a FOL.

LAND USE CONSIDERATIONS

Identifying existing and planned land uses, both on and off the airport, is an important consideration. By understanding the issues related to land use in the airport vicinity, the airport sponsor and those municipal jurisdictions in the vicinity of the airport can take proactive steps to protect the airport from incompatible land uses. There are three basic categories of land use to consider:

1) On-Airport Land Use
2) Off-Airport Land Use Compatibility
3) Height and Hazard Zoning

ON-AIRPORT LAND USE

The objective of on-airport land use planning is to coordinate uses of airport property in a manner that is both functional with the design of the airport and compatible with the airport environs. There are two primary considerations for on-airport land use planning. First is to secure those areas essential to the safe and efficient operation of the airport. Second is to determine compatible land uses for the balance of the property which would be most advantageous to the airport and the community.

The airport property encompasses approximately 2,862 acres of land and includes land obligated under federal grant assurances as well as land owned by the SAA which is not grant obligation. The obligation distinction is important as obligated land is held to specific grant assurances and must be utilized in compliance with these obligations. Non-obligated properties are basically privately held by the SAA and can be operated, used, and even disposed at the discretion of the SAA. For the sake of this study, only obligated land will be discussed as being "on-airport". Obligated on-airport property can be classified in one of three broad categories as described below.

Airfield Operations

The Airfield Operations area is that portion of airport property that encompasses the major airside elements such as runways, taxiways, runway safety area, runway object free area, runway obstacle free zone, runway protection zone (on airport property), taxiway safety area, taxiway object free area, navigational aids and their critical areas, and the runway visibility zone. The Airfield Operations area is intended to provide for safe and efficient aircraft taxiing, take-off, and landing.

Aviation Development

The Aviation Development area is generally defined as those areas that must be reserved for development that needs access to the Airfield Operations area. In

general, current and future aircraft access must be preserved in these areas.

Typical uses permitted in the Aviation Development area includes:

1. Transportation Terminals
   a) Commercial Airlines
   b) Commuter Airlines
   c) Cargo Airlines (freight terminals)
   d) Fixed Base Operators
   e) Specialized Aviation Service Operations
   f) Aircraft Maintenance
   g) Aircraft Equipment Sales/Rentals
   h) Food and Beverage Retail Sales
   i) Retail Fueling Services
   j) Vehicle Parking
2. Warehouses
   a) Aircraft Hangars
3. Vocational Schools
   a) Flight Training

Other uses may include:

1. Revenue Support: Certain non-aviation related uses may be permissible within the Aviation Development area provided they are temporary (five years or less) in nature and can be removed in a timely manner to allow for Aviation Development (i.e., agricultural activities).

Revenue Support

The Revenue Support classification includes all potential development that is compatible with airport activities and is unlikely to require access to the runway and taxiway system. This classification may include both aviation and non-aviation development.

Typical revenue support land uses can include (but are certainly not limited to):

1) Airport and airport related facilities.
2) Research facilities, testing laboratories, and facilities for the manufacturing, processing, and/or assembly of products.
3) Warehouses
4) Vocational schools
5) Eating and drinking establishments

ON-AIRPORT LAND USE OBLIGATIONS

The airport has accepted grants for capital improvements from the FAA. As such, the airport sponsor has agreed to certain grant assurances. Grant assurances related to land use assure that airport property will be reserved for aeronautical purposes. If the airport sponsor wishes to sell (release) airport land or lease airport land for a non-aeronautical purpose (land use change), they must petition the FAA for approval. The Airport Layout Plan and the Airport Property Map must then be updated to reflect the sale or land use change of the identified property.

Release of Airport Property

A release of airport property would entail the sale of land that is not needed for aeronautical purposes currently or into the future. The following documentation is required to be submitted to the FAA for consideration of a land release:

1. What is requested?
2. What agreement(s) with the United States are involved?
3. Why the release, modification, reformation, or amendment is requested?
4. What facts and circumstances justify the request?
5. What requirements of state or local law or ordinance should be provided for in the language of an FAA-issued

document if the request is consented to or granted?
6. What property or facilities are involved?
7. How the property was acquired or obtained by the airport owner.
8. What is the present condition and what present use is made of any property or facilities involved?
9. What use or disposition will be made of the property or facilities?
10. What is the appraised fair market value of the property or facilities? Appraisals or other evidence required to establish fair market value.
11. What proceeds are expected from the use or disposition of the property and what will be done with any net revenues derived?
12. A comparison of the relative advantage or benefit to the airport from sale or other disposition as opposed to retention for rental income.

Each request should have a scaled drawing attached showing all airport property and airport facilities which are currently obligated for airport purposes by agreements with the United States. Other exhibits supporting or justifying the request, such as maps, photographs, plans and appraisal reports should be attached as appropriate. There are no areas of airport property planned for release from obligation and/or sale.

Land Use Change

A land use change permits land to be leased for non-aeronautical purposes. A land use change does not authorize the sale of airport land. Leasing airport land to produce revenue from non-aeronautical uses allows the land to earn revenue for the airport as well as serve the interests of civil aviation by making the airport as self-sustaining as possible. Airport sponsors may petition for a land use change for the following purposes:

- So that land that is not needed for aeronautical purposes can be leased to earn revenue from non-aviation uses. This is land that is clearly surplus to the airport's aviation needs.

- So that land that cannot be used for aeronautical purposes can be leased to earn revenue from non-aviation uses. This is land that cannot be used by aircraft or where there are barriers or topography that prevents an aviation use.

- So that land that is not presently needed for aeronautical purposes can be rented on a temporary basis to earn revenue from non-aviation uses.

A land use change shall not be approved by the FAA if the land has a present or future airport or aviation purpose, meaning the land has a clear aeronautical use. If land is needed for aeronautical purposes, a land use change is not justified. Ordinarily, land on or in proximity to the flight line and airport operations area is needed for aeronautical purposes and should not be used or planned for non-aviation purposes.

The proceeds derived from the land use change must be used exclusively for the benefit of the airport. The proceeds derived from the land use change may not be used for a non-airport purpose. The proceeds cannot be diverted to the airport sponsor's general fund or for general economic development unrelated to the airport. Generally, a land use change of airport property will be reviewed on a case-by-case basis at the time that the change is necessary.

On-Airport Land Use Summary

Part of the master plan is to identify any property on the airport that could be released or have a land use change. The airport authority does not intend to release any obligated airport property for sale. The airport authority may desire to market certain portions of property to both aeronautical and non-aeronautical businesses. Aeronautical businesses are defined as those that require access to the runway/taxiway system, meaning they have at least one aircraft used for the business. Non-aeronautical businesses would include all other types of businesses and public institutions that are permissible under local zoning which is compatible in close proximity of the airport.

OFF-AIRPORT LAND USE COMPATIBILITY

Land use compatibility is the responsibility of the airport sponsor and must be pursued in order to comply with FAA grant assurances. In effect since 1964, Grant Assurance 21, *Compatible Land Use*, implementing Title 49 United States Code (U.S.C.) § 47107 (a) (10), requires, in part, that the sponsor:

> *"…take appropriate action, to the extent reasonable, including the adoption of zoning laws, to restrict the use of land adjacent to or in the immediate vicinity of the airport to activities and purposes compatible with normal airport operations, including landing and takeoff of aircraft."*

In all cases, the FAA expects a sponsor to take appropriate actions to the extent reasonably possible to minimize incompatible land uses. FAA Order 5190.6B, *Airport Compliance Manual*, provides guidance on land use compatibility and other airport compliance issues.

The SAA, City of Salina, and Saline County should continue to work together to develop and maintain compatibility standards to prohibit residential and public assembly uses within the runway protection zones and to limit certain uses within noise impact boundaries (typically the 65 DNL – See Appendix C for more detail). For example, residential land uses should be kept as far away from the airport as is practicable.

Grant Assurance 20, *Hazard Removal and Mitigation*, states that the airport sponsor "will take appropriate action to assure that such terminal airspace as is required to protect instrument and visual operations to the airport (including established minimum flight altitudes) will be adequately cleared and protected by removing, lowering, relocating, marking, lighting, or otherwise mitigating existing airport hazards and by preventing the establishment or creation of future airport hazards."

The FAA provides further guidance in Advisory Circular (AC) 150/5200-33, *Hazardous Wildlife Attractants on or Near Airport*s. The distance between the airport movement areas and wildlife attractants should be at least 10,000 feet for airports serving turbine-powered aircraft (such as Salina Regional Airport) and should include approach and departure airspace to a distance of five miles. Examples of wildlife attractants (particularly for birds) include landfills, waste water treatment facilities, lakes, and wetlands.

HEIGHT AND HAZARD LAND USE ZONING

Both the City of Salina and Saline County have participated in the implemented height and hazard zoning which serves to protect Salina Regional Airport. Both of these entities utilized guidance provided by the FAA in the Code of Federal Regulations (CFR) Part 77, *Objects Affecting Navigable Airspace* to develop the height and hazard zoning. The guidance is flexible enough to account for planned changes in the future layout of the airport. Nonetheless, it is good practice for the airport sponsor to review the local zoning ordinances to be sure it still applies to the new master plan layout.

The Airport Airspace Drawing, which is included as part of the Airport Layout Plan drawing set, should be the basis for an updated height and hazard zoning ordinance, should that be needed. The local ordinances should be examined as the recommended plan differs from previous plans for Runway 12-30 and Runway 18-36. Both runways are proposed for instrument approach procedure changes. The ultimate plan considers a precision instrument approach to Runway 12 as previous plans only considered nonprecision approaches. Runway 18-36 is currently a visual runway only with plans for nonprecision approaches to both runway ends. The existing ordinances may support these proposed changes already; however, an examination should be made to confirm conformance with proposed airspace changes as presented on the Airspace Drawing (Appendix D).

SUMMARY

The recommended master plan concept has been developed with significant input from the planning advisory committee (PAC). The PAC included representation from the SAA, FAA, Kansas Department of Transportation – Aviation of Division, airport management, KSU, local/regional governmental agencies, military users, airport businesses, and other airport users. This plan provides the necessary development to accommodate and satisfy the anticipated growth over the next 20 years and beyond.

The airport meets all applicable safety design standards for current and proposed critical aircraft (that grouping of aircraft that perform 500 or more annual operations) in ARC C/D-II. The future critical aircraft is planned to transition to ARC C/D-III, such as the Boeing 737. The airport already conforms to the applicable safety related standards as well. Overall, the airport has been superbly managed and expertly developed. The recommended development plan simply enhances historical development and incorporates recently adopted changes to FAA design standards.

The next chapter of this master plan will consider strategies for funding the recommended improvements and will provide a reasonable schedule for undertaking the projects based on demand over the course of the next 20 years.