



Chapter 9 Airport Layout Plan Set Update (ALP) Narrative

9.1 Airport Layout Plan Set Narrative

This narrative briefly describes the information specific to each of the drawing sheets in the traditional Airport Layout Plan (ALP) drawing set developed for Southwest Florida International Airport (RSW or the Airport). These drawings were developed and produced as a set on 36-inch by 48-inch sheets using AutoCAD 2023 and AutoCAD Civil 3D software. To provide vertical and horizontal accuracy for the ALP set, a digitized map, developed by Martinez Geospatial, Inc., was used as a base map for all drawings. The aerial imagery was completed in April 2022. The coordinates, elevations, and aerial photogrammetry are in U.S. survey feet. The horizontal datum is the Florida State Plane Coordinate System, East Zone, North American Datum of 1983/1990 adjustment. The vertical datum is the North American Vertical Datum of 1988. Reduced reproductions of these drawings are included in Appendix W for illustration purposes and are not to scale. A copy of the Federal Aviation Administration (FAA) Standard Operating Procedure 2.00 ALP Review Checklist is included in Appendix X. A full-size set of the drawings will be submitted along with this report to the FAA and the Florida Department of Transportation (FDOT) for review and approval.

The critical design aircraft is defined as the most demanding aircraft that will substantially use the Airport, with "substantially" defined as either 500 or more annual itinerant operations or scheduled service. Also, the critical design aircraft can be either a single aircraft or a composite of the most demanding characteristics of several aircraft.¹ The Master Plan Update identified the critical aircraft as an Airplane Design Group (ADG)-V aircraft. Representative ADG-V aircraft would be the Boeing 747.

Runway Design Code

The Runway Design Code (RDC) is a coding system described in FAA Advisory Circular (AC) 150/5300-13B, *Airport Design*, it is the basis for specifying applicable runway design standards. The intent of the RDC is to provide a simple method for compiling the numerous dimensional and performance specifications for aircraft operating at or forecasted to operate at an airport; the specifications are translated into criteria that define the dimensional and design standards for a given runway. The RDC consists of three parameters: Aircraft Approach Category (AAC), ADG, and approach visibility minimums. RSW has one runway: Runway 6-24. The following describes the RDC for existing and future Runway 6-24:

¹ Federal Aviation Administration, Advisory Circular 150/5300-17, *Critical Aircraft and Regular Use Determination*, Draft.

- Aircraft Approach Category - Based on approach speed, the B757 is the critical aircraft; this aircraft is categorized as AAC D.
- Airplane Design Group - Based on the wingspan, the B757 is the critical aircraft; this aircraft is categorized as ADG-IV.
- Visibility Minimums - Runway 6 is equipped with an instrument landing system approach, providing a visibility minimum of 0.5 miles, and Runway 24 utilizes a very high frequency omni-directional range (VOR) approach, providing a visibility minimum of .75 miles.

Combined, these parameters result in an RDC of D/IV/1800 for Runway 6 and an RDC of D/IV/4000 for Runway 24; and an RDC of D/V/1200 for future Runway 6 and an RDC of D/V/2400 for Runway 24. Similarly, the RDC for the Ultimate Runway 6R-24L is D/V/2400. The following further describes the RDC for Ultimate Runway 6R-24L:

- Aircraft Approach Category - Based on approach speed, the B787/A330/A350 is the critical aircraft; this aircraft is categorized as AAC D.
- Airplane Design Group - Based on the wingspan, the B787/A330/A350 is the critical aircraft; this aircraft is categorized as ADG-V.
- Visibility Minimums - Runway 6R is equipped with an instrument landing system (ILS) approach, providing a visibility minimum of 0.5 miles, and Runway 24L utilizes an ILS approach, providing a visibility minimum of .50 miles.

Table 9-1 summarizes the RDCs for RSW. The Airport’s current Airport Reference Code (ARC) is designated as D-IV.

Table 9-1 Southwest Florida International Airport Runway Design Codes				
RUNWAY	Aircraft Approach Category	Airplane Design Group	Visibility Minimums	Runway Design Codes
Existing				
6-24	D	ADG IV	6 – (0.50 miles)	6 – D/IV/1800
	(Boeing 757)	(Boeing 757)	24 – (0.75 miles)	24 – D/IV/4000
Future				
6-24	D	ADG V	6 – (< 0.25 miles)	6 – D/V/1200
	(Boeing 787/Airbus A330 & A350)	(Boeing 787/Airbus A330 & A350)	24 – (0.75 miles)	24 – D/V/2400
Ultimate				
6L-24R	Same	Same	6L – (< 0.25 miles)	6L – D/V/1200
			24R – (0.50 miles)	24R – D/V/2400
6R-24L	D	ADG V	6R – (0.50 miles)	6R – D/V/2400
	(Boeing 787/Airbus A330 & A350)	(Boeing 787/Airbus A330 & A350)	24L – (0.50 miles)	24L – D/V/2400

NOTES:

ADG – AIRPLANE DESIGN GROUP

VIS – Visual

SOURCE: Federal Aviation Administration, Advisory Circular 150/5300-13B, Airport Design, March 31, 2022.

Runway Reference Codes

The Runway Reference Codes, or the Approach Reference Code (APRC) and the Departure Reference Code (DPRC), describe the current operational capabilities of a runway and adjacent taxiways where no special operating procedures are necessary. The APRC consists of the same three parameters as the RDC (AAC, ADG, and visibility minimums), whereas the DPRC consists of the AAC and ADG only. The APRC and DPRC coding system is described in FAA AC 150/5300-13B, *Airport Design*.²

The APRC and DPRC are determined based on the existing runway-to-taxiway separation and visibility minimums. At RSW, the runway centerline separation from the associated full-length parallel taxiway centerline is 400 feet. The runway-to-taxiway separation combined with the visibility minimums results in the following APRCs: D/IV/1800 for Runway 6 and D/IV/4000 and D/V/4000 for Runway 24; The future APRCs for Runway 6 would be D/IV/1200 and Runway 24 would be D/IV/2400 and D/V/2400; The ultimate APRCs for Runway 6R-24L would be D/IV/2400. The DPRCs at RSW are D/IV and D/V for Runway 6-24; future DPRCs are D/IV and D/V for Runway 6 and D/IV for Runway 24. The ultimate DPRCs for Runway 6-24 would remain the same as future DPRCs and the ultimate DPRCs for Runway 6R-24L would be D/VI. **Table 9-2** summarizes the APRCs and the DPRCs at RSW.

Runway	Existing		Future		Ultimate	
	Approach Reference Code (APRC)	Departure Reference Code (DPRC)	Approach Reference Code (APRC)	Departure Reference Code (DPRC)	Approach Reference Code (APRC)	Departure Reference Code (DPRC)
6 (Ult: 6L)	D/IV/1800	D/IV D/V	D/V/1200	D/IV D/V	Same	Same
24 (Ult: 24R)	D/IV/4000 D/V/4000	D/IV D/V	D/IV/2400 D/V/2400	D/IV	Same	Same
6R	N/A	N/A	N/A	N/A	D/IV/2400	D/VI
24L	N/A	N/A	N/A	N/A	D/IV/2400	D/VI

NOTE: N/A – Not Applicable

SOURCE: Federal Aviation Administration, Advisory Circular 150/5300-13B, *Airport Design*, March 31, 2022.

Prepared by: Ricondo & Associates, Inc., March 2023.

Cover Sheet (Sheet 1)

Sheet 1, the Cover Sheet, lists the drawings within the RSW ALP set. Also included are the location and vicinity maps. The location map is a scaled representation of the Airport's location in the State of Florida, and the vicinity map shows the location of the Airport in the Fort Myers area, including major roadways and highways in the Airport vicinity.

Airport Data Sheet (Sheet 2)

Sheet 2, the Airport Data Sheet, contains a set of six data tables, as well as listings of abbreviations and acronyms used throughout the ALP set, and wind rose data.

- Airport Data Table – This table lists existing and ultimate information specific to the Airport, such as Airport elevation, service level, role, reference code, design aircraft, Airport reference points, temperature information, magnetic variation, and available NAVAIDS.

² Federal Aviation Administration, Advisory Circular 150/5300-13B, *Airport Design*, March 31, 2022.

- Runway Data Table – This table is a compiled tabulation of information specific to the existing and ultimate runway profile characteristics, coordinates, dimensions, ADG, available lighting and NAVAIDS, and safety clearance areas, as defined in FAA AC 150/5300-13B, *Airport Design*.
- Taxiway Data Table – This table provides information regarding the existing and ultimate taxiways at the Airport, including taxiway width, shoulder width, taxiway safety area (TSA) and taxiway object-free area (TOFA) dimensions, taxiway edge safety margin, and lighting for each taxiway.
- Wind Rose and Wind Coverage Tables – These tables include the Airport's wind roses (visual flight rules, instrument flight rules, and all-weather). The wind data depicted in these tables were obtained from the National Oceanic and Atmospheric Administration's National Climatic Data Center. Wind data are provided for all weather conditions, visual meteorological conditions (ceiling at or above 1,000 feet and visibility greater than or equal to 3 miles), and instrument meteorological conditions (ceiling below 1,000 feet and/or visibility less than 3 miles). These components provide information on the percentage of time a runway end or a combination of runway ends or runways are available for arrivals. When combined, the coverage is intended to be as near as possible to 100 percent.
- Declared Distances – This table provides the take-off run available (TORA), take-off distance available (TODA), the accelerate stop distance available (ASDA), and the landing distance available (LDA) for the existing and ultimate runways at RSW.
- Abbreviations and Acronyms – A list of abbreviations and acronyms referenced throughout the ALP set and their respective definitions.

Existing Airport Layout Plan (Sheet 3)

The existing ALP is provided as a reference document to identify existing facilities (including airfield pavement, buildings, and other structures). The ALP sheet represents the Airport in its entirety at a scale of 1-inch equals 600 feet. The ALP drawing is a graphic presentation of the actual layout of physical facilities at RSW. Major features of the ALP drawing include runways, taxiways, aprons, NAVAIDS, other existing Airport facilities, and the roadway system. This drawing also includes information from the data sheet for each runway approach, runway end elevations, the orientation of the airspace surfaces for each runway end, and the angle of declination (magnetic north), including the annual rate of change for the magnetic declination. It also includes pertinent clearance and dimensional information associated with the runways and taxiways, such as runway safety areas (RSAs), runway object-free areas (ROFAs), and runway protection zones (RPZs). Other data referenced on the existing ALP sheet includes existing Airport reference point (ARP), ground terrain contours, and other dimensional data recommended by the FAA.

Ultimate Airport Layout Plan (Sheet 4)

The ultimate ALP depicts the proposed Airport development-related projects necessary to meet forecasted demand over the 20-year planning horizon and beyond. The proposed development is consistent with those projects discussed in Chapter 7: Implementation Plan. The ultimate ALP sheet illustrates the Airport in its entirety at a scale of 1-inch equals 600 feet. Major features of the ultimate ALP include runways, taxiways, aprons, NAVAIDS, existing facilities, roadway system, and non-Airport facilities surrounding Airport property. This drawing also includes information from the data sheet for each runway approach, runway end elevations, runway high and low points, true azimuths for each runway, and the angle of declination (magnetic north), including the annual rate of change for the magnetic declination. The ultimate ALP also includes pertinent clearance and dimensional information associated with runways and taxiways, such as RSAs, ROFAs, and RPZs. The ultimate ALP demonstrates the Airport's compliance with standards set forth in FAA AC 150/5300-13B, *Airport Design*.

The proposed airfield and other related development that are presented graphically on the ultimate ALP are consistent with those projects discussed in the Implementation Plan of the Airport Master Plan Update. Primary proposed improvements depicted on the ultimate ALP include the following:

- Construct the southern parallel taxiway to the existing Runway 6-24 (Future 6L-24R)
 - Taxiways A6 and A7 between Taxiway A and the North Ramp
- Construct the northern parallel taxiway to the existing Runway 6-24 (Future 6L-24R)
- Construct future Runway 6R-24L and associated taxiways
- Install future Runway 6R-24L Medium Intensity Approach Light System with Runway Alignment Indicator Light (MALSR)
- Install future runway 6R-24L Instrument Landing Systems (ILS) – CAT I capability for both runway ends
- Relocate FPL transmission line (including transmission towers, construction of new patrol road, and construction of applicable fences/gates)
- Upgrade existing Runway 6 (Future Runway 6L) Instrument Approach – From CAT I to CAT II
- Improve taxiway intersection and turns to meet TDG-5 standards
- Relocate Airport Rotating Beacon in the vicinity of the new air traffic control tower
- Relocate Taxiway G1 to the west to eliminate the direct taxi access from the passenger terminal apron
- Install Runway Guard lights at five locations
 - Taxiway F1 and Runway 6
 - Taxiway A4 and Runway 6-24
 - Taxiway A5 and Runway 6-24
 - Taxiway A7 and Runway 6-24
 - Taxiway F9 and Runway 24
- Remove direct runway access at three locations:
 - Taxiway A4 between Taxiway A and the Cargo Ramp
 - Taxiway A5 between Taxiway A and the General Aviation Ramp
- Incorporate land use per exhibit 5-11
- Expand existing fuel farm
- Construct Public safety building
- Construct a secondary fire station
- Construct Concourses (A,B,C, and E)
- Consolidated Maintenance Facility
- Chamberlin Parkway realignment
- Intersection improvements on Daniels Parkway/CR 876 at Paul J. Doherty Parkway/Gateway Boulevard
- Terminal access road and curbside improvements
- Expand and relocate cell phone lot
- Expand employee parking lot and parking garage
- Expand long-term surface parking lot
- Expand rental car facilities
- Relocate rental car maintenance facilities
- Future potential non-aviation development
 - North of Runway 6-24 (Skyplex)
 - Midfield
 - Southeast quadrant of the airport

Terminal Area Plan Drawing (Sheet 5)

Sheet 5 includes a scaled drawing depicting close-in features of all major aviation-related development in the main terminal area at RSW, as consistent with the ultimate ALP drawing. This drawing depicts detailed reference to buildings, apron/ramp areas, and motor vehicle-related features, including geometric dimensional areas, safety setbacks, NAVAID critical areas, and separation standards. Key areas shown on these drawings include aircraft parking positions, existing and future building footprints, aprons, taxiways and taxilanes, and primary access roadways and fencing. Also included are building data tables that identify the major existing and proposed structures and their associated elevation. Buildings and structures are identified by numerical codes.

Part 77 Airport Airspace Plan Drawings (Sheet 6 and 7)

Sheets 6 and 7 of the ALP drawing set provide the Airport Airspace Drawings, East and West sides, respectively. To enhance the safe operation of aircraft in the airspace around an airport, the FAA has adopted 14 Code of Federal Regulations (CFR) Part 77, *Safe, Efficient Use, and Preservation of the Navigable Airspace*. Subpart C of 14 CFR Part 77 establishes imaginary surfaces for determining obstructions to air navigation, which are illustrated on the Airport Airspace Drawings. The Airport Airspace Drawings also illustrate physical features on and around the Airport, including any existing obstructions that penetrate the 14 CFR Part 77 imaginary surfaces. These obstructions are listed numerically on the 14 CFR Part 77 Airport Airspace Drawings, and the obstruction data table included in Sheet 5 provides a description of the obstruction, the obstruction elevation, the affected 14 CFR Part 77 surface, the surface elevation, the amount of penetration, and the proposed manner in which the obstruction will be mitigated. The dimensions of the 14 CFR Part 77 surfaces are based on the NAVAIDs and the types of approaches available to a runway end. **Table 9-3** summarizes the primary 14 CFR Part 77 dimensions associated with each runway end at the Airport. The specific imaginary surfaces depicted on these drawings include:

- **Primary Surface** – Longitudinally centered on each runway, this surface extends 200 feet beyond each end of the runway; it has an elevation equal to that of the runway centerline. The width of the primary surface is that prescribed for the most precise instrument approach procedure, existing or planned, for either end of the runway. The primary surfaces at RSW are 1,000 feet wide for existing Runway 6-24 and Ultimate Runway 6L-24R.
- **Approach Surfaces** – These surfaces are longitudinally centered along the extended centerline, and they extend outward and upward from each end of the primary surface. The size and slope of the approach surface are based on the type of approach, existing or planned, for that runway end. The inner edge of the approach surface is the same width as the primary surface. However, its overall length, slope, and outermost width may vary; refer to Table 9-3.
- **Transitional Surfaces** – These surfaces extend outward and upward from the lateral edges of all primary and approach surfaces at a slope of 7:1. The overall width of the transitional surfaces is 5,000 feet, which is measured perpendicularly from the runway centerline.
- **Horizontal Surface** – This surface is a plane located 150 feet above the established Airport elevation, which calculates out to 179.2 feet. Its perimeter consists of arcs of specific radii connected by lines tangential to the arcs. The arcs are centered on the midpoint of the ends of all primary surfaces.
- **Conical Surface** – This surface extends outward and upward from the periphery of the horizontal surface at a slope of 20:1, for a horizontal distance of 4,000 feet.

Table 9-3 14 Code of Federal Regulations Part 77, Existing Primary Imaginary Surfaces by Runway End

	Runway Approach End			
	Existing Runway 6	Existing Runway 24	Ultimate Runway 6L	Ultimate Runway 24R
Approach Type	PIR-PIR	PIR-PIR	PIR-PIR	PIR-PIR
Primary Surface Width (feet)	1,000	1,000	1,000	1,000
Horizontal Surface Radius (feet)	10,000	10,000	10,000	10,000
Approach Surface Width (inner; feet)	1,000	1,000	1,000	1,000
Approach Surface Width (outer; feet)	16,000	16,000	16,000	16,000
Approach Surface Length (feet)	100,001	100,001	100,001	100,001
Approach Slope	50:1/40:1	50:1/40:1	50:1/40:1	50:1/40:1

NOTES: PIR – Precision

SOURCE: Federal Aviation Administration, *Airport/Facility Directory*, March 2023.

Inner Portion of the Approach Surface Drawings and Obstruction Data Tables (Sheets 8 through 11)

The Inner Portion of the Approach Surface Drawings (Sheets 8 through 11) were prepared for each of the existing runway approaches; they consist of scaled drawings of the area immediately beyond the existing and proposed runway ends at RSW, including the RPZ off each runway end. These drawings depict the location of roadways, structures, natural ground elevations, and other manmade or natural features within the limits of each RPZ. The drawings also detail objects that penetrate the existing and proposed approach surfaces. Note that on Sheet 9, only trees that penetrate the 14 CFR Part 77 existing approach surface are labeled in the profile view. These obstructions are listed numerically on the Inner Portion of the Approach Surface Drawings. The obstruction data tables included on these sheets provide a description of the obstruction, the obstruction elevation, the affected 14 CFR Part 77 surface, the surface elevation, the amount of penetration, and the proposed way the obstruction will be mitigated. Obstruction information was obtained from the 2022 aerial photo survey that was completed by Martinez Geospatial, Inc.

Only trees penetrating the Terminal Instrument Procedures (TERPS) and/or Threshold Siting surfaces (TSS) were recommended for trimming and/or removal. Objects fixed by function and/or marked with obstruction lights would remain in place. The obstruction survey identified over 5,000 points of treetops or obstructions within 10 feet of the TERPS and/or TSS surfaces. Due to this large data set, the complete list of obstruction data is not shown in the ALP but will be submitted in electronic format.

Ultimate Land Use Plan (Sheet 12)

Land use planning allows coordinating uses of the airport property in a manner compatible with the functional design of the airport facility. Airport land use planning is important for the orderly development and efficient use of available space. The two primary considerations for airport land use planning are to secure areas essential to the safe and efficient operation of the airport and to determine compatible land uses for property areas that could be utilized most effectively in the airport's surrounding area.

The Ultimate Land Use Plan shows the use of property areas within the existing airport property boundary at RSW. Sheet 12 identifies Ultimate land use designations for airport owned property for Airport Operations Areas and non-aviation use areas. The land uses are depicted on the Sheet 12:

- Existing Aviation/Airport Related Use Area - Land used for aviation activities such as aircraft and vehicle parking, storage and maintenance hangars, Fixed Based Operators (FBOs), aircraft maintenance and fueling facilities, cargo and/or Maintenance, Repair, and Overhaul (MRO) facilities, terminal area and gates, and landside terminal parking.
- Ultimate Aviation/Airport Related Use Area - Proposed land use for aviation activities such as aircraft and vehicle parking, storage and maintenance hangars, FBOs, aircraft maintenance and fueling facilities, cargo and/or MRO facilities, terminal area and gates, and landside terminal parking.
- Ultimate Non-Aviation Related Development Area - Proposed areas used for non-aviation revenue support. These areas are intended for commercial, industrial, and appropriate agricultural development.
- Existing Airport Operations Area - Areas of the airport utilized for the safe and efficient operation of aircraft including airfield facilities such as runways and taxiways and the areas within the limits of the RPZ, ROFA, and Taxiway Object Free area (TOFA).
- Ultimate Airfield Operations - Proposed areas of the airport with the intent to be developed to maintain the safe and efficient operation of aircraft including proposed airfield facilities such as runways and taxiways and the areas within the limits of the RPZ, ROFA, and TOFA.
- Environmental Areas/Compatible Land Use - Controlled area at or near the airport of special architectural, historic, agricultural, and/or wildlife interest.

Property Map Sheets (Sheet 13 and 14)

The Airport Property Map, Sheets 13 and 14, provides an overview of land conveyances associated with the Airport and how they were acquired. The Airport Property Map also illustrates the properties that were released and the aviation easements that have been obtained. These land conveyances aid in creating the approximate Airport property boundary used in the ALP drawing sheets. A table is included that details the following information for each parcel: parcel identification number, acreage, property interest, acquisition date, and federal project number.