SOUTHWEST FLORIDA INTERNATIONAL AIRPORT

14 CFR Part 150 - Noise Exposure Maps Report and Noise Compatibility Program Update

Prepared for
Lee County Port Authority

September 2013

ESA

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CHAPTER 1
Introduction

The Lee County Port Authority (LCPA), owner and operator of the Southwest Florida International Airport (RSW), has undertaken a Federal Aviation Regulation (FAR) Part 150 Noise and Land Use Compatibility Study (14 CFR Part 150 Study) Update for RSW. This Study provides the opportunity for aviation interests, state and local government officials, and the public to address noise and land use compatibility issues related to the operation of the Airport. There are three primary objectives of the Study: first, the identification of RSW's existing operational procedures and the determination of the existing and future noise conditions around the Airport; second, the identification and evaluation of potential future operational, land use, and program management measures that could be implemented to reduce noise impacts to noise sensitive land uses; and third, the development of a comprehensive Noise Compatibility Program (NCP) that consists of the Airport Sponsor recommendations to alleviate future noise impacts to the surrounding communities. This portion of the report, called the Noise Exposure Map (NEM), addresses the first of these objectives. This Study is an update to a previous 14 CFR Part 150 Study which was completed in 2006, and captures the changes that have occurred at RSW since the previous study was completed.

1.1 Background/Need

1.1.1 Previous Part 150 Studies

The aircraft noise abatement program at RSW has evolved continually since the airport's opening in 1983. An initial noise abatement program was established shortly after opening of the airport and has evolved through periodic updates at various milestones in the airport's development. Initial noise abatement operational procedures were established because of the noise impact on residential areas, in particular, San Carlos Park. This involved establishment of a northeast flow which placed the quieter arrivals over portions of San Carlos Park and the noisier departure activity over predominantly undeveloped property or lower density development northeast of the Airport. When winds required operation to the southwest, a noise abatement turn was established by directing departing aircraft through a mile and a half wide corridor located north of San Carlos Park, just north of Alico Road, and south of areas planned for future residential development. This noise abatement departure corridor, called the Alico corridor, continues to be used today.

In order to address the potential for continued encroachment of residential development and other noise sensitive uses, a 14 CFR Part 150 Noise Study was prepared in the late 1980s. A key feature of the resulting noise compatibility program was the establishment of a Noise Overlay Zone

encompassing the lands surrounding the airport. The limits of the overlay zones were largely based on noise contours associated with the one runway facility.

A Master Plan for RSW, prepared in 1986, identified the future need for a second runway. Following the environmental approval of the new runway in 1994, a 1995 14 CFR Part 150 update expanded the overlay zones to incorporate areas that would be affected by aircraft activity on the new runway. The 1995 Noise Compatibility Program also included additional noise abatement operational measures/ procedures. A 2006 14 CFR Part 150 Update included further refinements to the overlay zone including limiting noise sensitive land uses within the 60 DNL contour and establishing a public notification area within the 55 DNL contour. Refinements to operational procedures since the implementation of the initial measures to address San Carlo Park have included measures to address concerns in the communities of Gateway and Fiddlesticks, among others.

Chapter 10 of the Noise Compatibility Program outlines the existing noise abatement program at RSW.

1.1.2 Need for the Preparation of a New CFR Part 150 Study

The most recent 14 CFR Part 150 Study was completed in 2006. Since then, a number of changes have taken place that has impacted the operational conditions at the airport. These include:

- FAA implementation of the Florida West Coast Airspace Redesign or FLOWCAR.
- Opening of the midfield terminal complex and introduction of air carrier service by Southwest Airlines.
- Changes in aircraft operational levels, forecast activity and fleet mix.
- Modification and adjustments to arrival and departure procedures.
- Implementation of new technology and resulting operational procedures.
- Implementation of PASSUR^{TM} based financial management system which provides improved aircraft fleet tracking/accuracy.
- New concerns raised by communities including those along the Estero corridor, Fort Myers Beach and the Forest.
- Lee County Comprehensive Plan policy that requires update of the noise exposure conditions around the airport every five years.

As a result of these changes and the Lee County Comprehensive Plan policy, an update to the previous 14 CFR Part 150 is being undertaken.

1.2 Study Process Overview

The preparation of a 14 CFR Part 150 Study Update for RSW involves a series of steps as identified in **Figure 1.1**. At the outset of the Study, key issues were identified. These issues were

documented through initial input from the LCPA, individual citizens, and community interests. To accomplish this, input was received at meetings with Airport staff, and at a series of public workshops and community meetings.

Initial efforts on the Study included the inventory of existing 2011 operational activity. This involved data collection of the number of aircraft operating at the Airport on an annual basis, the fleet mix (types of aircraft), the time of day in which the aircraft operate (Day 07:00:00 a.m. to 09:59:59 p.m. or Night 10:00:00 p.m. to 06:59:59 a.m.) and existing aircraft operational procedures (i.e., runway use, flight tracks, departure and arrival corridors). In addition to operational data, land use data was collected and reviewed. This data included zoning regulations, existing land use maps, and future land use plans.

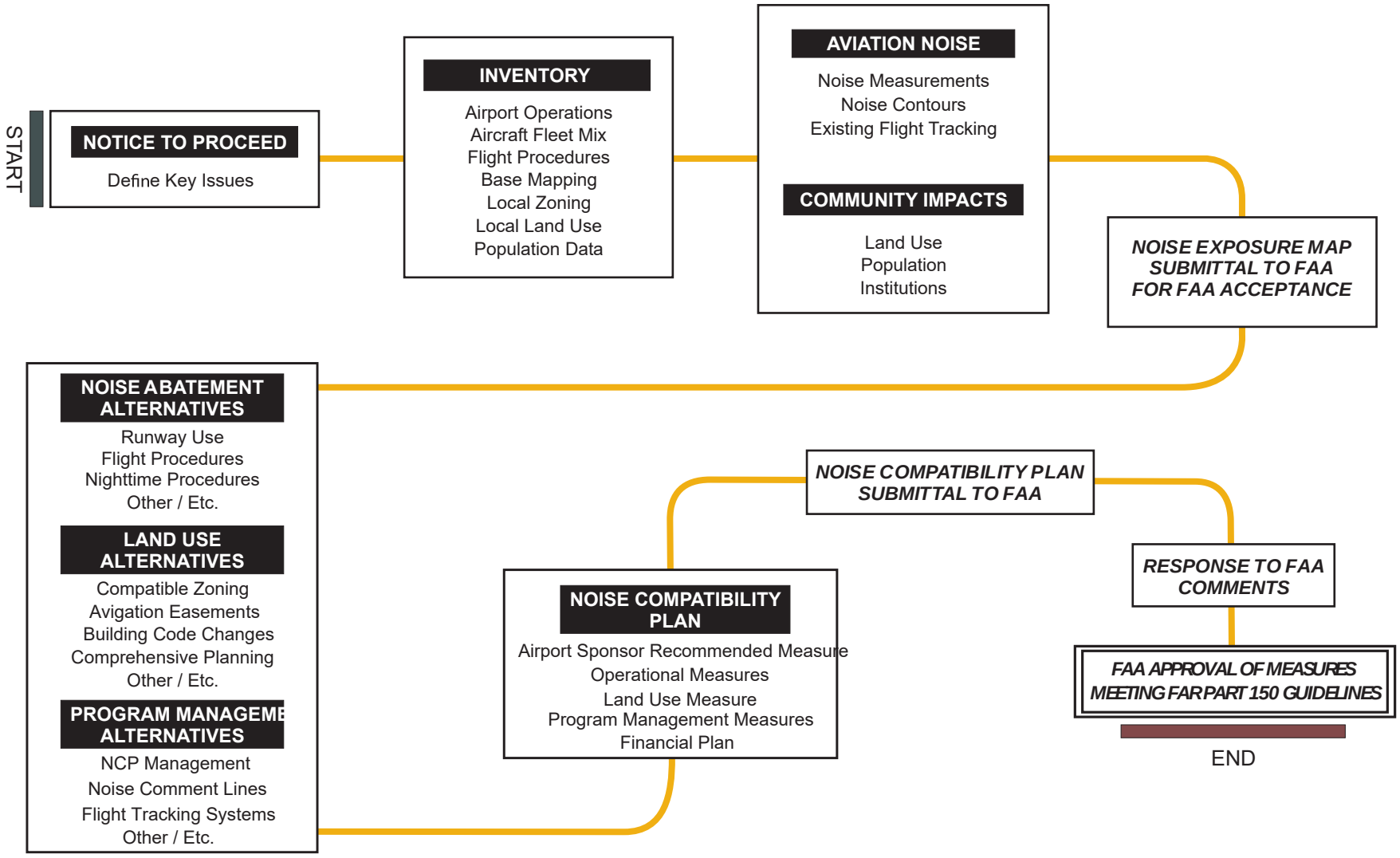
After completing the inventory process, a noise prediction model, the Federal Aviation Administration (FAA) Integrated Noise Model (INM) Version 7.0b was used to produce noise contours (areas of equal noise exposure around the Airport). The FAA requires that these noise contours be prepared for the current year (in this case 2012) and a projected condition for a future year that must be at least five years from the date of submittal of the document.

For the Study at RSW, the future year of 2017 was chosen to represent approximately five years into the future from the date of submittal. The forecasts of aircraft operations used in the model for the 2017 condition were derived from the most recent version of the Terminal Area Forecast (TAF) from the FAA. In this case, the most recent version was the December 2010 TAF. Using the existing and future operational data, the INM generated the 2012 and 2017 noise contours.

The existing and future noise contours are collectively known as the Airport's Noise Exposure Maps (NEMs). The NEMs are overlaid on existing maps and future land use plans to identify land uses that are compatible (or incompatible) with aircraft noise exposure under both current and future conditions. The results of these analyses are documented in this NEM report. The NEMs included in this report serve as an update to the NEMs that were previously found to be in compliance with 14 CFR Part 150 on February 11, 2005.

The second phase of the Study, called the Noise Compatibility Program (NCP), evaluates measures to try to improve noise compatibility around the Airport through modifications to aircraft operational procedures, changes to future land use planning and zoning requirements, and program management measures. The NEMs from the first part of the study serve as a basis for analyzing and comparing the operational, land use, and program management measures. The results of the alternatives analyses are incorporated into the NCP, which documents the alternatives considered and presents the Airport Sponsor's recommended measures.

The NEM and NCP either separately or combined are submitted under 14 CFR Part 150 to the FAA for their review and acceptance/approval. Certain NCP recommendations that are approved by the FAA could then become eligible for Federal noise abatement/mitigation funding or, in the case of revised flight procedures, for implementation at the airport. To assist in the review of this document, a list of common aviation acronyms and an aviation glossary are included in **Appendices A** and **B**.



SOURCE: ESA Airports

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Figure 1.1
Study Process

1.3 Airport Location and Setting

As shown in **Figure 1.2**, RSW is located in Lee County along Florida's Gulf Coast ten miles southeast of the City of Fort Myers. The Airport serves a population of more than 1.1 million residents from an area of five counties that include Lee, Charlotte, Collier, Hendry, and Glades counties as well as popular cities and destinations within those counties that include Marco Island, Naples, Fort Myers Beach, Sanibel and Captiva Islands, Cape Coral, Punta Gorda, and other locations along the Florida Gulf Coast. The area is a popular leisure destination for residents and vacationers alike from the U.S. and around the globe.

As show in **Figure 1.3**, the Airport is surrounded by residential, agricultural, and commercial land uses. The Airport lies east of Interstate 75 and Treeline Avenue and immediately south of Daniels Parkway (County Highway 876). The main terminal is connected to Treeline Avenue via Terminal Access Road.[1]

1.4 History of Airport Development

Prior to the construction of RSW, Page Field, located northwest of RSW, offered local area residents and visitors a full-service air transportation facility. However, it was eventually recognized that Page Field possessed insufficient space to meet potential expansion requirements for commercial aircraft operations and increased passenger volumes. In 1976, a decision was reached to construct a new airport facility in Lee County about 10 miles southeast of Fort Myers (the present site of RSW). In 1980, construction began on the new facility, then known as Southwest Florida Regional Airport, and the Airport opened on May 14, 1983. In 1993, the Airport received its international designation and was renamed Southwest Florida International Airport. In February 2002, construction began on a new Midfield Terminal Complex which was completed in September 2005.

[1] http://www.flylcpa.com/swfiainfo/

SOURCE: ESA Airports, GlobeXplorer (03/01/08)

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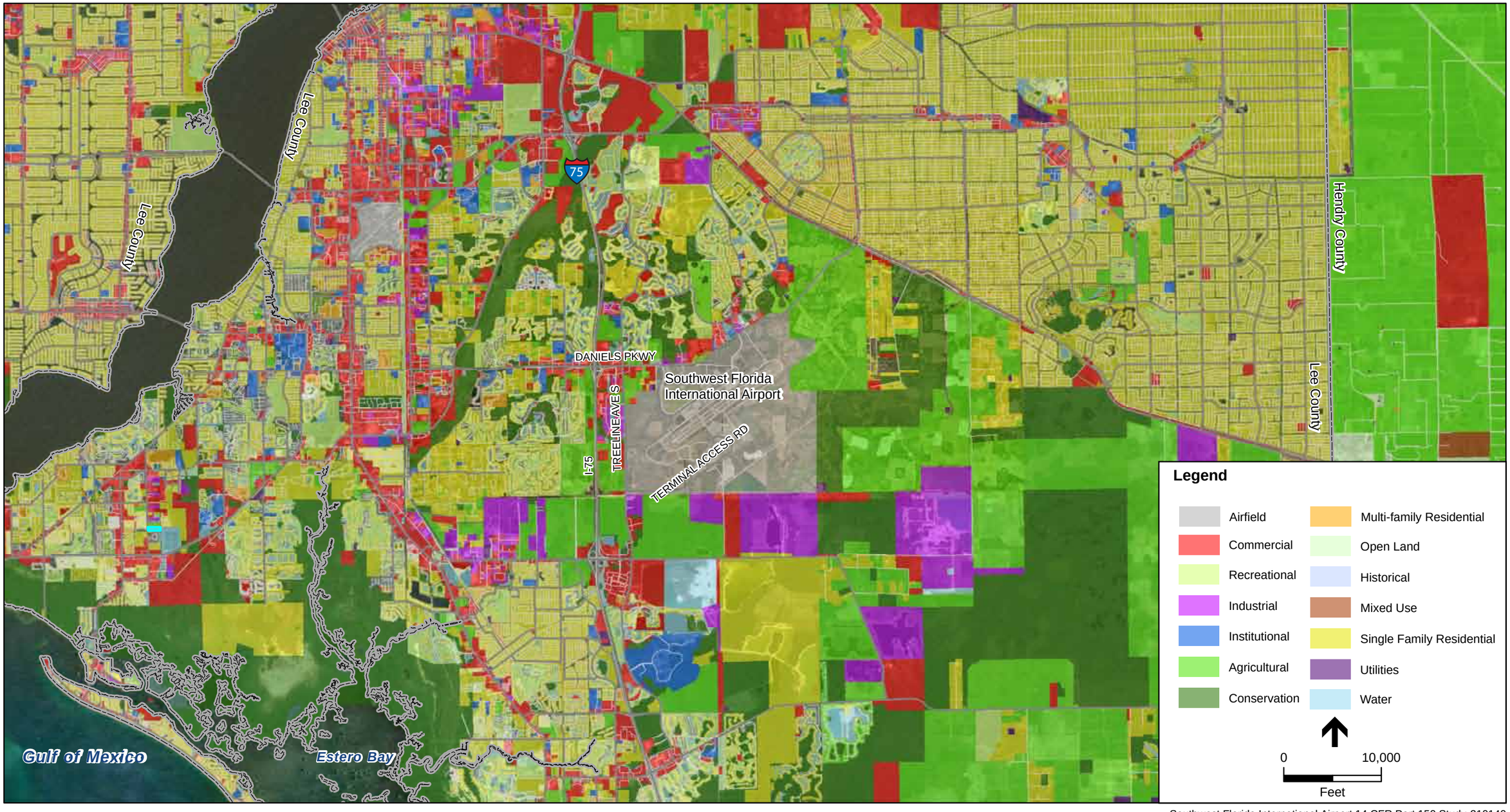
Figure 1.2

Airport Location Map



SOURCE: Lee County GIS Department; ESA Airports, 2011; ESRI

Figure 1.3
Existing Land Uses

CHAPTER 2
Airport Facilities and Local Airspace

This section reviews factors that influence noise conditions at the Airport. These factors include the airport facilities, the airspace and the arrival and departure procedures in use at the Airport.

2.1 Airport Facilities

RSW's facilities, described in this section, include runways, taxiways, passenger terminal, cargo facilities, general aviation support areas, an air traffic control tower, navigation aids and airport support facilities. According to the most recent Master Plan Update, the RSW airport reference code (ARC) is D-V which reflects expected large aircraft operations such as the Boeing 747.[1] The configuration of the major airfield components are shown on the FAA Airport Diagram in **Figure 2.1**.

2.1.1 Airport Runway

RSW has one runway, identified as Runway 06-24, oriented in a northeast-southwest configuration. A second runway is currently planned that will be configured parallel to the existing runway and located approximately 5,100 feet to the south. However, construction of the new runway is currently scheduled beyond the future year evaluated in the NEM report. Runway 06-24 is 12,000 feet long and 150 feet wide and is constructed of asphalt. It is grooved, and is considered to be in good condition. According to the Airport Facility Directory, Runway 06-24 has a weight limitation of 30,000 pounds for a single wheel load, 190,000 pounds for a double wheel load, 430,000 pounds for a double tandem wheel load, and 840,000 pounds for a dual double tandem geared aircraft. These strength ratings are acceptable to accommodate all of the aircraft presently using the Airport.

2.1.2 Taxiways

There is a system of three main taxiways at RSW, Taxiway "A", "F", and "G" which are used by aircraft to access various locations on the Airport.

Taxiway "A" is 12,000 feet long by 75 feet wide and parallels the north side of Runway 06-24. There are a total of ten Taxiway "A" connectors, all of which provide access between the runway and the parallel taxiway. Taxiways A-3 through A-8 provide access to the Cargo, General Aviation, and North Ramp areas on the north side of the Airport.

[1] Southwest Florida International Airport Master Plan Update, 2004

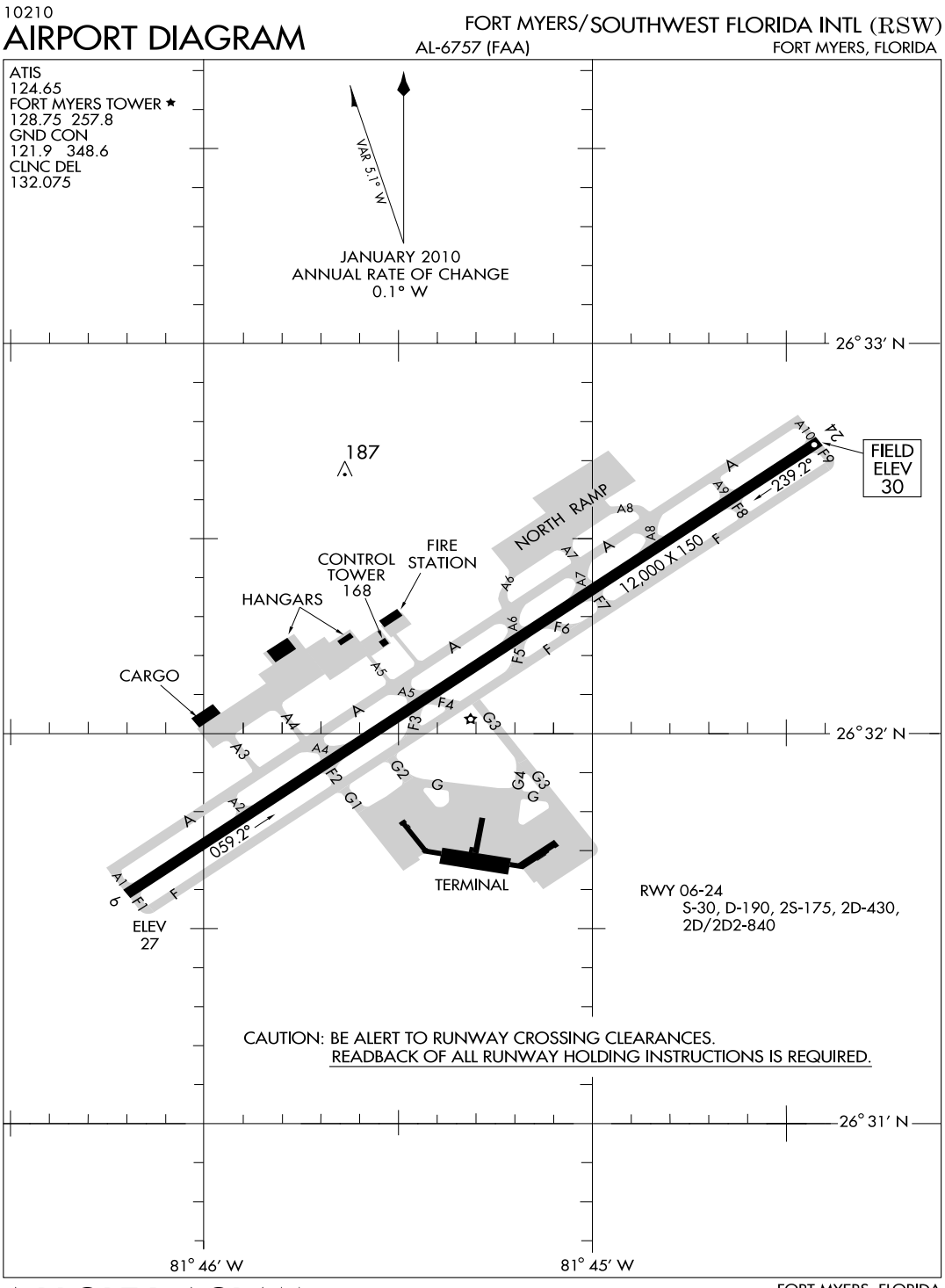


Figure 2.1
Airport Diagram

Taxiway "F" is 12,000 feet long by 75 feet wide and parallels the south side of Runway 06-24. There are a total of nine Taxiway "F" connectors all of which provide access between the runway and the parallel taxiway. Taxiway "F" further links aircraft to the Midfield Terminal Complex via Taxiway "G" and a series of Taxiway "G" connectors.

2.1.3 Passenger Terminal Facilities

The Midfield Terminal Complex, which was completed in September of 2005, is located south of Runway 06-24. The terminal has 28 total gates with two international arrival facilities and international transit lounge. The 28 gates are located on three concourses that are linked to a main terminal area where ticketing and baggage claims are located.

2.1.4 General Aviation Facilities

General aviation includes all facets of aviation flying excluding military, cargo, and scheduled commercial passenger air carriers. Some of the major categories of general aviation include business/corporate aviation, air taxi operations, flight training, personal flying, crop dusting, mosquito control, and traffic reporting.

The single general aviation facility at RSW is located on the north side of Runway 06-24 with direct access from Taxiway A-5. PrivateSky Aviation, Inc. is the current fixed base operator (FBO) at RSW and offers general aviation services including: aviation fuel, oxygen service, aircraft parking (ramp or tie-down), hangars, GA passenger terminal and lounge, aircraft maintenance, etc. The general aviation building has a large waiting area, offices, pilot shop, pilot lounge, pilot supply store, restrooms, and meeting rooms. The general aviation facility serves all types of general aviation aircraft.

2.1.5 Air Cargo Facilities

The main air cargo facility is located on the north side of Runway 06-24, just southwest of the general aviation terminal facility. The facility was built in 1992 and is currently sized at 24,000 square feet. This facility accommodates the cargo processing area, along with offices for FedEx and United Parcel Service. The building is located directly adjacent to an aircraft parking apron which allows direct access to aircraft from the facility.

2.1.6 Air Traffic Control Tower

The Airport is serviced by an active FAA air traffic control tower (ATCT) and a terminal radar approach control facility (TRACON) that is open from 6:00 a.m. to 12:00 a.m. When the ATCT is not in operation, radar approach control services are handled by Miami Center.

2.1.7 Navigational Aids, Lighting, and Markings

RSW employs several navigating aids, airport lighting, and airport markings to help users of the Airport safely navigate around the Airport and RSW airspace. The navigational aids include:

Instrument Landing System (ILS), Area Navigation (RNAV)/Global Positioning System (GPS), and a VORTAC which is the combination of a Very High Frequency (VHF) Omni-Directional Range (VOR) and Tactical Air Navigation facility (TACAN).

An ILS is an electronic system which helps guide pilots to runways during periods of limited visibility or inclement weather. An ILS includes a localizer, which provides lateral course guidance to the runway, and a glide slope which provides vertical course guidance.

The GPS uses a network of satellites which create reference points to enable aircraft equipped with GPS receivers to determine their latitude, longitude, and altitude. GPS systems can be used by aircraft during all phases of flight.

Area Navigation or RNAV is a method of navigation that permits aircraft operation on any desired flight path using the combination of both GPS and ground based navigational aids. RNAV routes and terminal procedures, including departure procedures and standard terminal arrivals, are designed with RNAV systems in mind to save on time and fuel, reduce aircraft dependence on air traffic control (ATC) vectoring, and provide for more efficient use of airspace.

A VORTAC is a facility consisting of two components, VOR and TACAN, which provides three individual services: VOR azimuth, TACAN azimuth and TACAN distance at one site. This navigational aid works for civilian aircraft by using a VHF radio to project straight line courses (radials) from the station in all directions of which pilots can navigate these radials to and from the VORTAC stations. As mentioned above, VORTACs also have distance capability or distance measuring equipment (DME) that lets the pilot know their slant range distance from the station. The TACAN part of the VORTAC is mostly used by military aircraft, but basically provides the same function as a VOR.

RSW has a VORTAC located approximately 2,200 feet northwest of the arrival end of Runway 06 that is operated by the FAA. The VORTAC at RSW is considered a Class “L” VORTAC which has a standard service volume limit of 40 nautical miles from 1,000 feet above ground level (AGL) to 18,000 feet AGL.

Runway 06 is the Airport’s only precision approach runway served by a Category I ILS which provides the lowest approach minimums at the airport (200 foot ceilings and ½ mile visibility) for straight in instrument approaches. There is also a non-precision RNAV (GPS) instrument approach to the runway. Runway 06 has centerline and touchdown zone lighting as well as a 1,400 foot medium intensity approach lighting system with runway alignment indicator lights (MALSR). To the left of Runway 06 is a 4-box Visual Approach Slope Indicator (VASI) with a standard 3.00 degree glide slope.

Runway 24 is considered a non-precision instrument approach runway with two instrument approaches including an RNAV (GPS) approach and a VOR/DME or TACAN approach. To the left of Runway 24 is a 4-light Precision Approach Path Indicator (PAPI) with a 3.00 degree glide slope. Runway 24 has centerline lighting and precision approach runway markings as well as runway end identifier lights (REIL).

2.1.8 Other Aviation Related Facilities

In addition to the passenger terminal, cargo facilities, and general aviation facilities, a number of aviation related support facilities are located on airport property. These facilities include:

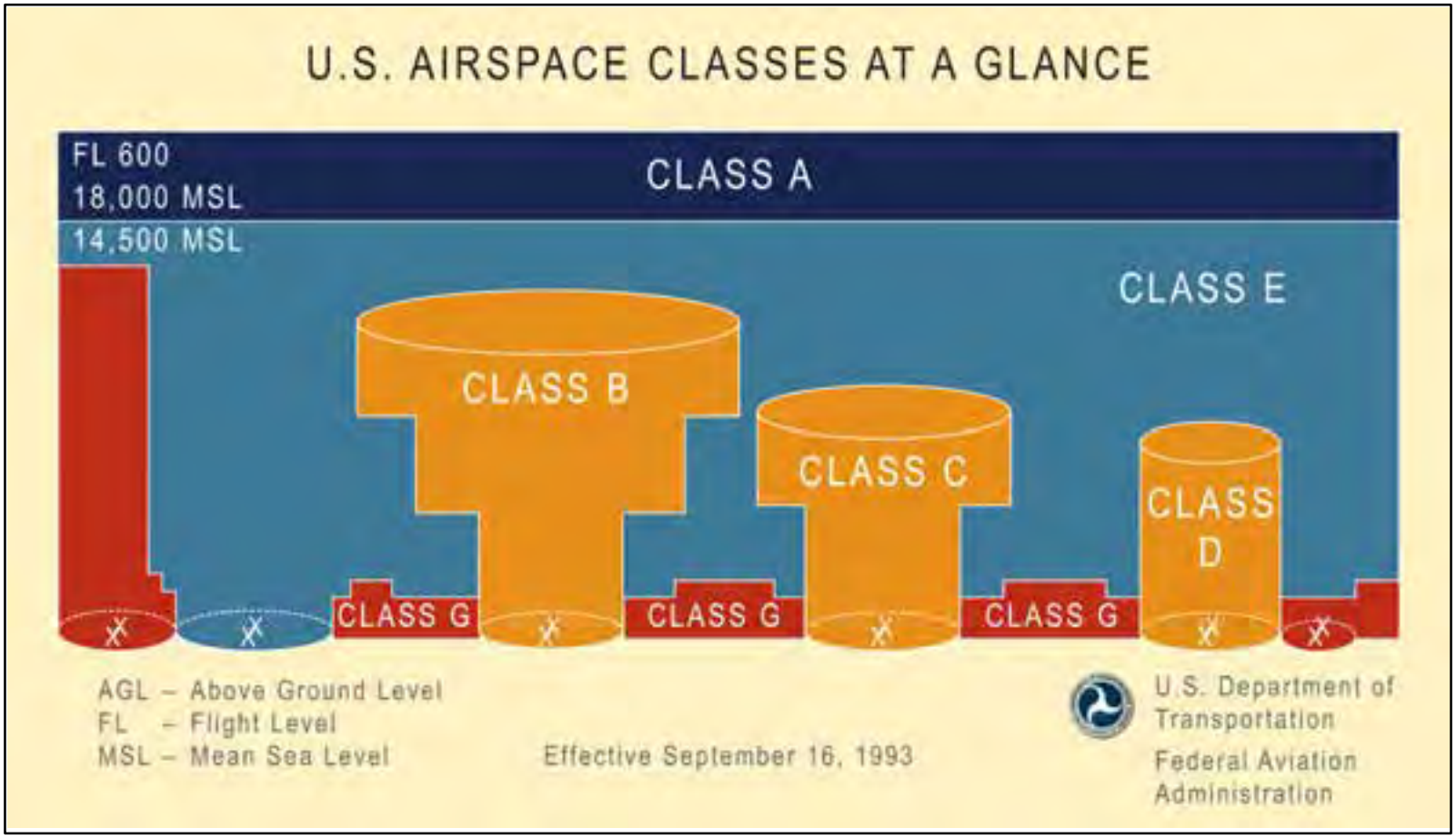
- Aircraft Rescue and Firefighting Facility (ARFF)
- Aircraft Fueling Facility
- Airport Maintenance Facility
- Airport Surveillance Radar
- Rental Car Facilities
- Airport Police Department and Pistol Range
- Police/ARFF Training Auditorium
- Airport Training and Conference Center

2.2 Airspace Classification

The FAA has six classifications of airspace under the National Airspace System (NAS). These classifications, which are designated Class A, B, C, D, E, and G and shown on **Figure 2.2**, are critical to the safety of all flights and to the efficient operation of all air traffic control facilities. Based on the level of activity and type of operations, airports receive a classification of B, C, D, E, or uncontrolled airspace. Class A airspace only exists above 18,000 feet mean sea level (MSL) and Class G is classified as uncontrolled airspace.

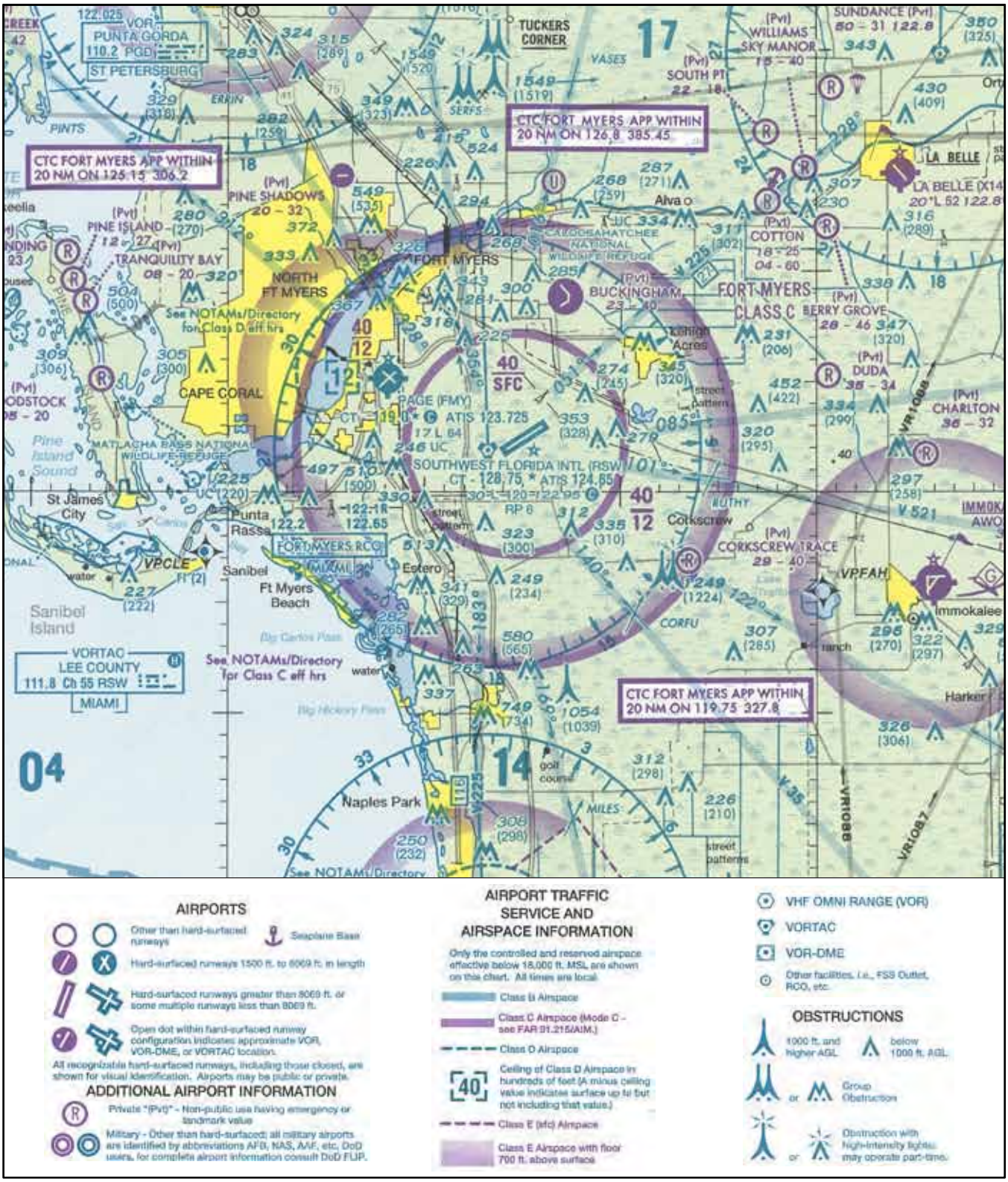
The airspace immediately surrounding RSW is classified as Class C airspace as shown on **Figure 2.3**. As shown on Figure 2.3, RSW's Class C airspace follows the general Class C profile described in the Aeronautical Information Manual. RSW's Class C airspace is depicted by two magenta rings that surround the airport and extend up to 4,000 feet above airport elevation (charted in MSL). From a side view, RSW's Class C airspace can be described as "an upside down wedding cake" in that the airspace consists of a five nautical mile radius core that extends from the surface up to 4,000 feet above airport elevation, and a ten mile radius shelf that extends no lower than 1,200 feet up to 4,000 feet above airport elevation. Aircraft operating under both visual flight rules (VFR), and IFR, are permitted into the RSW Class C airspace; however, each aircraft must have two-way radio communication with RSW approach control and have an operable radar beacon transponder with automatic altitude reporting equipment operating in the aircraft. This type of onboard aircraft equipment provides ATC with enhanced radar information about an aircraft such as altitude and airspeed.

Page Field Airport (FMY) is located approximately 6.5 nautical miles to the northwest of RSW under the outer shelf of the RSW Class C airspace. FMY is classified as a Class D airport with an operating control tower. FMY's Class D airspace is a single column of airspace that extends from the ground surface up to the floor of the RSW Class C airspace (1,200 feet above airport elevation), and extends from the airport out to approximately 4.3 nautical miles. Pilots must establish and maintain two-way radio communication with ATC prior to entering the FMY Class D airspace.



Source: FAA Aeronautical Information Manual, 2011

Figure 2.2
U.S. National Airspace System



Source:FAA Miami Sectional Chart, 2011

Figure 2.3
Southwest Florida International Airspace

2.3 Standard Terminal Arrivals and Departure Procedures

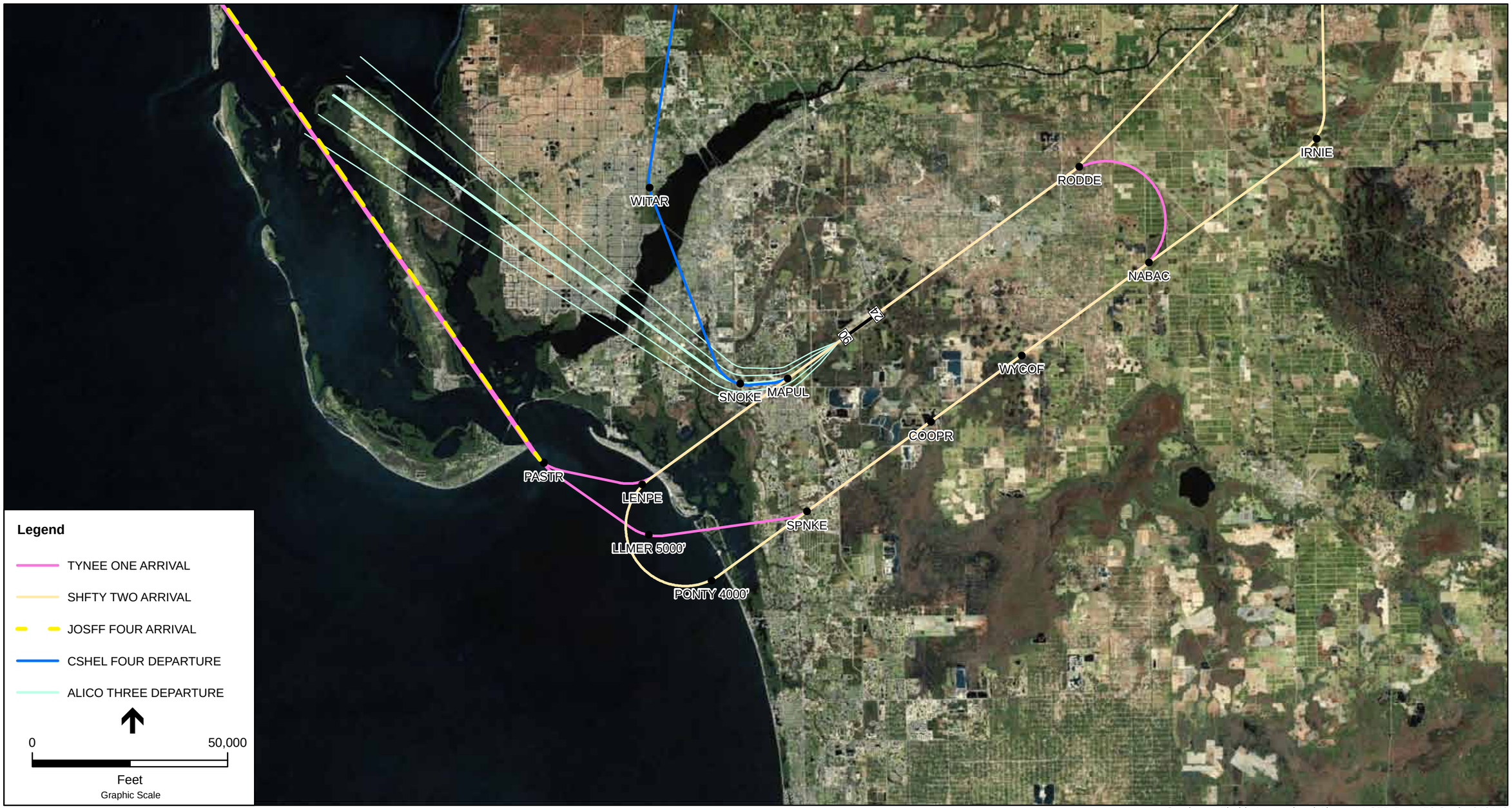
Standard Terminal Arrivals (STARS) and Departure Procedures (DPs) simplify clearance delivery and assist aircraft and ATC in the transition from airport operations to enroute travel and vice versa. STARs and DPs may serve more than one airport in an area, and a single airport may have multiple STARS and DPs such as RSW. Each of the published procedures referenced below are included in **Appendix C**.

2.3.1 Standard Terminal Arrivals

A STAR is an ATC IFR arrival route established to simplify aircraft clearance delivery and assist in the aircraft's transition between the enroute and approach portions of the flight. In late 2008, the FAA redesigned the arrival corridors to airports located in southwest Florida with the intent of enhancing airspace efficiency. The redesign occurred due to the increasing amount of aircraft flights which outpaced the system's ability to absorb the traffic causing saturation of air traffic control sectors. This in-turn resulted in operational delays to aircraft. The redesign was given the name FLOWCAR which stood for Florida West Coast Airspace Redesign. The phase two portion of the FLOWCAR addressed air traffic into and out of airports in Fort Myers area airspace including RSW, FMY, Naples Municipal Airport (APF), and Marco Island Airport (MKY), as well as underutilized airspace northeast of RSW. As a result, the SHFTY ONE RNAV STAR was formalized under FLOWCAR which brought arriving aircraft down through the middle of the state. There are currently three STARs at RSW that include the JOSFF FOUR, SHFTY TWO (RNAV), and the TYNEE ONE (RNAV) arrivals.

The JOSFF FOUR routes aircraft down the west coast of Florida to the JOSFF intersection located 47 nautical miles northwest of RSW. From JOSFF, aircraft are directed south 43 nautical miles to the PASTR intersection located approximately 14 nautical miles west of the approach end of Runway 06 at RSW, just off the south coast of Sanibel Island. From there, aircraft can expect radar vectors to their destination airport. The JOSEPF FOUR route is depicted on **Figure 2.4**.

The SHFTY TWO RNAV Arrival routes aircraft down the middle of the state of Florida converging at the SHFTY intersection located approximately 70 nautical miles north of RSW. Aircraft then are directed from SHFTY to the La Belle VOR (LBV) and then routed to their destination airport (RSW, APF, or MKY). Aircraft landing at RSW are routed from LBV either direct to the RODDE intersection for a straight in arrival to Runway 24, or if landing Runway 06, are routed further south of LBV to the IRNIE intersection where a right downwind turn is entered into south of RSW. Aircraft then fly to the PONTY intersection and then are radar vectored to the final approach course. Once on the downwind leg, aircraft will cross PONTY at 4,000 feet MSL. The SHIFTY TWO route is depicted on Figure 2.4.



SOURCE: FAA Terminal Procedures (FAA.gov, 2011); ESA Airport, 2011; Aerial, Bing Maps

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Figure 2.4

RSW Published Arrivals and Departures

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The TYNEE ONE RNAV Arrival routes aircraft down the west coast of Florida where they converge at the TYNEE intersection located approximately 32 nautical miles northwest of RSW. From there, aircraft are directed further south to the PASTR intersection where aircraft landing on Runway 06 are routed to the LENPE intersection for a straight in arrival or vectored east of Fort Myers Beach to the extended arrival path. When Runway 24 is active at RSW, aircraft are routed from the PASTR intersection for a left downwind turn to the NABAC intersection south of the Airport, where radar vectors are given to the final approach course. Like the SHFTY TWO RNAV Arrival, aircraft on the downwind leg maintain 4,000 feet MSL until they turn to the base leg. The TYNEE ONE route is depicted on Figure 2.4**.**

2.3.2 Departure Procedures

A DP is an ATC procedure for departing aircraft that has been established at certain airports to simplify clearance delivery procedures. DPs also assist pilots conducting IFR flights in avoiding obstacles during climb out to Minimum Enroute Altitudes (MEA) and can help to minimize impacts to noise sensitive areas. As with the STARS, the pilot follows the procedures without requiring vectors from ATC. There are currently three DPs at RSW that include the ALICO THREE, CSHEL FOUR, and SCUBY TWO Departures. The following describes these procedures.

The ALICO THREE Departure provides departure guidance for DME equipped aircraft departing both Runway 06 and 24. The procedure is as follows:

> "Takeoff Runway 06: Climb on runway heading or as assigned for vectors to join filed route.
>
> Takeoff Runway 24: Fly heading 238° (or as assigned) until RSW 2.3 DME, then turn right heading 270°. Leaving 3,000 feet MSL, turn right heading 310°, and expect radar vectors to assigned route.
>
> All aircraft are to maintain 4,000 feet MSL or assigned lower altitude. Aircraft can expect further clearance to filed altitude within 10 minutes of departure."

The ALICO THREE is depicted on Figure 2.4**.**

The CSHEL FOUR (RNAV) Departure is a relatively new DP. The DP provides guidance for RNAV/GPS equipped aircraft, or DME if the aircraft is non-GPS equipped. The procedure is as follows:

> "Takeoff Runway 06: Climb heading 058° or as assigned by ATC to 540 feet MSL before turning. Aircraft can then expect vectors to the CSHEL intersection located approximately 30 nautical miles north of RSW. Aircraft are then to fly further north via the depicted route.
>
> Takeoff Runway 24: Climb heading 238° to 540 feet MSL before turning, then direct MAPUL intersection located approximately 2.75 nautical miles off of the approach end of Runway 06. From MAPUL intersection, aircraft climb via a 270° track to SNOKE intersection, then right turn direct WITAR, then north via the depicted route.

All aircraft are to maintain 4,000 feet MSL or as assigned by ATC. Aircraft can expect filed altitude/ flight level 10 minutes after departure."

The CSHEL FOUR route is depicted on Figure 2.4**.**

The SCUBY TWO Departure provides a runway heading standard departure for both Runways 06 and 24. The procedure is as follows:

"Takeoff Runway 06: Fly runway heading or as assigned for vectors to join filed route.

Takeoff Runway 24: (Southbound) fly runway heading or as assigned for vectors to join filed route

All aircraft are to maintain 4,000 feet MSL or assigned lower altitude. Aircraft can expect filed altitude within 10 minutes after departure."

Since the SCUBY TWO departure can vary significantly depending on the radar vectors assigned by ATC, it is not depicted on Figure 2.4.

CHAPTER 3

Noise Fundamentals

While a great deal is known about aircraft noise, the methods used to calculate noise exposure can be difficult to understand. Determining aircraft noise exposure involves logarithmic averages and the noise energy from single events. In 14 CFR Part 150, the FAA required primary metric for assessing aircraft noise exposure is the Day-Night Average Sound Level (DNL). The DNL combines the noise energy from all aircraft operations occurring from the events in one day into an average, while applying a penalty to nighttime events, between the hours of 10:00 pm and 6:59 am, when people are more sensitive to sound. This section of the report provides details on what noise is, what metrics exist (including DNL) to measure noise exposure, and how certain metrics relate to one another.* [1]

3.1 Characteristics of Sound

3.1.1 Amplitude and Frequency

Sound can be technically described in terms of its sound pressure (amplitude) and frequency (similar to pitch).

Amplitude is a direct measure of the magnitude, or loudness, of a sound without consideration for other factors that may influence its perception. The ranges of sound pressures that occur in the environment are so large that they are expressed on a logarithmic scale. The standard unit of measurement of sound is the decibel (dB). A sound pressure level in dB describes the pressure of a sound relative to a reference pressure. By using a logarithmic scale, the wide range in sound pressures is compressed to a more usable range of numbers.

For example, a sound level of 70 dB has 10 times as much acoustic energy as a level of 60 dB; while a sound level of 80 dB has 100 times as much acoustic energy as a level of 60 dB. In terms of human response to noise, the perception is very different. A sound 10 dB higher than another sound is usually judged to be twice as loud; 20 dB higher four times as loud; and so forth.

The frequency of sound is expressed as Hertz (Hz) or cycles per second. The normal audible frequency range for young adults is 20 Hz to 20,000 Hz. The prominent frequency range for community noise, including aircraft and motor vehicles, is between 50 Hz and 5,000 Hz. The human ear is not equally sensitive to all frequencies, with some frequencies judged to be louder for a given signal than others. As a result, research studies have analyzed how individuals make relative judgments as to the “loudness” or “annoyance” to a sound. The most prominent of these

*The following source is a general reference for key information in this chapter.
[1] FAA Aviation Noise Effects Publication #FAA-EE-85-2, March 1985

scales include Loudness Level, Frequency-Weighted Contours (such as the A-weighted scale), and Perceived Noise Level. Noise metrics used in aircraft noise assessments are based upon these frequency weighting scales, which are discussed in the following paragraphs.

3.1.2 Loudness Level

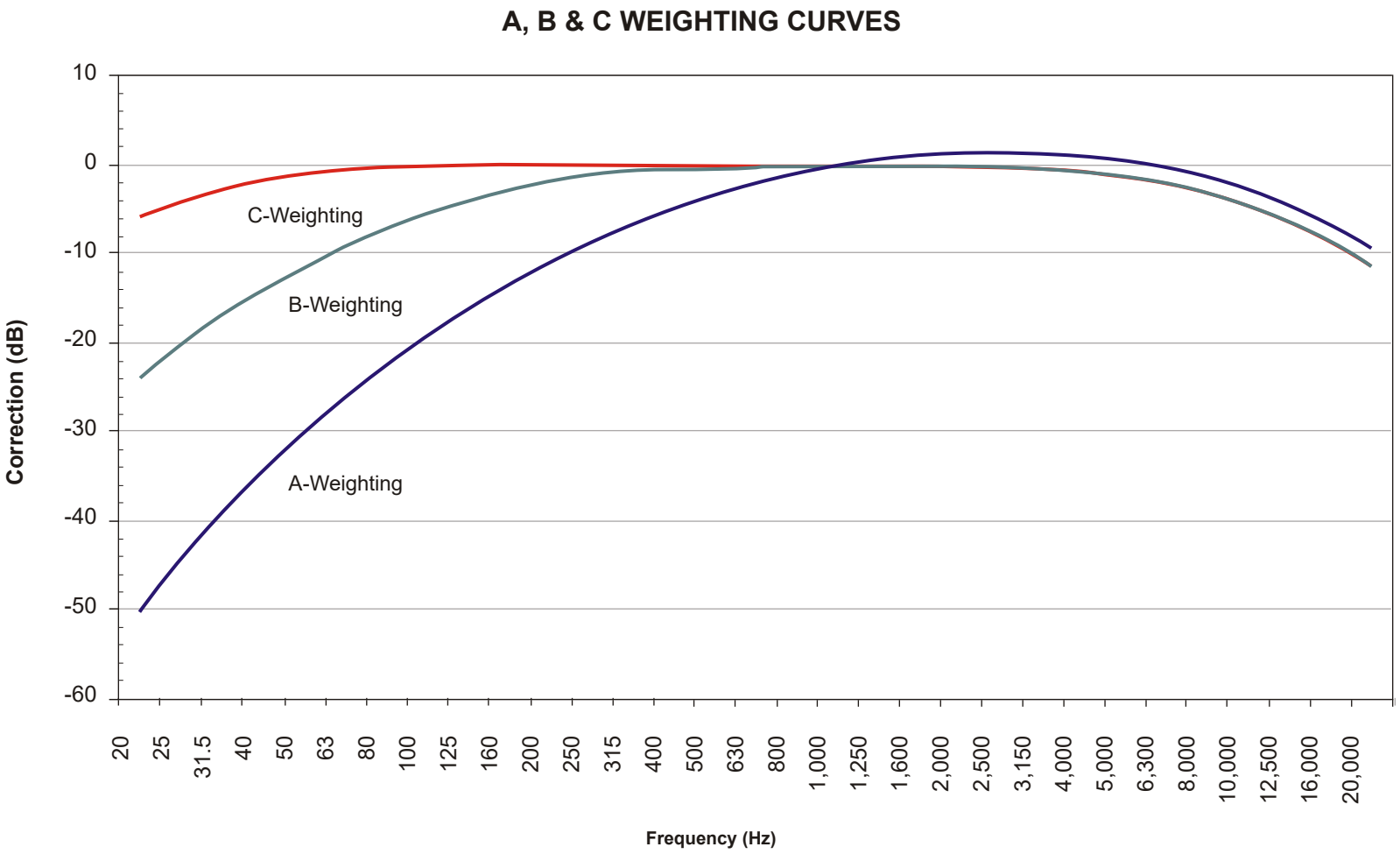
This scale has been devised to approximate the human subjective assessment to the "loudness" of a sound. Loudness is the subjective judgment of an individual as to how loud or quiet a particular sound is perceived. This sensitivity difference varies for different people and sound pressure levels.

3.1.3 Frequency-Weighted Contours (dBA, dBB, and dBC)

In order to simplify the measurement and computation of sound loudness levels, frequency-weighted networks have obtained wide acceptance in the scientific community. The equal loudness level contours for 40 dB, 70 dB, and 100 dB have been selected to represent human frequency response to low, medium, and loud sound levels, respectively. By inverting these equal loudness level contours, the A-weighted, B-weighted, and C-weighted frequency weightings were developed. **Figure 3.1** presents these frequency-weighted contours.

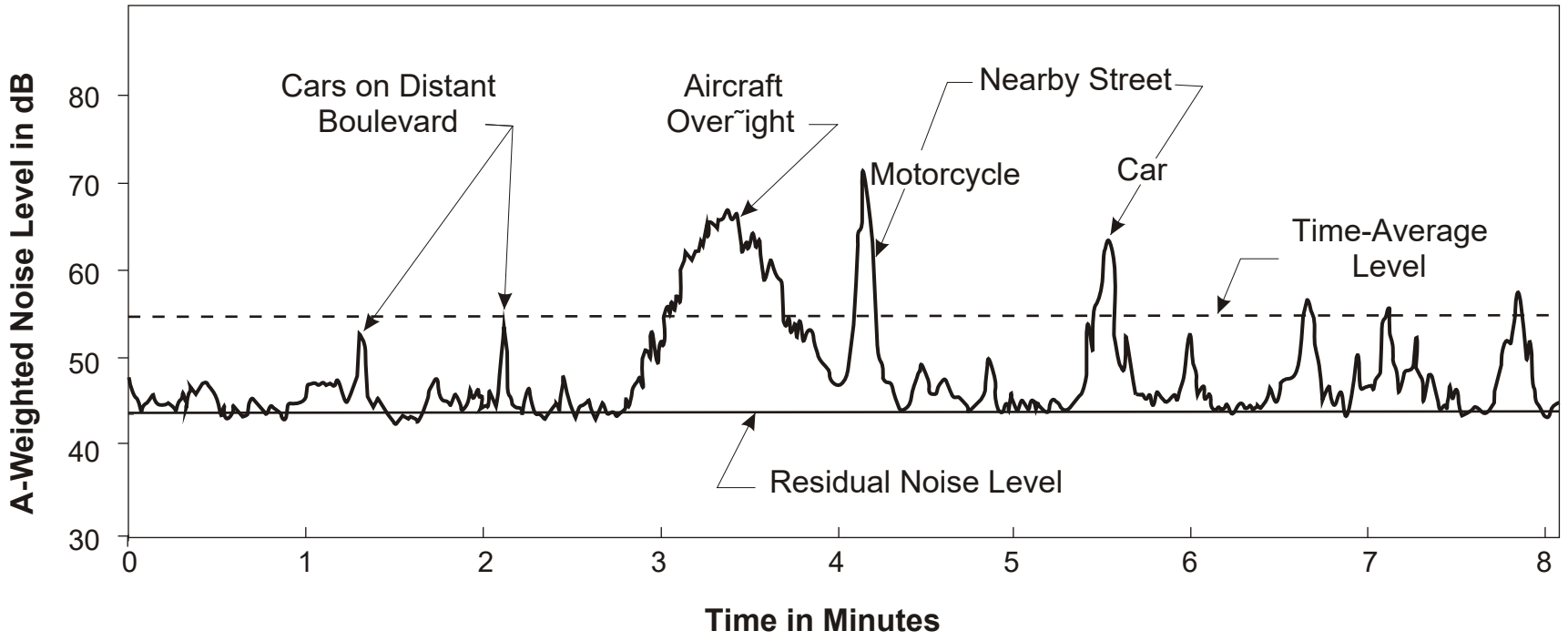
The most common weighting is the A-weighted noise curve. The A-weighted decibel scale (dBA) performs this compensation by discriminating against frequencies in a manner approximating the sensitivity of the human ear. In the A-weighted decibel, everyday sounds normally range from 30 dBA (very quiet) to 100 dBA (very loud). Most community noise analyses, such as this study, are based upon the A-weighted decibel scale. **Figure 3.2** presents examples of various sound environments expressed in dBA.

Some interest has developed by communities close to some airports in utilizing a noise curve other than A-weighting for lower frequency noise sources. For example, the C-weighted curve is used for the analysis of the noise impacts from military artillery noise. For evaluation of aircraft noise, A-weighting is used because the majority of noise associated with aircraft operations is better suited to the A-weighting; no mitigation methods have been proven to be effective for C-weighted noise (i.e., sound insulation), which is the minority portion of the noise associated with aircraft operations.



SOURCE: FHWA: Measurement of Highway-Related Noise (April 11, 2012), ESA Airports

Figure 3.1
Frequency Weighted Curves



SOURCE: EPA: Protective Noise Levels Condensed Version of EPA Levels Document (Nov. 1978), ESA Airports

Figure 3.2
Examples of Various Sound Environments

3.1.4 Perceived Noise Level

Perceived noisiness is another method of rating sound. It was originally developed for the assessment of aircraft noise. Perceived noisiness is defined as "the subjective impression of the unwantedness of a not-unexpected, nonpain, or fear-provoking sound as part of one's environment," (Kryter, 1970). "Noisiness" curves differ from "loudness curves" in that they have been developed to rate the noisiness or annoyance of a sound as opposed to the loudness of a sound.

As with loudness curves, noisiness curves have been developed from laboratory psychoacoustic surveys of individuals. However, in noisiness surveys, individuals are asked to judge in a laboratory setting when two sounds are equally noisy or disturbing if heard regularly in their own environment. These surveys are more complex and are therefore subject to greater variability.

3.1.5 Propagation of Noise

Outdoor sound levels decrease as a function of distance from the source, and as a result of wave divergence, atmospheric absorption, and ground attenuation. If sound is radiated from a source in a homogenous and undisturbed manner, the sound travels as spherical waves. As the sound wave travels away from the source, the sound energy is distributed over a greater area, dispersing the sound power of the wave. Spherical spreading of the sound wave reduces the noise level, for most sound sources, at a rate of 6 dB per doubling of the distance.

Atmospheric absorption also influences the levels that are received by the observer. The greater the distance traveled, the greater the influence of the atmosphere and the resultant fluctuations. Atmospheric absorption becomes important at distances of greater than 1,000 feet. The degree of absorption is a function of the frequency of the sound as well as the humidity and temperature of the air. For example, atmospheric absorption is lowest at high humidity and higher temperatures. Turbulence and gradients of wind, temperature, and humidity also play a significant role in determining the degree of attenuation. Certain conditions, such as inversions, can also result in higher noise levels that would result from spherical spreading as a result of channeling or focusing the sound waves.

Absorption effects in the atmosphere vary with frequency. The higher frequencies are more readily absorbed than the lower frequencies. Over large distances, the lower frequencies become the dominant sound as the higher frequencies are attenuated.

The effects of ground attenuation on noise propagation are a function of the height of the source and/or receiver and the characteristics of the terrain. The closer the source of the noise is to the ground, the greater the ground absorption. Terrain consisting of soft surfaces, such as vegetation, provide for more ground absorption than hard surfaces such as a body of water. Ground attenuation is important for the study of noise from airfield operations (such as thrust reversals) and in the design of noise berms and engine run-up facilities.

These factors are an important consideration for assessing in-flight and ground noise in the Southwest Florida region. Atmospheric conditions will play a role in affecting the sound levels on a daily basis and how the population perceives these sounds.

3.1.6 Duration of Sound

Research has shown that the annoyance from a noise event increases as the duration of the event increases. The "effective duration" of a sound is the time between when a sound rises above the background sound level until it drops back below the background level. Psychoacoustic studies have determined a relationship between duration and annoyance. These studies determined the amount a sound must be reduced to be judged equally annoying for increased duration (longer durations at low sound levels are equally annoying as shorter durations at higher levels). Duration is an important factor in describing sound in a community setting.

The relationship between duration and noise level is the basis of the equivalent energy principal of sound exposure. Reducing the acoustic energy of a sound by one half results in a 3 dB reduction. Doubling the duration of the sound increases the total acoustic energy of the event by 3 dB. This equivalent energy principal is based upon the premise that the potential for a noise event to impact a person is dependent on the total acoustical energy content of the noise.

3.1.7 Change in Noise

The concept of change in ambient sound levels can be understood with an explanation of the human hearing mechanism's reaction to sound. A young healthy ear can typically detect changes in sound levels of approximately 3 dB. A 5 dB change is readily noticeable, while a 10 dB change is judged by most people as a doubling or halving of the loudness of sound

3.1.8 Masking Effect

Another characteristic of sound is its ability to interfere with the ability of the listener to hear another sound. This interference is defined as the masking effect. The presence of one sound effectively raises the threshold of audibility for the hearing of a second sound. For a sound to be heard, it must exceed the threshold of hearing for that particular individual and exceed the masking threshold of the background noise.

The masking characteristics of sound depend upon many factors, including the spectral (frequency) characteristics of the two sounds, the sound pressure levels, the relative start times of the sounds and the duration of the sounds. The masking effect is greatest when the masking frequency is closest to the frequency of the sound. Low frequency sounds can mask higher frequency sounds; however, the reverse is not true.

3.2 Sound Rating Scales

The description, analysis, and reporting of community sound levels is made difficult by the complexity of human response to sound and the myriad of sound-rating scales and metrics that

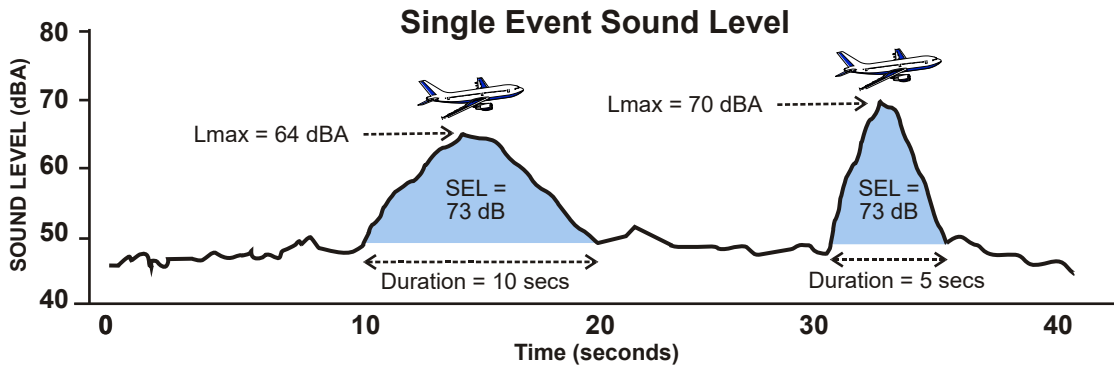
have been developed for describing acoustic effects. Various rating scales have been devised to approximate the human subjective assessment of the "loudness" or "noisiness" of a sound. Noise metrics have been developed to account for additional parameters, such as duration and cumulative effect of multiple events.

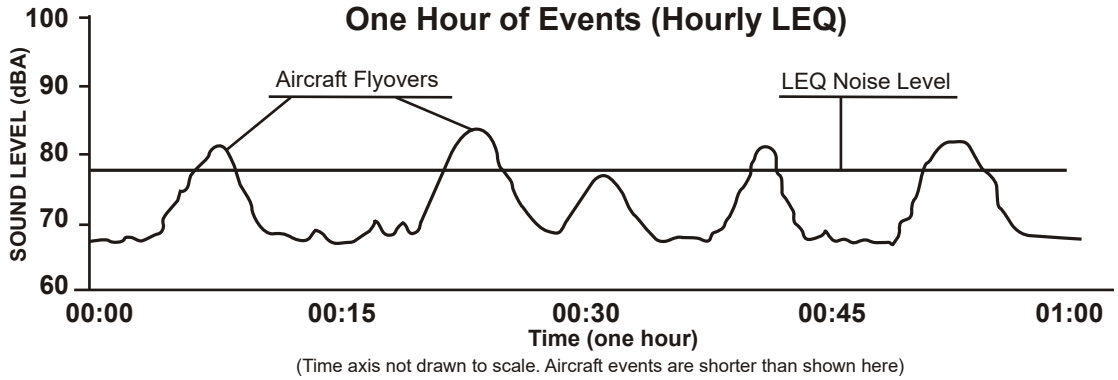
Noise metrics can be categorized as single-event metrics and cumulative metrics. Single-event metrics describe the noise from individual events, such as an aircraft flyover. Cumulative metrics describe the noise in terms of the total noise exposure throughout a period of time, such as one day.

3.2.1 Single Event Metrics

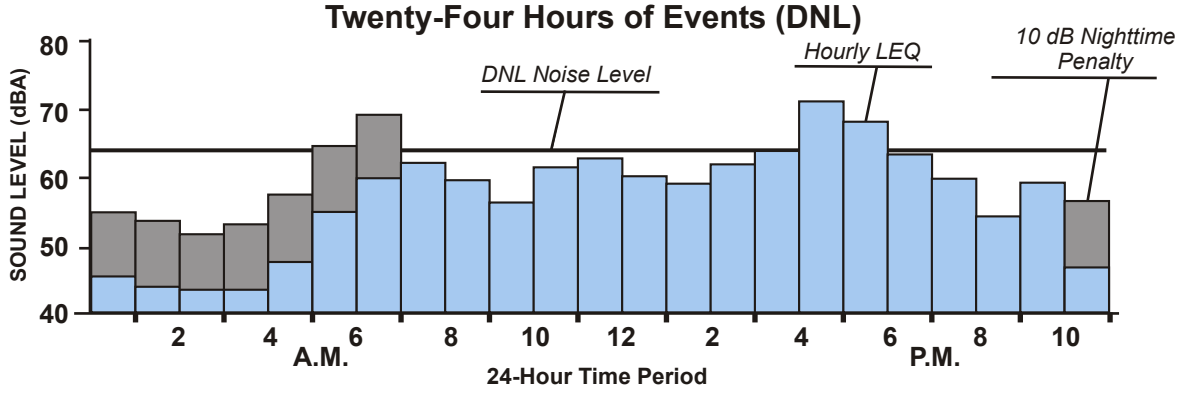
- *Frequency-Weighted Metrics (dBA)* – In order to simplify the measurement and computation of sound loudness levels, frequency-weighted networks have obtained wide acceptance. The A-weighting (dBA) scale has become the most prominent of these scales and is widely used in community noise analysis. Its advantages are that it has shown good correlation with community response and is easily measured.

- *Maximum Noise Level* – The highest noise level reached during a noise event is called the "Maximum Noise Level," or Lmax. For example, as an aircraft approaches, the sound of the aircraft begins to rise above ambient noise levels. The closer the aircraft gets, the louder the sound until the aircraft is at its closest point. As the aircraft passes, the noise level decreases until the sound settles to ambient levels. It is this metric to which people generally respond to when an aircraft flyover occurs. An aircraft flyover showing the Lmax sound level is graphically illustrated at the top of **Figure 3.3.**





(Time axis not drawn to scale. Aircraft events are shorter than shown here)



SOURCE: www.fican.org/pdf/aircraft_noise.pdf (April 2012), ESA Airports

Figure 3.3

SEL, LEQ and DNL Illustrations

3.2.2 Supplemental Metrics

- *Time Above (TA)* – The FAA has developed the Time Above metric as another metric for assessing aircraft noise around airports. The *TA* index refers to the total time in seconds or minutes that aircraft noise levels exceed certain dBA noise levels in a 24-hour period. It is typically expressed as Time Above 75 and 85 dBA sound levels. This metric is not widely used. The FAA has not developed noise/land use standards in terms of the TA metric, although it is used sometimes in noise compatibility studies or NEPA studies for disclosure purposes.

- *Percent Noise Level (Ln)* – To account for intermittent or fluctuating noise, another method to characterize noise is the Percent Noise Level (Ln). The Percent Noise Level is the level exceeded n% of the time during the measurement period. It is usually measured in dBA, but can be an expression of any noise rating scale. For example, L90 is the noise level exceeded 90 percent of the time, L50 is the level exceeded 50 percent of the time, and L10 is the level exceeded 10 percent of the time. L90 is generally regarded as the background sound level, L50 represents the median level, and L10 represents the peak or intrusive noise levels. Percent noise level is commonly used in community noise ordinances that regulate noise from mechanical equipment, entertainment noise sources, etc. It is not normally used for transportation noise regulation. As with the TA metric discussed above, the FAA has not developed noise/land use standards in terms of the Ln metric, although it is used sometimes in noise compatibility studies or NEPA studies for disclosure purposes.

- *Sound Exposure Level (SEL)* – Another metric that is reported for aircraft flyovers is the Sound Exposure Level (SEL) metric. It is computed from dBA sound levels. Referring again to the top of Figure 3.3, the shaded area, or the area within 10 dB of the maximum noise level, is the area from which the SEL is computed. The SEL value is the integration of all the acoustic energy contained within the event into a time period of 1 second. Speech interference and sleep disturbance research can be assessed relative to Single-Event Noise Exposure Level data. Like the TA and Ln metrics previously discussed, the FAA has not developed noise/land use standards in terms of the SEL metric, although it is used sometimes in noise compatibility studies or NEPA studies for disclosure purposes. This metric takes into account the maximum noise level of the event and the duration of the event. For aircraft flyovers, the SEL value is typically about 10 dBA higher than the maximum noise level. Single event metrics are a convenient method for describing noise from individual aircraft events. This metric is useful in that airport noise models contain aircraft noise curve data based upon the SEL metric. In addition, cumulative noise metrics such as Equivalent Noise Levels (Leq) and DNL can be computed from SEL data.

3.2.3 Cumulative Metrics

Cumulative noise metrics have been developed to assess community response to noise. They are useful because these scales attempt to include the loudness of the noise, the duration of the noise,

the total number of noise events, and the time of day these events occur into one single number rating scale.

- *Equivalent Noise Level (Leq)* – Leq is the sound level corresponding to a steady-state, A-weighted sound level containing the same total energy as a time-varying signal over a given sample period. Leq is the "energy" average noise level during the time period of the sample. It is based on the observation that the potential for a noise to impact people is dependent on the total acoustical energy content of the noise. It is the energy sum of all the sound that occurs during that time period. This is graphically illustrated on the middle graph of Figure 3.3. Leq can be measured for any time period, but is typically measured for 15 minutes, 1 hour, or 24 hours.

- *Day-Night Average Sound Level (DNL)* – The DNL index is a 24-hour, time-weighted energy average noise level based on the A-weighted decibel. It is a measure of the overall noise experienced during an entire day. The time-weighting refers to the fact that noise occurring during certain sensitive time periods is penalized for occurring at these times. In the DNL scale, noise occurring between the hours of 10:00 p.m. to 6:59 a.m. is penalized by 10 dB. This penalty was selected to attempt to account for the higher sensitivity to noise in the nighttime and the expected further decrease in background noise levels that typically occur in the nighttime. DNL is graphically illustrated on the bottom of Figure 3.3.

DNL was developed as a single number measure of community noise exposure. DNL was introduced as a simple method for predicting the effects on a population of the average long-term exposure to noise. DNL is an enhancement of the Leq metric through the addition of a 10 dB penalty for nighttime (10:00 p.m. to 6:59 a.m.) noise intrusions. The incorporation of the 10 dB penalty is in recognition of the increased annoyance that is generally associated with noise during the late night and early morning. DNL employs the same energy equivalent concept as Leq and uses a 24 hour time integration period. DNL was developed under Environmental Protection Agency (EPA) auspices, and embodies extensive information regarding the physical description of noise as related to human acceptability in residential areas. The basic elements and concepts of DNL are as follows:

- Frequency Weighting - Use of the standard A-weighting, which most closely reflects the response to the human ear.

- Time-of-Day Weighting - The 10 dB nighttime penalty accounts for greater sensitivity to noise and/or lower background levels at night.

- Energy Averaging - The energy-mean is the best general single-number description of sound level that varies with time, in terms of average community response.

3.2.4 Computation of DNL

In 1981, the FAA formally adopted the DNL metric for use in all Federally funded airport noise studies such as this one. In calculating DNL, the Leq level is used as the hourly equivalent sound level. The hourly noise figures are summed for the 15 hours of daylight and early evening (7:00 a.m. to 9:59 p.m.) and added to the sum of Leq hourly figures for the remaining 9 hours of nighttime (10:00 P.M. to 6:59 a.m.) with a 10 dB penalty added to the nighttime figures (to reflect added human sensitivity to nighttime noise). The result is the DNL noise level or a 24 hour average of noise levels for a given location. When aircraft noise contours are calculated, however, the noise levels are solely due to the aircraft and do not include background or ambient noise levels. In 1981, the FAA formally adopted DNL as the single system for determining exposure of individuals to aircraft noise. The use of DNL as the most appropriate measure of noise and its affect on persons was reconfirmed in the early 1990's after careful re-consideration by the Federal Interagency Committee on Urban Noise (FICUN). DNL is the most widely accepted descriptor for aviation noise because of the following characteristics:

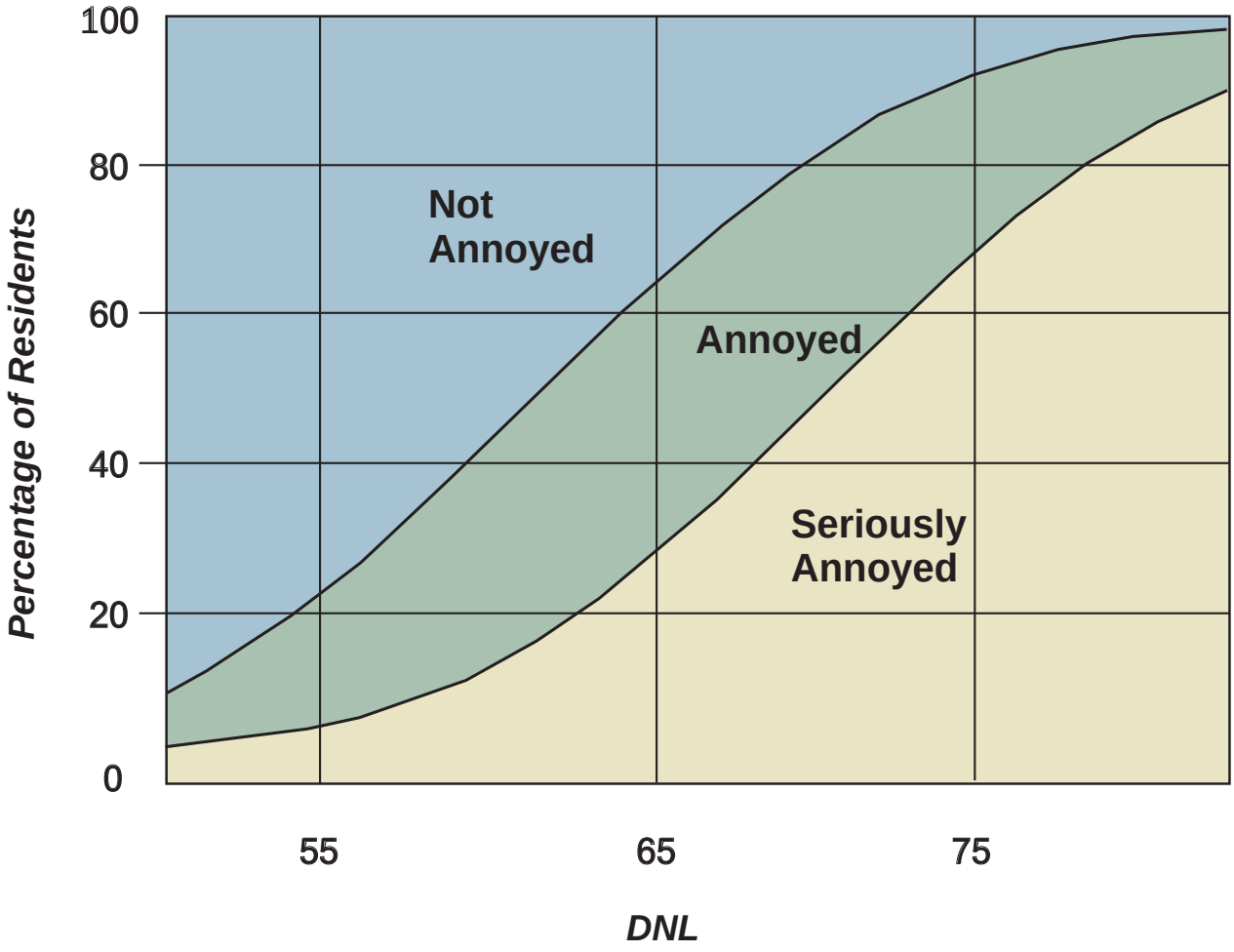
- DNL is a measurable quantity.
- DNL provides a simple method to compare the effectiveness of alternative airport scenarios.
- DNL can be understood by those who are not familiar with acoustics or acoustical theory.
- DNL is a measure that can describe a community's reactions to environmental noise.

The emergence of DNL as the standard descriptor of aviation noise in land use compatibility planning is due chiefly to the efforts of the EPA. In the spring of 1973, in an effort to comply with the Noise Control Act of 1972, EPA convened a task group with the function to "consider the characterization of the impact of airport community noise and to develop a community noise exposure measure." To accomplish this, the task group had to: determine the merits and shortcomings of methods to characterize the impact of the noise of present or proposed airport operations on the public health and welfare; determine which of such methods is most suitable for adoption by the Federal Government; and determine the implications of issuing Federal regulations establishing a standard method of characterizing the aviation noise, and of specifying maximum permissible levels for public health and welfare.

In 1976, the EPA formally recommended that FAA adopt DNL as the standard aircraft noise descriptor. FAA's decision to adopt DNL was also based on a number of other factors. In 1980, the Federal Interagency Committee on Urban Noise consolidated Federal guidance on the incorporation of noise considerations in local land planning and site review "to encourage noise sensitive development, such as housing, to be located away from major noise sources." The Committee adopted DNL as the best descriptor of noise for land use planning and established related land use compatibility guidelines. In the same year, the Acoustical Society of America developed an American National Standard (ANSI S3.23) which specified DNL as the acoustical measure to be used in assessing compatibility between various land uses and the outdoor noise

environment. In addition, Congress established a voluntary program of airport noise compatibility planning and directed FAA to issue regulations. In 1981, the FAA issued 14 CFR FAR Part 150, Airport Noise Compatibility Planning. As part of this regulation, the FAA formally adopted DNL. All Federally funded airport noise studies now use DNL as the primary metric.

As indicated in the FAA Report EE-85-2-Aviation Noise Effects, annoyance is the most prevalent effect of aircraft noise. The report indicates that while the overall, or average, community attitude about a noise level is usually what is reported, some individuals will be much more and others much less upset with the sound in question. **Figure 3.4** shows this typical response pattern. This variation is what makes the science of measuring community response a rather complicated matter. For example, Figure 3.4 shows that at a 55 DNL, approximately 20% of the people are annoyed and 80% are not. Similarly, at the 75 DNL, 90% of the people are annoyed but 10% are not. In the middle range, the 65 DNL, about 60% of the people are annoyed and 40% are not. Thus, the amount of noise exposure that is considered objectionable varies greatly by an individual's reaction to noise. This is why when dealing with criteria and guidelines related to noise we hear some say "it's a lot worse than that" and others at the same location say, "I'm not bothered by it."



SOURCE: FAA Report EE-85-2-Aviation Noise Effects

Figure 3.4
Annoyance Caused by Aircraft Noise in
Residential Communities Near Major Airports

3.3 Variability of Human Responses to Noise

The extent of annoyance caused by a specific noise event may be extreme for one person and non-existent for another person exposed to the exact same event at the same time. Thus, if there is one given about noise analysis, it is that human response to noise is subject to considerable natural variability. Extensive research has been conducted over the past 35 years to try to identify factors that contribute to the variation in human reaction to noise. Knowing what these variables are helps explain why it is not possible to simply state that a given noise level from a given noise source will result in a particular reaction by an individual. What the research has revealed is that an individual's attitude, beliefs, mood and values may greatly influence whether a particular person perceives a particular sound to be annoying or not. The following list provides a number of the emotional variables that have been found to influence a person's reaction to noise.

- Feelings about the Necessity or Preventability of the Noise: If people feel that their needs and concerns are being ignored, they are more likely to feel hostile towards the noise source. If people feel that those creating the noise care about their welfare and are doing what they can to mitigate the noise, they are usually more tolerant of the noise and able to accommodate higher noise levels.

- Judgment of the Importance and Value of the Activity Producing the Noise: If the noise is produced by an activity which people feel is vital, they are often less bothered by it as they would be if the noise-producing activity is considered superfluous. For example, high noise levels of emergency vehicles is acceptable while high noise levels from a car stereo is perceived as an annoyance.

- Feeling of Fear Associated with the Noise: The extent to which an individual fears physical harm from a source of noise will affect the person's attitude toward the source of noise.

- General Sensitivity to Noise: People vary in their ability to hear sound, their physiological predisposition to noise and their emotional experience of annoyance to a given noise.

- Predictability of the Noise: Individuals exposed to unpredictable noise have a lower tolerance than those exposed to predictable noise.

- Control Over the Noise Source: A person who has no control over the noise source will be more annoyed than one who is able to exercise some control.

All of the items listed above need to be kept in mind when considering the response of persons to noise. It needs to be noted that in some cases the actual concern may not even be the noise source, but may be associated with one or more of the emotional variables that influence a person's mood or attitude at the time of a noise event.

CHAPTER 4
Public and Agency Consultation

A series of outreach efforts were conducted during the development of the Noise Exposure Maps (NEM) and the Noise Compatibility Program (NCP). These efforts included two series of public workshops during the NEM phase, a third series of public workshops during the NCP phase and a number of community meetings and meetings with agencies and various FAA representatives.

4.1 Study Kick-Off Public Workshops Summary

The first series of public information workshops for the 14 CFR Part 150 Study was held from August 15, 2011 through August 18, 2011. Representatives from the LCPA and consultant team staff were on hand to discuss the 14 CFR Part 150 Study process and to allow the public to express their views and comments regarding aircraft noise exposure in the communities surrounding the Airport on a one-on-one basis. Four workshops were held at different locations in the communities surrounding RSW as indicated in **Figure 4.1**. Comment sheets were passed out as attendees entered the workshop to be handed in at the meeting or mailed within the following two weeks. An email address was also supplied on the comment form for those individuals that wished to email their comments. The submitted comments and responses to each category of comments are provided in **Volume 2** of this report. Twenty four informational presentation boards were displayed for public review and informational handouts were available at the workshop. Copies of these materials are included in Volume 2.

The public workshops were advertised in the Fort Myers News-Press on August 1st, 8th and 15th. The workshop times and locations were also posted on the Airport's website. Information about the workshops was also distributed to local TV stations. The workshops had extensive coverage by television, newspaper, and electronic media.

A summary of each workshop is included below:

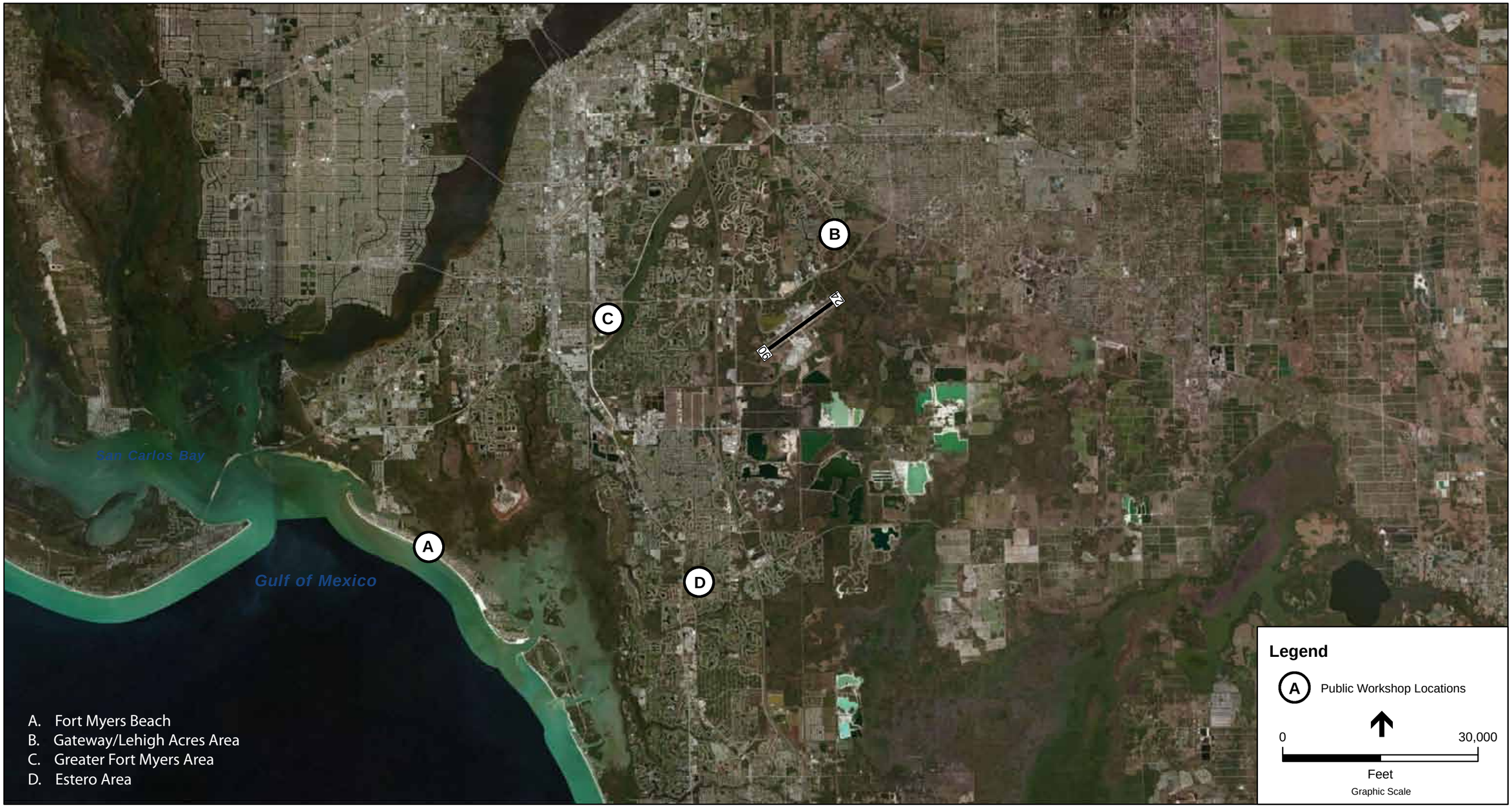
Monday, August 15, 2011 - St. Peter Evangelical Lutheran Church. This facility is located in Ft. Myers Beach approximately 11 miles southwest of the Airport. This area generally experiences aircraft overflights from aircraft arriving to Runway 06. The workshop was attended by 43 citizens and 14 comment forms were turned in during or following the workshop. Generally, the public commented on the noise, frequency of aircraft operations, the low altitudes of aircraft over the beach, aircraft making sharp turns along the beach; and expressed their ideas for having a continuous descent approach as well as having the aircraft make their turns either

before reaching the beach when arriving from the southeast or over the Gulf of Mexico instead of the beach.

Tuesday, August 16, 2011 – Gateway Baptist Church. This facility is located in the Gateway community approximately 2 miles north of the Airport. This facility was chosen because it is adjacent to Lehigh Acres and operated as a joint meeting for both communities. This area generally experiences aircraft overflights from aircraft departing Runway 06 and initiating a turn to the north. The workshop was attended by 32 citizens and nine comment forms were turned in at or following the workshop. Generally, the public comments ranged from requesting that the Airport not change anything, to moving the aircraft farther east before turning to the north when departing on Runway 06. Other comments included increasing the arrival altitudes to Runway 24, and not increasing flights over Westminster.

Wednesday, August 17, 2011 – Lee County Sports Complex/Hammond Stadium. This facility is located in Ft. Myers approximately 5 miles west of the Airport. This area generally experiences aircraft overflights from aircraft departing Runway 24 and initiating a turn to the north, and Runway 06 arrivals. The workshop was attended by 24 citizens and 13 comment forms were turned in at or following the workshop. Generally, the public commented on the noise and low altitudes of departures from Runway 24, potential negative effects on property values, affects on wildlife, and a need to "fan" aircraft departing Runway 24.

Thursday, August 18, 2011 – Estero Community Park Recreation Center. This facility is located in Estero, approximately 7 miles southwest of the Airport. This area generally experiences aircraft overflights on the downwind leg while arriving to both Runway 06 and Runway 24. The workshop was attended by 86 citizens, of which forty-seven comment forms were received at or following the workshop. Generally, the public commented on the noise, low aircraft altitudes on arrival, lower property values, nighttime noise, change in flight patterns, and suggested use of the Estero Plan (see Section 4.2 and 4.3 for more information on the Estero Plan).



SOURCE: Lee County GIS Department, ESRI; ESA Airport, 2011

Southwest Florida International Airport 14 CFR Part 150 Study. 210140

Figure 4.1

Round One Public Workshop Locations

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4.2 Noise Exposure Maps Public Workshops

A second series of three public information workshops for the 14 CFR Part 150 Study was held from November 15, 2011 through November 17, 2011. The purpose of the workshops was to present the 2011 and 2017 Draft Noise Exposure Maps, the sound level monitoring results, and to solicit input from citizens for the second phase of the Study, the Noise Compatibility Program. The workshop materials and comment sheets associated with the second set of workshops are located in **Volume 2**. The workshops were scheduled to allow seasonal residents the opportunity to provide input and become educated on the 14 CFR Part 150 process. The three workshops were held at locations in the communities surrounding the Airport as shown in **Figure 4.2**.

The public workshops were advertised in the Fort Myers News-Press on October 31st, and November 14th. They were also advertised in the Naples Daily News, Bonita Edition on Thursday, November 10, 2011. The workshop times and locations were also posted on the Airport's website.

Tuesday, November 15, 2011 – Chapel by the Sea Presbyterian Church. This facility is located in Ft. Myers Beach approximately 11 miles southwest of the Airport. This area generally experiences aircraft overflights from aircraft arriving to Runway 06. The workshop was attended by 23 citizens, of which 14 comment forms were received. Generally, the public commented on the noise created by low flying aircraft over Ft. Myers Beach and asked that aircraft be routed over the back bay and at higher altitudes.

Wednesday, November 16, 2011 – Riverside Baptist Church. This facility is located in Ft. Myers approximately one and a half miles west of the Airport. This area generally experiences aircraft overflights from aircraft departing Runway 24 and initiating a turn to the north, and Runway 06 arrivals. The workshop was attended by three citizens. No comment forms were turned in at the workshop.

Thursday, November 17, 2011 – Estero Community Park Recreation Center. This facility is located in Estero, approximately seven miles southwest of the Airport. This area generally experiences aircraft overflights on their downwind leg while arriving to both Runway 06 and Runway 24. The workshop was attended by 29 citizens, from which 13 comment forms were received. Generally, the public commented on the adoption of the Estero Plan, raising the altitude of the downwind leg, or moving the downwind flight track further south.

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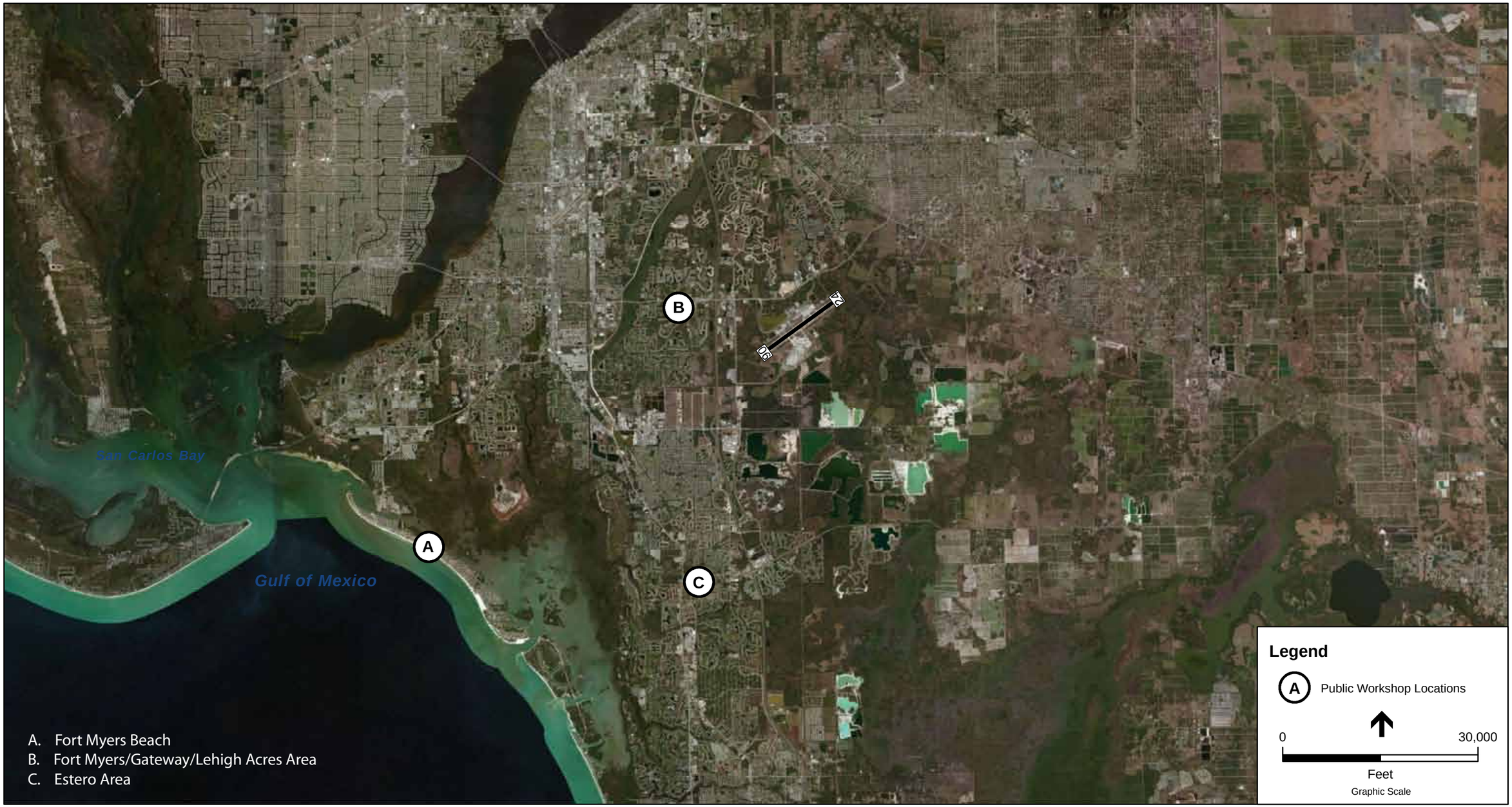

SOURCE: Lee County GIS Department, ESRI; ESA Airports, 2011

Southwest Florida International Airport 14 CFR Part 150 Study. 210140

Figure 4.2

Round Two Public Workshop Locations

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4.3 Noise Compatibility Program Public Workshops

A third series of four public information workshops for the 14 CFR Part 150 Study was held from March 19, 2011 through March 22, 2011. The purpose of the workshops was to present the noise compatibility program measures for evaluation including operational, land use, administrative, and those measures required by 14 CFR Part 150. The workshop materials and comment sheets associated with the third set of workshops are located in **Volume 2**. The workshops were scheduled to allow residents the opportunity to provide input and become educated on the 14 CFR Part 150 process. The four workshops were held at locations in the communities surrounding the Airport as shown in **Figure 4.3**.

The public workshops were advertised in the Fort Myers News-Press and the Naples Daily News, Bonita Edition, on March 5, 12, and 19, 2012. The workshop times and locations were also posted on the Airport's website.

Monday, March, 19, 2012 – Riverside Baptist Church. This facility is located in Ft. Myers approximately one and a half miles west of the Airport. This area generally experiences aircraft overflights from aircraft departing Runway 24 and initiating a turn to the north, and Runway 06 arrivals. The workshop was attended by five citizens. No comment forms were turned in at the workshop.

Tuesday, March 20, 2012 – Microtel Inn & Suites. This facility is located in Lehigh Acres approximately seven miles northeast of the Airport. This area generally experiences aircraft overflights from Runway 06 departures, and Runway 24 arrivals. The workshop was attended by four citizens of which one comment was received.

Wednesday, March 21, 2012 – Chapel by the Sea Presbyterian Church. This facility is located in Ft. Myers Beach approximately 11 miles southwest of the Airport. This area generally experiences aircraft overflights from aircraft arriving to Runway 06. The workshop was attended by 55 citizens, of which 25 comment forms were received.

Thursday, March 22, 2012 – Estero Community Park Recreation Center. This facility is located in Estero, approximately seven miles southwest of the Airport. This area generally experiences aircraft overflights on their downwind leg while arriving to both Runway 06 and Runway 24. The workshop was attended by 22 citizens, from which 6 comment forms were received.

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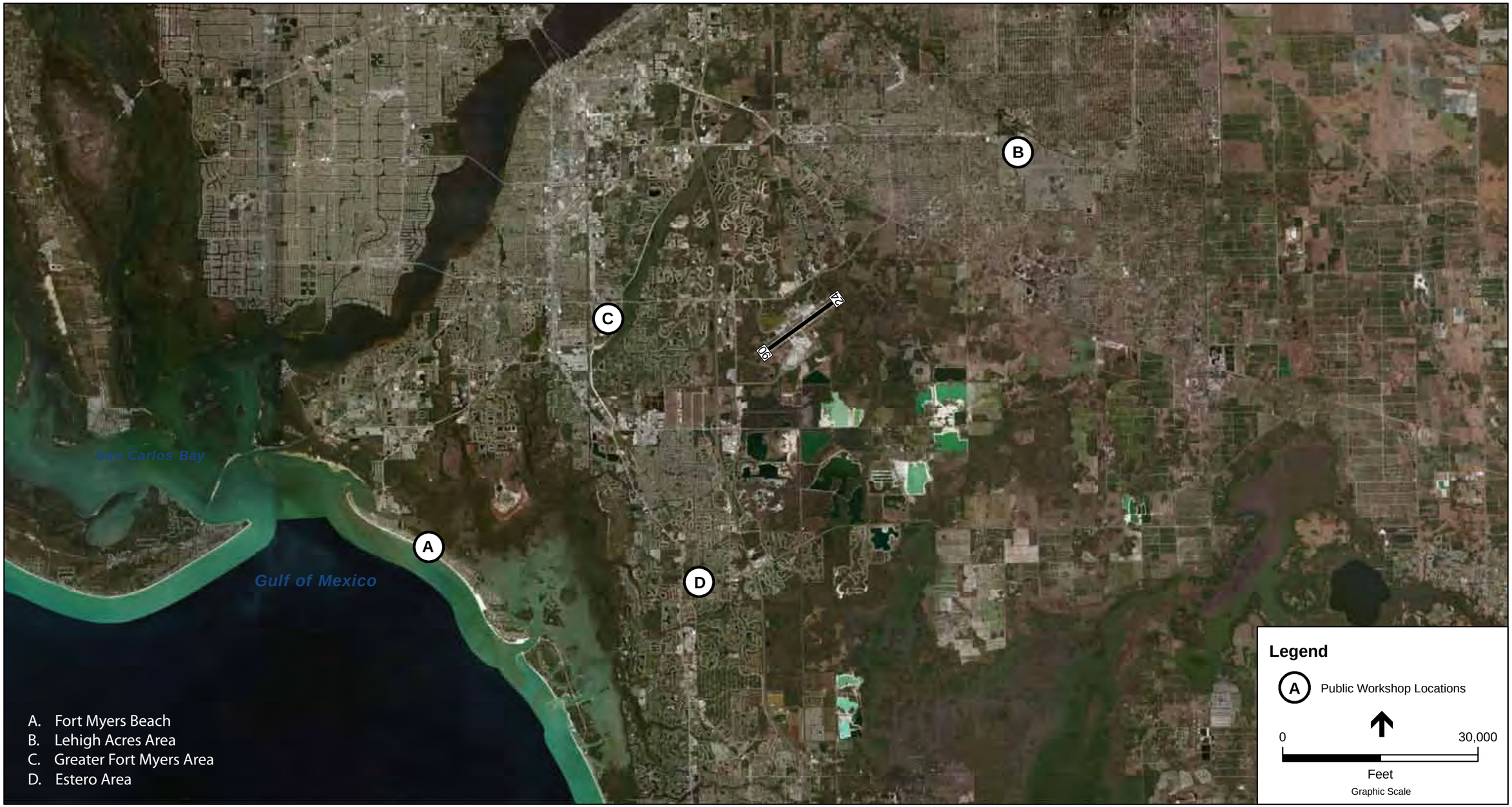

SOURCE: Lee County GIS Department; ESRI; ESA Airports, 2011

Southwest Florida International Airport 14 CFR Part 150 Study. 210140

Figure 4.3

Round Three Public Workshop Locations

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4.4 Community Meetings/Noise Measurements

4.4.1. Community Meetings

A series of smaller community meetings were held during the 14 CFR Part 150 Study. These meetings were used to provide opportunities for an interactive presentation and discussion with individuals representing communities expressing the most noise concerns. The following outlines a list of the communities and dates of the meetings:

Wednesday, June 15, 2011 – Fort Myer Beach Community Meeting. Held 14 CFR Part 150 Study meeting with concerned citizens. The purpose of the meeting was to review the study approach and listen to the concerns from the Fort Myers Beach Community. The community presented a series of proposed measures for evaluation during the Study. Presentation materials and information received from the public are included in **Appendix E**.

Tuesday, June 21, 2011 – Estero and FAA. Attended a non-Part 150 related meeting with Estero community representatives and the FAA Regional Administrator. The purpose of the meeting between the FAA and the community was to discuss a proposed operational change (SHFTY Transition or Estero Plan) that was being proposed by the community. The FAA indicated that implementation of the proposed changes was not feasible.

Friday, July 8, 2011 – Estero Community Meeting. Meeting with concerned citizens representing the greater Estero area. The purpose of the meeting was to review the study approach and listen to the concerns from the Estero Community. The community provided details of a proposed procedure change (SHFTY transition) for review during the Study as well as considerations that they felt the FAA may not have adequately addressed in their evaluation. The materials and presentation are included in **Appendix F**.

Thursday, November 3, 2011 – The Forest Community Meeting. Meeting with concerned citizens from The Forest community. The purpose of the meeting was to review the study approach and listen to the concerns of the Forest Community. The community raised concerns over the frequency of departing overflights when Runway 24 is in operation. Meeting presentation and materials are included in **Appendix J**.

Thursday, December 15, 2011 – Estero Community Meeting. Conducted a presentation for members of the Estero Community to discuss the implementation of the Estero Plan of routing aircraft arriving on the SHIFTY Arrival north of the Airport over to TYNEE Intersection. The presentation described the challenges brought forth by members of Miami Center and other FAA personnel about the conflicts that would be created. This discussion included other potential options to pursue. Presentation and meeting materials are included in **Appendix K**.

4.4.2. Community Noise Monitoring of Aircraft Overflights

As part of the public outreach and data collection phase of the project, sound level monitoring was conducted in communities around the airport. This monitoring was carried out in accordance

with CFR Part 150. The purpose of this sound level monitoring was to determine how aircraft sound levels differed from site to site and how they compared to other sources in the community. Observations of flight track locations and other aircraft operational characteristics were also made at this time.

Monday, August 15 through Thursday, August 18, 2011. Members of ESA Airports conducted sound level monitoring of aircraft overflights and community noise sources at locations around the Airport listed in **Table 4.1** and depicted in **Figure 4.4.**

TABLE 4.1
RSW NOISE MEASUREMENT LOCATIONS

1.	The Colony Country Club
2.	Wildcat Run Country Club
3.	The Forest
4.	Fiddlesticks
5.	Lehigh Acres
6.	18 Avenida Carita, Ft. Myers Beach
7.	Shadow Wood Country Club

Noise monitoring results are included in **Appendix I**.

4.5 Agency/Stakeholder Consultation

4.5.1 FAA Coordination

A series of meetings were also held with the FAA during the course of the Study. The purpose of these meetings was to discuss the communities' concerns, collect data, and discuss potential measures for evaluation during the second phase of the Study, the Noise Compatibility Program. The FAA meetings include the following:

Wednesday, June 15, 2011 – Conducted a Study Kickoff meeting with the LCPA, RSW FAA Air Traffic Control Tower Manager and TRACON staff, as well as community members from Ft. Myers Beach. The presentation and materials are included in **Appendix D**.

Tuesday, October 4, 2011 - Met with RSW Air Traffic Control Tower Manager and the Eastern Air Traffic Support Manager to review community proposal to change airspace operations (SHFTY Transition). The presentation and materials are included in **Appendix G**.

Thursday, October 27, 2011 – Met with the FAA's Miami Center to discuss issues related to FLOWCAR and the feasibility and FAA concerns related to implementation of the Estero Community's proposed SHFTY transition. Meeting materials graphics depicting the airspace structure that were provided by Miami Center are included in **Appendix H**.

Tuesday, April 24th, 2012 – A meeting took place with the FAA Air Traffic Control to discuss draft NCP recommendations and determine opportunities and challenges related to implementation. Information related to this meeting is included in **Appendix Q**.

Monday, August 20, 2012 – A meeting was held between the FAA Air Traffic Control Tower, Airways Facilities, and Regional Flight Standards offices, the airlines and the Lee County Port Authority to discuss the noise concerns around the community and solicit input on a number of draft measures being explored by the FAA for implementation. Materials associated with the FAA's presentation are included in **Appendix R** and have been incorporated into the recommendations outlined in Chapter 11.

Consultation also took place with the FAA Orlando Airports District Office and the FAA's Airports Atlanta Southern Regional Office (ASO). Comments and feedback received from each of these entities has been incorporated into this document.

4.5.2 Metropolitan Planning Organization Meetings

The LCPA presented overview and status updates of the RSW 14 CFR Part 150 Study Update to the Metropolitan Planning Organization's (MPO) Technical Advisory Committee (TAC) and Citizen Advisory Committee (CAC). The role of the Lee County MPO is to provide direction in planning future transportation projects and improvements within the County. A total of four meetings with the MPO's committees took place, two with the TAC and two with the CAC. The date of first TAC and CAC meeting was on December 1, 2011. The second TAC meeting occurred on March 1, 2012, while the second CAC meeting occurred on April 5, 2012.

Members of the Lee County MPO include elected and appointed officials from the following entities:

- City of Bonita Springs
- City of Cape Coral
- City of Fort Myers
- City of Sanibel
- Florida Department of Transportation (non-voting member)
- Lee County Board of County Commissioners
- Town of Fort Myers Beach

The MPO Technical Advisory Committee includes the following (among others):

Lee County

- Department of Community Development
- Department of Transportation
- Lee County Port Authority
- Lee Tran
- Lee County School Board

City of Cape Coral

- Department of Community Development
- Department of Public Works
- Cape Coral Mini Bus Service

City of Fort Myers

- Department of Planning
- Department of Engineering

Town of Fort Myers Beach

City of Sanibel

- Department of Planning
- Department of Public Works

City of Bonita Springs

- Department of Public Works

Collier County MPO

Southwest Florida Regional Planning Council

Charlotte County Punta Gorda MPO

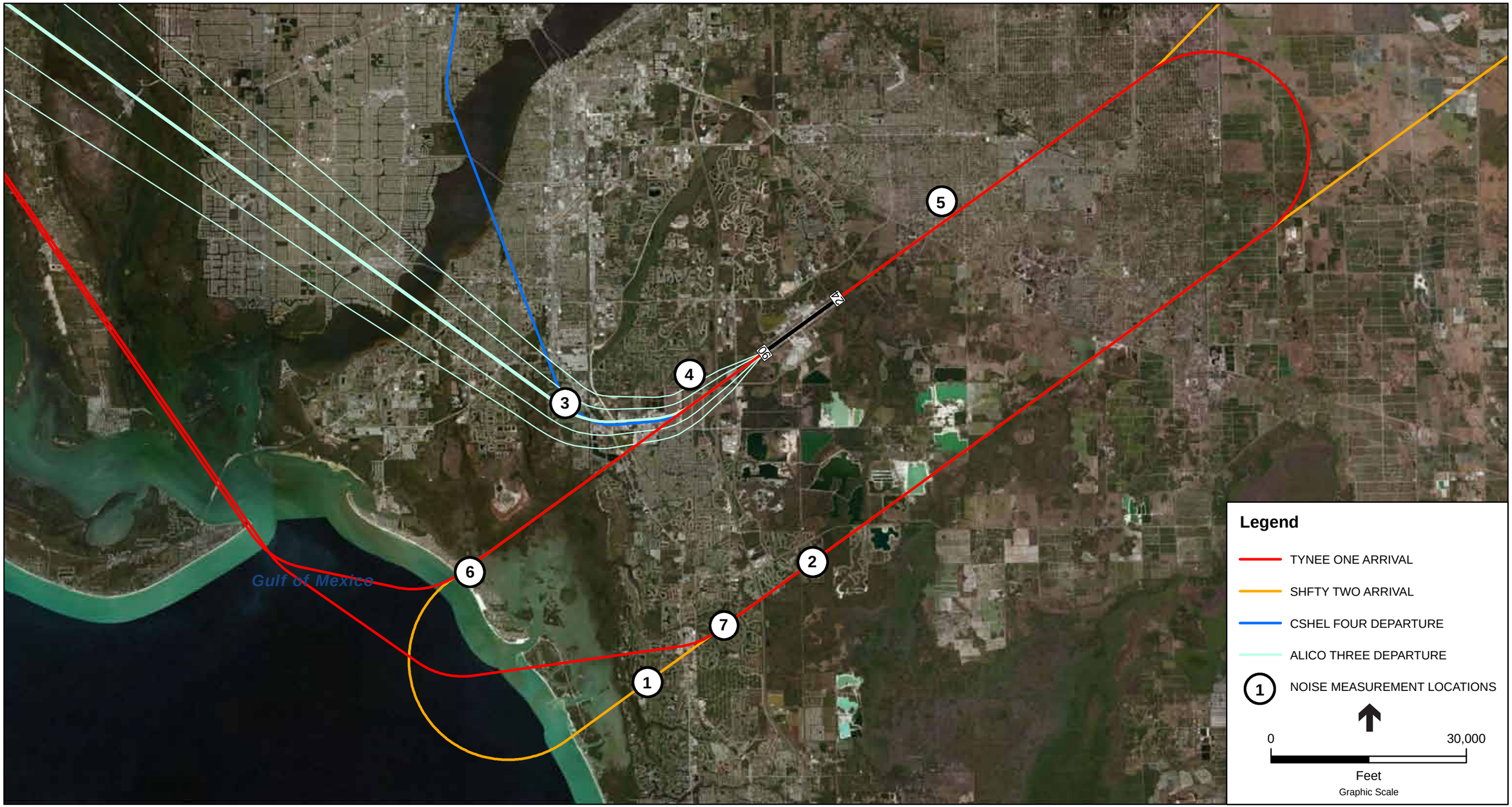
State

- Department of Environmental Protection
- Department of Transportation
- Governor's Energy Office
- Florida Fish and Wildlife Conservation Commission

Federal

- Federal Highway Administration
- Federal Transit Administration

The citizens advisory committee is made up of 24 community representatives including citizens from each of the five Lee County Commission Districts, and representatives of the City of Cape Coral, Bonita Springs, Fort Myers Beach, Sanibel and 3 members at large. As stated, the LCPA presented information about the RSW 14 CFR Part 150 Study Update that included a Noise 101 introduction, information about the Part 150 regulation, as well as background on RSW itself. The current status of the Study Update as well as what the TAC and CAC could expect from future public workshops, meeting dates, reports was also discussed.



SOURCE: Lee County GIS Departent; ESRI; ESA Airports, 2011

Figure 4.4

Community Noise Monitoring Locations with Published Flight Tracks

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4.5.3 Lee County

The Lee County Port Authority operates under the auspices of the Lee County Board of County Commissioners. The County Commissioners act as the Lee County Port Authority Board and their terms coincide with their term as County Commissioner. The noise exposure maps developed under this study (to the 60 DNL contour) fall completely under the sole land use jurisdiction of Lee County. Coordination with Lee County staff and the Commission appointed Airport Special Management Committee took place throughout this project.

4.5.4 Aircraft Operators

The aircraft operators at RSW were involved in various phases of the data collection for this project as well as procedure review and development. Airline operator involvement was paramount to the successful implementation and subsequent adoption of noise reduction strategies investigated as part of this study. This involvement is ongoing as various recommendations proceed through the implementation phase.

4.6 Final Presentations and Public Hearing

On November 27th, 2012, a summary of the study was presented to the Airport Noise Advisory committee during one of its regularly scheduled public meetings. The same presentation, included in **Appendix S**, was conducted during the subsequent public hearing.

On January 14, 2013, the Board of Port Commissioners of the Lee County Port Authority held a Public Hearing to solicit public comment on the 14 CFR Part 150 Noise Compatibility Program. The Public Hearing was held at the Lee County Port Authority Training and Conference Center. A notice of the Public Hearing and document availability was published on December 14, 2012 in The News-Press, a daily local news paper, as well as posted on the Lee County Port Authority's website, www.flylcpa.com. The notice provided the time and date of the Hearing, and also notified the public that the report could be viewed during normal Lee County Port Authority business hours as well as on the website as shown in Appendix S.

During the Public Hearing, a summary of the Study was presented and immediately followed by public comment. Five citizens made public comments and were generally supportive of the study process and recommendations. A resolution adopted by the Town of Fort Myers Beach was presented for consideration by the Board. The Board approved the transmittal of the document inclusive of the resolution as provided in Appendix S. The recommendation outlined in section 11.3.6 was also updated to reflect the intent of the resolution. The verbatim transcript of the Public Hearing is provided in Appendix S.

CHAPTER 5

Noise and Overflight Comments

Since the completion of the 2006 14 CFR Part 150 Study at RSW, the LCPA has continued to actively address noise and overflight concerns from the communities surrounding the Airport. The LCPA, through various efforts, has cataloged and responded to the comments and promoted aircraft operations that are compatible with the communities surrounding the Airport. These efforts have included implementing a noise and overflight telephone comment hotline and email, working with FAA ATC personnel in developing aircraft flight procedure modifications, implementing flight tracking equipment, and limiting nighttime engine maintenance run-ups.

As discussed in Chapter 2, there have been integral changes in the way aircraft navigate to and from RSW since the previous Study. Two key changes include the way properly equipped aircraft navigate the RSW airspace with the introduction of area navigation (RNAV) procedures, and the introduction of the Florida West Coast Airspace Redesign (FLOWCAR). FLOWCAR is an FAA ATC program to resolve congested airspace sectors and improve efficiency in the routing of aircraft to southwest Florida. In reviewing the noise and overflight comments since the last 14 CFR Part 150 Study, it was noted that the LCPA has received increased comments from communities that previously had little or no comments prior to the commencement of the FLOWCAR and RNAV procedures. This chapter reviews the overflight comment hotline, flight procedure modifications, and airport noise comment database, and provides a summary of some of the key factors influencing community concerns.

5.1 Noise and Overflight Comment Hotline and Email

The LCPA has established a noise and overflight comment hotline that allows citizens in the vicinity of RSW to report their concerns about aviation noise and overflight activities or ask questions via an automated recording device 24-hours a day. The LCPA reviews all calls made to this hotline and maintains a written log of the concerns, identifying the name of the person who registered the comment, his or her address, the date and time the event occurred, and the reason for the comment. The phone number for the hotline is (239) 590-4466, or the LCPA can be reached by email at: noisecomment@flylcpa.com.

5.2 Flight Procedure Modifications

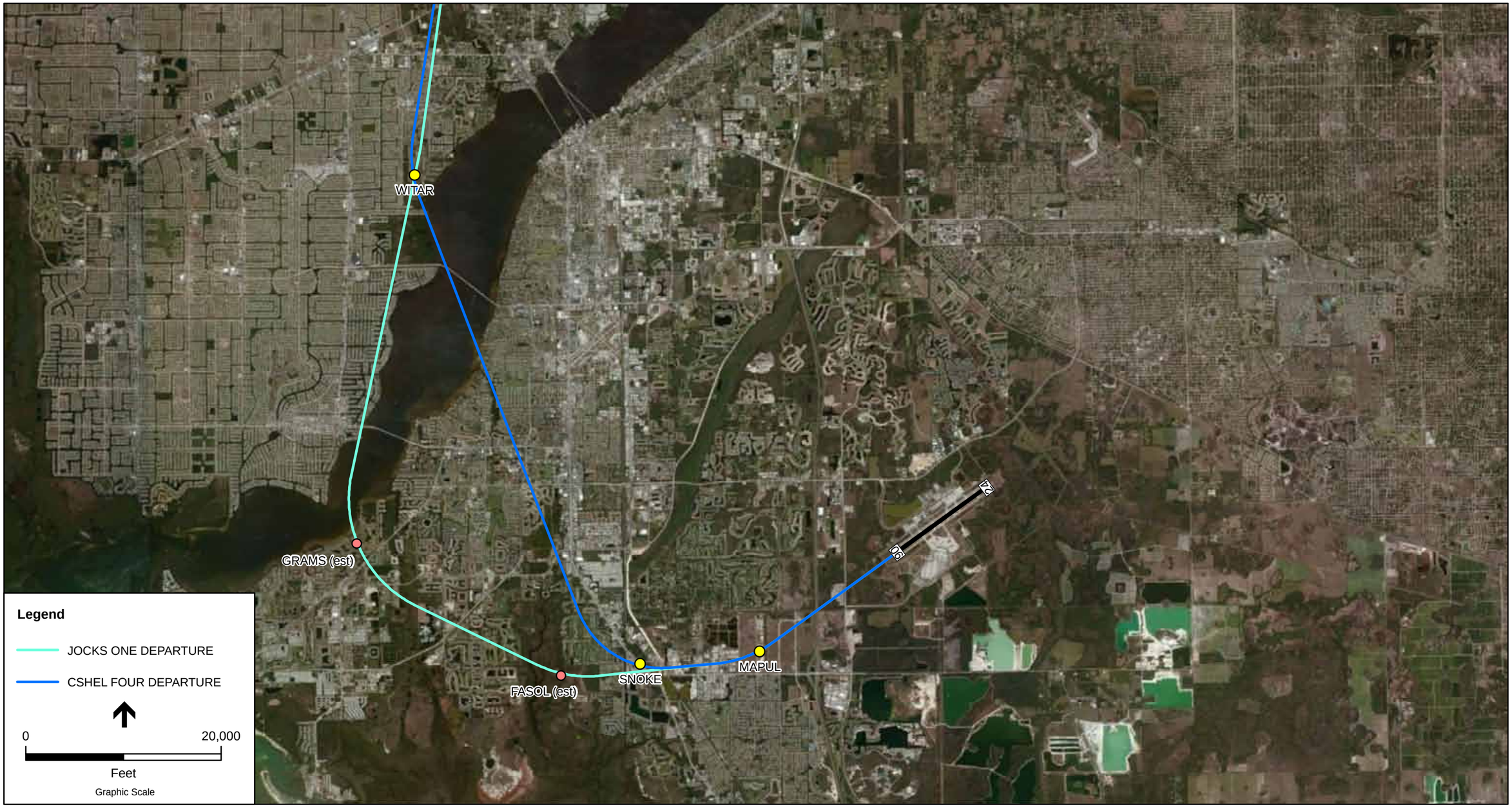
Since the last 14 CFR Part 150 Study, the LCPA has worked with the FAA to direct aircraft over more compatible land uses utilizing more accurate technology including RNAV. Properly

equipped aircraft fly RNAV procedures by utilizing a combination of both satellite and ground based navigation aids. The routes include Departure Procedures (DPs) and Standard Terminal Arrival Procedures (STARs) that guide aircraft from the ground to the cruise portion of the flight and vice-versa. Since the completion of the last study, there were a number of new procedures added with the introduction of FLOWCAR including:

- CSHEL FOUR Departure (DP)
- JOCKS ONE Departure (DP) (Discontinued Sept. 25, 2008)
- SHFTY TWO RNAV Arrival (STAR)
- TYNEE ONE RNAV Arrival (STAR)

In March 2007, the JOCKS ONE DP, as shown in **Figure 5.1**, was created to route aircraft departing from RSW's Runway 24 away from residential communities and over more compatible land uses. The JOCKS ONE departure was later decommissioned in favor of the CSHEL FOUR DP that was implemented during the implementation of FLOWCAR. The CSHEL FOUR DP is very similar to the JOCKS ONE DP; however, the CSHEL FOUR DP turns aircraft to the north at a location closer to the Airport than the JOCKS ONE DP.

The SHFTY TWO RNAV Arrival and the TYNEE ONE RNAV Arrival, shown in **Figure 5.2** are both STARs that were implemented with FLOWCAR. Previously, all aircraft arriving to RSW were routed down the west coast of Florida. With the creation of the SHFTY TWO RNAV arrival with the implementation of FLOWCAR, aircraft arriving from airports east of an imaginary line from Lakeland to Cincinnati are now routed down the center of the State of Florida to take advantage of underused airspace sectors. Aircraft arriving from airports west of the imaginary line are directed down the west coast of the State of Florida using the TYNEE ONE RNAV Arrival. There are circumstances, depending on the amount of aircraft traffic and weather conditions, where aircraft using one arrival may be switched to the other while still well north of RSW's airspace. The major difference with the addition of these two STARs is that aircraft are now routed to the south of RSW, depending on the runway in use, over communities that previously did not receive routine aircraft overflights. These changes have resulted in a shift in the locations that noise complaints are generated as detailed later in this chapter.



SOURCE: FAA Terminal Procedures (FAA.gov, 2008/2011); LCPA; ESA Airport, 2011; ESRI

Figure 5.1

RSW RNAV Departures Established Since the 2006 14 CFR Part 150 Study

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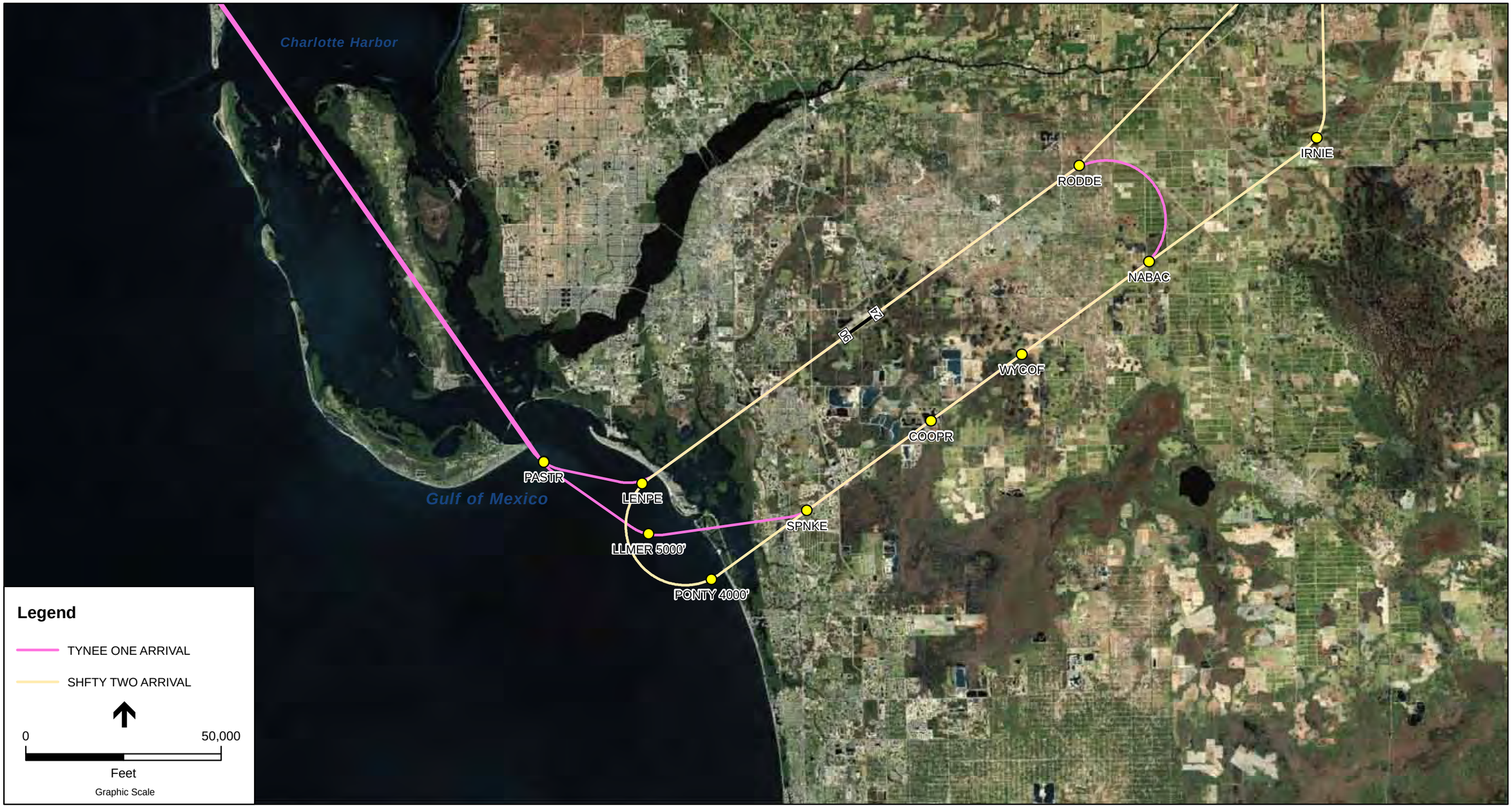

SOURCE: FAA Terminal Procedures (FAA.gov, 2011); LCPA; ESA Airports, 2011; ESRI

Figure 5.2
RSW RNAV Arrivals Established Since the 2006 14 CFR Part 150 Study

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5.3 Airport Database

The LCPA maintains a database that identifies noise concerns registered for aircraft operating at RSW and FMY. The database identifies the name, date, and time of each complaint registered, as well as summarizes the locations of the complaint by geographical area. During the 2006 14 CFR Part 150 Study, there were six geographical areas utilized in the report, or areas that had the highest percentage of noise comments. These communities were broken into communities/segments that included:

- San Carlos Park
- Fiddlesticks
- Gateway
- Lehigh Acres
- Miscellaneous: All areas outside the Study area including The Forest, Island Park, etc.
- Fort Myers: Neighborhoods surrounding FMY.

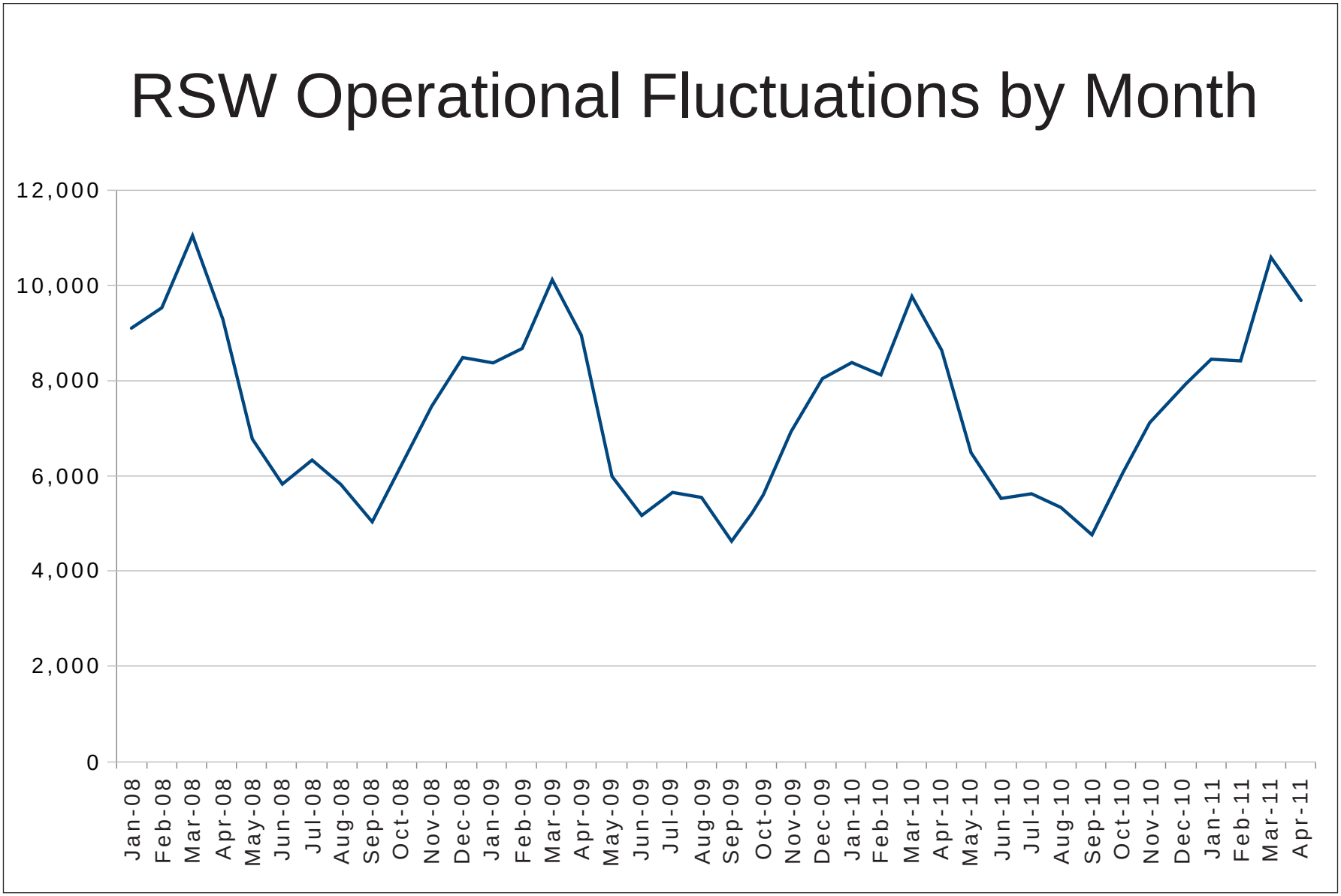
For this Study, the LCPA database of airport activity noise complaints took on a broader list of neighborhoods that includes the ones listed above, but also included communities located in areas further away from the Airport such as Ft. Myers Beach, Estero, and Bonita Springs.

5.4 Noise and Overflight Comment Summary

From March 2006 through April 2011, there were a total of 1,422 comments recorded by citizens with regard to operations occurring at RSW. The comments vary by time of the year and pre and post FLOWCAR. The following subsections summarize and discuss the most common comments received during the study process.

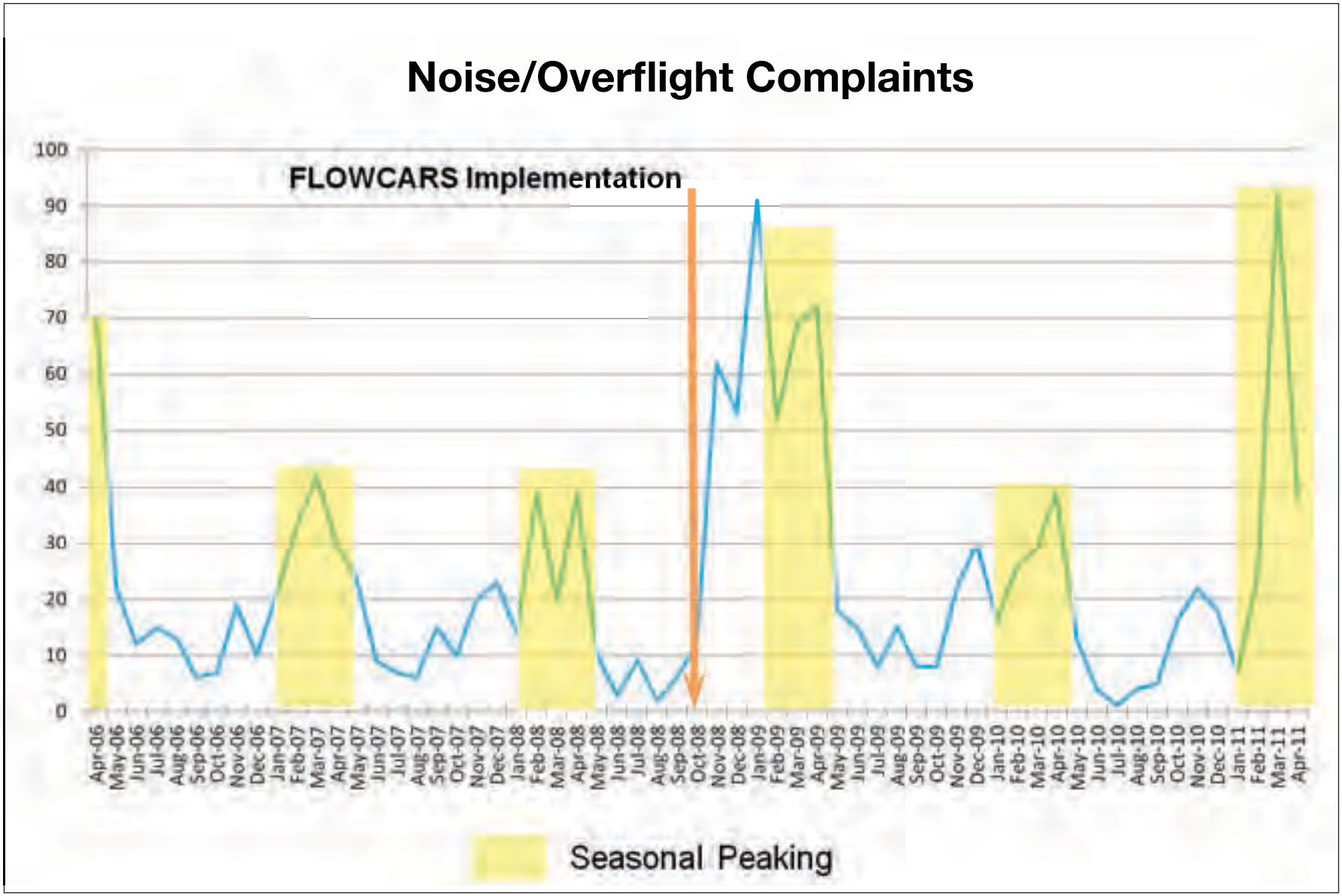
5.4.1 Seasonal Variation

The operations at RSW vary with the time of year with a greater number of flights occurring from late November to late April. It is during the November to late April time frame when there is an influx of part time residents and tourists to southwest Florida; and it is the time of year that citizens are most likely to be outside and have their windows open due to the comfortable seasonal weather. **Figure 5.3** shows the number of monthly operations at RSW for the period from January 2008 to April 2011 and illustrates the annual peaking characteristics of the Airport. As indicated, Airport operations begin increasing in November and peaks in March or April. It is during these peak activity periods that the greatest percentage of noise complaints are recorded. **Figure 5.4** shows that the noise complaints by month from April 2006 through April 2011 follow a similar annual pattern with a peak in the patterns immediately following the October 2008 implementation of FLOWCARS. **Figure 5.5** shows the percentage of complaints that occurred by month for the calendar years 2007 through 2010. As shown, approximately 80 percent of the noise complaints occurred during the six month period between November and April.



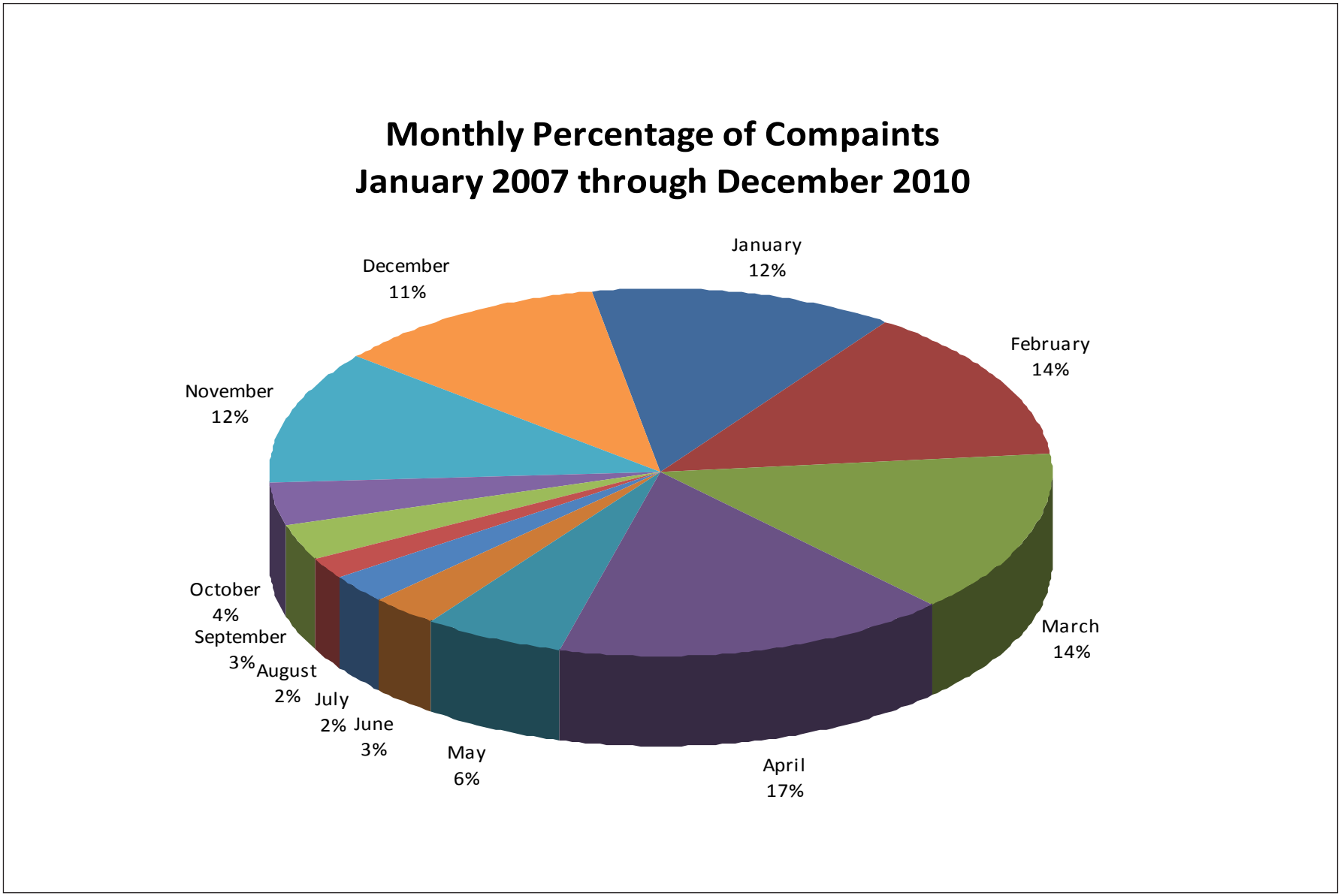
SOURCE: LCPA; FAA ATADS; ESA Airports, 2011

Figure 5.3
Monthly Operations



SOURCE: LCPA; ESA Airport, 2011

Figure 5.4
Noise/Overflight Complaints



SOURCE: LCPA; ESA Airports, 2011

Southwest Florida International Airport 14 CFR Part 150 Study. 210140

Figure 5.5

Monthly Percentage of Complaints

5.4.2 Pre and Post FLOWCAR

Of the 1,422 comments received by the airport from March 2006 through April 2011, 552 occurred during the 30 months before the introduction of FLOWCAR (October of 2008), with 870 comments in the 31 months following its implementation.

As shown in **Figure 5.6**, there were several communities that accounted for the majority of the noise comments at RSW prior to FLOWCAR implementation. These communities included Fiddlesticks, Southwind Preserve, Crown Colony, The Forest, Gateway, San Carlos Park, Lehigh Acres, and Grand Oak and accounted for 442 of the 538 total complaints with neighborhood locations that were recorded from March 2006 to October 2008 (the implementation of FLOWCAR). **Figure 5.7** identifies the top communities with at least ten complaints as a percentage of the total complaints pre-FLOWCAR.

With the introduction of FLOWCAR, aircraft flight corridors were changed to route some of the aircraft arriving to RSW to the south of the Airport. Depending on the active runway, these new procedures introduced communities to overflights where they had previously only occurred occasionally. With more aircraft routed to the south of the Airport, communities located in the Bonita Springs, Estero, Bonita Beach, and Ft. Myers Beach areas had a higher percentage of complaints as depicted in **Figure 5.8** and **Figure 5.9**. **Figure 5.10** illustrates the current instrument flight procedures at RSW with the corresponding number of post-FLOWCAR noise complaints. This shows that noise complaints closely correlate to published flight procedure locations.

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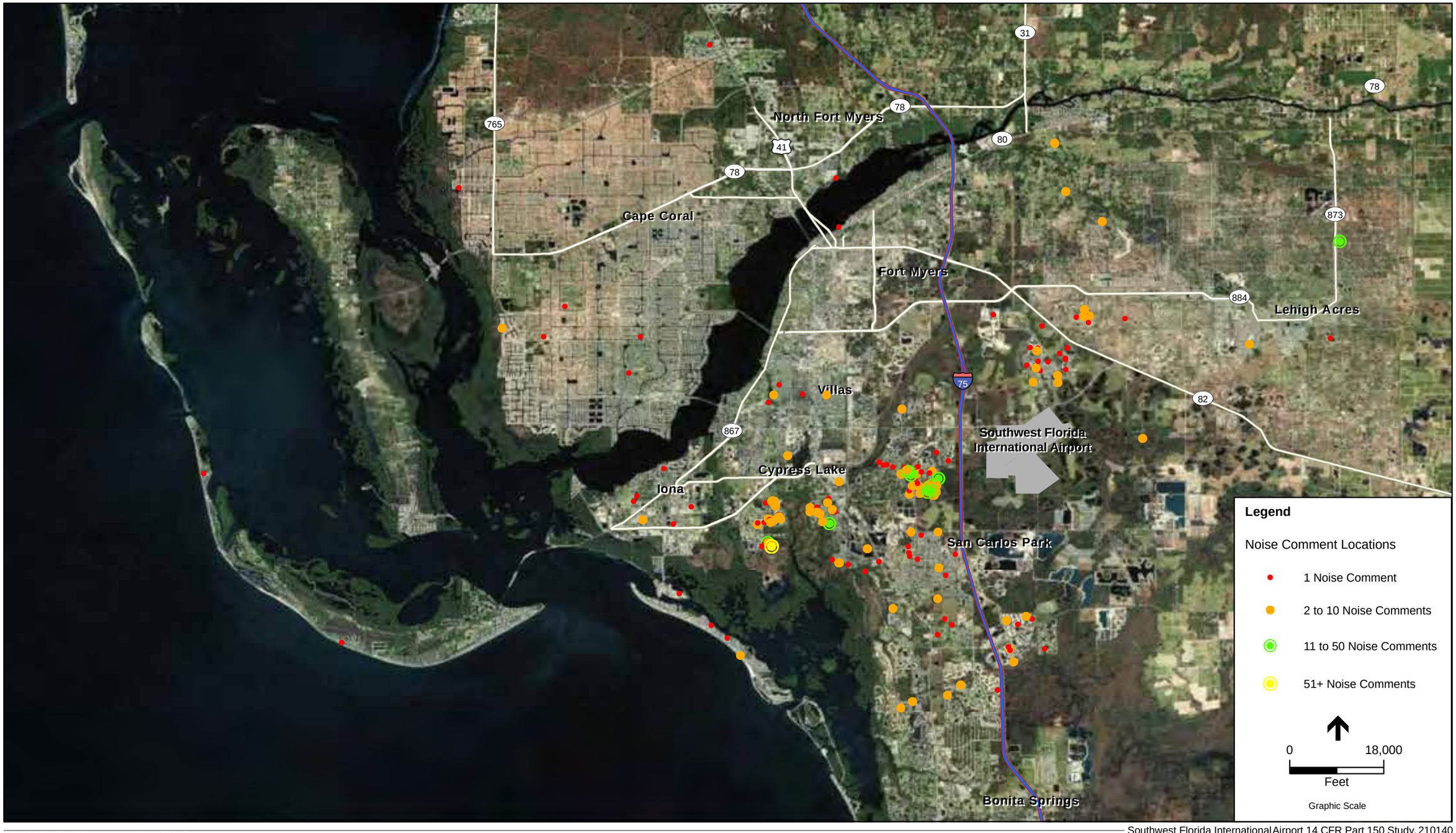

SOURCE: LCPA; ESA Airports, 2011; ESRI; Bing Maps Aerial

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Figure 5.6

Noise Comment Locations - Pre-FLOWCAR

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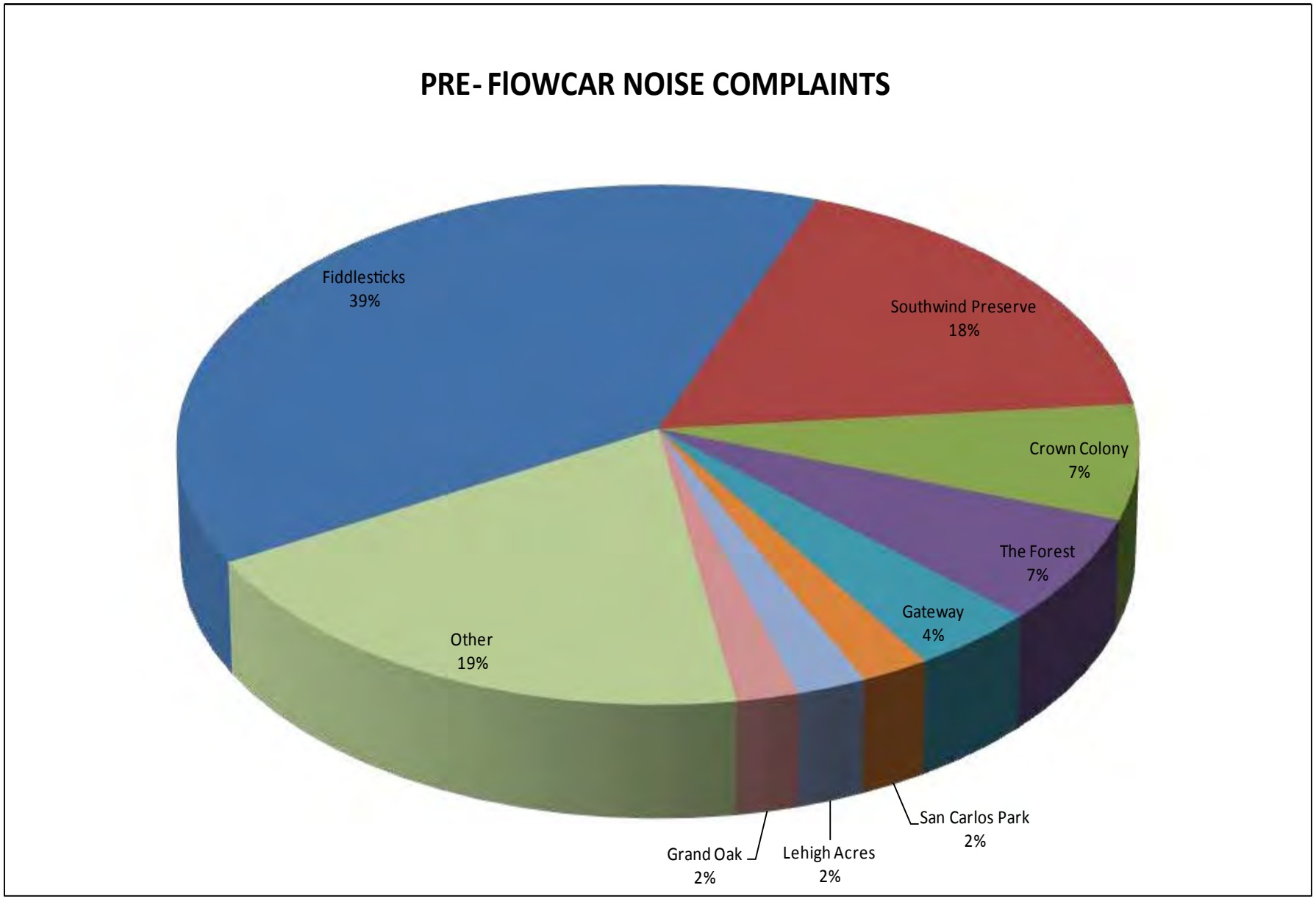

SOURCE: LCPA, ESA Airports, 2011

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Figure 5.7
Pre-FLOWCAR Noise Complaints

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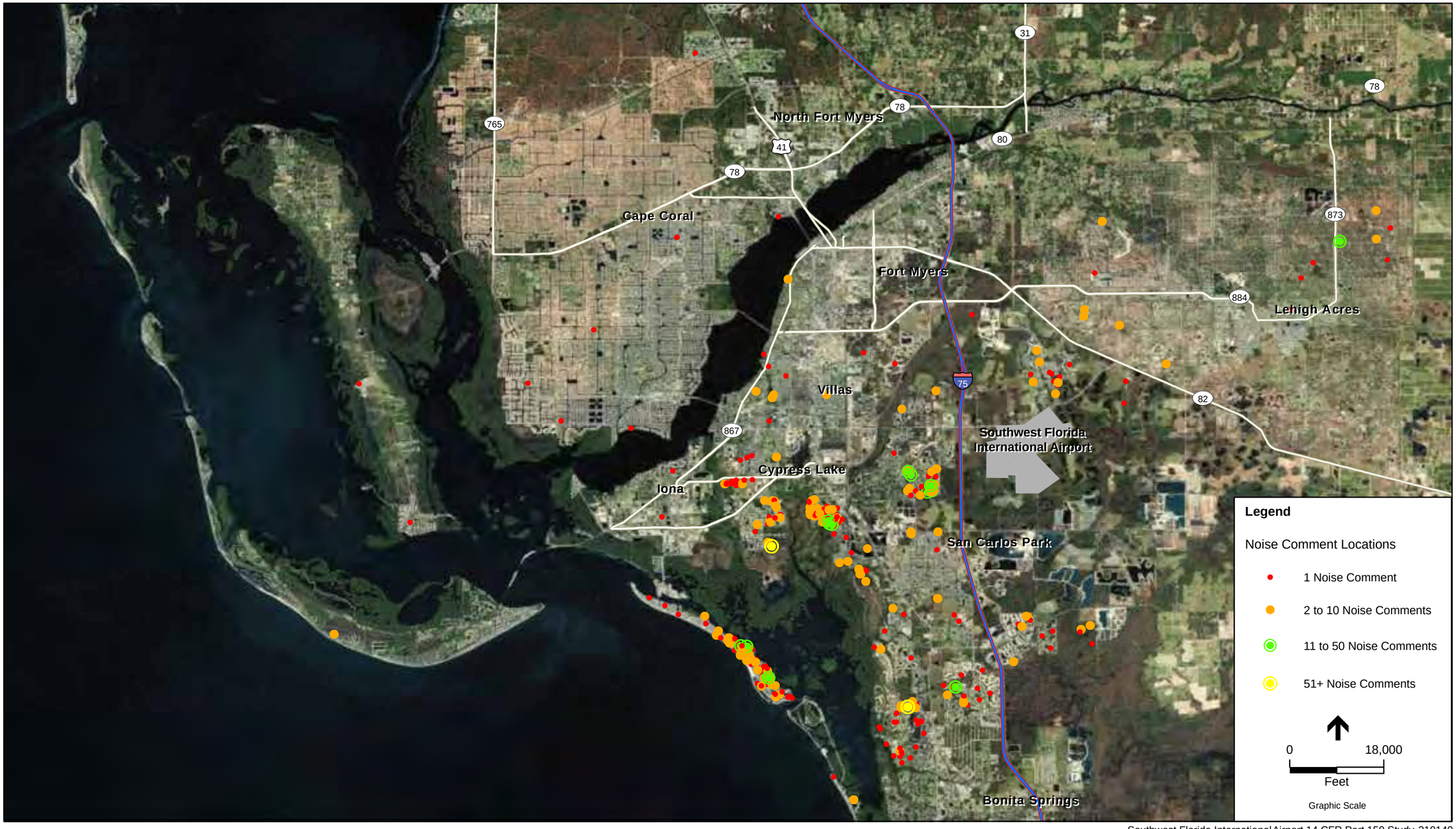

SOURCE: LCPA; ESA Airports, 2011; ESRI; Bing Maps Aerial

Figure 5.8

Noise Comment Locations - Post-FLOWCAR

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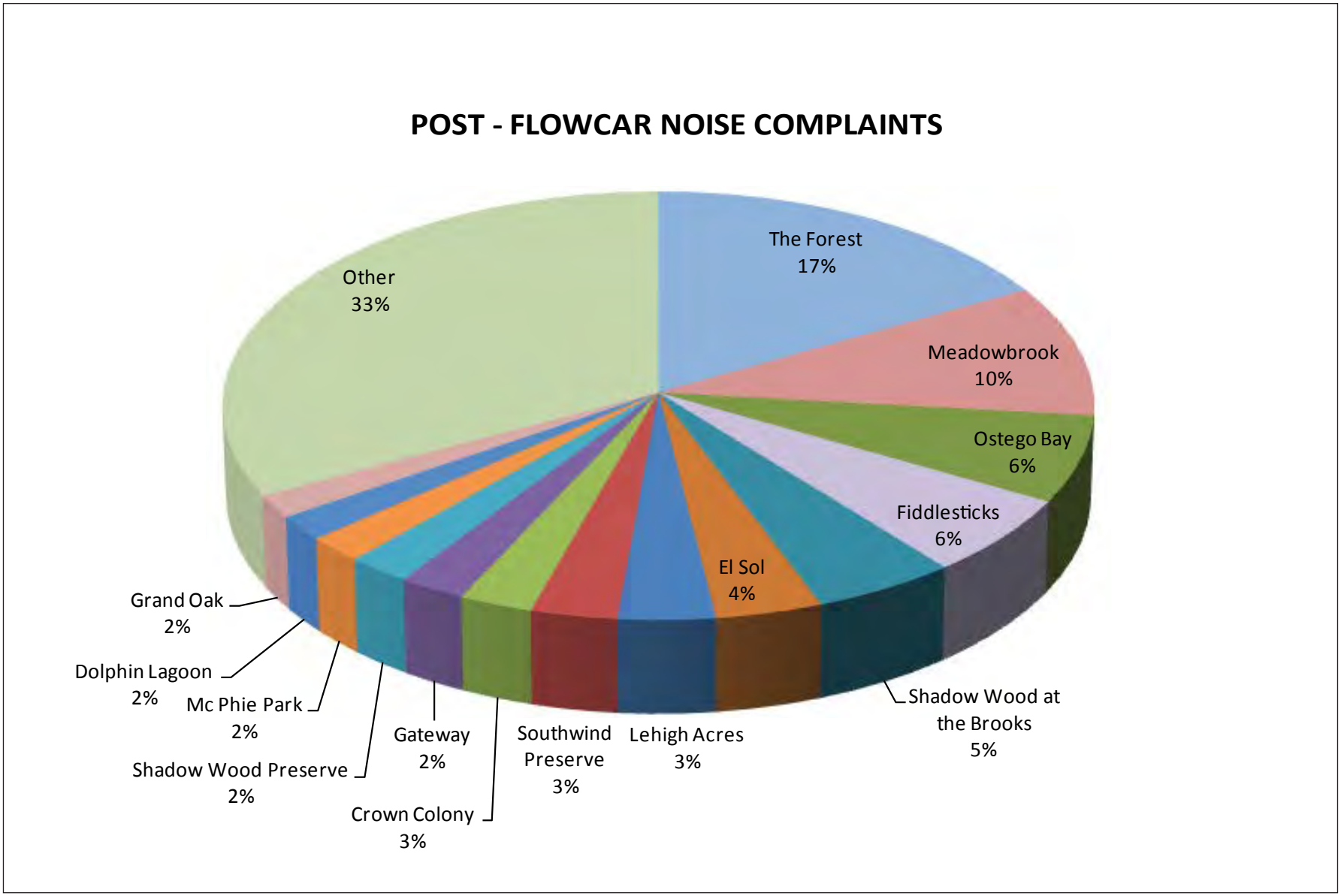

SOURCE: LCPA; ESA Airports, 2011

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Figure 5.9
Post - FLOWCAR Noise Complaints

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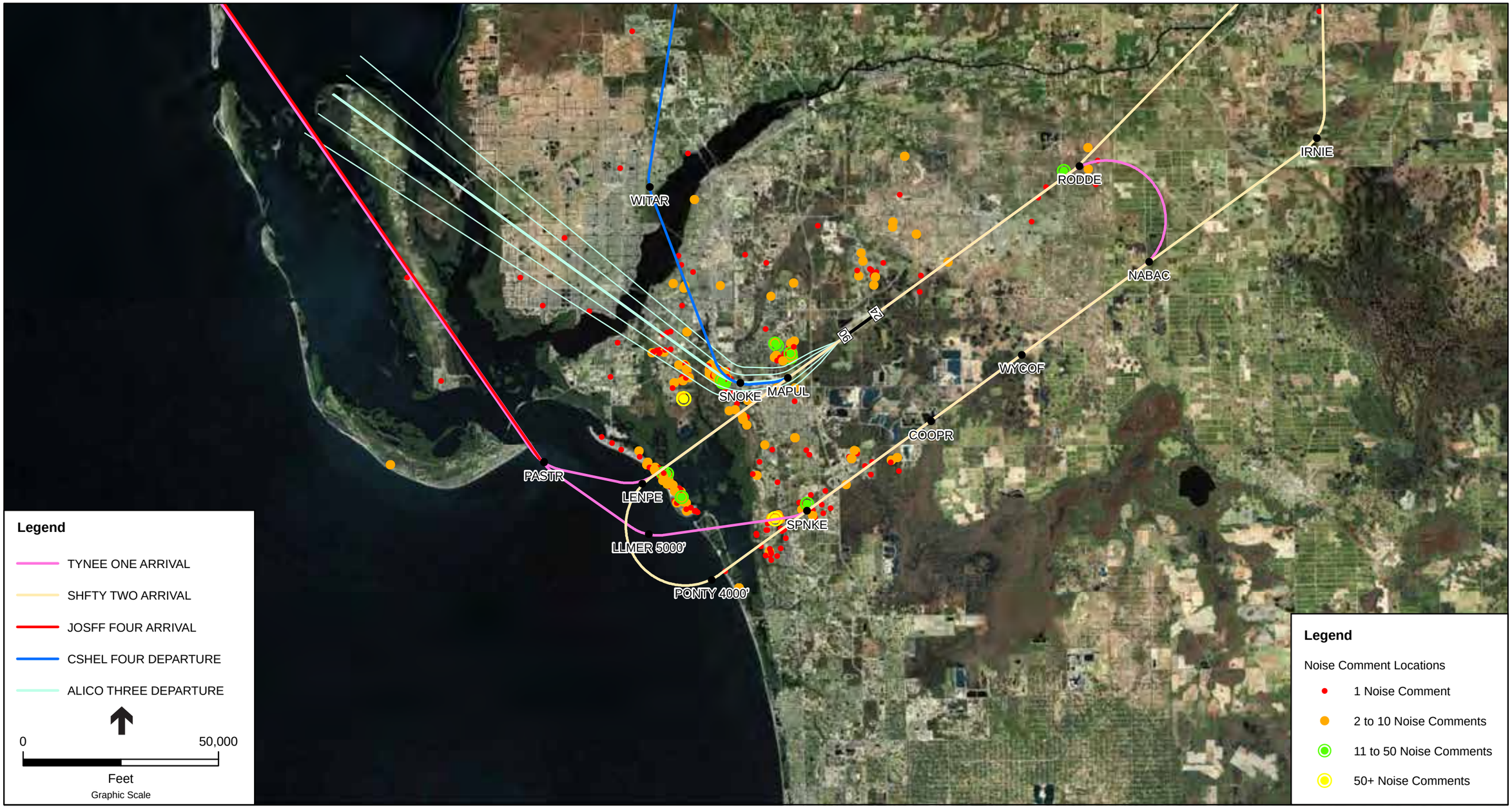

SOURCE: FAA Terminal Procedures (FAA.gov, 2011); LCPA; ESA Airports, 2011; ESRI

Southwest Florida International Airport 14 CFR Part 150 Study. 210140

Figure 5.10

Noise Comment Locations - Post-FLOWCAR - Composite RNAV Procedure Map

CHAPTER 6
Noise Modeling

6.1 Integrated Noise Model

The standard methodology for analyzing the noise conditions at airports involves the use of an aircraft noise model. The FAA has approved the INM for use in 14 CFR Part 150 Studies. The INM was developed by the Transportation Systems Center of the United States Department of Transportation (USDOT) and is undergoing continuous refinement. Version 7.0b of the INM, the most current version of the model at the start of this Study, was used for the noise analysis described in this report.

6.2 Methodology

The INM works by defining a network of grid points at ground level around an airport. It then selects the shortest distance from each grid point to each flight track and computes the noise exposure generated by each aircraft operation, by aircraft type and engine thrust level along each flight track. Corrections are applied for atmospheric acoustical attenuation, acoustical shielding of the aircraft engines by the aircraft itself, and aircraft speed variations. The noise exposure levels for each aircraft are then summed at each grid location. The cumulative noise exposure levels at all grid points are then used to develop noise exposure contours for selected values (e.g. 65, 70 and 75 DNL). Using the results of the grid point analysis, noise contours of equal noise exposure can then be plotted.

6.3 INM Input Data

In order to develop DNL noise contours, the INM uses a series of input factors. Some of these factors are included in the database for the model (such as engine noise levels, thrust settings, aircraft profiles and aircraft speeds) and others are airport-specific and need to be determined for each condition analyzed. These airport-specific data include the airport elevation, average annual temperature, runway layout, the mathematical description of ground tracks above which aircraft fly, and the assignment of specific aircraft with specific engine types at specific takeoff weights to individual flight tracks. Other INM input factors specific to RSW include:

- Runway orientation and use
- Existing 2011 aircraft operations and fleet mix
- Future 2017 aircraft operations and fleet mix

- Time of day/night operations
- Stage lengths of aircraft

These factors were developed for all activity at RSW including air carrier aircraft, military aircraft, and air taxi/general aviation aircraft. The specific operational input data for RSW is included in the next chapter of this report.

6.4 Noise Power Distance Curve Data

In addition to the mathematical procedures defined in the model, the INM has another very important element. This is a database containing tables correlating noise level, thrust settings, and distance for most of the civilian aircraft, and many common military aircraft, operating in the United States. This database, often referred to as the noise power distance curve data, has been developed under FAA guidance based on thousands of actual noise measurements in controlled settings for each aircraft type.

The database also includes performance data for each aircraft type. This data allows the model to compute airport-specific flight profiles (rates of climb and descent) for each aircraft type, providing an accurate representation of actual procedures.

It should be noted that guidelines under 14 CFR Part 150 require that the annual-average day DNL contours be computed. Consequently, the data presented in this document will reflect annual-average day conditions using the DNL noise metric.

6.5 Noise Contour Mapping

DNL levels are indicated by a series of contour lines superimposed on a map of the airport and off-airport environs. These levels are calculated for designated grid points on the ground from the weighted summation of the effects of all aircraft operations occurring on the average 24-hour day. Some operations are far enough away from a grid point location that their effect is minimal, while other operations may dominate noise exposure at that location.

The summation of noise levels was discussed in Chapter 3 of this report. One can think of the accumulation of noise energy throughout a 24-hour day from passing aircraft in the DNL computation like a series of passing rain squall lines. The important aspect to remember here is that at the end of a 24-hour period, a rain gauge would indicate the total rainfall received during that day although, the rain only fell during brief periods at varying intensities.

During the course of this NEM portion of the Study, DNL contour mapping was used to identify the locations of the existing year (2012) and future year (2017) DNL 65+ dBA noise contours. In the NCP portion of the Study, the DNL contour mapping will be used to assist in the consideration of operational, land use planning, and administrative measures that might reduce noise exposure to noise sensitive areas in proximity to RSW.

CHAPTER 7
Airport Operational Data

7.1 Existing 2011 Operational Activity and Fleet Mix

The existing (2011) operational activity was based on the data reported by the LCPA and the FAA's Air Traffic Activity Database System (ATADS) for the 12-month period from May 2010 through April 2011. The activity is reported in the following categories: air carrier, air taxi, itinerant general aviation, local general aviation, itinerant military, and local military. This data was then divided by 365, to obtain the number of operations by category for an average annual day. A summary of these operations is listed in **Table 7.1**.

TABLE 7.1
2011 ANNUAL OPERATIONS
SOUTHWEST FLORIDA INTERNATIONAL AIRPORT
14 CFR PART 150 STUDY

	Air Carrier	Air Taxi	Itinerant General Aviation	Local General Aviation	Itinerant Military	Local Military	Total
Yearly Totals	67,987	9,037	8,411	51	707	64	86,257
Average 24-Hour Day	186.27	24.76	23.04	0.14	1.94	0.17	236.32

Source FAA Air Traffic Activity System (ATADS), LCPA, 2011

As presented in Table 7.1, the total number of operations that occurred during the 12-month period was 86,257; or an average of 236 operations per day.

The 2011 aircraft fleet mix was developed though analysis of data obtained from LCPA's PASSUR™ Landing Fee Management System for the period from May 2010 through April 2011. The PASSUR™ data is arranged on a per operation basis with each record including departure or arrival date and time, airline, operation type, aircraft type, runway, and destination or origin. The first step in processing the data was to group the PASSUR™ aircraft records into aircraft recognized by the INM. The PASSUR™ data were queried for aircraft type and airline designation, and then cross referenced with airline fleet information to determine the engine type for the aircraft. Each record was then assigned an appropriate INM aircraft designator. Aircraft operational data was then sorted and evaluated based on this designator.

Aircraft operations are identified as either itinerant or local. An itinerant operation is defined as an aircraft take-off where the aircraft leaves the airport vicinity and lands at another airport, or an aircraft landing where the aircraft has arrived from another airport. Local operations are typically

associated with aircraft conducting touch and go training operations at the airport. A touch and go operation occurs when an aircraft lands on a runway, travels down the runway and takes off from the runway without stopping. The aircraft then climbs to the pattern altitude, circles around and lands again on the runway.

The breakdown of itinerant operations by aircraft type and fleet mix for 2011 is presented in **Table 7.2**; local (touch-and-go) operations are presented in **Table 7.3**. The distribution by aircraft category and the representative aircraft types were developed based on a review of the 12 months of PASSUR™ data at RSW. The "INM Aircraft" column in **Tables 7.2** and **7.3** indicate the codes for the representative aircraft types used in the INM.

As indicated in Table 7.1**,** the greatest level of aircraft activity at the Airport during 2011 was the Air Carrier category of aircraft, amounting to approximately 79 percent of the overall activity with Air Taxi operations accounting for an additional 10 percent. Itinerant and Local General Aviation traffic accounted for approximately 10 percent of operations at the Airport and the combined Military operations contributed approximately one percent of the total operations.

TABLE 7.2
2011 ANNUAL-AVERAGE DAY FLEET MIX (ITINERANT OPERATIONS)
SOUTHWEST FLORIDA INTERNATIONAL AIRPORT
14 CFR PART 150 STUDY

			Arrivals			Departures		
Category	***Aircraft***	***INM Aircraft***	***Day***	***Night***	***Total***	***Day***	***Night***	***Total***
Air Carrier	717-200	717200	10.24	0.39	10.63	10.58	0.05	10.63
	737-300	737300	4.05	0.35	4.40	4.14	0.26	4.40
	737-400	737400	3.02	0.02	3.04	2.76	0.28	3.04
	737-500	737500	1.09	0.08	1.17	1.13	0.04	1.17
	737-700	737700	13.54	1.29	14.83	14.25	0.58	14.83
	737-800	737800	6.91	1.77	8.68	7.22	1.46	8.68
	747-200	747200	0.01	0.00	0.01	0.01	0.00	0.01
	757-300	757300	0.23	0.09	0.32	0.31	0.01	0.32
	767-300	767300	0.02	0.00	0.02	0.02	0.00	0.02
	727-200	727EM2	0.01	0.02	0.03	0.01	0.02	0.03
	737-200	737N9	0.02	0.00	0.02	0.02	0.00	0.02
	757-200	757PW	7.18	1.83	9.01	8.28	0.73	9.01
	757-200	757RR	0.12	0.00	0.12	0.12	0.00	0.12
	767-200	767CF6	0.01	0.00	0.01	0.01	0.00	0.01
	767-200	767JT9	0.01	0.00	0.01	0.01	0.00	0.01
	A300-600	A300-622R	0.01	0.02	0.03	0.01	0.02	0.03
	A310-304	A310-304	0.09	0.57	0.66	0.49	0.17	0.66
	A319-131	A319-131	8.40	0.88	9.28	8.68	0.60	9.28
	A320-211	A320-211	4.74	1.77	6.51	5.02	1.49	6.51
	A320-232	A320-232	5.69	1.03	6.72	5.81	0.91	6.72
	A321-232	A321-232	0.99	0.72	1.71	1.70	0.01	1.71
	A330-343	A330-343	0.48	0.00	0.48	0.48	0.00	0.48
	CRJ900-ER	CRJ9-ER	0.29	0.00	0.29	0.29	0.00	0.29

TABLE 7.2
2011 ANNUAL-AVERAGE DAY FLEET MIX (ITINERANT OPERATIONS)
SOUTHWEST FLORIDA INTERNATIONAL AIRPORT
14 CFR PART 150 STUDY

			Arrivals			Departures		
Category	***Aircraft***	***INM Aircraft***	***Day***	***Night***	***Total***	***Day***	***Night***	***Total***
	DC9-50	DC95HW	0.01	0.00	0.01	0.01	0.00	0.01
	DC-10	DC1030	0.01	0.00	0.01	0.01	0.00	0.01
	ERJ 145L	EMB14L	0.81	0.00	0.81	0.81	0.00	0.81
	FOKKER 100	F10062	0.01	0.00	0.01	0.01	0.00	0.01
	MD-82	MD82	1.37	0.12	1.49	1.46	0.03	1.49
	MD-83	MD83	3.73	0.47	4.20	3.88	0.32	4.20
	MD-90	MD9025	0.26	0.07	0.33	0.32	0.01	0.33
	EMB170/190	GV	6.97	0.83	7.80	7.63	0.17	7.80
	EMB145	EMB145	0.46	0.02	0.48	0.45	0.03	0.48
Air Taxi/GA	Cessna 172	CNA172	0.22	0.02	0.24	0.22	0.02	0.24
Single Engine	Cessna 182	CNA182	0.07	0.00	0.07	0.06	0.01	0.07
	Cessna 206	CNA206	0.07	0.00	0.07	0.07	0.00	0.07
	Piper Warrior	PA28	0.18	0.00	0.18	0.18	0.00	0.18
	Piper Navajo	PA31	0.10	0.00	0.10	0.10	0.00	0.10
	Fixed Pitch	GASEPF	0.02	0.00	0.02	0.01	0.01	0.02
	Variable Pitch	GASEPV	0.44	0.02	0.46	0.45	0.01	0.46
Twin Piston	Beech Baron	BEC58P	7.03	0.06	7.09	7.05	0.04	7.09
Turboprop	Beech 1900	1900D	0.19	0.00	0.19	0.18	0.01	0.19
	Cessna 208	CNA208	0.02	0.00	0.02	0.02	0.00	0.02
	Conquest	CNA441	0.27	0.03	0.30	0.27	0.03	0.30
	Dash-6	DHC6	1.23	0.04	1.27	1.25	0.02	1.27
	Dornier 328	DO328	0.01	0.00	0.01	0.01	0.00	0.01
	ATR-72	HS748A	3.28	0.22	3.50	3.43	0.07	3.50
	Saab 340	SF340	0.03	0.00	0.03	0.03	0.00	0.03
GA Jet	Citation 3	CIT3	0.22	0.01	0.23	0.22	0.01	0.23
	Challenger 600	CL600	1.17	0.05	1.22	1.19	0.03	1.22
	Challenger 601	CL601	0.46	0.01	0.47	0.45	0.02	0.47
	Citation II	CNA500	0.55	0.03	0.58	0.57	0.01	0.58
	Citation Mustang	CNA510	0.07	0.01	0.08	0.07	0.01	0.08
	550 Citation Bravo	CNA55B	1.38	0.06	1.44	1.40	0.04	1.44
	Citation X	CNA750	0.47	0.02	0.49	0.47	0.02	0.49
	Eclipse 500	ECLIPSE500	0.01	0.00	0.01	0.01	0.00	0.01
	Falcon 20	FAL20	0.10	0.00	0.10	0.10	0.00	0.10
	Gulfstream IIB	GIIB	0.15	0.01	0.16	0.15	0.01	0.16
	Gulfstream IV	GIV	0.42	0.03	0.45	0.44	0.01	0.45
	Astra 1125	IA1125	0.03	0.00	0.03	0.03	0.00	0.03
	Lear 25	LEAR25	0.02	0.01	0.03	0.02	0.01	0.03
	Lear 35	LEAR35	2.50	0.19	2.69	2.58	0.11	2.69
	Falcon 50/900	FAL5090	0.26	0.02	0.28	0.26	0.02	0.28

TABLE 7.2
2011 ANNUAL-AVERAGE DAY FLEET MIX (ITINERANT OPERATIONS)
SOUTHWEST FLORIDA INTERNATIONAL AIRPORT
14 CFR PART 150 STUDY

			Arrivals			Departures		
Category	***Aircraft***	***INM Aircraft***	***Day***	***Night***	***Total***	***Day***	***Night***	***Total***
	MU300-100	MU3001	1.92	0.10	2.02	1.42	0.60	2.02
	Sabreliner 80	SABR80	0.04	0.00	0.04	0.04	0.00	0.04
Military	Sabreliner	LEAR25	0.32	0.00	0.32	0.32	0.00	0.32
	P-3 Orion	P3A	0.32	0.00	0.32	0.32	0.00	0.32
	King Air	DHC6	0.32	0.00	0.32	0.32	0.00	0.32
Total			**104.67**	**13.28**	**117.95**	**109.64**	**8.31**	**117.95**

Source: LCPA,ESA Airports, 2011

TABLE 7.3
2011 ANNUAL-AVERAGE DAY FLEET MIX (LOCAL OPERATIONS)
SOUTHWEST FLORIDA INTERNATIONAL AIRPORT
14 CFR PART 150 STUDY

			Touch and Go		
Category	***Aircraft***	***INM Aircraft***	***Day***	***Night***	***Total***
General Aviation	Variable Pitch Propeller	GASEPV	0.14	-	0.14
Military	King Air	DHC6	0.17	-	0.17
Total			**0.31**	**-**	**0.31**

Source: LCPA, ESA Airports, 2011

The small difference between the activity levels in Table 7.1 and Tables 7.2 and 7.3 are due to rounding and is expected to have negligible effect on the resulting contours.

7.2 Future 2017 Operational Activity and Fleet Mix

The requirements for the 14 CFR Part 150 program state that the future condition to be analyzed is five years or greater from the year of submittal of the NEM document. Through discussions with the LCPA, it was determined that the future condition for this Study would be the year 2017, five years from the year of submittal of this NEM document. Projections for future aircraft operations in 2017, shown in **Table 7.4**, were based on forecasts included in FAA's December 2010 TAF Detail Report. The 2017 aircraft fleet mix at RSW is expected to remain consistent with the base year (2011) fleet mix of this Study with the exception of the removal of stage two aircraft.

TABLE 7.4
2017 ANNUAL OPERATIONS
SOUTHWEST FLORIDA INTERNATIONAL AIRPORT
14 CFR PART 150 STUDY

	Air Carrier	Air Taxi	Itinerant General Aviation	Local General Aviation	Itinerant Military	Local Military	Total
Yearly Totals	83,660	10,664	8,437	26	662	86	103,535
Average 24-Hour Day	229.20	29.22	23.12	0.07	1.81	0.24	283.66

Source: FAA December 2010 Terminal Area Forecast (TAF)

As outlined in Table 7.4, total operations at the Airport for the future year 2017 are projected to be 103,535, or approximately 284 per average annual day. This total represents an increase of about 20 percent from the 2011 condition. A breakdown of 2017 itinerant operational activity and fleet mix that was used as the basis for the preparation of the 2017 noise contours is presented in **Table 7.5,** with a breakout of local operations in **Table 7.6**.

TABLE 7.5
2017 ANNUAL-AVERAGE DAY FLEET MIX (ITINERANT OPERATIONS)
SOUTHWEST FLORIDA INTERNATIONAL AIRPORT
14 CFR PART 150 STUDY

			Arrivals			Departures		
Category	*Aircraft*	*INM Aircraft*	*Day*	*Night*	*Total*	*Day*	*Night*	*Total*
Air Carrier	717-200	717200	12.60	0.48	13.08	13.02	0.06	13.08
	737-300	737300	4.99	0.43	5.42	5.09	0.33	5.42
	737-400	737400	3.71	0.03	3.74	3.39	0.35	3.74
	737-500	737500	1.35	0.09	1.44	1.40	0.04	1.44
	737-700	737700	16.65	1.59	18.24	17.53	0.71	18.24
	737-800	737800	8.51	2.18	10.69	8.88	1.81	10.69
	747-200	747200	0.01	0.00	0.01	0.01	0.00	0.01
	757-300	757300	0.28	0.10	0.38	0.37	0.01	0.38
	767-300	767300	0.03	0.00	0.03	0.03	0.00	0.03
	727-200	727EM2	0.01	0.03	0.04	0.01	0.03	0.04
	737-200	737N9	0.03	0.00	0.03	0.03	0.00	0.03
	757-200	757PW	8.83	2.25	11.08	10.18	0.90	11.08
	757-200	757RR	0.15	0.00	0.15	0.15	0.00	0.15
	767-200	767CF6	0.01	0.00	0.01	0.01	0.00	0.01
	767-200	767JT9	0.01	0.00	0.01	0.01	0.00	0.01
	A300-600	A300-622R	0.02	0.02	0.04	0.02	0.02	0.04
	A310-304	A310-304	0.11	0.70	0.81	0.61	0.20	0.81
	A319-131	A319-131	10.34	1.08	11.42	10.68	0.74	11.42
	A320-211	A320-211	5.84	2.17	8.01	6.18	1.83	8.01
	A320-232	A320-232	7.00	1.27	8.27	7.15	1.12	8.27
	A321-232	A321-232	1.22	0.89	2.11	2.09	0.02	2.11
	A330-343	A330-343	0.60	0.00	0.60	0.59	0.01	0.60
	CRJ900-ER	CRJ9-ER	0.36	0.00	0.36	0.36	0.00	0.36
	DC9-50	DC95HW	0.01	0.00	0.01	0.01	0.00	0.01

TABLE 7.5
2017 ANNUAL-AVERAGE DAY FLEET MIX (ITINERANT OPERATIONS)
SOUTHWEST FLORIDA INTERNATIONAL AIRPORT
14 CFR PART 150 STUDY

			Arrivals			Departures		
Category	***Aircraft***	***INM Aircraft***	***Day***	***Night***	***Total***	***Day***	***Night***	***Total***
	DC-10	DC1030	0.01	0.00	0.01	0.00	0.01	0.01
	ERJ 145L	EMB14L	1.00	0.00	1.00	1.00	0.00	1.00
	FOKKER 100	F10062	0.01	0.00	0.01	0.01	0.00	0.01
	MD-82	MD82	1.68	0.15	1.83	1.79	0.04	1.83
	MD-83	MD83	4.59	0.58	5.17	4.78	0.39	5.17
	MD-90	MD9025	0.32	0.09	0.41	0.40	0.01	0.41
	EMB170/190	GV	8.58	1.02	9.60	9.39	0.21	9.60
	EMB145	EMB145	0.57	0.02	0.59	0.55	0.04	0.59
Air Taxi/GA	Cessna 172	CNA172	0.23	0.02	0.25	0.23	0.02	0.25
Single Engine	Cessna 182	CNA182	0.07	0.01	0.08	0.07	0.01	0.08
	Cessna 206	CNA206	0.08	0.00	0.08	0.08	0.00	0.08
	Piper Warrior	PA28	0.20	0.00	0.20	0.20	0.00	0.20
	Piper Navajo	PA31	0.11	0.00	0.11	0.11	0.00	0.11
	Fixed Pitch	GASEPF	0.02	0.00	0.02	0.01	0.01	0.02
	Variable Pitch	GASEPV	0.48	0.02	0.50	0.49	0.01	0.50
Twin Piston	Beech Baron	BEC58P	7.70	0.06	7.76	7.71	0.05	7.76
Turboprop	Beech 1900	1900D	0.20	0.01	0.21	0.20	0.01	0.21
	Cessna 208	CNA208	0.02	0.00	0.02	0.02	0.00	0.02
	Conquest	CNA441	0.29	0.03	0.32	0.29	0.03	0.32
	Dash-6	DHC6	1.34	0.05	1.39	1.37	0.02	1.39
	Donier 328	DO328	0.01	0.00	0.01	0.01	0.00	0.01
	ATR-72	HS748A	3.59	0.25	3.84	3.76	0.08	3.84
	Saab 340	SF340	0.04	0.00	0.04	0.04	0.00	0.04
GA Jet	Citation 3	CIT3	0.25	0.01	0.26	0.25	0.01	0.26
	Challenger 600	CL600	1.27	0.06	1.33	1.30	0.03	1.33
	Challenger 601	CL601	0.50	0.01	0.51	0.50	0.01	0.51
	Citation II	CNA500	0.60	0.04	0.64	0.62	0.02	0.64
	Citation Mustang	CNA510	0.07	0.02	0.09	0.08	0.01	0.09
	550 Citation Bravo	CNA55B	1.52	0.06	1.58	1.53	0.05	1.58
	Citation X	CNA750	0.52	0.02	0.54	0.52	0.02	0.54
	Eclipse 500	ECLIPSE500	0.02	0.00	0.02	0.02	0.00	0.02
	Gulfstream IV	GIV	0.64	0.04	0.68	0.65	0.03	0.68
	Astra 1125	IA1125	0.03	0.00	0.03	0.03	0.00	0.03
	Lear 35	LEAR35	2.91	0.22	3.13	3.00	0.13	3.13
	Falcon 50/900	FAL5090	0.29	0.03	0.31	0.29	0.03	0.31
	MU300-100	MU3001	2.10	0.11	2.21	1.56	0.65	2.21

TABLE 7.5
2017 ANNUAL-AVERAGE DAY FLEET MIX (ITINERANT OPERATIONS)
SOUTHWEST FLORIDA INTERNATIONAL AIRPORT
14 CFR PART 150 STUDY

			Arrivals			Departures		
Category	*Aircraft*	*INM Aircraft*	*Day*	*Night*	*Total*	*Day*	*Night*	*Total*
Military	Sabreliner	LEAR25	0.30	0.00	0.30	0.30	0.00	0.30
	P-3 Orion	P3A	0.30	0.00	0.30	0.30	0.00	0.30
	King Air	DHC6	0.30	0.00	0.30	0.30	0.00	0.30
Total			**125.43**	**16.24**	**141.66**	**131.56**	**10.11**	**141.66**

Source: LCPA, ESA Airports 2011

TABLE 7.6
2017 ANNUAL-AVERAGE DAY FLEET MIX (LOCAL OPERATIONS)
SOUTHWEST FLORIDA INTERNATIONAL AIRPORT
14 CFR PART 150 STUDY

			Touch and Go		
Category	*Aircraft*	*INM Aircraft*	*Day*	*Night*	*Total*
General Aviation	Variable Pitch Propeller	GASEPV	0.07	0.00	0.07
Military	King Air	DHC6	0.24	0.00	0.24
Total			**0.31**	**0.00**	**0.31**

Source: LCPA, ESA Airports 2011

7.3 Stage Length

An aircraft's stage length (or trip length) refers to the distance an aircraft flies to its next destination after departing an airport. The stage length is important in noise modeling, since the longer the distance an aircraft will travel to its next destination the greater its fuel load and overall weight and, as a result, the lower its departure profile will be. Stage lengths for aircraft departing RSW used in the INM include the following ranges:

Stage length 1 – 0 to 500 miles
Stage length 2 – 500 to 1,000 miles
Stage length 3 – 1,000 to 1,500 miles
Stage length 4 – 1,500 to 2,500 miles
Stage length 5 – 2,500 to 3,500 miles
Stage length 6 – 3,500 to 4,500 miles

The 2011 and 2017 stage lengths for aircraft departing RSW are presented in **Table 7.7**. As indicated in the table, the air carrier stage lengths vary from one to six. Stage lengths one, two, and three represent the destinations served in the continental United States and Canada. The longer stage length six represents the flights to Europe. Within the INM, all general aviation and military aircraft are assigned stage length one. For the majority of GA aircraft, stage length one automatically defaults to maximum takeoff weight in the INM.

TABLE 7.7
2011 AND 2017 AIR CARRIER AIRCRAFT STAGE LENGTH PERCENTAGES
SOUTHWEST FLORIDA INTERNATIONAL AIRPORT
14 CFR PART 150 STUDY

			Percent					
Category	***Aircraft***	***INM Aircraft***	***Stage 1***	***Stage 2***	***Stage 3***	***Stage 4***	***Stage 5***	***Stage 6***
Air Carrier	717-200	717200	0.4	90.2	9.4			
	737-300	737300	42.7	57.3				
	737-400	737400	2.5	97.5				
	737-500	737500	6.4	93.6				
	737-700	737700	14.0	69.6	16.4			
	737-800	737800	1.3	89.0	9.7			
	747-200	747200	100.0					
	757-300	757300	2.7	40.2	57.1			
	767-300	767300		100.0				
	727-200	727EM2	33.3	66.7				
	737-200	737N9	75.0	25.0				
	757-200	757PW	2.7	88.2	9.1			
	757-200	757RR	31.8	68.2				
	767-200	767CF6	100.0					
	767-200	767JT9	100.0					
	A300-600	A300-622R	58.3	41.7				
	A310-304	A310-304	87.9	12.1				
	A310-343	A310-343	80.0	20.0				
	A319-131	A319-131	0.6	86.8	12.6			
	A320-211	A320-211	1.0	73.1	25.9			
	A320-232	A320-232	0.5	66.5	33.0			
	A321-232	A321-232	0.3	98.7	1.0			
	A330-343	A330-343	0.6					99.4
	CRJ900-ER	CRJ9-ER	91.4	8.6				
	DC9-50	DC95HW		100.0				
	DC-10	DC1030	100.0					
	ERJ 145L	EMB14L	1.0	99.0				
	FOKKER 100	F10062	100.0					
	MD-82	MD82	1.3	98.7				
	MD-83	MD83	0.7	92.7	6.6			
	MD-90	MD9025		0.8	99.2			
	EMB170/190	GIV	100.0					
	EMB145	EMB145	83.1	16.9				

Source: LCPA, ESA Airports 2011

7.4 Runway Utilization

7.4.1 Existing 2011 Condition

Runway utilization at RSW depends primarily on wind conditions and secondarily on aircraft destination or arrival location into the local airspace. Based on the PASSUR™ Landing Fee Management System data, overall, the Airport currently operates on Runway 06 (arrivals from the southwest and departures to the northeast) approximately 69 percent of the time and on Runway 24 (arrivals from the northeast and departures to the southwest) the remaining 31 percent. A comprehensive breakdown of runway use for daytime and nighttime operations for 2011 is shown in **Table 7.8**.

TABLE 7.8
2011 RUNWAY USE PERCENTAGES
SOUTHWEST FLORIDA INTERNATIONAL AIRPORT
14 CFR PART 150 STUDY

		Percent		
Type	***Time***	***Runway 06***	***Runway 24***	***Total***
Departure	Day	68.6	31.4	100.0
Departure	Night	91.0	9.0	100.0
Arrival	Day	67.6	32.4	100.0
Arrival	Night	73.9	26.1	100.0

Source: LCPA, ESA Airports 2011

7.4.2 Future 2017 Condition

The runway use percentages for the future condition were assumed to be the same as the existing condition shown in Table 7.8.

7.5 Flight Tracks

7.5.1 Existing 2011 Condition

The location of flight tracks (flight corridor centerlines and splay) is an important factor in determining the geographic distribution of noise contours on the ground. The locations of the current arrival and departure tracks into and out of RSW were developed through analysis of the aircraft radar tracks provided from the FAA, and through discussions with ATC personnel. Flight tracks utilized by arriving and departing aircraft, in both northeast and southwest flow conditions, were reviewed and a series of flight corridors were established. Since aircraft do not follow a single track in the sky, flight corridors are developed to closely replicate the actual splay of aircraft as per the dispersion indicated in the FAA data provided and sub-track use percentages were assigned accordingly.

Primary arrival and departure flight corridors off Runway 06 for a northeast flow condition are shown on **Figure 7.1** and for Runway 24 for southwest flow on **Figure 7.2**.

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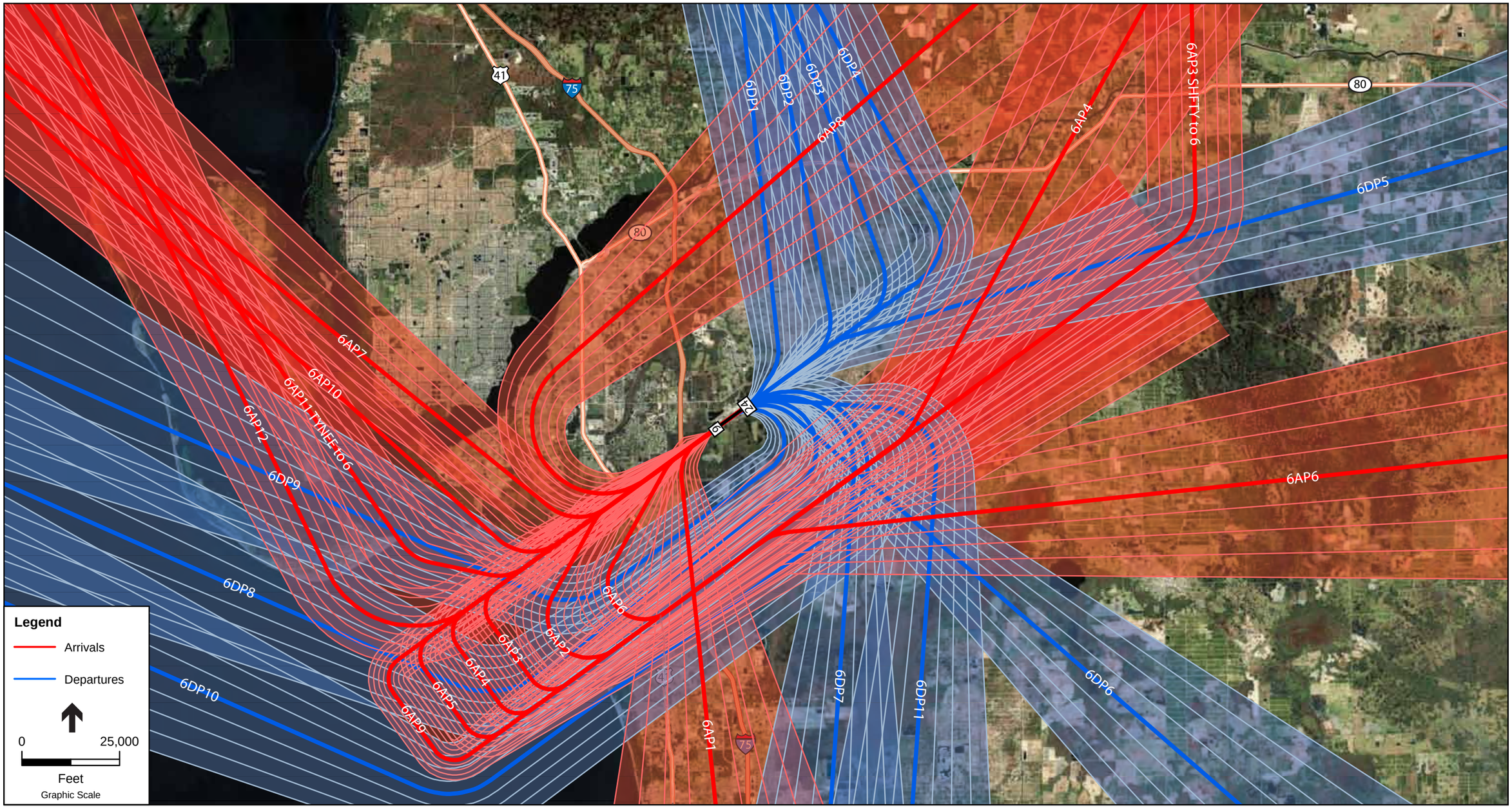

SOURCE: ESA Airports, 2011; INM 7.0b; ESRI; Aerial - Bing Maps

Southwest Florida International Airport 14 CFR Part 150 Study, 210140

Figure 7.1

Modeled Flight Tracks - Northeast Flow

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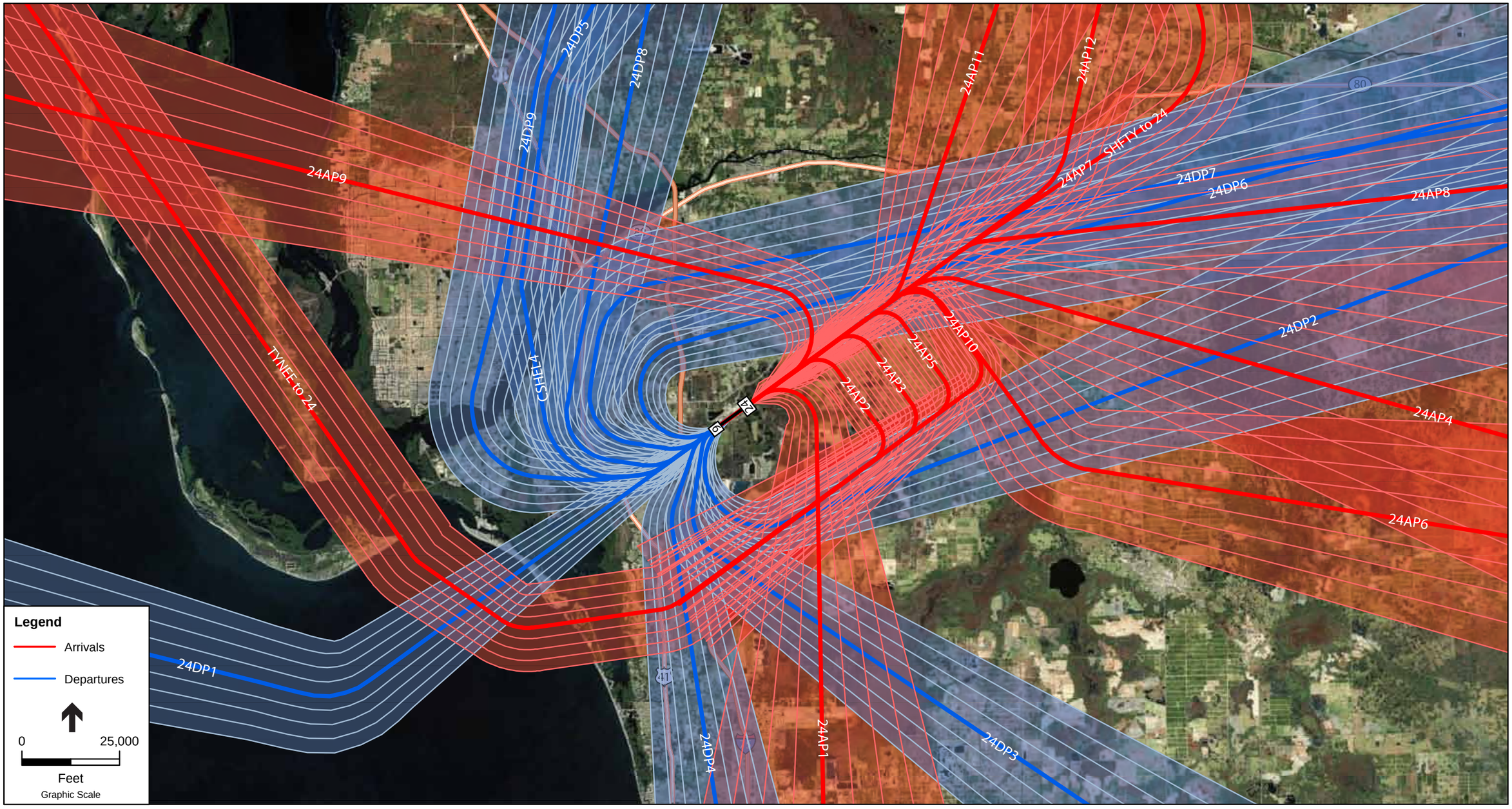

SOURCE: ESA Airports, 2011; INM 7.0b; ESRI; Aerial - Bing Maps

Figure 7.2
Modeled Flight Tracks - Southwest Flow

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The flight tracks shown on these figures are itinerant operations of jet and propeller aircraft and represent the approximate centerline of flight corridors for arriving and departing aircraft and the natural splay of the aircraft corridors. Large scale plots of the flight tacks are included with the NEM Maps in **Appendix K**.

It should be noted that no two aircraft typically fly exactly the same path due to such factors as aircraft type, differences in equipment, pilot skill, instrumentation, location in relation to other aircraft, and weather conditions.

The local training pattern flight tracks used at RSW are shown on **Figure 7.3.** These training tracks include local touch-and-go patterns that occur exclusively south of Runway 06-24 (a right-hand pattern off Runway 06 and a left-hand pattern off Runway 24). A detailed breakdown of aircraft flight track use is presented in **Tables 7.9, 7.10** and **7.11**.

TABLE 7.9
2011 AND 2017 DEPARTURE FLIGHT TRACK USE PERCENTAGES
SOUTHWEST FLORIDA INTERNATIONAL AIRPORT
14 CFR PART 150 STUDY

Direction	*Runway*	*Track ID*	*Percent*
Northeast	6	6DP1	28.2
		6DP2	24.2
		6DP3	5.9
		6DP4	1.0
		6DP5	1.1
		6DP6	2.1
		6DP7	2.1
		6DP8	0.9
		6DP9	0.9
		6DP10	1.7
		6DP11	2.1
Southwest	24	24DP1	1.4
		24DP2	0.7
		24DP3	0.9
		24DP4	1.9
		24DP5	19.1
		24DP6	0.4
		24DP7	0.8
		24DP8	3.2
		24DP9	1.4
		Total	100.0

Source: ESA Airports 2011

TABLE 7.10
2011 AND 2017 ARRIVAL FLIGHT TRACK USE PERCENTAGES
SOUTHWEST FLORIDA INTERNATIONAL AIRPORT
14 CFR PART 150 STUDY

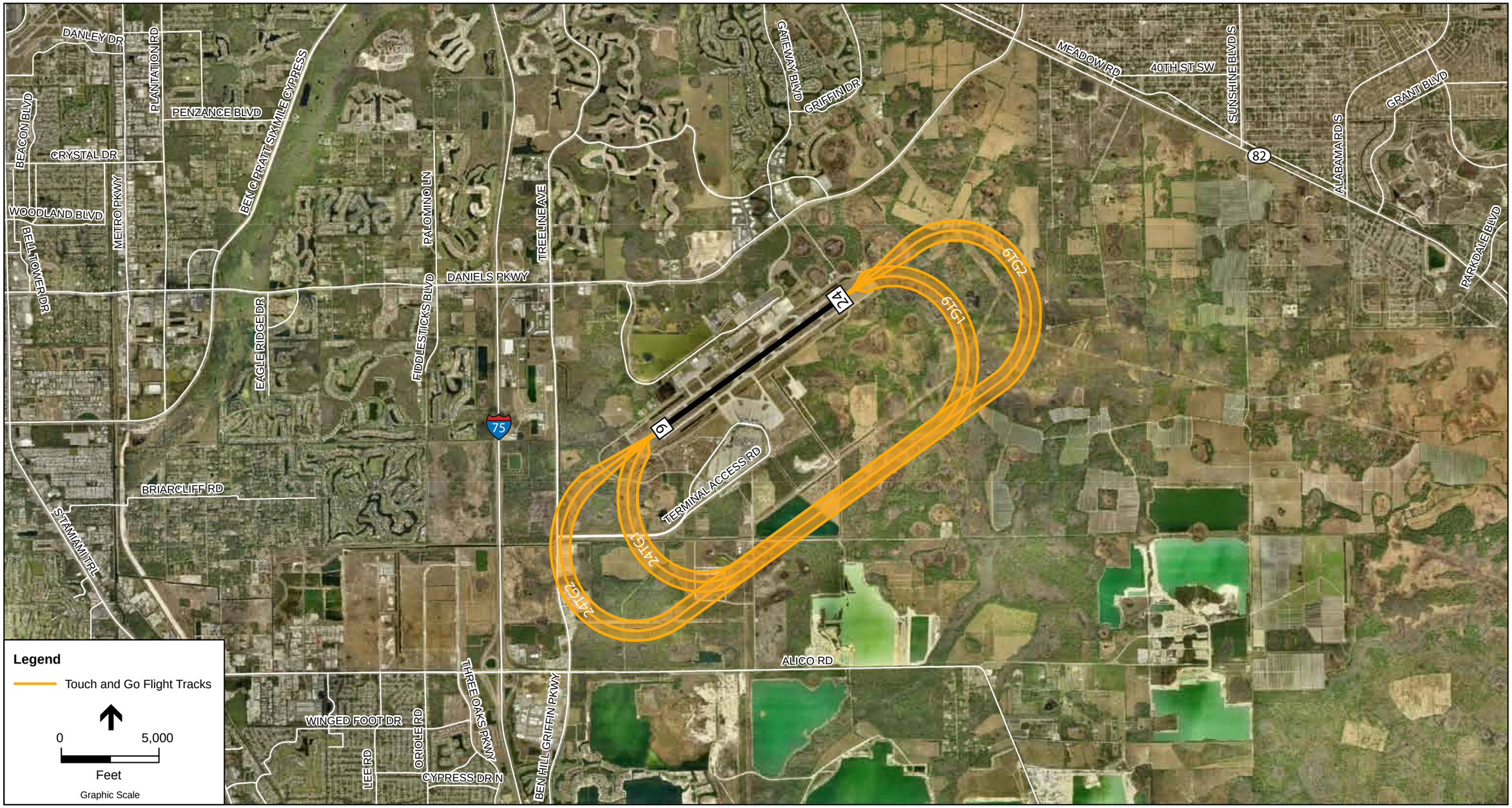
Direction	*Runway*	*Track ID*	*Percent*
Northeast	6	6AP1	4.1
		6AP2	9.1
		6AP3	16.0
		6AP4	2.5
		6AP5	1.5
		6AP6	2.0
		6AP7	6.5
		6AP8	2.0
		6AP9	1.0
		6AP10	13.0
		6AP11	8.0
		6AP12	2.7
Southwest	24	24AP1	2.0
		24AP2	3.4
		24AP3	3.3
		24AP4	1.0
		24AP5	2.0
		24AP6	0.7
		24AP7	4.3
		24AP8	0.3
		24AP9	1.1
		24AP10	3.1
		24AP11	7.2
		24AP12	3.2
		Total	100.0

Source: ESA Airports 2011

TABLE 7.11
2011 AND 2017 LOCAL (TOUCH AND GO) FLIGHT TRACK USE PERCENTAGES
SOUTHWEST FLORIDA INTERNATIONAL AIRPORT
14 CFR PART 150 STUDY

Direction	*Runway*	*Track ID*	*Percent*
Northeast	6	06TG1	30.4
		06TG2	38.2
Southwest	24	24TG1	13.9
		24TG2	17.5
		Total	100.0

Source: ESA Airports 2011



SOURCE: ESA Airports, 2011; INM 7.0b; ESRI; Aerial - Bing Maps

Southwest Florida International Airport 14 CFR Part 150 Study. 210140

Figure 7.3

Modeled Flight Tracks - Touch and Go

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7.5.2 Future 2017 Condition

The flight tracks and flight corridors for the future 2017 condition was assumed to be the same as the current condition. It is important to note that flight procedures may be modified and refined due to implementation of new technology (RNAV, etc.) or other factors. However, for the purposes of the baseline 2017 noise conditions, it is not anticipated that near term changes will result in altering aircraft locations within the noise exposure contours intervals that are considered significant (i.e. 65 DNL).

7.6 Time of Day of Operations

The separation of aircraft operations into daytime and nighttime periods is an important component of developing DNL contours. This is because DNL includes a 10 dB penalty for operations during the nighttime hours (10 p.m. – 6:59 a.m.). Due to the logarithmic measure of noise, the 10 dB penalty weights every nighttime flight similar to 10 daytime flights. The number of operations operating at night were determined through analyzing the PASSUR™ Landing Fee Management System data and through discussion with the Air Traffic Control Tower personnel at RSW and applied on a per aircraft basis. The nighttime operations by aircraft type can be found in Tables 7.2 and 7.3 for the 2011 existing condition and Tables 7.5 and 7.6 for the 2017 future condition.

7.7 Other Factors

Chapter 1 includes basic information about the layout and configuration of the airport. This section provides additional information which has been included in the modeling of the noise conditions at the airport.

7.7.1 Elevation/Topography

The runway and surrounding area is relatively flat and lacking any significant topographical features that would affect sound propagation. Runway 06/24 has an end elevation of 27 feet MSL at the Runway 06 end and 30 feet MSL at the Runway 24 end. The designated airport field elevation is 30 feet MSL. There are no terrain features on or near the airport that will influence the noise exposure within the 55 DNL and greater noise contours nor are there terrain or topographic features that affect the location of flight track and airspace procedures.

7.7.2 Temperature

The annual average temperature for the Fort Myers area is 75 degrees Fahrenheit.

7.7.3 Glide Slope Angle

The published procedure glide slope angle for each runway end is a three degree glide path. Neither runway end has a displaced threshold that would affect the landing location of aircraft.

CHAPTER 8
Noise Exposure

8.1 Activity Comparison for Year of Submittal

The FAA requires that the noise exposure maps submitted for review represent the aircraft noise exposure for the year of submittal (in this case 2012) and for a future year (2017 for RSW). However, since analysis conducted for the RSW 14 CFR Part 150 Study Update used data for 2011 existing operations (because the Study began prior to the year of submittal and used the most recent 12 months of actual data at the time), a review was made of recent operational activity at the Airport. This review was made to determine if the initial year noise contours analyzed in this Study (2011) were significantly different from those that occur in the year of submittal (2012).

For the purposes of this Study, the number of operations modeled for the Existing year (2011) was 86,257 operations. A review of the ATADS operational activity for the most recent 12 months, from August 2011 through July 2012, indicated that the most recent 12-month operational activity totaled 78,923 or a difference of approximately 7,334 operations from the 2011 baseline levels used in the modeling. The 2011 baseline activity level represents a 9.3 percent variation from the latest 2012 operational data. This is within the 10 percent variance allowance for a near term forecast to be considered consistent with the FAA's TAF. Therefore, the activity level for the existing year NEM is considered representative of the year 2012 for the purposes of this Study.

As indicated in Section 7.2, the 2017 activity levels used for modeling the future year at RSW were based on the FAA's December 2010 TAF. A total of 103,535 annual operations were used in modeling the future year average annual day for RSW. In January 2012, an updated TAF was issued for RSW which projected a total of 91,962 operations in 2017. The 2017 activity levels that were modeled are 11,573 or 12.6 percent greater than the 2012 TAF projection for 2017. In reviewing this change in activity projections, there are a number of factors that require consideration.

- The TAF re-indexes annually based on the most recent fiscal year data. The most recent 12 months of actual RSW data is approximately 1,500 operations greater than that projected in the January 2012 TAF for 2012. If this trend continues, the TAF will re-index upward in January 2013.

- Historically, annual operations at RSW have grown and fluctuated by as much as 10 percent or more in a single year. It is reasonable to consider that activity may rebound to the modeled 2017 activity levels within the planning period.

- The contours developed using the December 2010 TAF may result in a slightly larger set of noise contours. However, no additional non-compatible land use would result, nor would there be an increase or a decrease in properties that are eligible for FAA funding. The 2017 contours and underlying assumptions developed based on the December 2010 TAF have been presented to the public and the airport advisory committees in numerous public workshops, small community meetings, and through numerous media outlets.

Based on the considerations outlined above, the activity levels outlined in the December 2010 TAF and used for the purposes of modeling the future noise contours for RSW are considered reasonable and representative of the future activity levels at the airport. Use of the December 2010 TAF will not result in any additional or fewer noise non-compatible land uses within the contours nor will it increase or decrease FAA funding eligibility.

8.2 Existing 2012 Noise Conditions

The 2012 noise contours for RSW are provided on **Figure 8.1**. As shown, the 65 DNL is located completely within the airport property boundary. For the purposes of long term land use planning, Lee County has adopted overlay zoning that addresses long term development within the 60 and 55 DNL contour limits. As a result, the 60 and 55 DNL contours have been included in the graphics and analysis throughout this chapter.

The overall contour is noticeably wider to the northeast than to the southwest. This is primarily due to the aircraft departure and arrival flow at the Airport. Departing aircraft noise typically spreads to the sides of the departure path while arrival noise is more concentrated in close proximity to the extended arrival centerline. Based on the PASSUR™ data, aircraft depart to the northeast (Runway 06) approximately 69 percent of the time. With this direction of flow, departure noise exposure (which spreads to the sides of the departure path) dominates the DNL contours. Thus, the width of the noise contours to the northeast is larger than those to the southwest where arrival operations dominate the aircraft noise exposure. The DNL contour coverage areas both on airport and off airport property for the existing 2012 condition are identified in **Table 8.1**

TABLE 8.1
2012 DNL CONTOUR SURFACE AREAS
SOUTHWEST FLORIDA INTERNATIONAL AIRPORT
14 CFR PART 150 STUDY

DNL Contour	*Total Acres*	*Acres On Airport Property*	*Acres Off Airport Property*
55 and greater	5,449	2,920	2,529
60 and greater	2,148	1,786	362
65 and greater	862	862	0
70 and greater	372	372	0
75 and greater	163	163	0

Source: ESA Airports, INM 7.0b 2011

8.3 Future 2017 Noise Conditions

The 2017 noise exposure contours are shown on **Figure 8.2**. A review of the 2017 condition indicates that there is an increase in the size of the contours compared to 2012 due primarily to the projected increase in commercial aircraft operations. The overall shape of the contour remains very similar to the shape of the 2012 contour.

The land use surface areas for both on airport and off airport property for the forecast 2017 condition are identified in **Table 8.2.**

TABLE 8.2
2017 DNL CONTOUR SURFACE AREAS
SOUTHWEST FLORIDA INTERNATIONAL AIRPORT
14 CFR PART 150 STUDY

DNL Contour	*Total Acres*	*Acres On Airport Property*	*Acres Off Airport Property*
55 and greater	6,318	3,140	3,178
60 and greater	2,479	1,929	550
65 and greater	985	985	0
70 and greater	418	418	0
75 and greater	183	183	0

Source: ESA Airports, INM 7.0b 2011

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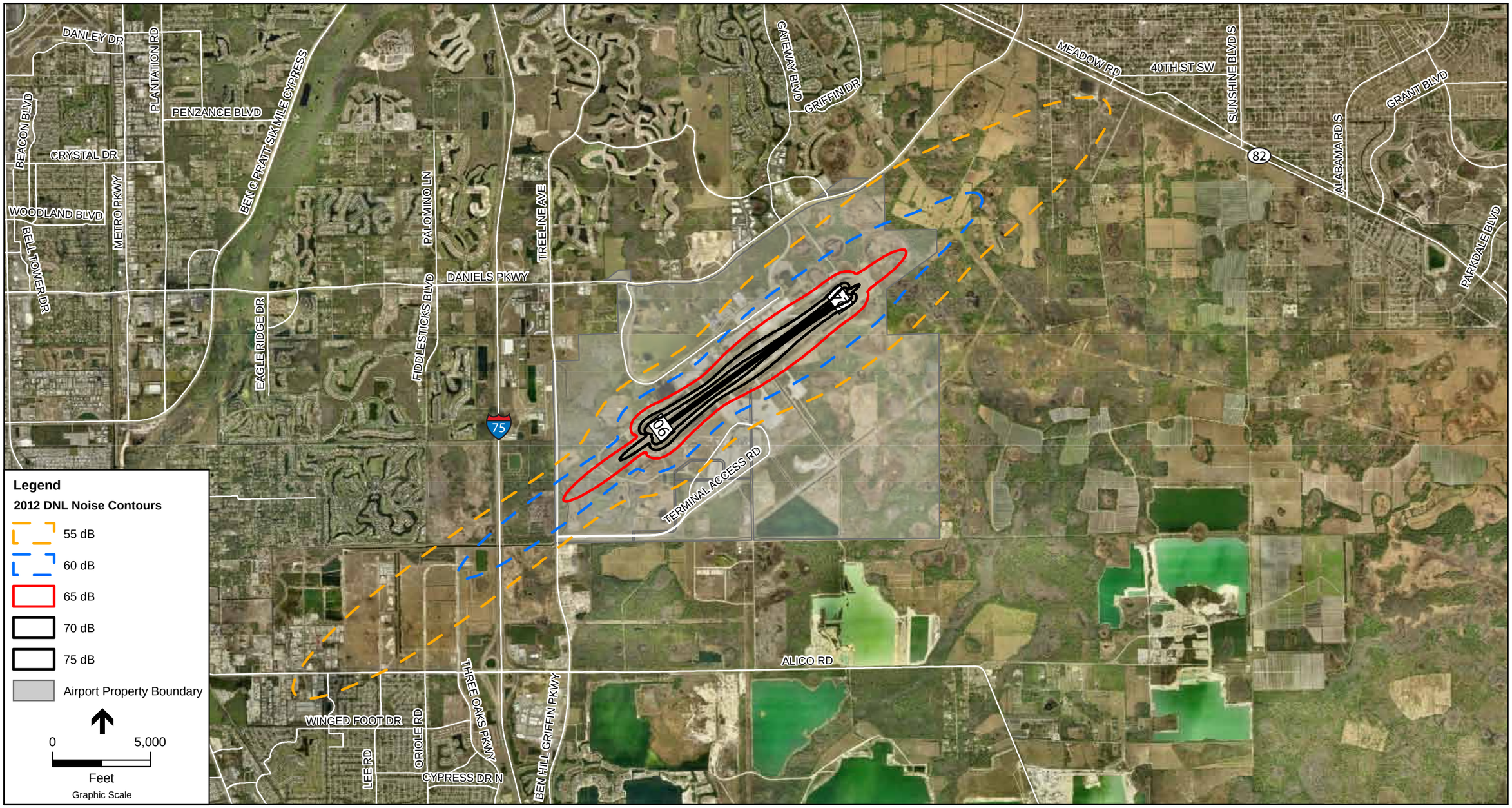

SOURCE: ESA Airports, 2011; INM 7.0b; Lee County GIS Department

Southwest Florida International Airport 14 CFR Part 150 Study, 210140

Figure 8.1
2012 DNL Noise Contours

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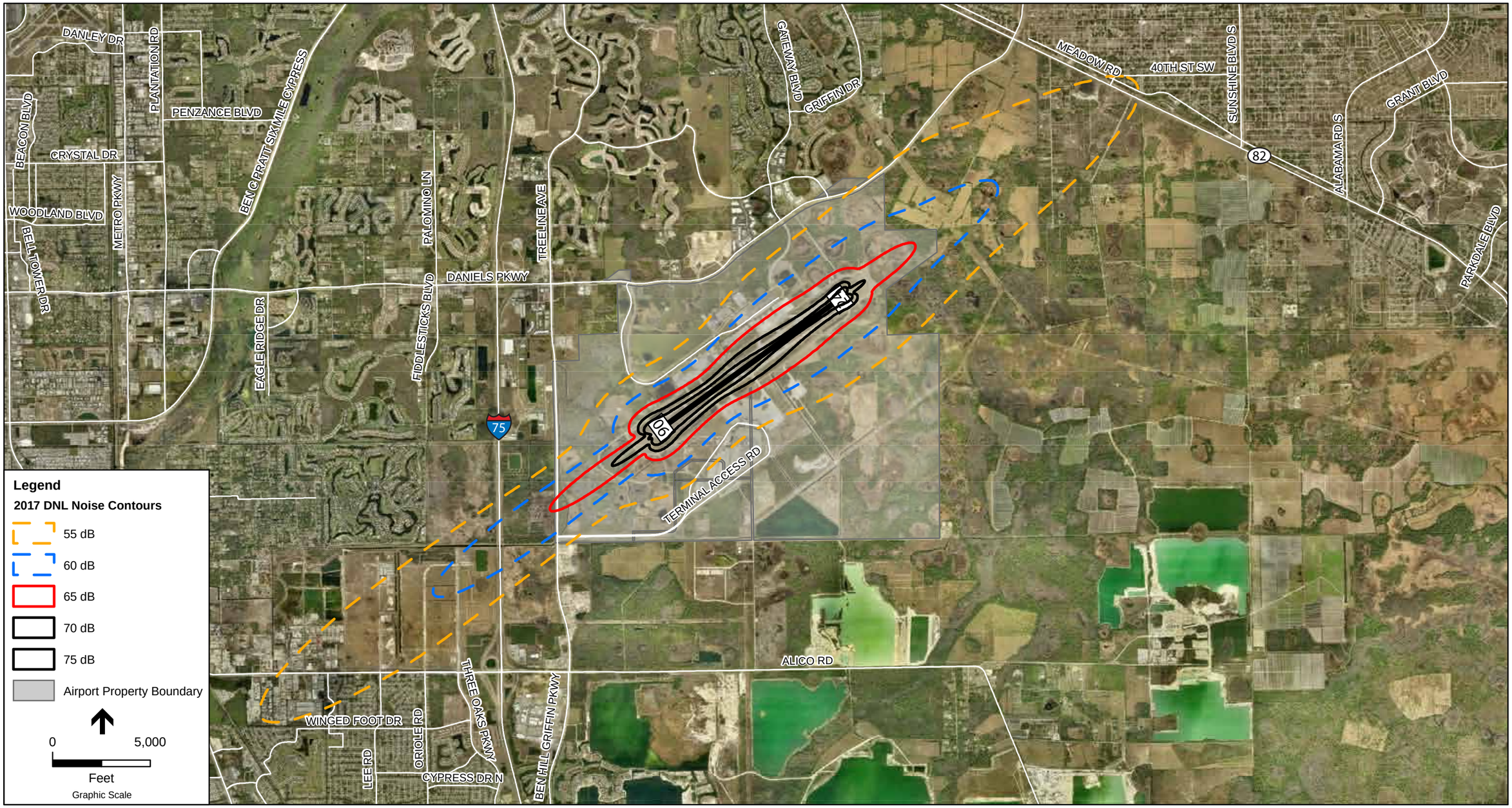

SOURCE: ESA Airports, 2011; INM 7.0b; Lee County GIS Department

Southwest Florida International Airport 14 CFR Part 150 Study, 210140

Figure 8.2
2017 DNL Noise Contours

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8.4 Population and Noise Sensitive Sites Within Noise Contour Areas

The FAA defines noise sensitive sites as uses within the 65 DNL that would be incompatible with aircraft noise without the proper Noise Level Reduction (NLR). Such sites would include residences, schools, places of worship, hospitals, passive parks, historic properties and other uses that could be adversely affected by aircraft noise. Since the 65 DNL limits remain on Airport property for both the 2012 and 2017 conditions, no population or noise sensitive sites are located within the 65 DNL or higher for 2012 or 2017. Additionally, no population or noise sensitive sites are located within the 60 and greater DNL contours for 2012 or 2017.

While there are no impacts to noise sensitive uses within the highest noise areas, the Lee County Port Authority Board/Board of County Commissioners recognizes that there is still community concerns and annoyance associated with the operation of the airport. As a result the LCPA has committed to using the 14 CFR Part 150 process to explore potential operational modifications, update its existing long term land use compatibility measures, and explore management measures to enhance its near term and long term relationship with the surrounding communities.

8.5 FAA Compatible Land Use Guidelines

The FAA has developed land use guidelines that relate the compatibility of aircraft activity to areas surrounding an airport. These guidelines, provided in **Table 8.3**, identify land use activities that are acceptable within the 65, 70 and 75 DNL contours. FAA guidance indicates that virtually all land uses below the 65 DNL are considered to be compatible with the effects of aircraft noise. It is important to note that the FAA does recognize that local jurisdictions can adopt a lower land use compatibility level that may be more stringent than FAA guidelines.

Attention is focused on areas within the 65 DNL because the FAA considers aircraft noise exposure levels of 65 DNL and greater to be incompatible with noise sensitive land uses unless the proper amount of NLR is applied to the structure. The 65 DNL contour also identifies the limits the FAA considers the most crucial for eligibility of funding of noise abatement and mitigation measures. FAA recognizes, however, that noise does not stop at the 65 DNL limit and is heard by people located in proximity to approach, departure, and training corridors. Lee County has actually taken the FAA guidelines in Table 8.3 a step further and have implemented land use controls around the Airport that restrict certain noise sensitive land uses out to the 60 DNL contour. These controls are described later in this chapter in Lee Plan Objective 1.7, Policy 1.7.1.

TABLE 8.3
14 CFR PART 150 LAND USE COMPATIBILITY GUIDELINES
SOUTHWEST FLORIDA INTERNATIONAL AIRPORT
14 CFR PART 150 STUDY

Land Use	Yearly Day-Night Noise Level (DNL) in decibels					
	Below 65	65-70	70-75	75-80	80-85	Over 85
RESIDE NTIAL						
Residential, other than mobile homes and transient lodgings	Y	N(1)	N(1)	N	N	N
Mobile home parks	Y	N	N	N	N	N
Transient lodgings	Y	N(1)	N(1)	N(1)	N	N
PUBLIC USE						
Schools	Y	N(1)	N(1)	N	N	N
Hospitals and nursing homes	Y	25	30	N	N	N
Churches, auditoriums and concert halls	Y	25	30	N	N	N
Government services	Y	Y	25	30	N	N
Transportation	Y	Y	Y(2)	Y(3)	Y(4)	Y(4)
Parking	Y	Y	Y(2)	Y(3)	Y(4)	N
COMMERCIAL USE						
Offices, business and professional	Y	Y	25	30	N	N
Wholesale and retail - building materials, hardware and farm equipment	Y	Y	Y(2)	Y(3)	Y(4)	N
Retail trade – general	Y	Y	25	30	N	N
Utilities	Y	Y	Y(2)	Y(3)	Y(4)	N
Communication	Y	Y	25	30	N	N
MANUFACTURING AND PR ODUCTION						
Manufacturing, general	Y	Y	Y(2)	Y(3)	Y(4)	N
Photographic and optical	Y	Y	25	30	N	N
Agriculture (except livestock) and forestry	Y	Y(6)	Y(7)	Y(8)	Y(8)	Y(8)
Livestock farming and breeding	Y	Y(6)	Y(7)	N	N	N
Mining and fishing, resource production and extraction	Y	Y	Y	Y	Y	Y
RECREATIONAL						
Outdoor sports arenas and spectator sports	Y	Y(5)	Y(5)	N	N	N
Outdoor music shells, amphitheaters	Y	N	N	N	N	N
Nature exhibits and zoos	Y	Y	N	N	N	N
Amusements, parks, resorts and camps	Y	Y	Y	N	N	N
Golf courses, riding s tables and water recreation	Y	Y	25	30	N	N

Numbers in parenthesis refer to notes.

* The designations contained in this table do not constitute a Federal determination that any use of land covered by the program is acceptable or unacceptable under Federal, State or local law. The responsibility for determining the acceptable and permissible land uses and the relationship between specific properties and specific noise contours rests with the local authorities. FAA determinations under Part 150 are not intended to substitute federally determined land uses for those determined to be appropriate by local authorities in response to locally determined needs and values in achieving noise compatible land uses.

Key to Table

SLUCM Standard Land Use Coding Manual.
Y(Yes) Land Use and related structures compatible without restrictions.
N (No) Land Use and related structures are not compatible and should be prohibited.
NLR Noise Level Reduction (outdoor to indoor) to be achieved through incorporation of noise attenuation into the design and construction of the structure.
25, 30 or 35 Land Use and related structures generally compatible; measures to achieve NLR of 25, 30 or 35 dB must be incorporated into design and construction of structure.

Notes:

(1) Where the community determines that residential or school uses must be allowed, measures to achieve outdoor to indoor NLR of at least 25 dB to 30 dB should be incorporated into building codes and be considered in individual approvals. Normal residential construction can be expected to provide a NLR of 20 dB, thus, the reduction requirements are often stated as 5, 10, or 15 dB over standard construction and normally assume mechanical ventilation and closed windows year round. However, the use of NLR criteria will not eliminate outdoor noise problems.
(2) Measures to achieve NLR of 25 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where normal noise level is low.
(3) Measures to achieve NLR of 30 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where normal noise level is low.
(4) Measures to achieve NLR of 35 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where normal noise level is low.
(5) Land use compatible provided that special sound reinforcement systems are installed.
(6) Residential buildings require an NLR of 25 dB.
(7) Residential buildings require an NLR of 30 dB.
(8) Residential buildings not permitted.

Source: http://www.faa.gov/airports/environmental/environmental_desk_ref/media/desk_ref_chap5.pdf

8.6 Future Land Use

The Lee Plan, the county's comprehensive plan, is the principal document that includes all guidelines pertaining to development within Lee County. All units of local government in the state of Florida are required to adopt comprehensive plans pursuant to Chapter 163 of the Florida Statutes. The Plan serves to fulfill several purposes. The first purpose is to ensure that public and private activities within each jurisdiction are consistent with the goals and policies of the Lee Plan. The Plan also acts as a source of authority for the local jurisdictions and represents the direction that the County is heading and what it should look like at the end of the term, which in the case of the current Lee Plan is 2030.

The most important element of the Lee Plan with respect to the 14 CFR Part 150 Study is future land use. The future land use element of the plan consists of a future land use map and supporting policies keyed to categories of land use on the map. The purpose of the future land use map is to show the proposed distribution, location, and extent of future land uses by type, density, and intensity. This is done to protect natural and man-made resources, provide essential services in a cost-effective manner, and discourage urban sprawl. Changes to the Lee Plan are required to go through a multiple level amendment/approval process. The future land use map of the airport vicinity is shown in **Figure 8.3**.

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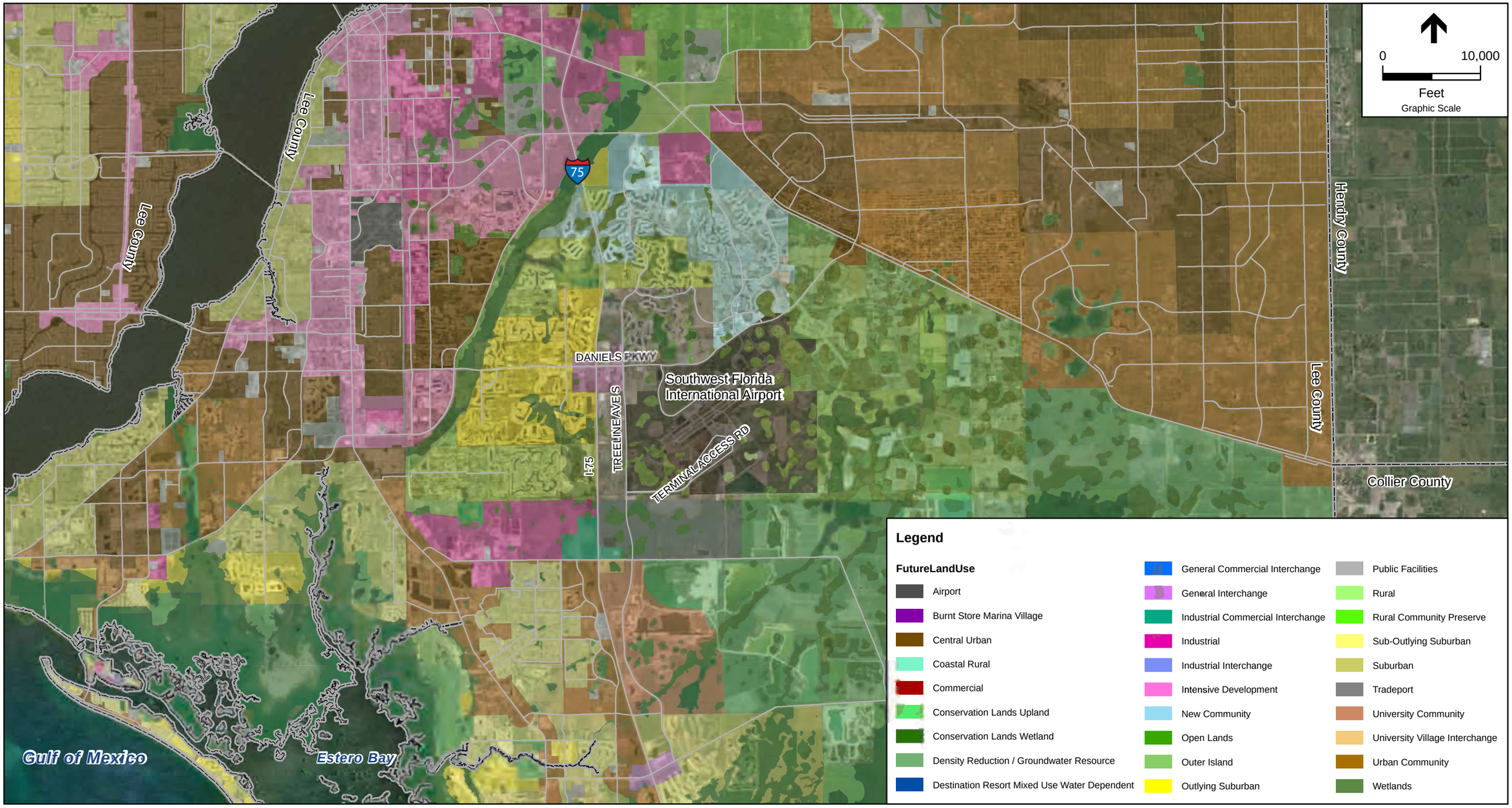

SOURCE: Lee County GIS Department

Figure 8.3
Future Land Uses

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Excerpts from the Lee Plan objectives and policies that relate to the future land use categories in the vicinity of RSW are described below.

> **"POLICY 1.1.3**: The Central Urban areas can best be characterized as the "urban core" of the county. These consist mainly of portions of the city of Fort Myers, the southerly portion of the city of Cape Coral, and other close-in areas near these cities; and also the central portions of the city of Bonita Springs, Iona/McGregor, Lehigh Acres, and North Fort Myers. This is the part of the county that is already most heavily settled and which has or will have the greatest range and highest levels of urban service--water, sewer, roads, schools, etc. Residential, commercial, public and quasi-public, and limited light industrial land uses will continue to predominate in the Central Urban area with future development in this category encouraged to be developed as a mixed-use, where appropriate. This category has a standard density range from four dwelling units per acre (4 du/acre) to ten dwelling units per acre (10 du/acre) and a maximum density of fifteen dwelling units per acre. The Central Urban areas are located north/northeast of the airport.
>
> **POLICY 1.1.4**: The Urban Community areas are areas outside of Fort Myers and Cape Coral that are characterized by a mixture of relatively intense commercial and residential uses. Included among them, for example, are parts of Lehigh Acres, San Carlos Park, South Fort Myers, Iona/McGregor, Pine Island, and Gasparilla Island. Although the Urban Communities have a distinctly urban character, they should be developed at slightly lower densities. As the vacant portions of these communities are urbanized, they will need to maintain their existing bases of urban services and expand and strengthen them accordingly. As in the Central Urban area, predominant land uses in the Urban Communities will be residential, commercial, public and quasi-public, and limited light industry with future development in this category encouraged to be developed as a mixed-use, where appropriate. Standard density ranges from one dwelling unit per acre (1 du/acre) to six dwelling units per acre (6 du/acre), with a maximum of ten dwelling units per acre (10 du/acre). Any bonus densities approved on the properties added to the Urban Community future land use category in conjunction with CPA2010-00002 must be achieved through use of the transfer of development rights program. Urban Community areas are located northeast and southwest of the airport.
>
> **POLICY 1.1.5**: The Suburban areas are or will be predominantly residential areas that are either on the fringe of the Central Urban or Urban Community areas or in areas where it is appropriate to protect existing or emerging residential neighborhoods. These areas provide housing near the more urban areas but do not provide the full mix of land uses typical of urban areas. The standard residential densities are the same as the Urban Community category. Higher densities, commercial development greater than neighborhood centers, and industrial land uses are not permitted. Bonus densities are not allowed. Suburban areas are located south and southwest of the airport.
>
> **POLICY 1.1.6**: The Outlying Suburban areas are characterized by their peripheral location in relation to established urban areas. In general, these areas are rural in nature or contain existing low-density development. Some, but not all, of the requisite

infrastructure needed for higher density development is generally planned or in place. It is intended that these areas will develop at lower residential densities than other Future Urban Areas. As in the Suburban areas, higher densities, commercial development greater than neighborhood centers, and industrial land uses are not permitted. The standard density range is from one dwelling unit per acre (1 du/acre) to three dwelling units per acre (3 du/acre). Bonus densities are not allowed. Outlying Suburban areas are located west and northwest of the airport.

POLICY 1.1.7: The Industrial Development areas play an important role in strengthening the county's economic base and will become increasingly important as the county grows in size and urban complexity. To a great extent these are the areas to which Lee County must look for expanded job opportunities, investments and production opportunities, and a balanced and sufficient tax base. These areas have special location requirements that are more stringent than those for residential areas, including transportation needs (e.g., air, rail, highway); industrial levels of water, sewer, fire protection, and other urban services; and locations that are convenient for employees to reach. Whereas, the other Future Urban Areas will include a broad combination of residential, commercial, public and limited industrial land uses, the Industrial Development area is to be reserved mainly for industrial activities per se, as well as for selective land use mixtures such as the combined uses of industrial, manufacturing, research, properly buffered recreational uses (except where precluded by airport hazard zone regulations) and office complex (if specifically related to adjoining industrial uses) that constitute a growing part of Florida's economic development sector. Retail and commercial service uses supporting neighboring industrial uses are allowed if the following criteria are met:

1. Retailing and/or wholesaling of products manufactured or directly related to that

manufactured on the premises;

2. Commercial uses are integrated into the primary R&D/Industrial development; or,

3. Commercial service and retail uses may not exceed 20% of the total acreage within the

Industrial Development areas within each Planning Community.

Industrial Development areas are located immediately southwest of the airport, just north of Alico road.

POLICY 1.1.8: The Public Facilities areas include the publicly owned lands within the county such as public schools, parks, airports, public transportation, and other governmental facilities. The allowable uses within these areas are determined by the entity owning each such parcel and the local government having zoning and permitting jurisdiction. Various Public Facilities are located around the airport.

POLICY 1.1.9: The University Community land use category provides for Florida's 10th University, Florida Gulf Coast University (FGCU), and for associated support development. The location and timing of development within this area must be coordinated with the development of the University and the provision of necessary

infrastructure. All development within the University Community must be designed to enhance and support the University. In addition to all other applicable regulations, development within the University Community will be subject to cooperative master planning with, and approval by, the Florida Gulf Coast University Board of Trustees. Prior to development in the University Community land use category, there will be established a Conceptual Master Plan which includes a generalized land use plan and a multi-objective water management plan. These plans will be developed through a cooperative effort between the property owner, Lee County, and South Florida Water Management District. Within the University Community are two distinct sub-categories: University Campus and the University Village. The University Window overlay, although not a true sub-category, is a distinct component of the total university environment. Together these functions provide the opportunity for a diversity of viable mixed use centers. Overall residential development within the University Village will not exceed 6,510 dwelling units. None of the 6,510 dwelling units may be used on or transferred to lands located outside of the University Community land use boundaries as they exist on October 20, 2010. Clustered densities within the area may reach fifteen units per acre to accommodate university housing. The overall average intensity of non-residential development within the University Village will be limited to 10,000 square feet of building area per non-residential acre allowed pursuant to Map 16 and Table 1(b). Specific policies related to the University Community are included within the Lee Plan under Goal 18. The University Community land use is located south of the airport, just south of Alico Road.

OBJECTIVE 1.2: SOUTHWEST FLORIDA INTERNATIONAL AIRPORT AND PAGE FIELD GENERAL AVIATION AIRPORT AREAS. Designate on the Future Land Use Map adequate land in appropriate locations to accommodate the projected growth needs of the Southwest Florida International Airport and the business and industrial areas related to it, as well as research and development activities and other non-aviation related development that is not necessarily related to the airport, through the year 2030. Designate on the Future Land Use Map existing and proposed development areas for Page Field General Aviation Airport. The Lee County Port Authority desires to establish non-aviation related uses to provide a supplementary revenue source as well as providing an opportunity for businesses that desire a location on airport property. Designate on the respective Airport Layout Plans suitable areas to accommodate these desired uses and provide general policy guidance as to how these uses will be developed. These categories are also considered Future Urban Areas.

POLICY 1.2.1: Airport Lands include the existing facility and projected growth areas for the Southwest Florida International Airport and Page Field General Aviation Airport through the year 2030. The Airport Lands comprising the Southwest Florida International Airport includes airport and airport-related development as well as non-aviation land uses as proposed in the approved 2003 Airport Master Plan update and as depicted on the Airport Layout Plan and the Southwest Florida International Airport Proposed Development Schedule. This mix of uses is intended to support the continued development of the Southwest Florida International Airport. Future development at the Southwest Florida International Airport will also include non-aviation related land uses

such as hotels/motels, light industrial, service stations, ancillary retail/shopping, and office development. Any future airport expansion or development of aviation-related and non-aviation uses at Southwest Florida International Airport will offset environmental impacts through the Airport Mitigation Lands Overlay or other appropriate mitigation acceptable to the permitting agencies and to Lee County.

POLICY 1.2.2: The Tradeport areas are commercial and industrial lands adjacent to the airport needed to accommodate projected growth through the year 2030. These areas will include developments consisting of light manufacturing or assembly, warehousing, and distribution facilities; research and development activities; laboratories; ground transportation and airport-related terminals or transfer facilities; hotels/motels, meeting facilities; and office uses. Stand alone retail commercial uses intended to support and compliment the surrounding business and industrial land uses are permitted if they are approved as part of a Development of Regional Impact (DRI) or Planned Development rezoning. Stand alone retail commercial uses are limited to 1 acre out of every 10 Tradeport and preserved wetland acres within the project. To provide an incentive to preserve upland habitat, Developments of Regional Impact or Planned Developments may also receive additional stand alone retail acres at the rate of 1 additional acre out of every 10 acres of preserved and enhanced uplands within the project that protect wetlands, flowways or occupied listed species habitat. Ancillary retail commercial uses, related directly to the sale of products manufactured or services provided in the Tradeport, are allowed if they are part of a Planned Development. Future development in this category is encouraged to include a mixture of land uses as described in Policy 2.12.2. Residential uses, other than bona fide caretaker residences, are not permitted in this category except to the extent provided in Chapter XIII of the Plan. Caretaker residences are not permitted in the Airport Noise Zone B. Because this area is located within the Six Mile Cypress Basin and is also a primary point of entry into Lee County, special environmental and design review guidelines will be applied to its development to maintain the appearance of this area as a primary point of entry into Lee County. Tradeport areas are located north, west, and south of the Airport.

OBJECTIVE 1.3: INTERSTATE HIGHWAY INTERCHANGE AREAS. Designate on the Future Land Use Map specialized categories for land adjacent to the interchanges of Interstate 75. It is important to make maximum beneficial use of these critical access points and at the same time avoid irreconcilable conflicts between competing demands, such as through traffic vs. local traffic, conservation vs. development, commercial development vs. industrial development, and tourist commercial facilities vs. general shopping facilities. Development in these areas must minimize adverse traffic impacts and provide appropriate buffers, visual amenities, and safety measures. Each interchange area is designated for a specific primary role: General, General Commercial, Industrial Commercial, Industrial, University Village, and Mixed Use. Residential uses are only permitted in these categories in accordance with Chapter XIII or as provided in Policy 1.3.2. These areas are also considered Future Urban Areas.

POLICY 1.3.2: The General Interchange areas are intended primarily for land uses that serve the traveling public: service stations, hotel, motel, restaurants, and gift shops. But because of their location, market attractions, and desire for flexibility, these interchange

uses permit a broad range of land uses that include tourist commercial, general commercial and light industrial/commercial. General Interchange is located west of the airport at the intersection of I-75 and Daniels Road.

POLICY 1.3.4: The Industrial Commercial Interchange areas are designated to permit a mixture of light industrial and/or commercial uses. This category does not permit heavy industrial uses. Within areas expanded beyond the existing Industrial Commercial Interchange boundaries (on January 1, 2007), retail commercial uses will be limited to 20% of the total floor area and light industrial uses will be a minimum of 50% of the total floor area. Industrial Commercial Interchange is located southwest of the airport at the intersection of I-75 and Alico Road.

POLICY 1.3.5: The University Village Interchange land use category is designed to accommodate both interchange land uses and non-residential land uses related to the University. Development within this interchange area may or may not be related to, or justified by the land use needs of the University. Land uses allowed within this area include those allowed in the Industrial Commercial Interchange category and the associated support development allowed in the University Village. University Village Interchange is located southwest of the airport at the intersection of Ben Hill Griffith Parkway and Alico Road.

OBJECTIVE 1.4: NON-URBAN AREAS. Designate on the Future Land Use Map categories for those areas not anticipated for urban development at this time.

POLICY 1.4.1: The Rural areas are to remain predominantly rural--that is, low density residential, agricultural uses, and minimal non-residential land uses that are needed to serve the rural community. These areas are not to be programmed to receive urban-type capital improvements, and they can anticipate a continued level of public services below that of the urban areas. Maximum density in the Rural area is one dwelling unit per acre (1 du/acre). Rural areas are located southwest of the airport.

POLICY 1.4.5: The Density Reduction/Groundwater Resource (DR/GR) areas include upland areas that provide substantial recharge to aquifers most suitable for future wellfield development. These areas also are the most favorable locations for physical withdrawal of water from those aquifers. Only minimal public facilities exist or are programmed. Land uses in these areas must be compatible with maintaining surface and groundwater levels at their historic levels. Permitted land uses include agriculture, natural resource extraction and related facilities, conservation uses, publicly-owned gun range facilities, private recreation facilities, and residential uses at a maximum density of one dwelling unit per ten acres (1 du/10 acres). Individual residential parcels may contain up to two acres of Wetlands without losing the right to have a dwelling unit, provided that no alterations are made to those wetland areas. Density Reduction/Groundwater Resource (DR/GR) areas encompass a large portion of lands immediately east and south of the airport.

OBJECTIVE 1.5: WETLANDS. Designate on the Future Land Use Map those lands that are identified as Wetlands in accordance with F.S. 373.019(17) through the use of the unified state

delineation methodology described in FAC Chapter 17-340, as ratified and amended in F.S. 373.4211

POLICY 1.5.1: Permitted land uses in Wetlands consist of very low density residential uses and recreational uses that will not adversely affect the ecological functions of wetlands. All development in Wetlands must be consistent with Goal 114 of this plan. The maximum density is one dwelling unit per twenty acres (1 du/20 acre) except as otherwise provided in Table 1(a) and Chapter XIII of this plan. Wetlands are located throughout the airport vicinity.

OBJECTIVE 1.6: NEW COMMUNITY. Designate on the Future Land Use Map areas which are suitable for the development of large-scale multi-use communities developed pursuant to an overall master plan. This category is also considered a Future Urban Area.

POLICY 1.6.1: New Community areas are lands that are capable of being planned and developed as a cohesive unit in order to better achieve conservation of important environmental resources and to initiate area-wide surface water management. New Community land must be located such that the area is capable of being developed with a balance of residential and nonresidential uses and that major impacts of the development are internalized and/or alleviated by infrastructure that is existing or will be funded privately. New Community areas will be developed as freestanding economic units and will not impose negative fiscal impacts on the county (other than those associated with the delay in placing property improvements on the tax rolls).

New Communities will not exceed a residential density of six dwelling units per gross acre.

New Community areas are located north of the airport.

OBJECTIVE 1.7: SPECIAL TREATMENT AREAS. Designate on the Future Land Use Map, as overlays, special treatment areas that contain special restrictions or allowances in addition to all of the requirements of their underlying categories.

POLICY 1.7.1: The Airport Noise Zones cover areas subject to varying levels of airport-related noise. By 2006 and every 5 years thereafter, the Port Authority will update the aviation forecasts and associated noise contours for the Southwest Florida International Airport and initiate an amendment to the Airport Noise Zone Overlay Map to reflect the findings of this study. In addition to meeting the requirements of the underlying Future Land Use Map categories, properties within the Noise Zone Overlay must meet the following:

Airport Noise Zone A is limited to uses that are compatible with airports and air commerce, including but not limited to those necessary to provide services and convenience goods to airline passengers, those generally associated with airport operation, and related development.

Airport Noise Zone B does not permit any residential units, places of worship, libraries, schools, hospitals, correctional institutions or nursing homes. However, residential units, including mobile or manufactured homes, that were lawfully existing as of June 27, 2000

will be treated as legally permitted uses and may be replaced with a new mobile or manufactured home or conventional single family construction as long as such replacement would be otherwise allowed by the Land Development Code. However, an existing conventional home may not be replaced with a new mobile or manufactured home. One conventional single family home is permitted on each lot in a plat properly recorded before June 27, 2000 if such use would have been permitted on the lot prior to June 27, 2000. Airport Noise Zone B requires formal notification through recording of the Airport Noise Zone in the official county records of potential noise and over flights and applies to all development, both existing and new, within the zone.

Airport Noise Zone C allows existing and new construction and land uses as would otherwise be permitted by the Land Development Code. However, this zone requires formal notification through recording of the Airport Noise Zone in the official county records of potential noise and over flights and applies to all development, both existing and new, within the zone.

Airport Noise Zone D allows existing and new construction and land uses as would otherwise be permitted by the Land Development Code. However, this zone requires formal notification through recording of the Airport Noise Zone in the official county records of potential noise and aircraft over flights associated with future training activity and applies to all development, both existing and new, within the zone."

The Airport Noise Zones outlined in Policy 1.7.1 are shown on **Figure 8.4**. The zones correlate to the 2020 DNL contours developed in the 2006 14 CFR Part 150 as outlined in **Table 8.4**.

TABLE 8.4
LEE COUNTY AIRPORT NOISE ZONES
SOUTHWEST FLORIDA INTERNATIONAL AIRPORT
14 CFR PART 150 STUDY

Zone	*DNL/Description*
A	Airport property
B	60 DNL
C	55 DNL
D	Future Training Pattern

Source: 2006 RSW 14 CFR Part 150 Study, ESA Airports

Applying the criteria outlined in Zone A and B to the 2012 and 2017 DNL contours, it can be determined that the contours are consistent with the overlays in that there are currently no noise sensitive uses in either zone. The airport noise zones will be evaluated further relative to long term projected noise exposure in the Noise Compatibility Program (NCP) part of the Study. Zones C and D are consistent with overlays in that notification is required, but no uses are specifically restricted due to aircraft noise.

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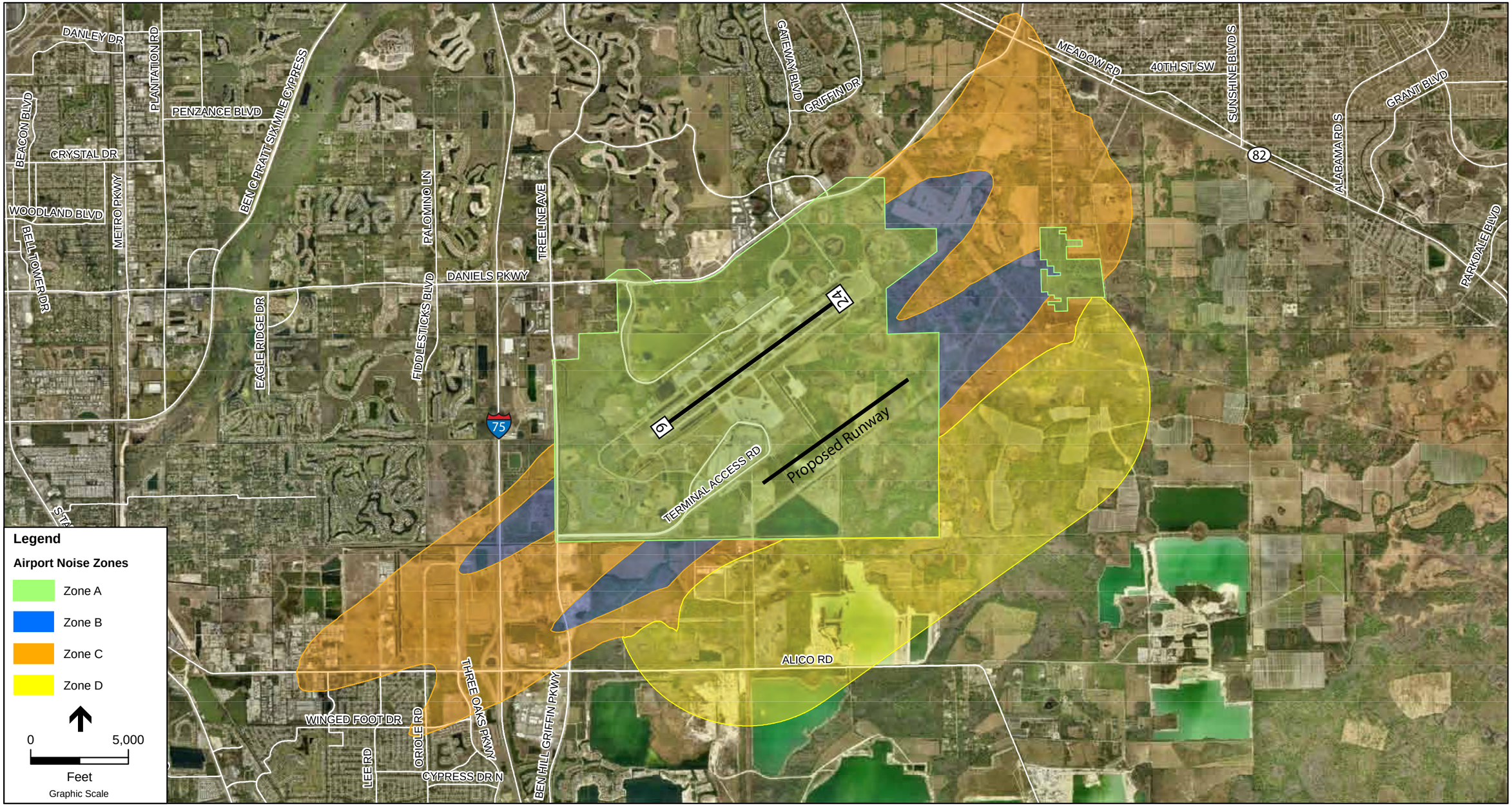

SOURCE: Lee County; 2006 RSW 14 CFR Part 150 Study

Southwest Florida International Airport 14 CFR Part 150 Study, 210140

Figure 8.4
Airport Noise Zones

CHAPTER 9
Noise Exposure Maps Certification

9.1 Certification

The Noise Exposure Maps have been prepared with the best available information and are hereby certified as true and complete to the best of our knowledge and belief. **Figures 9.1** and **9.2** are scaled down representations of the 2012 and 2017 Noise Exposure Maps. Full size Noise Exposure Maps along with FAA Compliance Determination and Notice of Acceptance in the Federal Register dated February 8, 2013 are included in accordance with 14 CFR Part 150 in **Appendix L**. The FAA's Noise Exposure Map Checklist is included in **Appendix M**. The Noise Exposure Maps represent the aircraft noise exposure from aircraft operations at RSW in 2012 (Map A) and 2017 (Map B). Interested persons have had the opportunity to submit their views concerning the correctness and adequacy of the Noise Exposure Maps and forecasted operations. The official maps include:

MAP A – 2012 Noise Exposure Map

MAP B – 2017 Noise Exposure Map

MAP C – Northeast Flow INM Flight Tracks

MAP D – Southwest Flow INM Flight Tracks

_____ _____

Michael Arnold
Vice President
Environmental Science Associates

Date

_____ _____

Mark Fisher
Deputy Executive Director - Development
Southwest Florida International Airport

Date

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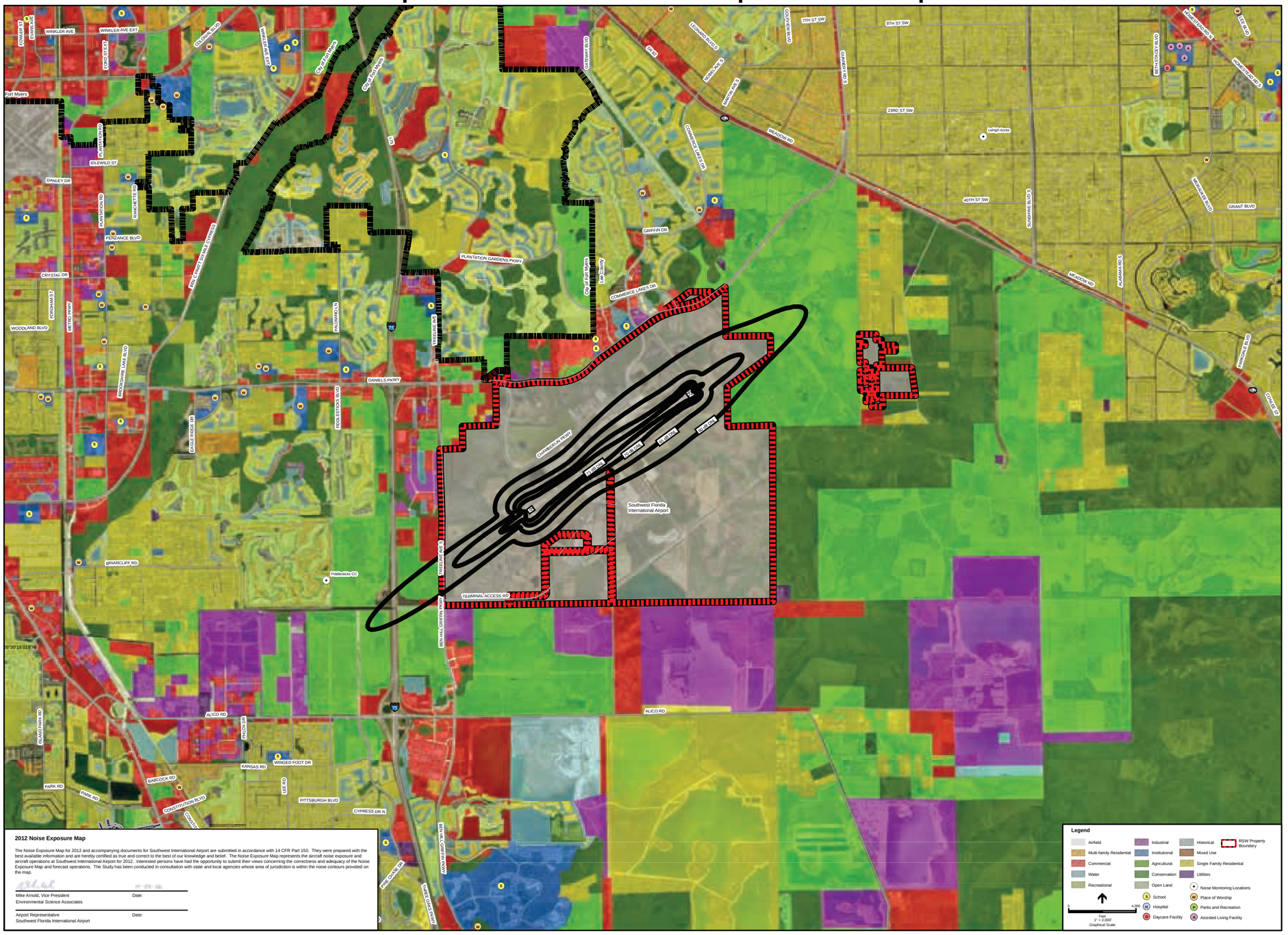
Map A - 2012 Noise Exposure Map



SOURCE: ESA Airports, 2012; INM 7.0c; Lee County GIS Department

Figure 9.1
Map A - 2012 Noise Exposure Map

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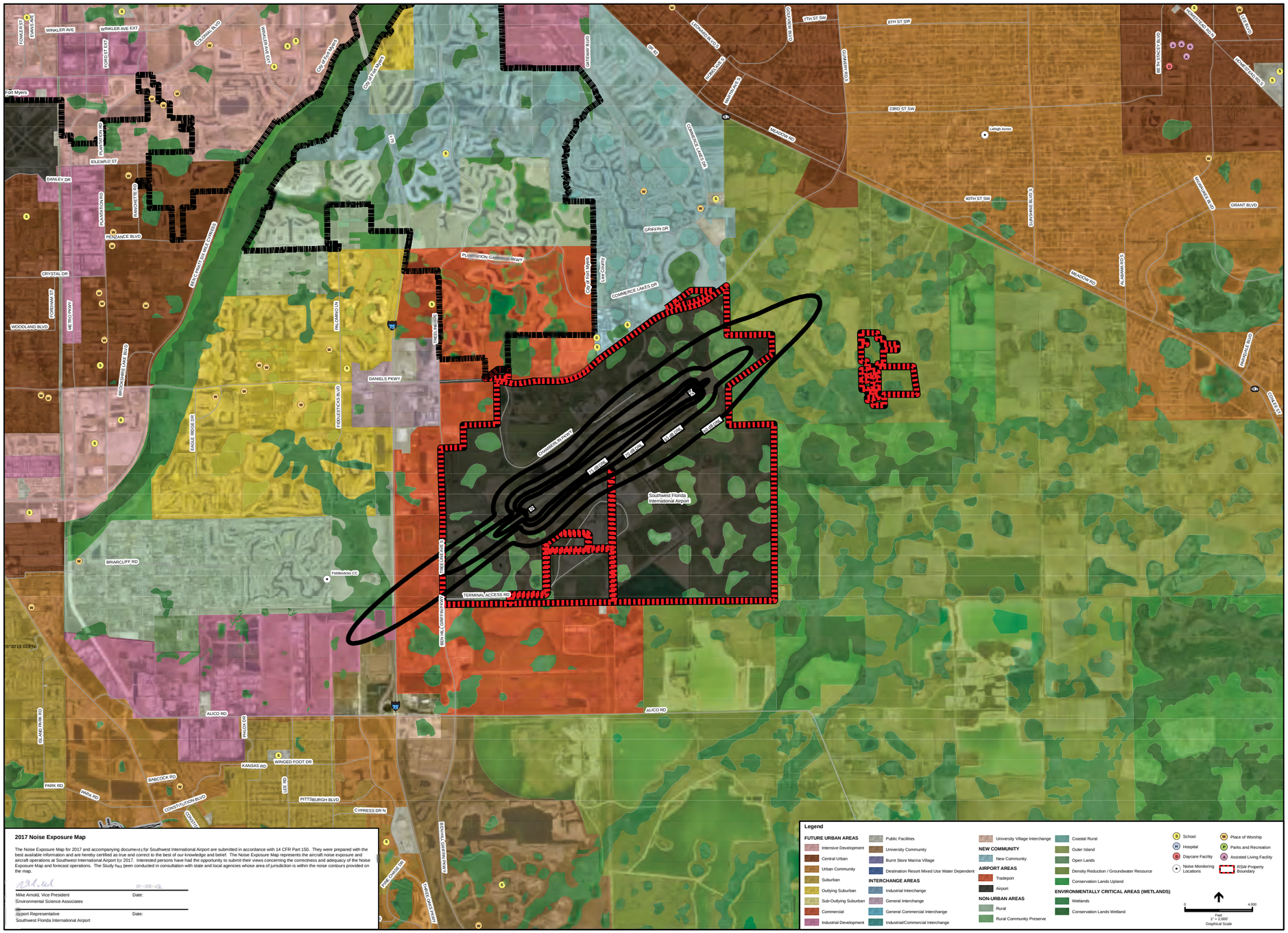
Map B - 2017 Noise Exposure Map



2017 Noise Exposure Map

The Noise Exposure Map for 2017 and accompanying documents for Southwest International Airport are submitted in accordance with 14 CFR Part 150. They were prepared with the best available information and are hereby certified as true and correct to the best of our knowledge and belief. The Noise Exposure Map represents the aircraft noise exposure and aircraft operations at Southwest International Airport for 2017. Interested persons have had the opportunity to submit their views concerning the correctness and adequacy of the Noise Exposure Map and forecast operations. The Study has been conducted in consultation with state and local agencies whose area of jurisdiction is within the noise contours provided on the map.

Mike Arnold, Vice President — Date:
Environmental Science Associates

Airport Representative — Date:
Southwest Florida International Airport

Legend

FUTURE URBAN AREAS
- Intensive Development
- Central Urban
- Urban Community
- Suburban
- Outlying Suburban
- Sub-Outlying Suburban
- Commercial
- Industrial Development
- Public Facilities
- University Community
- Burnt Store Marina Village
- Destination Resort Mixed Use Water Dependent

INTERCHANGE AREAS
- Industrial Interchange
- General Interchange
- General Commercial Interchange
- Industrial/Commercial Interchange
- University Village Interchange

NEW COMMUNITY
- New Community

AIRPORT AREAS
- Tradeport
- Airport

NON-URBAN AREAS
- Rural
- Rural Community Preserve
- Coastal Rural
- Outer Island
- Open Lands
- Density Reduction / Groundwater Resource
- Conservation Lands Upland

ENVIRONMENTALLY CRITICAL AREAS (WETLANDS)
- Wetlands
- Conservation Lands Wetland

- School
- Hospital
- Daycare Facility
- Noise Monitoring Locations
- Place of Worship
- Parks and Recreation
- Assisted Living Facility
- RSW Property Boundary

0 4,000
Feet
1" = 2,000'
Graphical Scale

SOURCE: ESA Airports, 2012; INM 7.0c; Lee County GIS Department

Figure 9.2
Map B - 2017 Noise Exposure Map

CHAPTER 10
Existing Part 150 Program

This Southwest Florida International Airport (RSW) 14 CFR Part 150 Study is an update to the previous 14 CFR Part 150 Study completed in 2006. Since completion of the previous study, there have been significant changes to the way aircraft arrive and depart RSW. The FAA has implemented various RNAV (Area Navigation) arrival and departure procedures as a result of the introduction of the Florida West Coast Airspace Redesign (FLOWCAR) in 2008. These operational changes have routed aircraft over areas further from the airport that only occasionally received aircraft overflights during the 2006 Study. However, the recommendations that were approved and implemented in 2006 at RSW still have a positive effect on noise compatibility at the Airport. The purpose of this chapter is to review the measures outlined in the Record of Approval from the 2006 Study, and to identify their current disposition.

10.1 Previous Program Disposition

The recommendations from the 2006 14 CFR Part 150 Study were reviewed and evaluated to determine if any changes were warranted as part of this update. A copy of the 2006 14 CFR Part 150 Study Record of Approval can be found in **Appendix N**. These recommendations include operational, administrative, and land use measures. Several of these recommendations were a continuation of recommendations brought forth prior to the 2006 14 CFR Part 150 Study conducted at RSW.

The 2006 Study recommended ten operational measures, three administrative measures, and one land use measure. Nine of the ten operational measures were approved for voluntary implementation in a previous Part 150 Study and carried forward into the 2006 Study. The administrative measures involved purchase of a flight tracking system and monitoring/support of new technology. The land use measure included updating the noise overlay zones to reflect current conditions and the goals of local government.

A list of the measures included in the 2006 Study's Record of Approval can be found in **Table 10.1**.

TABLE 10.1
2006 CFR PART 150 STUDY RECOMMENDATIONS
SOUTHWEST FLORIDA INTERNATIONAL AIRPORT
14 CFR PART 150 STUDY

ROA #	Recommendation	FAA Action	Status
	Operational Measures		
1.1	Preferential Runway Use Program	Approved as a voluntary measure	Implemented
1.2	Visual Approaches	Approved as a voluntary measure	Ongoing with FlOWCAR Implementation
1.3	"Keep 'em High"	Approved as a voluntary measure	Implemented
1.4	MAPUL-1 Standard Instrument Departure (DP)	Approved as a voluntary measure	Implemented, now CSHEL DP
1.5	ALICO THREE DP	Approved as a voluntary measure	Implemented
1.7	AOPA Recommended Procedures	Approved as a voluntary measure	Implemented
1.8	Turbojet Manufacturer's or NBAA Noise Abatement Procedures	Approved as a voluntary measure	Implemented
1.9	Distant Noise Abatement Departure Procedure	Approved as a voluntary measure	Implemented
1.10	Run-Up Procedures	Approved as a voluntary measure	Implemented
2.	Runway 06 Departure Procedure	Approved as a voluntary measure	Implemented
	Administrative Measures		
3.	Purchase and Install Flight Tracking System	Approved	In Process
4.a	Support Implementation/Funding of RNAV Procedures	Approved sponsor to monitor and evaluate	Implemented
4.b	Support Implementation/Funding of RNAV Procedures	No Action Required	Implemented (CSHEL Departure)
	Land Use Measures		
5.	Update Noise Overlay Zones	Approved within the authority of local land use jurisdictions	Implemented

Source: FAA.gov, ESA Airports, LCPA
Note: Measures 1.1 through 1.10 were carried forward from the previous Part 150 Study. Measure 1.6, Runway 6 Departure Procedure, was replaced with Measure 2.

The following chapters will identify the measures recommended to be continued as well as newly recommended aircraft and airport operations noise mitigation measures, off-airport land use compatibility planning and administrative measures. Implementation of the noise compatibility program, and the noise compatibility program benefits, costs, and reviews will also be identified.

CHAPTER 11

Aircraft and Airport Operations Noise Mitigation Measures and Measures Required by 14 CFR Part 150

11.1 Introduction

The purpose of this chapter is to document various aircraft and airport operational noise abatement mitigation measures that are currently in place at RSW, as well as those that were considered during this 14 CFR Part 150 Study Update, to reduce land use incompatibility with aircraft noise around RSW. A full range of measures were examined based on the requirements of 14 CFR Part 150, including those required by 14 CFR Part 150, as well as input from local communities, the RSW Airport staff, the Air Traffic Control Tower (ATCT), and other various stakeholders.

As mentioned previously, the goal of the 14 CFR Part 150 Study is to reduce or eliminate noise-sensitive land uses within the 65 dB DNL contour. As shown in Chapter 8 of this document, there are no noise sensitive sites within the existing (2012) and future (2017) 65 dB DNL contours. Traditionally, 14 CFR Part 150 Studies use the DNL metric for evaluating measures in the Noise Compatibility Program (NCP) portion of the Study. Because noise-sensitive land uses do not exist within the existing (2012) or future (2017) 65 dB DNL contours, the NCP portion of this Study focuses on measures that will reduce noise levels to local communities, listed in Chapter 5, whom receive the bulk of aircraft overflights and have voiced concerns to the airport and the FAA. Measures evaluated include measures that may not be approvable for the purposes of Part 150, but can be pursued at the local level.

Evaluation of NCP measures for RSW adhered to the following criteria:

- Develop a balanced and cost effective program for reducing noise without limiting airport utility, aviation efficiency, or adversely affecting safety.
- Improve the overall noise environment, while not shifting noise from one community to another.
- Give the highest priority to measures that reduce the highest noise levels affecting the greatest number of people, without adversely affecting one community over another.
- NCP measures must be technically and legally feasible, and approved by the FAA (flight procedures) and local governments (land use measures).
- Measures subject to FAR Part 161 evaluation will not be part of the Study recommendations.

11.2 Existing Operational Noise Abatement Procedures and Measures

As shown in Chapter 10, the current operational noise measures in place at RSW have evolved over the course of previous RSW 14 CFR Part 150 Studies and include the implementation of a number of operational procedures to address the noise exposure around the Airport. The 2006 RSW 14 CFR Part 150 Study Record of Approval included the following procedures. These procedures are strictly voluntary and their recommendations for being continued are listed below:

1. Preferential Runway Use – Runway 06 is the preferred runway when weather and activity permit.

Recommendation: *Voluntary measure to remain as part of the baseline noise conditions at the airport.*

2. Visual Approaches – Turbojet aircraft will normally be vectored to intercept the extended runway centerline seven miles or more from the end of the runway (as activity levels permit). Aircraft on the right downwind leg to Runway 06 or left downwind to Runway 24 will normally be kept above 5,000 feet above mean sea level (MSL) until they are abeam the Airport. Aircraft arriving to Runway 06 and intercepting the extended centerline over the Gulf of Mexico west of Fort Myers Beach should remain above 3,000 feet MSL, if able, to reduce the noise over Fort Myers Beach.

Recommendation: *Voluntary measure to remain as part of the baseline noise conditions at the airport.*

3. "Keep'em High" – The Airport participates in the Keep'em high program, and turbojet aircraft are encouraged to keep as high as possible.

Recommendation: *Voluntary measure to remain as part of the baseline noise conditions at the airport.*

4. MAPUL-1 Standard Instrument Departure (SID) – Properly equipped turbojet aircraft departing Runway 24 are encouraged to use the MAPUL-1 SID that is pending implementation by the FAA. The SID uses area navigation (RNAV) to maximize use of the Alico industrial corridor for departures on Runway 24.

Recommendation: *Currently named the CSHEL FOUR Departure Procedure (DP), this Voluntary measure to remain as part of the baseline noise conditions at the airport.*

5. ALICO THREE DP – Runway 24 turbojet departures that are not properly equipped to follow the MAPUL-1 SID should fly the ALICO THREE DP.

Recommendation: – *Voluntary measure to remain as part of the baseline noise conditions at the airport.*

6. AOPA Recommended Procedures – Promotes use of the Aircraft Owners and Pilots Association's best practices as far as flying quietly for propeller aircraft.

Recommendation: *Voluntary measure to remain as part of the baseline noise conditions at the airport.*

7. Turbojet Manufacturer's or NBAA Noise Abatement Procedures – Promotes use of aircraft manufacturer's recommended noise abatement procedures, the National Business Aviation Association's (NBAA) Approach and Landing Procedure (Visual and Instrument Flight Rules), or Standard Departure Procedure for turbojet aircraft.

Recommendation: *Voluntary measure to remain as part of the baseline noise conditions at the airport.*

8. Distant Noise Abatement Departure Procedures – Commercial aircraft should follow the Distant Noise Abatement Departure Profile as defined by the FAA Advisory Circular AC91-53A.

Recommendation: *Voluntary measure to remain as part of the baseline noise conditions at the airport.*

9. Run-up Procedures – At no time shall engines be run up for test or maintenance purposes between 2300 hours (11:00 PM) and 0600 hours (6:00 AM) without prior approval from the Executive Director or his/her representative.

Recommendation: *Voluntary measure to remain as part of the baseline noise conditions at the airport.*

10. Runway 06 Departure Procedures – Runway 06 departures will be held on tower frequency until crossing the departure end of the runway and will be turned no further west than 350 degrees until they are five miles from the Airport.

Recommendation: *Voluntary measure to remain as part of the baseline noise conditions at the airport.*

11. Support Implementing/Funding RNAV Procedures (A) – Continue to monitor the potential for this type approach and further evaluate it when the technology is more readily available.

Recommendation: *Voluntary Measure to Remain.*

12. Support Implementing/Funding RNAV Procedures (B) – The FAA should continue implementation of the MAPUL-1 RNAV procedure, and other actions or combinations of actions which would have a beneficial noise control or abatement impact on the public.

Recommendation: *Voluntary Measure to Remain.*

11.3 New Proposed Operational Noise Abatement Procedures and Measures

A series of operational noise measures were evaluated during the preparation of this Study. These include measures suggested by the Airport and ATCT during the course of the study, and the public during three series of public workshops. Three major areas of concern were identified as part of this outreach. These include noise/annoyance associated with:

1. The number and altitude of arriving aircraft overflights along Estero corridor.
2. The number and altitude of arriving aircraft overflights over Fort Myers Beach (Estero Island) when operating on Runway 06.
3. The number and altitude of departing aircraft overflights when operating on Runway 24.

It was noted that all of these areas are located outside the 65 DNL contour. However, there were measures identified that could address these concerns while in many cases improving operational efficiency. The following airport and aircraft operational issues were identified to be evaluated for their potential to address not only these concerns, but overall operational concerns associated with activity at RSW:

1. Promote Use of RNAV Optimized Profile Descent to Runway 06
2. Initiate RNAV Optimized Profile Descent Further From the Airport
3. Raise the Downwind Altitude to Runway 06
4. Shift Downwind Flight Track to the South
5. Publish Charted Visual Approach to Runway 06 From the North and South
6. Keep Aircraft at 3,000 ft. Over Fort Myers Beach
7. Delay Point at which Aircraft Lower the Landing Gear
8. Increase Altitude of Early Morning Arrivals
9. Change Runway 24 to Preferred Runway From 10:00 PM – 6:00 AM
10. Modify CSHEL FOUR Departure Procedure
11. Change Preferential Runway Use
12. Extend Aircraft Further Over the Gulf Before Turning Toward Fort Myers Beach
13. Implement SHIFTY to TYNEE Transition (Estero Plan)
14. Increase Glideslope from 3 Degrees to 3.5 Degrees
15. Publish RNAV Departure Procedure for Runway 06
16. Establish Helicopter Noise Abatement Flight Tracks
17. Establish Reverse Thrust Restrictions

For each measure considered, a discussion of the noise concern that the measure would address is provided followed by an analysis of the measure's potential to reduce noise exposure. A recommendation follows the discussion regarding implementation given the particular circumstances at RSW.

11.3.1 Promote Use of RNAV Visual Optimized Profile Descent to Runway 06

Recent advancements in technology and flight procedures that combine the precision of instrument navigation with visual references that pilots can see out the window allows aircraft to approach the airport in a constant descent while also flying a precise path over more compatible land uses. During completion of this Study, an RNAV Visual Optimized Profile Descent (OPD) to Runway 06 was introduced by the FAA and Southwest Airlines as shown in **Figure 11.1**. While initially developed specifically in cooperation with Southwest Airlines, this new procedure is quickly being adopted by other airlines. This procedure provides not only noise reduction benefits to communities located around the Airport, but it shortens aircraft flight paths and increases the fuel efficiency by maintaining a continuous descent (idle) approach into the Airport.

At RSW, the RNAV Visual OPD to Runway 06 routes aircraft off of the SHFTY TWO RNAV Arrival and the TYNEE ONE RNAV Arrival over the back bay waters instead of over Fort Myers Beach as shown in **Figure 11.2**. Although this technologically advanced approach has been in place since November, 2011, it is not yet widely used. The reason for this is that airlines have to be certified to fly the approach by the FAA, and older aircraft do not have the RNAV capability to perform the RNAV Visual OPD. Aircraft that are not capable of flying the approach are then usually required to fly the entire SHFTY TWO or TYNEE ONE arrivals out over Fort Myers Beach. This in turn creates spacing issues with aircraft that can fly the approach which reduces the amount of time it can be used. As more airlines actively use the approach and the air traffic controllers become more experienced with the spacing requirements, the number of flights that overfly Fort Myers Beach can be reduced considerably through the utilization of this approach and those experiencing overflights along the Estero corridor will benefit from the reduced engine thrust setting.

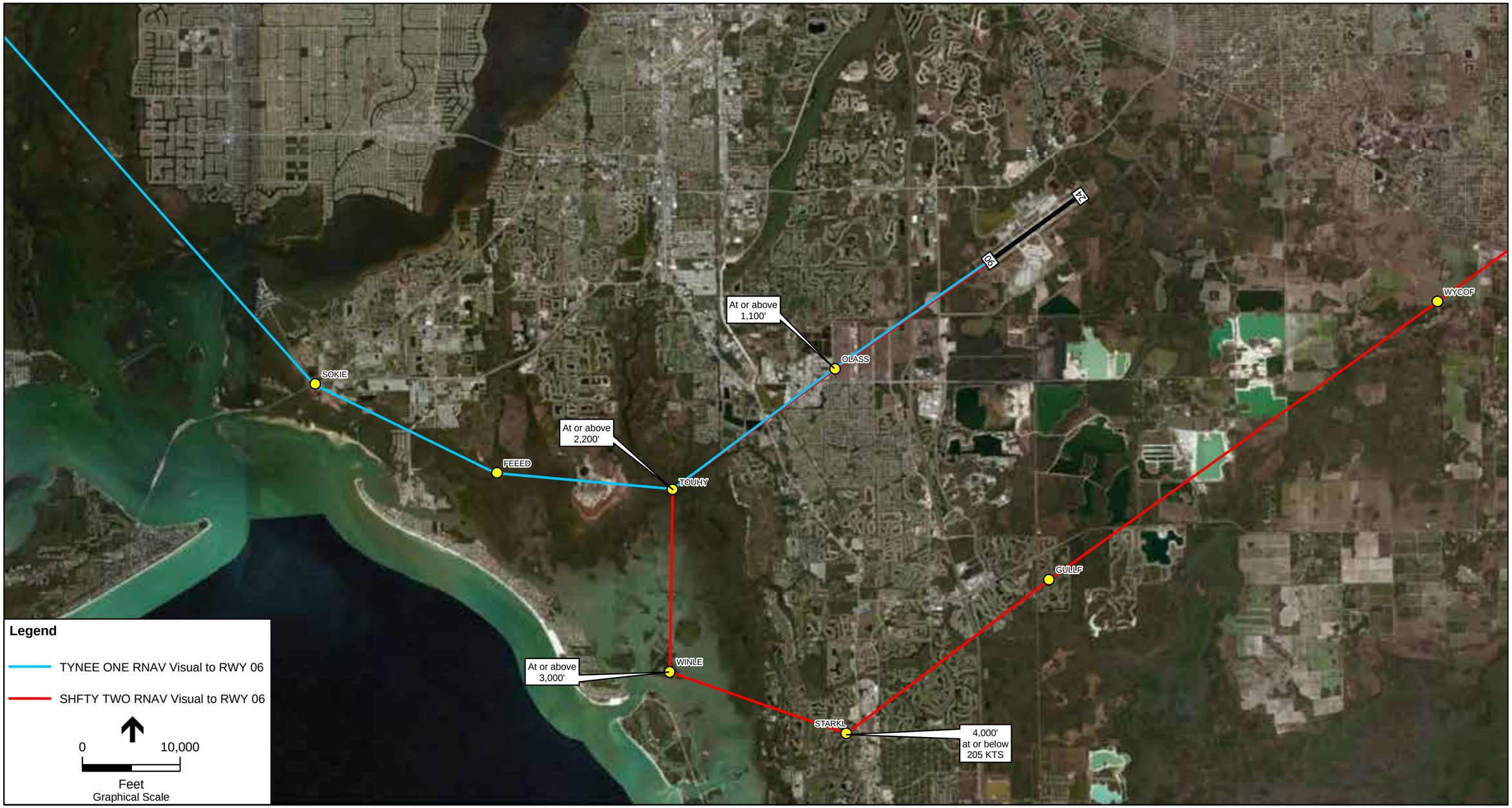
Recommendation: ***This Study recommends*** *that the Airport, the FAA, and various stakeholders including air carriers continue to promote the use of the RNAV Visual OPD procedures at RSW highlighting the benefits of fuel efficiency and noise reduction to surrounding communities.*

SOURCE: FAA.gov

Southwest Florida International Airport 14 CFR Part 150 Study. 210140

Figure 11.1

RNAV Visual OPD Approach to Runway 06



SOURCE: ESA Airports, 2012; ESRI

Figure 11.2

RNAV Visual OPD Procedures to Runway 06 (1"= 10,000 Ft.)

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11.3.2 Initiate RNAV Optimized Profile Descent Further From the Airport

This measure builds on the previous measure related to the use of RNAV Visual OPD approaches. As technology has improved, more and more airports are utilizing OPD or continuous descent arrivals that allow aircraft to make one continuous descent into the airport instead of having to level-off several times increasing thrust (noise) and fuel use. Some of these airports are currently testing procedures that result in operational and noise benefits further from the airport and begin at higher altitudes. By initiating RNAV OPD and/or constant descent approaches at RSW at a greater distance from the airport, airlines may be able to take advantage of flight tracks that further reduce noise for communities currently under flight paths as shown in **Figure 11.3**, while also reducing fuel usage.

Recommendation: ***This Study recommends*** *that the Airport, in working with the FAA, continue to explore the feasibility of implementing new RNAV OPD arrival technology that will allow aircraft to initiate continuous descent arrivals further from the airport, thereby remaining higher over noise sensitive areas including the Estero Corridor.*

11.3.3 Raise the Downwind Altitude to Runway 06

A significant concern expressed by the residents located southwest of the Airport was related to a new RNAV arrival procedure to Runway 06 that was implemented as part of FLOWCAR. Analysis of noise comment data indicates that the community concerns come from aircraft arriving on the SHFTY TWO arrival which routes aircraft over the middle of the state and directs them south of RSW to cross the PONTY intersection at 4,000 ft MSL as previously shown in Figure 5.2. This routing concentrates these flights to a very narrow path over communities in the Estero area, known as the Estero Corridor, that previously (prior to FLOWCAR) only occasionally experienced overflights. Communities with concerns include The Colony, Wildcat Run, and Shadow Wood and a number of others as discussed in Chapters 4 and 5. The aircraft arriving on the SHFTY TWO arrival to Runway 06 typically fly the downwind leg at 4,000 ft. MSL from when they are abeam the airport until they cross over PONTY. This is the most populated area of the downwind portion of the procedure. To maintain level flight at this relatively low altitude requires aircraft to increase their thrust which makes the aircraft louder and increases the potential for annoyance. Aircraft using the south downwind to fly the TYNEE ONE approach to Runway 24 also fly over these communities, but create less of a concern because the aircraft are descending from 5,000 ft. MSL to 4,000 ft. MSL as they pass over the more populated areas.

Incremental increases in altitude were discussed with the ATCT to determine if any increase of altitude of the downwind leg was possible. ATCT indicated that the reason aircraft are assigned 4,000 ft. MSL is that the RSW Class C airspace, as discussed in Chapter 2, only extends up to and including a height of 4,000 ft. MSL. Additionally, aircraft arriving to and departing from the Naples airport are often routed over the RSW airspace at 5,000 ft. MSL. The ATCT did indicate the potential to re-evaluate this option if a 5,000 ft. altitude would allow for an earlier descending turn to final prior to reaching PONTY. This would not only address community noise concerns but allow for a more efficient routing of aircraft during visual flight conditions.

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SOURCE: ESA Airports, 2012; ESRI

Southwest Florida International Airport 14 CFR Part 150.210140

Figure 11.3

RNAV Visual OPD Procedures to Runway 06 (1"=30,000 Ft.)

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An analysis was performed to determine if a 1,000 ft. increase in the altitude of the downwind leg would result in less perceived noise for people residing in the Estero Corridor. To perform this analysis, an overflight track was created in the INM 7.0b over the Estero Corridor and Sound Exposure Level (SEL) contours of various aircraft were used to depict the noise levels generated by a single aircraft operation at 4,000 ft. and at 5,000 ft. respectively. The communities of Wildcat Run, Shadow Wood, and The Colony were chosen as location points as shown in **Table 11.1**.

Further analysis using the 70 dB SEL contour, not to be confused with the 70 dB DNL contour, of a Boeing 737-700 aircraft, a widely used aircraft amongst different airlines at RSW, was conducted. The purpose of the SEL analysis was to determine if raising the altitude of the downwind would have a beneficial or noticeable impact on residents living in the corridor as shown in **Figure 11.4**.

TABLE 11.1
MODELED SEL RAISING OF THE SOUTH DOWNWIND FROM 4,000' TO 5,000' IN SEL
SOUTHWEST FLORIDA INTERNATIONAL AIRPORT
14 CFR PART 150 STUDY

	SEL @ 4000'			SEL @ 5000'			Difference		
Aircraft	**Colony**	**Shadow**	**Wildcat**	**Colony**	**Shadow**	**Wildcat**	**Colony**	**Shadow**	**Wildcat**
737700	74.8	74.8	74.8	72.6	72.6	72.6	(2.2)	(2.2)	(2.2)
717200	69.1	69.1	69.1	67.0	67.0	67.0	(2.1)	(2.1)	(2.1)
A319131	67.5	67.5	67.5	65.3	65.3	65.3	(2.2)	(2.2)	(2.2)
757PW	72.2	72.2	72.2	69.7	69.7	69.7	(2.5)	(2.5)	(2.5)
737800	74.0	74.0	74.0	71.8	71.8	71.8	(2.2)	(2.2)	(2.2)
MD83	73.1	73.1	73.1	71.2	71.2	71.2	(1.9)	(1.9)	(1.9)
737300	72.0	72.0	72.0	69.8	69.8	69.8	(2.2)	(2.2)	(2.2)

SOURCE: INM 7.0B, ESA Airports

It is shown in Figure 11.4 and in Table 11.1 that increasing the altitude of the south downwind to 5,000 ft. over the Estero Corridor results in a reduction in noise ranging between 1.9 and 2.5 decibels. Generally, a 3-5 decibel change is required to be noticeable in the community so the noise benefit of this change would be limited. However, combined with the FAA's desire to turn aircraft to the base leg earlier when operating under visual conditions, this measure would help address potential noise concerns of persons located under the revised routing while also reducing noise exposure for the entire corridor. Figure 11.4 also shows the areas that would experience a decrease in noise below 70 dB SEL as a result of raising the altitude on the downwind leg.

Recommendation: ***This Study recommends*** *that the Airport, working with RSW ATCT, determine if raising the altitude of the south downwind leg is feasible from a safety and efficiency standpoint. This Study also recommends that the Airport continue to work with the FAA to develop arrival procedures that will take advantage of optimized profile descents or continuous descent approaches that will be discussed later in this section so that aircraft minimize leveling off at low altitude over residential areas during the arrival.*

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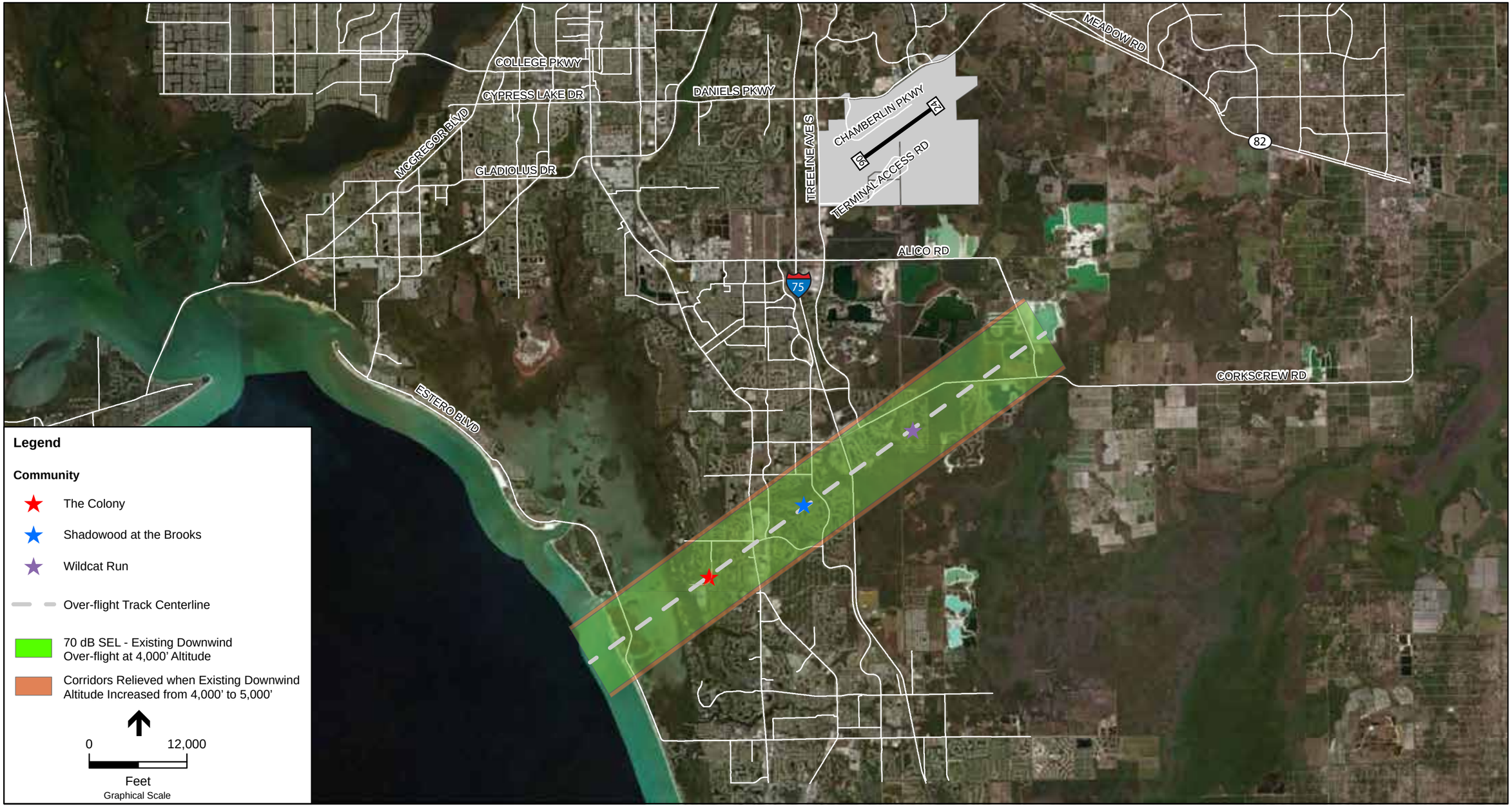

SOURCE: Lee County GIS Department; ESA Airports, 2012; INM 7.0b; ESRI

Southwest Florida International Airport 14 CFR Part 150 . 210140

Figure 11.4

B737-700 Over-flight on Downwind to Runway 06

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11.3.4 Shift Downwind Flight Track to the South

One observation communicated by citizens that live along the Estero Corridor is that there are more compatible land uses to the south of the corridor that could be utilized by aircraft flying the south downwind. As noted in the beginning of this chapter, it is not the mission of this Study to recommend moving noise from one community to another, however, according to the RSW Master Plan, a second parallel runway is intended to be built approximately 5,000 ft south of the current Runway 06-24. This would likely create the need to shift the current arrival flight paths approximately one mile south.

To determine whether shifting the current south downwind approximately one mile further south would provide a noise benefit to the Estero Corridor communities, the SEL measurements recorded in Table 11.1 in section 11.3.3 and in **Table 11.2** have to be analyzed and summed in **Table 11.3** to understand the full benefit. Table 11.2 is the modeled SEL dB levels for various aircraft flying one mile south of the current Estero Corridor downwind. Table 11.3 shows the total benefit (aircraft flying the existing downwind minus aircraft flying the downwind one mile south of the Estero Corridor) for aircraft operating at 4,000 ft MSL and aircraft operating at an altitude of 5,000 ft MSL.

TABLE 11.2
MODELED SEL SHIFTING THE SOUTH DOWNWIND ONE MILE SOUTH IN DECIBELS
SOUTHWEST FLORIDA INTERNATIONAL AIRPORT
14 CFR PART 150 STUDY

	SEL @ 4000 ft. MSL			SEL @ 5000 ft. MSL			Difference		
Aircraft	**Colony**	**Shadow**	**Wildcat**	**Colony**	**Shadow**	**Wildcat**	**Colony**	**Shadow**	**Wildcat**
737700	68.4	68.0	68.6	68.0	67.7	68.2	(0.4)	(0.3)	(0.4)
717200	61.1	60.6	61.3	60.8	60.4	61.0	(0.3)	(0.2)	(0.3)
A319131	60.7	60.3	61.0	60.2	59.8	60.4	(0.5)	(0.5)	(0.6)
757PW	64.8	64.3	65.0	64.2	63.7	64.4	(0.6)	(0.6)	(0.6)
737800	67.5	67.0	67.7	67.1	66.7	67.3	(0.4)	(0.3)	(0.4)
MD83	65.3	64.9	65.6	65.2	64.8	65.4	(0.1)	(0.1)	(0.2)
737300	65.2	64.7	65.5	64.8	64.4	65.0	(0.4)	(0.3)	(0.5)

SOURCE: INM 7.0b, ESA Airports

TABLE 11.3
MODELED TOTAL SEL SHIFTING THE SOUTH DOWNWIND ONE MILE SOUTH IN DECIBELS
SOUTHWEST FLORIDA INTERNATIONAL AIRPORT
14 CFR PART 150 STUDY

	SEL @ 4000'			SEL @ 5000'		
Aircraft	**Colony**	**Shadow**	**Wildcat**	**Colony**	**Shadow**	**Wildcat**
737700	(6.4)	(6.8)	(6.2)	(4.6)	(4.9)	(4.4)
717200	(8.0)	(8.5)	(7.8)	(6.2)	(6.6)	(6.0)
A319131	(6.8)	(7.2)	(6.5)	(5.1)	(5.5)	(4.9)
757PW	(7.4)	(7.9)	(7.2)	(5.5)	(6.0)	(5.3)
737800	(6.5)	(7.0)	(6.3)	(4.7)	(5.1)	(4.5)
MD83	(7.8)	(8.2)	(7.5)	(6.0)	(6.4)	(5.8)
737300	(6.8)	(7.3)	(6.5)	(5.0)	(5.4)	(4.8)

SOURCE: INM 7.0b, ESA Airports

In total, there is an average decrease of 7.2 decibels for aircraft flying the downwind one mile further south at 4,000 ft., and an average 5.4 decibel reduction for aircraft flying the one mile further south downwind at 5,000 ft.

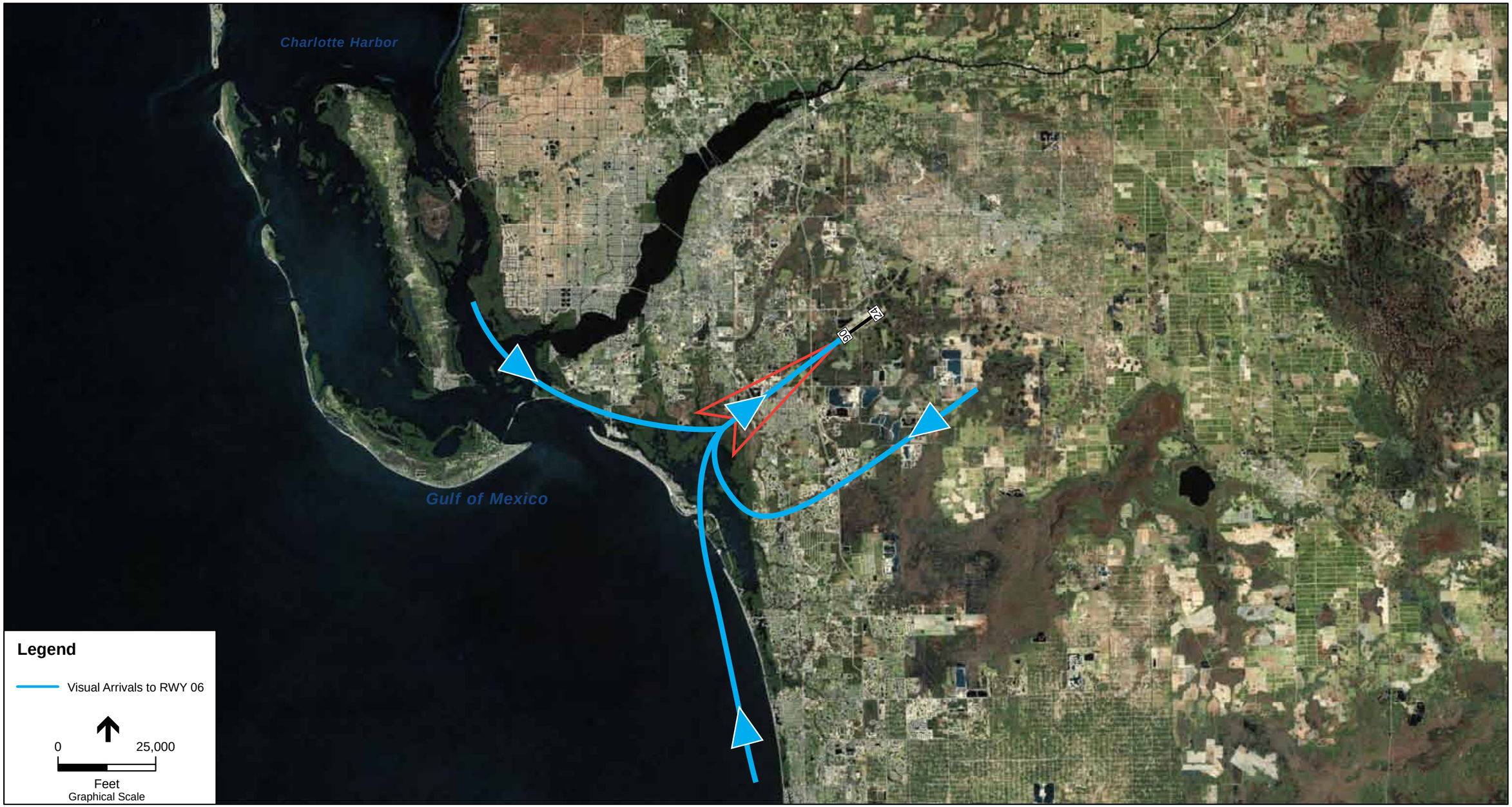
While a noise reduction would occur for those living along the centerline of the existing corridor, noise would increase along the new corridor. While there are considerably less noise sensitive uses along the potential shifted flight corridor, aircraft would be required to fly a longer distance. Additionally, with the rapidly advancing navigation technology, it is not clear if the shift would be in the correct location to serve a new parallel runway in the future.

Recommendation: ***This Study recommends*** *that with the completion of the new south parallel runway at RSW (Runway 06R-24L), the south downwind leg be shifted approximately one mile further south because of both operational need and a reduction in population impacts from aircraft overflights.*

11.3.5 Publish Charted Visual Approach to Runway 06 from the North and South

This measure involves publishing a procedure that indentifies visual landmarks to assist pilots flying under visual flight rules to avoid flying over non-compatible land uses (see example in **Appendix O**). While this type of measure is already utilized by a number of airports there are currently no published visual approaches into RSW with the exception of the relatively new RNAV Visual OPD approach. By publishing charted visual approaches that all aircraft can fly when certain weather conditions permit, more compatible land uses can be taken advantage of such as routes over water and/or areas with low population densities as shown in **Figure 11.5**. Using this procedure to mirror or overlay the new RNAV Visual OPD approach will also reduce aircraft sequencing challenges that will allow the ATCT to use the RNAV Visual OPD procedure more consistently and effectively. Charted visual approach procedures also allow establishment of altitude restrictions associated with key locations or landmarks along the arrival path while maintaining an efficient arrival flight path.

Recommendation: ***This Study recommends*** *that the Airport, working with the FAA, publish a charted visual approach procedure for Runway 06 to maximize routing of aircraft over compatible land uses when conditions permit; and also allow for aircraft that are not capable of flying the RNAV Visual OPD to follow a similar track.*



SOURCE: ESA Airports, 2012; ESRI

Southwest Florida International Airport 14 CFR Part 150. 210140

Figure 11.5

Visual Arrival Procedures to Runway 06

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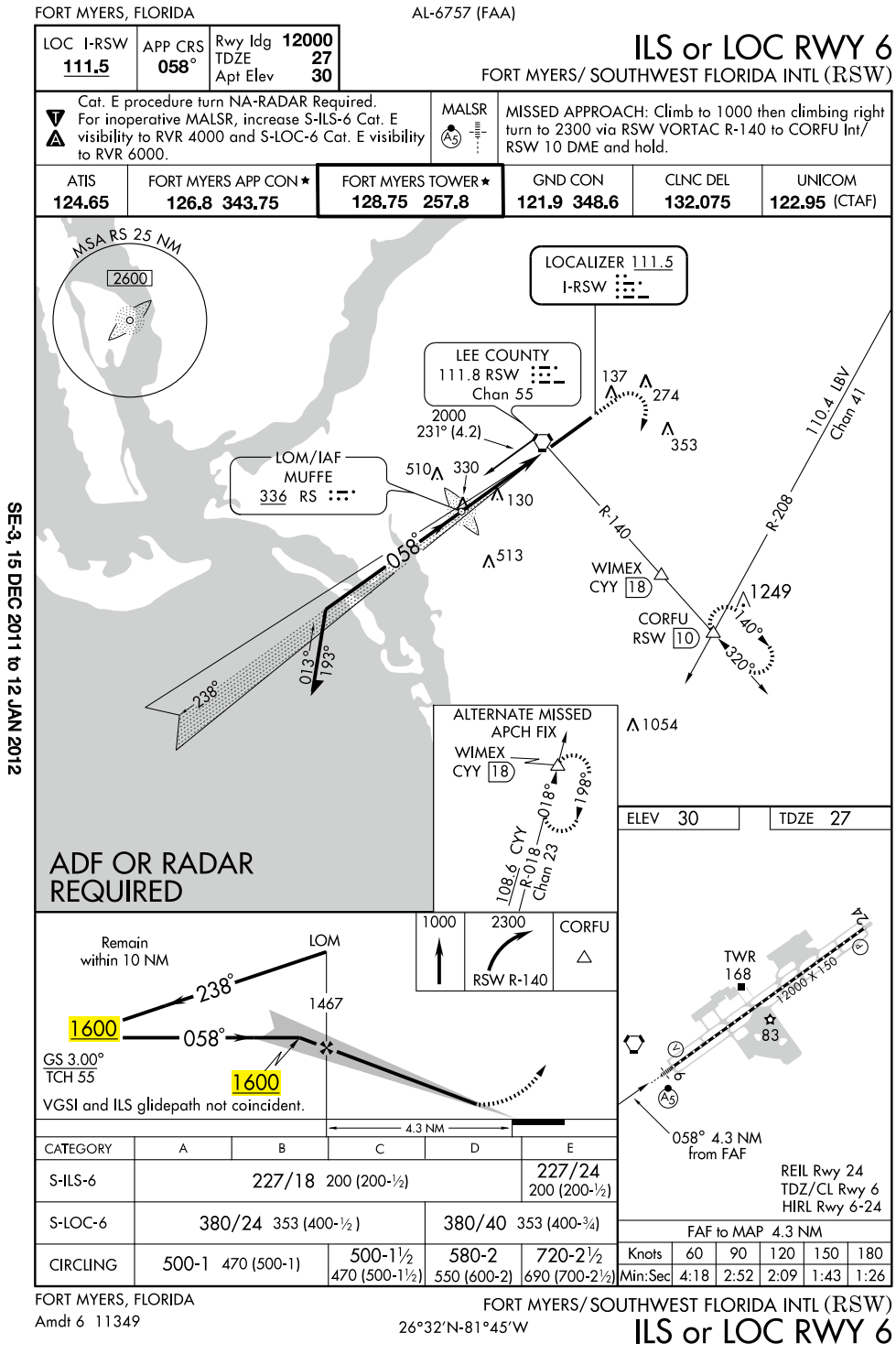
11.3.6 Keep Aircraft at 3,000 ft. Over Fort Myers Beach

The Study analyzed a variety of measures to help address noise concerns for the citizens of Fort Myers Beach. The first measure, addressed here, is to raise the altitude of aircraft as they overfly the Beach. Other measures, addressed later in this section, adapt the routes aircraft fly over to more compatible land uses such as the back bay waters east of Fort Myers Beach.

This measure is consistent with a previously approved voluntary measure from the 2006 14 CFR Part 150 Study to "Keep'em High". A significant number of comments were received during the public workshops from citizens of the Fort Myers Beach (also referred to as Estero Island) community concerning aircraft arrival overflights that are low and noisy at a distance of approximately 10 nautical miles from the approach end of Runway 06. It is the intent of this measure to delay the descent of arriving aircraft to maintain an altitude of up to 3,000 feet until after they overfly the Beach.

Several factors play into the aircraft altitude over the Fort Myers Beach area when arriving to Runway 06. The factor with the greatest influence is the Instrument Landing System (ILS) arrival procedure for Runway 06. As discussed in Chapter 2, the ILS arrival procedure has a minimum glide slope intercept altitude of 1,600 ft. MSL as highlighted in **Figure 11.6**. When given the approach clearance, many pilots will begin to descend to the minimum intercept altitude and will fly the ILS procedure whether or not they are on an instrument or visual approach. By designating the minimum altitude of the ILS over the Fort Myers Beach area as 1,600 ft., aircraft are descending to that altitude well in advance of intercepting the glide slope. An analysis was conducted to first determine if raising the altitude that aircraft overfly Fort Myers Beach would be possible, and second, determine whether doing so would be beneficial to the citizens of Fort Myers Beach. The intercept altitude for RSW was compared to other commercial service airports located in Class C and Class D airspace in the state of Florida to determine a typical range of distance and altitude that other airport ILSs are normally intercepted. **Table 11.4** shows the ILS intercept altitudes and distances for these Florida airports.



SOURCE: FAA.gov

Southwest Florida International Airport 14 CFR Part 150 Study. 210140

Figure 11.6

RSW ILS or LOC Approach to Runway 06

TABLE 11.4
FLORIDA FINAL APPROACH FIX ALTITUDES AND DISTANCES
SOUTHWEST FLORIDA INTERNATIONAL AIRPORT
14 CFR PART 150 STUDY

Airport	Class	Approach	Intercept Altitude	Distance (NM)
Southwest Florida International Airport	C	ILS 06	1,600	4.3
Pensacola Gulf Coast Reg. Airport	C	ILS 17	1,700	4.4
Tallahassee Regional Airport	C	ILS 27	1,800	5.3
	C	ILS 36	1,600	4.6
Jacksonville Intl. Airport	C	ILS 07	2,000	5.5
	C	ILS 25	2,000	9.6
	C	ILS 13	2,000	11
Ft. Lauderdale/Hollywood Intl. Airport	C	ILS 09L	2,500	11.7
	C	ILS 27R	2,500	12.1
Palm Beach Intl. Airport	C	ILS 10L	2,000	6
	C	ILS 28R	3,000	10.4
Daytona Beach Intl. Airport	C	ILS 07L	1,700	13.8
Orlando Sanford Intl. Airport	C	ILS 09L	2,000	10.6
	C	ILS 09R	3,000	11.8
	C	ILS 27R	3,000	11.2
Sarasota/Bradenton Intl. Airport	C	ILS 14	2,000	6
	C	ILS 32	1,800	5.4
Gainesville Regional Airport	D	ILS 29	1,700	4.6
Northwest Florida Beaches Intl. Airport	D	ILS 16	3,000	11.9
Melbourne Intl. Airport	D	ILS 09R	1,600	5
St. Petersburg-Clearwater Intl. Airport	D	ILS 17L	1,700	5.4
	D	ILS 35R	2,000	6.1
		Average	**2,100**	**8**

SOURCE: FAA.gov, ESA Airports

As shown in Table 11.4, the intercept altitudes range from 1,600 ft. to 3,000 with a 2,100 ft. average. Intercept distances range between 4.3 miles and 12.1 miles with an 8 mile average. At 1,600 ft. RSW is tied for the lowest intercept altitude in the table and at 4.3 miles has the shortest intercept distance as well. This indicates that the minimum approach altitude over the Fort Myers Beach area, which is approximately 10 nautical miles from the approach end of Runway 06, could potentially be raised and still allows aircraft to make a stabilized approach to the Runway. Another alternative to raising the intercept altitude would be to implement a stepped approach that would allow aircraft to maintain a higher altitude over the beach and then descend to a lower intercept altitude until intercepting the glide slope closer to the airport.

An analysis was performed to determine if raising the altitude aircraft overfly Fort Myers Beach to 3,000 ft. MSL would result in a noticeable reduction in noise for the people residing under the approach flight path. **Table 11.5** shows the modeled differences in SEL noise levels at 1,600 ft. MSL

verses 3,000 ft. MSL at a point under the arrival path to Runway 06 in Fort Myers Beach for a variety of aircraft types.

TABLE 11.5
MODELED SEL RAISING OF APPROACH ALTITUDE OVER FMB FROM 1,600' TO 3,000' IN DECIBELS
SOUTHWEST FLORIDA INTERNATIONAL AIRPORT
14 CFR PART 150 STUDY

	Avenida Carita (Fort Myers Beach)		
Aircraft	**SEL dB@ 1600**	**SEL dB @ 3000**	**Difference**
737700	82.2	77.1	(5.1)
717200	76.7	71.5	(5.2)
A319131	75.5	70.1	(5.4)
757PW	80.6	74.9	(5.7)
737800	81.5	76.4	(5.1)
MD83	79.4	75.1	(4.3)
737300	80.0	74.6	(5.4)

SOURCE: INM 7.0b, ESA Airports

The analysis shows a reduction in the perceived noise levels for the residences of Fort Myers Beach that are under the approach path to Runway 06. As stated in Chapter 3, Noise Fundamentals, a 3 to 5 dB change in noise is usually what is needed to be perceptible by the human ear. In this analysis, the average decibel decrease amongst the aircraft tested was 5.2 dB.

In conjunction with measure 11.3.6, a new ILS procedure for Runway 06 was introduced by the FAA during the end of the study and scheduled to be published shortly after the time of the public hearing. As shown in Appendix C, the new ILS procedure increases the intercept altitude from its current altitude of 1,600 ft. MSL at the MUFFE initial approach fix and extends the glidepath out to the TROPC intersection located 10.4 nautical miles from the runway threshold. At 10.4 DME from the Runway 06 threshold, the TROPC intersection is approximately one mile to the west of Fort Myers Beach and the glide slope altitude is approximately 3,000 feet. Upon reaching TROPC, aircraft will begin to descend on the ILS glide slope to Runway 6, crossing Fort Myers Beach at between 2,700 ft. and 2,800 ft.

In an effort to keep aircraft at or above 3,000 ft. MSL over the island, the Town of Fort Myers Beach passed a resolution that was submitted during the public hearing. The request included increasing the altitude aircraft passed over TROPC to 3,300 ft. with the goal of ensuring that aircraft would remain at or above 3,000 ft. over Fort Myers Beach while descending on the glide slope. That resolution is included with the transcript of the public hearing located in **Appendix S**, and the recommendation was approved for transmittal to the FAA ATO by the Lee County Port Authority Commission.

Recommendation: ***This Study recommends*** *the Airport, working with RSW ATCT and FAA, explore the feasibility of raising the altitude of aircraft arriving over Fort Myers Beach to Runway 06 to 3,000 ft. by increasing the ILS intercept altitude for the ILS to Runway 06, increasing the altitude of aircraft at TROPC, creating a step down procedure, or some combination thereof.*

11.3.7 Delay Point at which Aircraft Lower the Landing Gear

In addition to aircraft engine noise, noise and annoyance generated by air passing over the aircraft airframe can be considerable when an aircraft is configured for the final phases of landing. The drag that results when the landing gear is dropped requires an increase in the engine thrust setting to maintain altitude and airspeed. Concerns were raised by members of the community about the distance from the airport that pilots are configuring the aircraft for landing and the associated increased noise. In particular, it was noted that the current procedure of routing all aircraft on the SHIFTY TWO downwind well past the airport and all the way out to PONTY without an early visual release is likely increasing the likelihood that pilots are configuring their aircraft for landing much further from the airport than they would otherwise. New recommended measures such as the RNAV OPD and the charted visual would likely reduce this practice. However, working with the operators to increase awareness is likely the most effective approach.

This measure would involve working with air carriers and operators to highlight the benefits of delaying the point at which the landing gear is lowered, increasing drag and noise produced by the aircraft. The effectiveness of this measure would depend on airline procedures certified by the FAA, and the point at which the landing gear is put down would remain the pilot's discretion.

Recommendation: ***This Study recommends*** *that the Airport work with air carrier operators to make sure they are aware of noise sensitive areas around the airport to reduce impacts associated with early dropping of landing gear on approach.*

11.3.8 Increase Altitude of Early Morning Arrivals

A common concern communicated during the public workshops was related to low and noisy aircraft arrival overflights during the early morning hours. In particular, cargo carrier flights occurring before 6:00 am were cited as a concern. Since the RSW tower is not yet in operation when these flights arrive, these aircraft are vectored and receive clearances from Miami Air Route Traffic Control Center (ARTCC). As a result it is common for these aircraft to be routed over Fort Myers Beach at an altitude of 1,600 ft. MSL. Working with the operators and possibly Miami ARTCC to keep these aircraft higher until closer to the airport will reduce the annoyance of these aircraft during the critical early morning period. Additionally, ATCT indicated that modification of the Runway 06 ILS arrival procedure as outlined earlier should help keep these aircraft higher when the tower is closed.

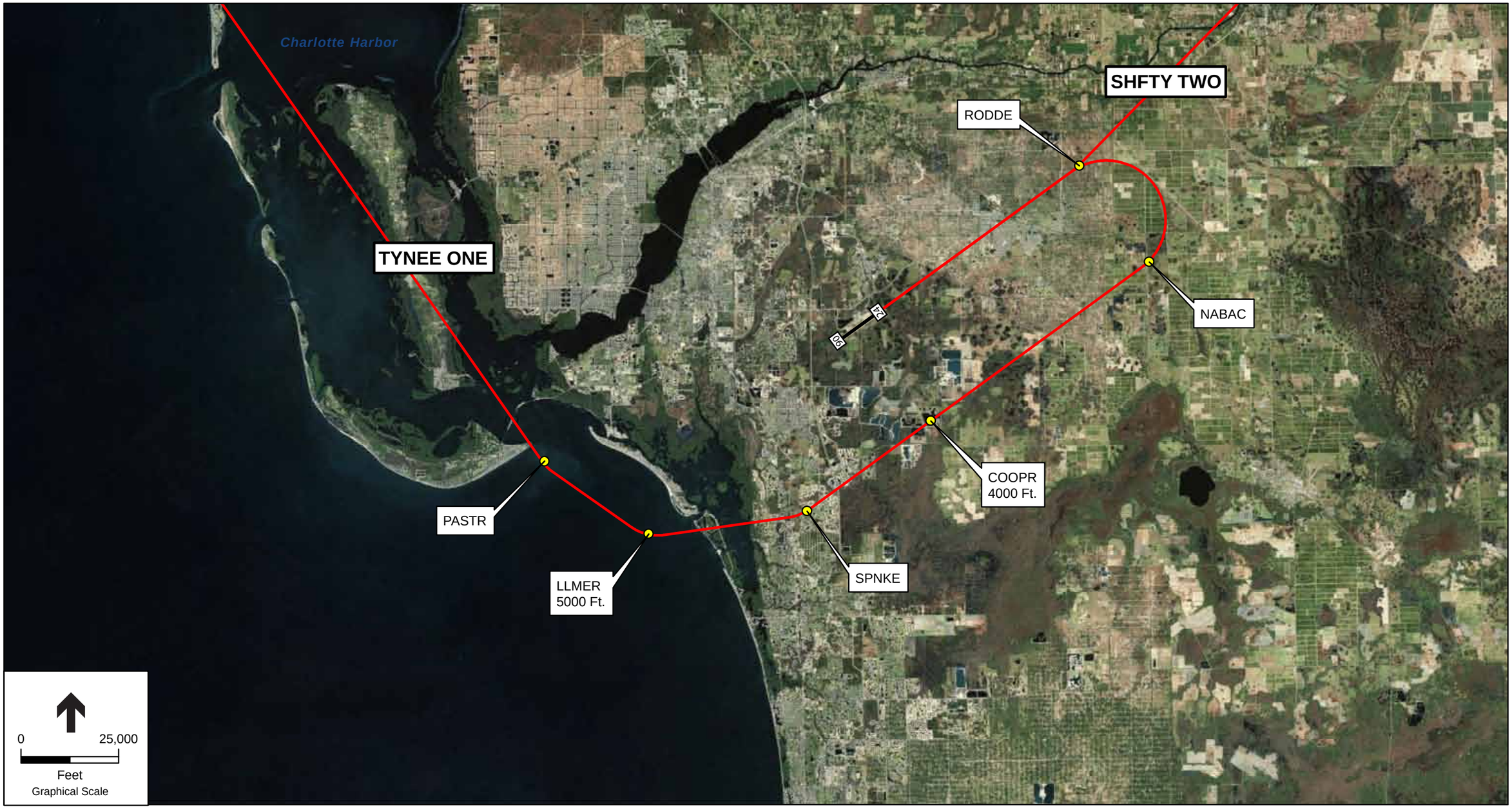
Recommendation: ***This Study recommends*** *the Airport work with the FAA and the Operators to increase awareness of noise concerns in efforts to keep aircraft higher when arriving to the airport during early morning hours.*

11.3.9 Change Runway 24 to Preferred Runway From 10:00 PM – 6:00 AM

A common noise concern communicated during the public workshops was the late night aircraft operations occurring at RSW. In exploring opportunities to address these concerns, a change in the voluntary preferential runway use was explored to make Runway 24 the preferred runway after 10:00 PM. It was determined that this would be beneficial to the local communities because it would greatly

reduce the number of overflights that would be routed over the noise sensitive communities in the Estero Corridor and Fort Myers Beach during periods when potential annoyance from aircraft activities is the highest. With Runway 24 as the preferred nighttime runway, aircraft arriving down the west coast of Florida would be flying over the Estero Corridor at a higher altitude on the TYNEE ONE Arrival, and aircraft arriving down the middle of the state flying the SHFTY TWO Arrival would fly straight-in to Runway 24 as shown in **Figure 11.7**. Nearly all operations being conducted at the airport after 10:00 PM are arrivals. As a result, the Runway 24 departure noise concerns for the communities of Fiddlesticks and The Forest would be minimal.

Recommendation: ***This Study recommends*** *that the Airport, working with RSW ATCT and air carriers who routinely operate at RSW, establish Runway 24 as the voluntary preferential arrival runway from 10:00 PM to 6:00 AM local time when Airport operational and weather conditions permit.*



SOURCE: ESA Airports, 2012; ESRI, FAA Instrument Apporach Charts (RSW)

Southwest Florida International Airport 14 CFR Part 150.210140

Figure 11.7

SHFTY & TYNEE RNAV Arrivals to Runway 24

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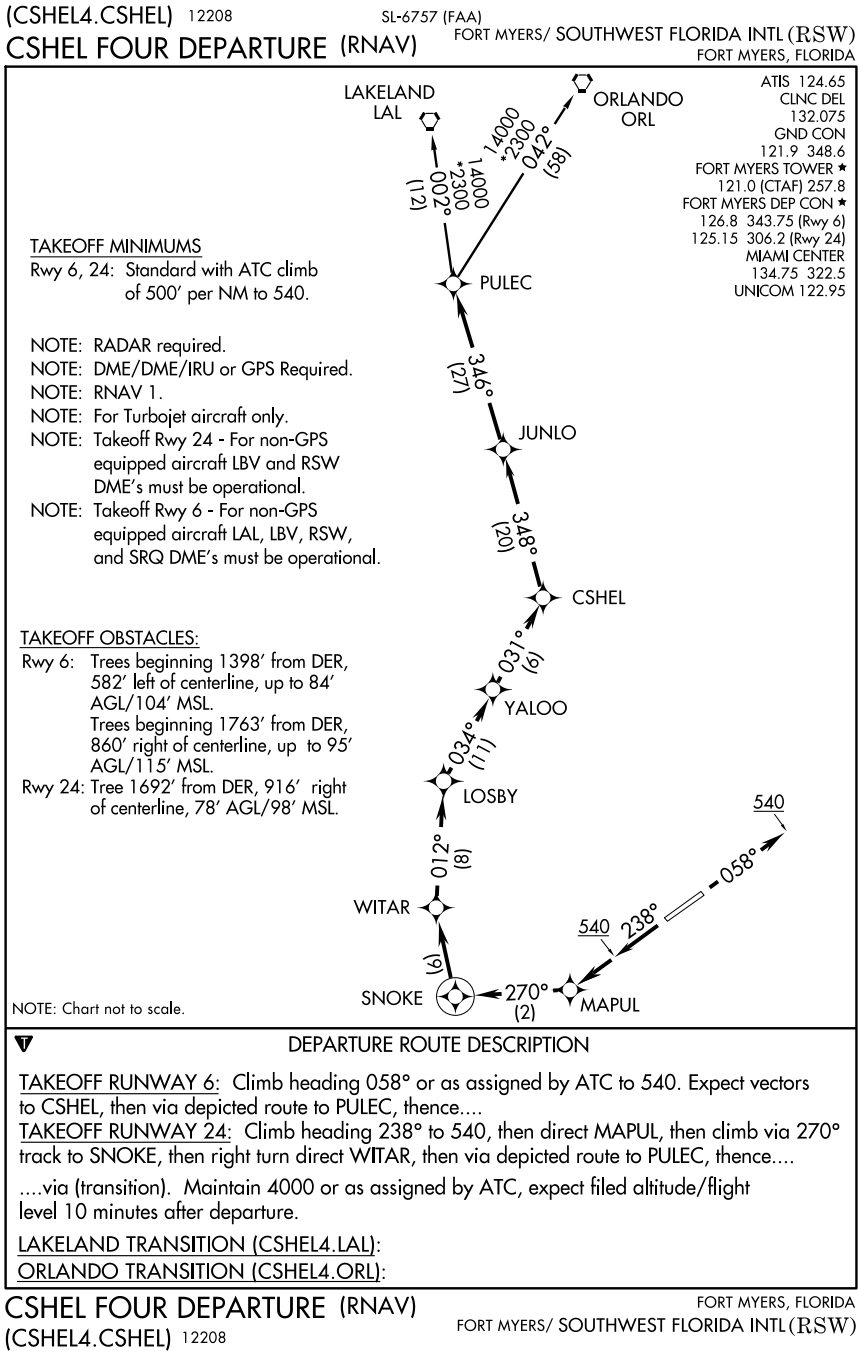
11.3.10 Modify CSHEL FOUR Departure Procedure

The CSHEL FOUR Departure Procedure (**Figure 11.8)** off of Runway 24 directs departing aircraft through the Alico industrial corridor. This measure would modify that procedure to reduce noise and annoyance for the communities located under this procedure.

Through the analysis of RSW airport operations from January 2008 to April 2011, it was determined that Runway 24 is used approximately 30 percent of the time as shown in **Figure 11.9**. It was also noted that Runway 24 can be used as little as 10 percent in a given month or as much as 50 percent or more depending on the seasonal wind conditions. Located off the departure end of Runway 24, a community called The Forest registers numerous noise comments. The Forest is located at the west end of the Alico industrial corridor directly under the CSHEL FOUR Departure procedure. Through the noise monitoring conducted as part of this study, it was determined that this community receives the highest levels of aircraft noise of any local community. This measure will help reduce the noise annoyance in this community by modifying the Runway 24 RNAV Departure procedure to lessen the concentration of aircraft departures over a narrow corridor (railroad effect) over the community while at the same time reducing the flight distance for aircraft with greater climb out capabilities. In discussions with ATCT, it was determined that the current CSHEL FOUR Departure procedure provides a safe separation between departing and arriving aircraft at RSW as well as an altitude cushion from aircraft that could be departing out of Page Field (FMY). It was also noted that slight modifications could be made in the CSHEL FOUR Departure procedure to reduce the number of direct overflights over The Forest community while providing a more direct routing to the north for some aircraft.

In reviewing a previous version of the CSHEL FOUR Departure (the JOCKS ONE Departure as shown in Figure 5.1), it was noted that aircraft were routed to the MAPUL Intersection but once leaving MAPUL and above 3,000 ft. MSL, aircraft were advised to expect clearance directly to the JOCKS fix. Aircraft were also limited to 220 knots indicated airspeed (KIAS) on the JOCKS ONE Departure until passing GRAMS, which was a fix out past the MAPUL intersection. This speed limit effectively increased the rate of climb of the aircraft. By implementing a similar climb out release at 3,000 ft. for the CSHEL FOUR Departure procedure, aircraft would be encouraged to climb as quickly as possible with the expectation of turning north prior to transiting the entire Alico corridor. This would not only result in routing aircraft through the less densely developed areas located to the east of The Forest community, and west of Fiddlesticks, but would reduce the flight distance of those aircraft. Table 11.6 shows the modeled SEL results for a Boeing 737-700 series aircraft from implementing the proposed procedure allowing aircraft to turn north upon reaching MAPUL and at an altitude of 3,000 ft. MSL. For the purposes of the analysis, it was assumed that the aircraft would fly a path roughly equidistant between The Forest and Fiddlesticks communities.

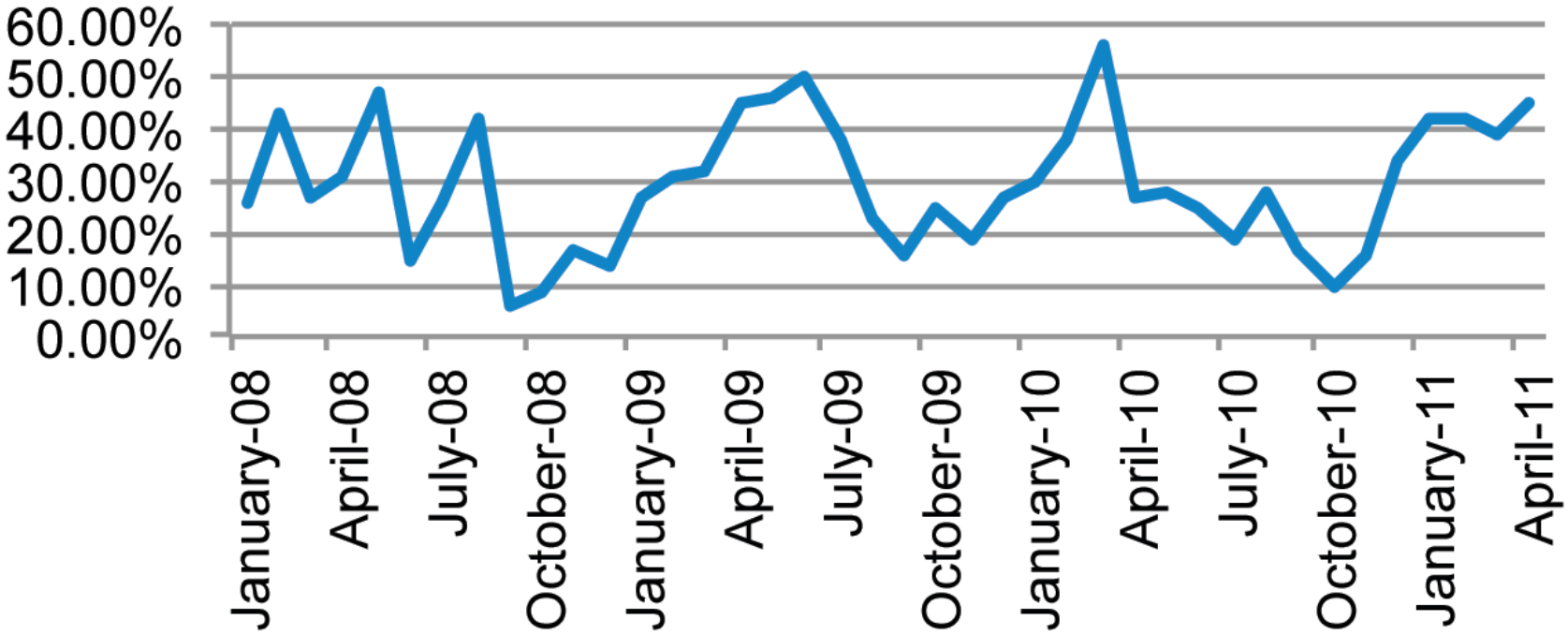


SOURCE: FAA.gov

Figure 11.8

RNAV CSHEL FOUR Departure

Runway 24 Use Fluctuates by Month



SOURCE: ESA Airports, 2012

Figure 11.9

Runway 24 Utilization

TABLE 11.6
MODELED SEL OF PROPOSED CSHEL FOUR DEPARTURE
SOUTHWEST FLORIDA INTERNATIONAL AIRPORT
14 CFR PART 150 STUDY

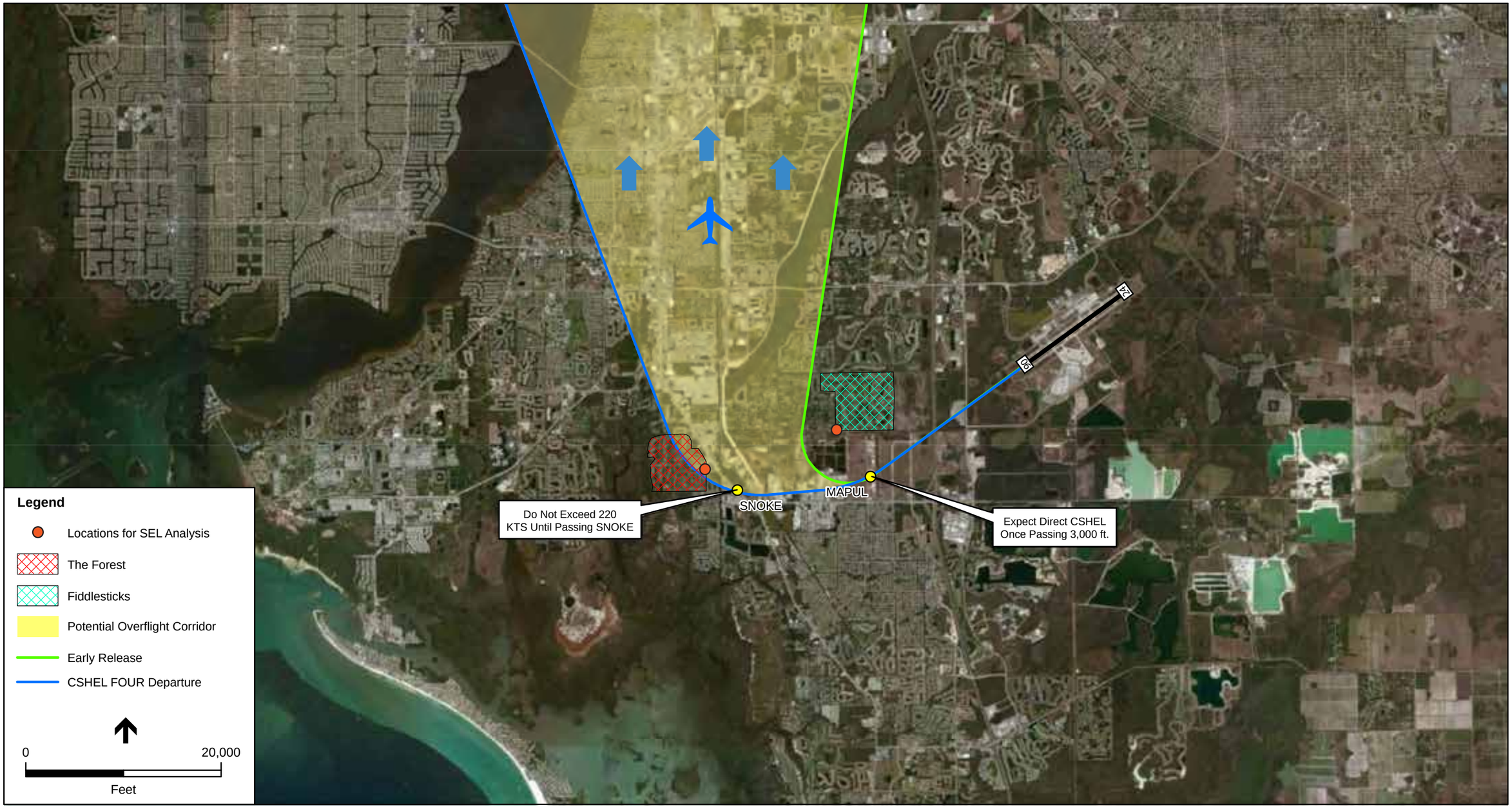
Aircraft	Track	The Forest*	Fiddlesticks*
737-700	Existing	75.5	76.2
	Proposed	69.1	78.1
Difference		**-6.4**	**1.9**

SOURCE: INM 7.0c, ESA Airports
*Note: The location points for SEL measurements were located closest to the Proposed flight tracks within each of the individual communities

As shown in Table 11.6, the proposed flight track SEL does increase slightly at the western boundary of the Fiddlesticks community, but decreases significantly for the Forest community. As noted previously, a change of at least 3 to 5 dB is generally required to be noticeable. The proposed departure procedures will also encourage a splay of departure tracks since aircraft can only turn north early upon reaching 3,000 feet MSL, as shown in **Figure 11.10.** Since different aircraft have different climbing and turning capabilities, implementation of the procedure will reduce the potential for a single community to be impacted by railroad effect.

In discussions of this modification with FAA ATC representatives, it was suggested that a potential solution to address this issue would be to change the way points used in the CSHEL FOUR Departure procedure from fly over waypoints to fly by waypoints. This would result in aircraft turning prior to reaching the waypoints rather than after they were passed over. The slightly earlier northward turn for departing aircraft would potentially reduce the amount of higher density residential areas that are overflown as part of the current procedure.

Recommendation: ***This Study recommends*** *the Airport work with the RSW ATCT and the FAA to explore the advantages of having aircraft climb out at a speed of 220 knots, and once passing the MAPUL Intersection and upon leaving 3,000 ft.MSL to avoid conflicts at FMY, make their right turns direct to CSHEL. This would keep aircraft on their current course south of Fiddlesticks, but allow the better performing aircraft to turn before reaching The Forest, therefore not increasing overflights over the Fiddlesticks community, and reducing overflights over The Forest, as shown in Figure 11.10. This procedure would also reduce aircraft flight path distance and possibly reduce fuel burn.*



SOURCE: ESA Airports, 2012; ESRI

Southwest Florida International Airport 14 CFR Part 150.210140

Figure 11.10
RNAV CSHEL Departure Corridor

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11.3.11 Change Preferential Runway Use

Airports sometimes establish preferred runways to use for noise abatement on a voluntary basis when operating conditions permit. A preferential runway system, as the name implies, refers to the allocation of arriving and departing aircraft to the preferred runways. RSW currently operates with Runway 06 as the preferred runway on a voluntary basis during calm wind conditions to reduce the impacts of departing flights over the more densely populated areas to the west of the airport.

As the previous 2006 RSW 14 CFR Part 150 Study recommended, the preferred runway at RSW is Runway 06. Since that time, FLOWCAR was established and the TYNEE ONE and SHFTY TWO RNAV Arrivals were established as the two main arrival corridors into the Airport. A significant number of comments received from the public during the public workshops from the Estero Corridor communities as well as Fort Myers Beach involved making Runway 24 the preferential runway which would reduce low arrivals over the Estero Corridor and Fort Myers Beach.

Analysis of this measure determined that making Runway 24 the preferential runway during daytime hours would increase the amount of departure noise/overflights for the communities of Fiddlesticks and The Forest. It was noted during the field noise measurement that these are the two communities that already receive the highest levels of aircraft noise from departures when Runway 24 is in use. As a result, a change in the preferential runway use during daytime hours would actually increase the noise exposure levels in the communities already experiencing the highest levels of aircraft overflight noise.

Recommendation: ***This Study recommends*** *that the Airport continue to make Runway 06 the preferential runway between the hours of 6:00 AM and 10:00 PM. No change to preferential runway use is recommended during daytime hours*

11.3.12 Extend Aircraft Further Over the Gulf before Turning toward Fort Myers Beach

This measure was suggested in comments during the public workshops from the communities in the Estero Corridor as well as Fort Myers Beach. This measure would route aircraft further out over the ocean before turning them back toward the Airport which would establish the aircraft on a more stabilized flight path before they fly over Fort Myers Beach. This would reduce the number of aircraft that are currently turning at low altitudes over noise sensitive communities and would also reduce the potential for aircraft to fly along the length of Fort Myers Beach.

An analysis of this measure found that routing aircraft further out over the Gulf of Mexico would direct aircraft further outside the controlled RSW Class C airspace as well as increase flight distance and fuel consumption for the aircraft arriving into RSW.

Recommendation: ***This Study does not recommend*** *routing aircraft further out over the Gulf of Mexico due to the increased flight distance and fuel consumption, as well as it would direct aircraft further from the RSW Class C airspace. Other measures being recommended in this study provide similar benefits without the impacts to aircraft operational efficiency.*

11.3.13 Implement SHFTY to TYNEE Transition (Estero Plan)

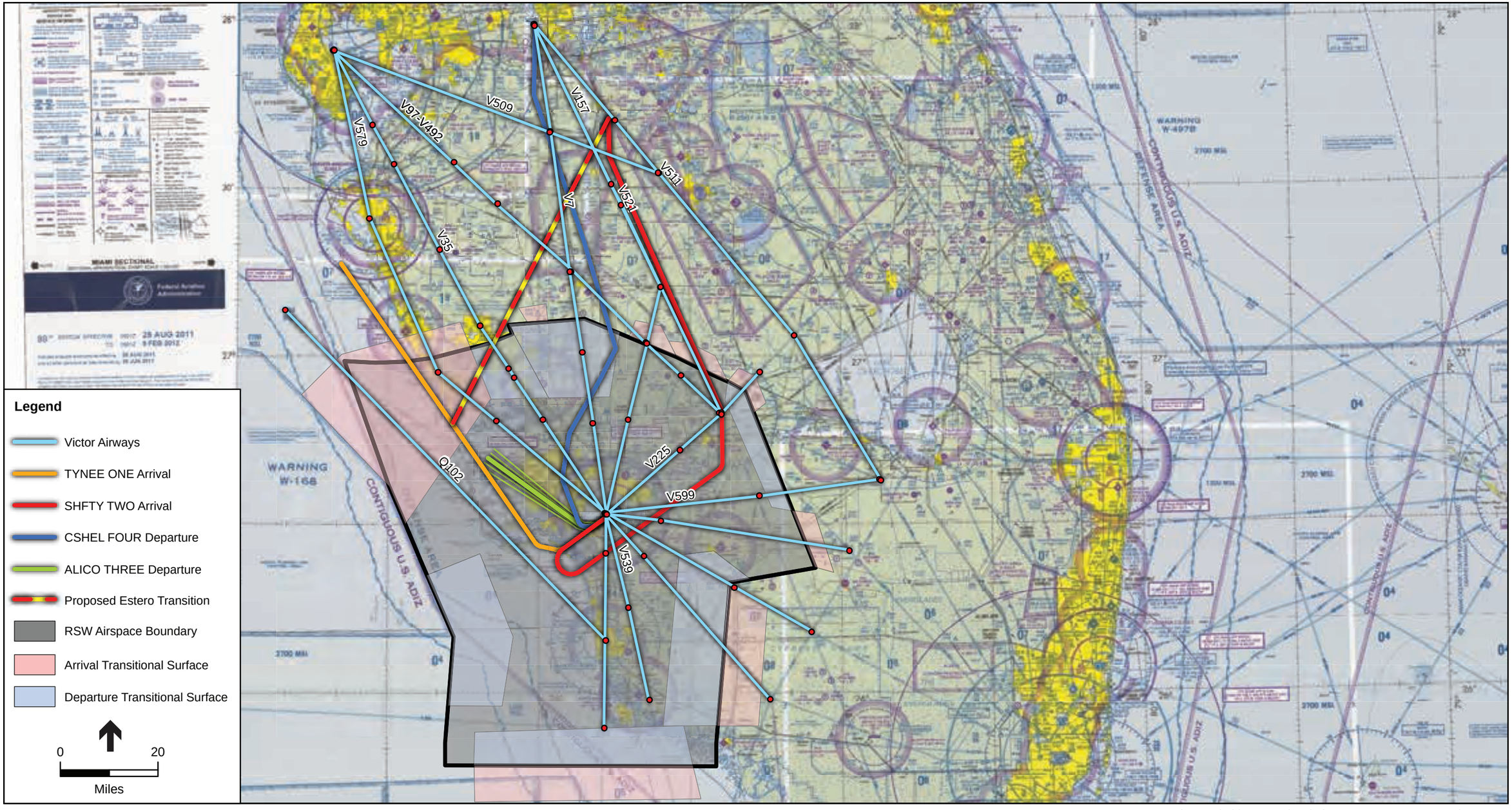
The SHFTY to TYNEE Transition or "Estero Plan" is a measure developed by residents living in the Estero Corridor communities located south of the Airport. The purpose of this measure is to address overflight concerns created with the implementation of FLOWCAR. A detailed investigation of this measure was conducted to determine if the "Estero Plan" measure was a viable solution to address noise annoyance for citizens residing in the Estero Corridor. This investigation included meetings with air traffic control consultants, procedure specialists, members of Miami ARTCC, and RSW ATCT.

The SHFTY to TYNEE transition is a route modification of the SHFTY TWO RNAV Arrival procedure that currently routes aircraft down the middle of the State of Florida and south of RSW through the Estero Corridor when Runway 06 is in use. It is this new routing, since the introduction of FLOWCAR, that has increased noise concerns from citizens living in the Estero Corridor from aircraft overflights. The Estero Plan introduces a new arrival flight path that would direct aircraft arriving on the SHFTY TWO RNAV Arrival from the SHFTY Intersection to the TYNEE Intersection which is located along Florida's west coast. Upon crossing the TYNEE intersection several miles north of RSW, aircraft would then continue south on the TYNEE ONE RNAV Arrival that routes aircraft down the west coast of Florida as shown in **Figure 11.11**. The goal for this modification would be to reduce aircraft overflights of the Estero Corridor that arrive on the current SHFTY TWO RNAV Arrival when Runway 06 is in use. The result of this plan, as stated previously, would be that all aircraft would eventually be routed down the west coast of Florida from the TYNEE Intersection. Benefits would include the ability to keep aircraft higher for longer periods of time then if the aircraft were to fly the SHFTY Arrival, and the plan would potentially reduce flight distance and fuel use for some aircraft.

In discussion with various air traffic control stakeholders including the RSW ATCT, Miami ARTCC, and flight procedure specialists, it was noted that the crossover of aircraft from the SHFTY Intersection to the TYNEE Intersection would create a number of challenges. These include:

- Creates numerous crossing conflicts to the north of RSW with other arrival and departure procedures and victor airways serving other airports.
- Requires vectoring of aircraft outside of the RSW local airspace and increases controller workload.
- Does not address local capacity issues and would increase enroute delays due to the high influx of aircraft traffic over the TYNEE Intersection.
- Overall, not supported by the FAA.

Recommendation: ***This Study does not recommend*** *the implementation of the Estero Plan (SHFTY to TYNEE transition) at RSW due to the reasons stated above.*



SOURCE: ESA Airports, 2012; FAA Miami Sectional Aeronautical Chart, 2011

Figure 11.11
SHFTY to TYNEE (Estero Plan)

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11.3.14 Increase Glide Slope Angle from 3 Degrees to 3.5 Degrees

The goal of this measure is to get aircraft higher over non-compatible land uses, such as residential communities, in efforts to reduce the annoyance from aircraft overflights. As stated previously, RSW has an ILS approach to Runway 06 that currently has a 3 degree glideslope from the final approach fix (FAF) to the arrival end of the runway. This measure would increase the glideslope angle from 3 degrees to 3.5 degrees, thereby increasing the altitude of which aircraft intercept the glideslope as they approach the airport.

The goal of this measure is two-fold. First, by having aircraft flying down the glideslope at a 3.5 degree angle, they would remain higher throughout the final approach phase and theoretically require less overall thrust to fly the approach. The reduced thrust setting would result in a reduction in noise. Second, by increasing the glideslope angle to 3.5 degrees, the FAF crossing altitude would be higher allowing for a higher glideslope intercept altitude which would benefit communities such as Fort Myers Beach. In discussions with RSW ATCT it was noted, however, that having aircraft begin the 3 degree glidepath at a higher altitude would address a majority of the concerns of the surrounding communities. A 3 degree glideslope provides for a standard stable approach for nearly all aircraft types. Increasing the glideslope increases the approach speed and the amount of rollout required to stop an aircraft upon landing. This would increase the use of reverse thrust and the taxiing distance for aircraft taxiing back to RSW terminal complex. Additionally, because of the faster approach speed, aircraft will generally begin to configure for landing earlier which results in additional noise associated with gear and flap settings.

Recommendation: ***This Study does not recommend*** *increasing the glideslope angle from 3 degrees to 3.5 degrees because it would result in early configuration of aircraft for a stable approach, increased use of reverse thrust and increased taxi distance with similar noise benefits to other measures being recommended.*

11.3.15 Publish RNAV Departure Procedure for Runway 06

As technology progresses, more and more RNAV arrival and departure procedures will be created for airports that direct aircraft over very precise routes and help with the overall safety and efficiency of an airport. Use of this technology will be important as the air traffic control system becomes increasingly crowded and more automated.

The benefits of an RNAV departure procedure are that it concentrates a wide band of aircraft departures over a narrow corridor (railroad effect). As noted previously, the CSHEL FOUR Departure is an RNAV departure procedure that properly instrumented aircraft fly when departing Runway 24. The CSHEL FOUR RNAV Departure procedure is very precise, and takes advantage of compatible land uses just west of RSW known as the Alico Corridor. An analysis was conducted to determine if an RNAV departure route could also be established to the northeast of RSW for aircraft departing off of Runway 06. It should be noted that most departures from RSW will turn to the north once departed RSW due to most aircraft destinations being north of the Airport.

When analyzing the viability of an RNAV departure procedure for Runway 06, aerial and land use base maps were consulted to determine if there was a compatible land use corridor for departures that

would be beneficial for reducing noise to the communities northeast of the Airport. To the immediate northeast of the airport lies compatible land use, however, beginning approximately 2.5 nautical miles off of the departure end of Runway 06 is the community of Lehigh Acres. This large community provides little opportunity for a clear routing of aircraft that would avoid noise sensitive uses. It should be noted that approximately 70 percent of the aircraft departing RSW use Runway 06.

Recommendation: ***This Study does not recommend*** *the implementation of an RNAV departure procedure from Runway 06 because it was determined that there is no clear noise compatible corridor to the northeast of the Airport. As a result, implementing an RNAV departure procedure for Runway 06 would result in concentrating a high volume of flight activity (Approximately 70 percent of airport departures) over noise sensitive land uses located northeast of the Airport.*

11.3.16 Establish Helicopter Noise Abatement Flight Tracks

This measure would establish specific flight tracks over compatible land uses for helicopters to fly when they ingress and egress the Airport. When analyzing the benefits of this measure, it was concluded that helicopters are currently in very limited use at RSW, and that creating flight tracks for their operations would provide little benefit from a noise standpoint.

Recommendation: ***This Study does not recommend*** *creating helicopter noise abatement flight tracks due to their limited use at RSW.*

11.3.17 Establish Reverse Thrust Restrictions

This measure would establish restrictions on the use of reverse thrust by pilots during the landing roll out. As a supplemental aircraft braking technique, capable aircraft can deploy reverse thrust in the form of a mechanical engine feature that diverts aircraft engine thrust to help slow the aircraft. However, use of these systems results in increased sideline noise in areas perpendicular to the runway. By restricting the use of this braking system, this measure has the potential to reduce noise in proximity to the Airport. Aircraft that are unable to use reverse thrust or due to airline policy or engine type may have to exit to the taxiway system further down the length of the runway.

When analyzing this measure, it was determined that there are very few noise comments received regarding the noise created from aircraft utilizing reverse thrust when landing at RSW. Additionally, the configuration of the runway system and terminal complex at RSW could result in increased back taxiing to the terminal area in the event that an aircraft must travel further down the runway before exiting.

Recommendation: ***This Study does not recommend*** *establishing a restriction on thrust reverser use due to the impact it could have on operational efficiency, as well as the limited noise benefit the restriction would provide.*

11.4 Measures Required For Consideration by 14 CFR Part 150

14 CFR Part 150 defines a number of noise mitigation measures that should be explored in every NCP Study. At a minimum, the operator shall analyze and report on the following measures, subject to the constraints that the strategies are appropriate to the specific airport.

11.4.1 Acquisition of Land

This measure includes the acquisition of land and interests therein, including, but not limited to air rights, easements, and development rights, to ensure the use of property for purposes which are compatible with airport operations.

Recommendation: *Noise Overlay Zones have already been established by Lee County that promotes compatible development with airport operations. These overlay zones and the requirements therein have been updated as part of this Study, and are described in Chapter 12 of this NCP.*

11.4.2 The construction of Barriers and/or Acoustical Shielding Including Soundproofing of Public Buildings

Communities located close-in to airports often experience noise exposure from aircraft operating on the airfield. This noise exposure can consist of taxiing aircraft, aircraft located on the ramp running auxiliary power units, or aircraft landing at the airport and using thrust reversers to slow down. Depending on the noise source and receiver locations, noise barriers may provide some relief for the noise exposure caused by ground operations.

A noise barrier is an obstruction to the path of sound transmission. Barriers can include walls, earth mounds (or berms), buildings, or extremely dense vegetation. In the case of barriers, communities are shielded from the noise source (aircraft) as long as the barrier is close to the source or receiver (noise sensitive site), is solid, and sufficiently breaks the line-of-sight from the noise source to the receiver. Barriers can potentially provide noise reduction benefits for residences immediately adjacent to an airport from aircraft ground operations. Once an aircraft becomes airborne and there is a direct line of sight from the aircraft to the receiver, barriers have no further effect on reducing sound levels.

To be effective, a barrier needs to be very close to the source of noise and/or very close to the receiver. Examples of effective barriers are those used along interstate highways. That is, the barriers are close to the source and the receivers. With respect to aircraft, due to aircraft operational safety requirements (FAR Part 77), barriers cannot be constructed very close to the source (aircraft). In addition, by placing barriers close to the receiver, the distance from the source of noise at RSW is far away in most instances and a barrier would be ineffective for ground-based noise related to aircraft ground movements. The location where homes are closest to the Airport is to the north/northeast in the Gateway community. This area is located parallel to Runway 06/24 at RSW. The majority of noise received in this neighborhood is related to aircraft arriving or departing the Airport. A barrier would not reduce this type of noise for that community.

In addition, no noise sensitive structures are located within the existing (2012) or future five year (2017) 65 dB DNL noise contours. Based on this, there are no public buildings that warrant sound insulation.

Recommendation: ***This Study does not recommend*** *establishing noise barriers or walls, or a soundproofing program at RSW due to the location of ground based noise relative to the location of noise sensitive residential communities, and because no noise sensitive structures exist in the existing year 2012 and future year 2017 65 dB DNL Contours depicted on the most recently approved NEM's.*

11.4.3 Implementation of a Preferential Runway System

See Sections 11.3.9 and 11.3.11 of this chapter for a description of this type of measure at RSW.

Recommendation: ***This Study recommends*** *the continued implementation of this measure. A voluntary preferential runway system for noise abatement has already been implemented at RSW. Runway 06 is the preferred runway at RSW when the wind, weather, and operational necessity permit. Furthermore, and as discussed in Section 11.3.9 of this chapter,* ***this Study recommends*** *that the preferential runway be changed to Runway 24 between the hours of 10:00 PM and 6:00 AM local time.*

11.4.4 The Use of Flight Procedures to Control the Operation of Aircraft and Reduce Noise Exposure

See Sections 11.3.1 through 11.3.8, 11.3.10, and 11.3.12 through 11.3.17 of this chapter for a description of these types of measures at RSW.

Recommendation: ***This Study recommends*** *the implementation of most of these type procedures at RSW. See Chapter 14 for specific recommendations for each operational measure.*

11.4.5 The Implementation of Use Restrictions on Any Type or Class of Aircraft at RSW

As a result of the 1990 Noise and Capacity Act, no new use-restrictions at airport facilities can be implemented without a thorough demonstration of need, a detailed analysis of the restriction and its consequences, and approval by the FAA. Such restrictions could include partial or full curfews, restrictions in use based on the certified noise level of an aircraft, capacity limits on the number of aircraft that can use the facility or other similar measures.

If any form of use restriction is proposed, a FAR Part 161 process (entitled Notice and Approval of Airport Noise and Access Restrictions) would need to be accomplished. The FAR Part 161 process requires that substantial evidence be presented that supports six statutory conditions that include:

1. Is reasonable, not arbitrary or discriminatory
2. Does not create an undue burden on interstate or foreign commerce
3. Maintains safe and efficient use of navigable airspace

4. Does not conflict with any existing Federal statute or regulation
5. Has been adequately provided for public comment
6. Does not create an undue burden on the national aviation system

The level of noise exposure associated with aircraft operations at RSW does not warrant access restrictions or curfews. Mitigation techniques to lessen noise exposure and annoyance on the communities surrounding the Airport have been updated continuously over the past 20 years and again during this 14 CFR Part 150 Study Update.

Recommendation: ***This Study does not recommend*** *operational use restrictions at RSW because noise compatibility issues are being addressed through the continuing efforts of the LCPA, Lee County, and the RSW ATCT.*

11.4.6 Other Actions or Combinations of Actions that would be Beneficial for Noise Control or Abatement Impact on the Public

See Sections 11.3.2 through 11.3.7 and sections 11.3.13 through 11.3.16 of this chapter for a description of these types of measure at RSW.

Recommendation: ***This Study recommends*** *the continued LCPA efforts to implement a radar tracking system, which is currently progressing through the stages of implementation by recommendation of the previous 2006 RSW 14 CFR Part 150 Study, be implemented to assist the LCPA in monitoring the noise mitigation measures and to assist in the development of modifications to these measures that will benefit the citizens living in proximity to the Airport as discussed in Chapter 13. The system will not be used for mandatory enforcement of the voluntary procedures.*

CHAPTER 12
Off-Airport Land Use Compatibility Planning

The issue of aviation related noise and its impact on people continues to be a controversial topic in the vicinity of our nation's airports. Airports throughout the United States have been adversely affected by the encroachment of land uses that are not compatible with levels of sound generally associated with ground and flight operations of aircraft. In response to the increasing encroachment of these incompatible land uses, airports, working through local units of government, have initiated land use management actions to facilitate the compatibility of development occurring in the airport environs across the United States.

This section presents the Federal initiatives and limitations related to off-airport land use control; addresses the future land use plans developed by the local government with land use jurisdiction in the municipality within which the airport is located, and reviews local land use related measures that could enhance long term land use compatibility in the environs of RSW.

12.1 FAA Initiatives and Limitations in Off-Airport Land Use Planning

The following, taken from the September, 1999 report *Land Use Compatibility and Airports* prepared by the FAA, presents the FAA actions related to land use planning.

> *"While the FAA can provide assistance and funding to encourage compatible land development around airports, it has no regulatory authority for controlling land uses that would protect airport capacity. The FAA recognizes that state and local governments are responsible for land use planning, zoning and regulation, including that necessary to provide land use compatibility with airport operations.*
>
> *However, pursuant to the Federal Airport and Airway Development Act, as a condition precedent to approval of an FAA-funded airport development project, the airport sponsor must provide the FAA with written assurances that "…appropriate action, including the adoption of zoning laws have been or will be taken, to the extent reasonable, 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 the landing and takeoff of aircraft…"*
>
> *FAA has required the phasing out of noisy Stage 1 and Stage 2 aircraft consequently, the aviation industry has spent substantial monies to meet this requirement. To assist in the compatible land use efforts, the FAA, local airport sponsors, and state aviation agencies*

have expended significant funds related to airport planning and off-airport noise and land use compatibility planning throughout the United States.

Airport master plans have been prepared to identify the near-term and long-range projections for airport activity and the development necessary to meet these activity demands. In addition, noise and land use studies (14 CFR Part 150 studies) have been conducted to evaluate ways to minimize impacts of aircraft noise, and the FAA and airport sponsors have financed land acquisitions and other noise compatibility measures throughout the United States."

The FAA has developed land use guidelines that relate the compatibility of aircraft activity to land uses surrounding an airport. These guidelines, provided previously in Table 8.3 of the NEM document, identify land use activities that are acceptable within the 65, 70 and 75 DNL contours. FAA guidance indicates that virtually all land uses below the 65 DNL are considered by them (the FAA) to be compatible with the affects of aircraft noise.

Attention is focused on areas within the 65 DNL because the FAA considers these to be the areas significantly exposed to aviation related noise and is the limit FAA uses for eligibility to fund noise abatement measures through either the Part 150 process or the National Environmental Policy Act (NEPA) process. It is recognized, however, that noise does not stop at the 65 DNL contour and is heard by those located in proximity to approach, departure and training corridors. Thus, the FAA encourages airport sponsors and local governments to work together to establish land use controls within flight corridors and noise exposure areas within and beyond the 65 DNL noise contour.

12.2 Need for Continued Noise/Land Use Compatibility Planning

The need to continue to evaluate land use compatibility planning around the Airport is threefold. First, there is a strong public interest in maintaining the viability of the Airport to protect the extensive investment expended to date at the facility. Protecting this investment from the encroachment of non-compatible development significantly reduces the potential for restrictions of the use of Airport facilities. There are numerous examples throughout the nation where non-compatible development has led to flight restrictions, curfews, and operational procedures that significantly impact an airport. Restricting airport operations due to non-compatible land use results in lost economic opportunities to the community and adversely limits the viability of an airport to fulfill its designed purpose of serving the community.

Second, there is a need to ensure the continued economic benefit that the residents of southwest Florida derive from the operational viability of the Airport. Significant local economic impact is derived from tourism travelers, and persons traveling to the area for conventions and overnight business meetings arriving in southwest Florida by way of the Airport. This economic impact translates into employment opportunities for local residents, tax revenues for essential public

services and facilities, and overall economic vitality in Lee County and the greater southwest Florida area.

Third, land use compatibility planning has the direct benefit of establishing the most appropriate use of land and avoiding potential future problems that may result from the use and development of land in Lee County near the Airport. Public concern about aviation related noise is a continuing issue that is being faced by all levels of government. There are direct relationships between the issue of aviation related noise and compatible land use in the vicinity of an airport. This relationship has been the topic of considerable research and numerous planning analyses in Lee County, in Florida, and throughout the United States. Proactive planning to develop strategies and recommendations to prevent the development of non compatible land uses, to mitigate aviation related noise issues and to ensure that the general public is fully informed of existing and future aviation related noise conditions at the Airport is an important component of the Lee County planning process. Planning for land uses in the areas surrounding RSW to be compatible with Airport operations has been part of the planning efforts of Lee County. As a result, a strong precedent has been established in the vicinity of RSW for the continued development and implementation of land use planning and management measures directed specifically at the goal of providing land use compatibility with aircraft noise and public awareness of noise exposure areas.

12.3 Land Use Changes (Corrective Changes)

Land use changes under this category involve potential changes to existing land uses within the 65 DNL and higher noise contours. The existing land uses to be addressed represent those land uses considered to be incompatible with noise levels based on FAA guidelines. These guidelines state that residential land uses and other noise sensitive land uses (i.e., places of worship and schools) may not be compatible within noise levels of 65 DNL and higher. Types of corrective land use changes include: property acquisition and sound insulation of incompatible noise sensitive structures. The following describes each of these land use corrective changes.

12.3.1 Property Acquisition

Acquiring land for noise compatibility is the most definitive way to ensure compatibility with aircraft noise. With the acquisition of property, an Airport Sponsor is given sole authority on converting the incompatible land uses to compatible land uses. Once purchased, the Airport Sponsor has the option of demolishing the incompatible land uses and rezoning and then reselling the vacant property, or offering the property for resale with covenants in place to ensure future uses are compatible with existing and projected aircraft noise levels.

Land acquired via a Part 150 noise compatibility program should always be purchased with resale of the property in mind. The primary purpose of acquiring land in noise compatibility programs is to change the land use from a non-compatible use, such as residential, to a compatible use, such as industrial. Thus, this approach is implemented with the eventual resale of the property as the goal of the overall effort. As in the typical real estate investor scenario, the Airport Sponsor must

look into the future to consider various market influences and conditions that will enable the property to be sold at its highest and best use in order to maximize its value at the time of resale.

A noise compatibility program is a voluntary, good will effort on the part of the Airport Sponsor to reach out to the noise impacted properties or dwellings in an attempt to better neighboring relationships with the Airport. A policy of not acquiring vacant parcels that are located in the midst of other parcels being purchased does not follow a pattern of good will established by the noise compatibility plan and leaves the potential for isolated future non compatible development. In every case where Airport Sponsors have neglected vacant land owners, poor relationships have resulted with these land owners due to the conditions created.

In the case of RSW, there are no incompatible land uses located within the 65 DNL contour and thus, no properties that would be eligible for Federal funding support for purchase.

Recommendation: ***This Study does not recommend*** *the acquisition of property for inclusion in this noise compatibility program since no incompatible land uses are located within the existing (2012) and future (2017) 65 dB DNL contours of the most recently approved NEM's.*

12.3.2 Sound Insulation

The objective of a Sound Insulation Program is to reduce the interior noise level of a residential dwelling (or other noise sensitive site) by making modifications to the building. Literally soundproofing a residence so that no aircraft operations are heard is usually not practical, achievable or cost-effective. The goal of providing sound insulation is to reduce the exterior to interior noise levels from aircraft operations to an acceptable level, so that aviation related noise no longer interferes with the noise sensitive indoor activities. Since noise travels through air, sound insulation is accomplished by reducing the unwanted infiltration of air into a structure. The highest level of air infiltration occurs through windows, doors, and attic/roof vents. An effective acoustical treatment program typically includes windows, insulation, doors, and venting modifications. As established by FAA, the goal of a sound insulation program is to achieve a maximum interior noise measurement of 45 decibels (dB) after modification and an overall minimum 5 dB reduction from pre-insulation conditions as a result of the modifications. Noise sensitive structures that already achieve an interior noise level of 45 dB are not eligible for Federal funding support.

As noted previously there are no incompatible noise sensitive properties located within the existing (2012) or future (2017) 65 DNL contours at RSW and thus, no properties that would be eligible for Federal funding support for sound insulation.

Recommendation: ***This Study does not recommend*** *a sound insulation program for inclusion in the noise compatibility program since no incompatible land uses are located within the existing (2012) and future (2017) 65 dB DNL contours.*

12.3.3 Avigation Easement

Avigation easements are rights sought by Airport Sponsors that allow operation of aircraft over a specific property with a guarantee that the proprietor will not pursue legal remedies in the future associated with aviation related noise impacts. In exchange for the avigation easement, the property owner may or may not be compensated, depending on the circumstances of the avigation easement.

Avigation easements are standard practice for noise sensitive structures that have received sound insulation. In this situation, the property owner receives the sound insulation package from the Airport Sponsor in exchange for the signing the avigation easement. The airport paying for the sound insulation package serves as the monetary compensation for the easement. If no sound insulation package is offered, the owner of the impacted property may receive monetary compensation in exchange for the easement. If this is the case, the value of the monetary compensation is typically based on a percentage of the value of the impacted property. If no sound insulation package is offered in exchange for the avigation easement, the FAA no longer will participate in the funding of an avigation easement.

For RSW, the recommended noise compatibility program focuses on aircraft operational procedures to lessen noise exposure to noise sensitive land uses. No structures are recommended for sound insulation and no structures are recommended for just avigation easements. Therefore, no recommendations requiring avigation easements are included in this Study.

Recommendation: ***This Study does not recommend*** *the purchase of avigation easements for inclusion in the noise compatibility program since no incompatible uses are located within the existing (2012) and future (2017) 65 dB DNL contours.*

12.4 Planning/Regulatory Changes (Preventive Changes)

12.4.1 Airport Noise Zones

One of the more effective tools for maintaining the compatibility of future development in the Airport environs is the establishment of Airport Overlay Zones by the municipality with land use jurisdiction over the property surrounding the airport. Overlay zones create one or more specialized zoning districts that are intended to supplement the underlying jurisdictional zoning regulations. Regulations associated with airport overlay zones could limit the development of noise sensitive uses; could require new development to incorporate sound insulation into the design and construction of buildings; could require some form of publication (through avigation easement or notification, for example) advising future buyers as to the existence of aircraft overflights and aviation related noise and/or other measures. The determination as to which of the local regulations should apply for any given situation is based on the extent of the aviation related noise exposure at the proposed development site.

RSW Airport Noise Overlay Zone History

In order to address the potential for continued encroachment of residential development and other noise sensitive uses toward the Airport (and below the noise abatement corridors), a Noise Compatibility Program (NCP) was prepared in the late 1980's. The intent of the program was to control the encroachment of incompatible development within noise exposure areas. The key feature of the program was the establishment of noise overlay zones encompassing lands surrounding the airport. The limits of the overlay zones were largely based on noise contours and flight corridors associated with the one-runway facility.

The four zones developed as part of the program were intended to promote land development that is compatible with airport operations and are more stringent than the FAA guidelines related to residential and other noise sensitive land uses. These zones are defined as:

- Zone 4 – Land within the airport boundary that is restricted to airport-related uses only including those that provided services to airline passengers and those uses generally associated with airport operations.
- Zone 3 – An area where no future noise sensitive uses (including all residential uses) would be allowed to be developed
- Zone 2 – An area where no new mobile home development would be allowed
- Zone 1 – The remaining areas where no restrictions based on aircraft noise or overflight would occur

The NCP, including the noise overlay zones, was developed as part of the 14 CFR Part 150 Study prepared by the Airport Sponsor and approved by the FAA on May 1, 1990. Subsequent to the FAA's approval, the overlay zones described above were incorporated into the Lee Plan and were then included as part of Lee County's Land Development Code (LCLDC).

In the 1986 Master Plan prepared for RSW, the future need for a second air carrier runway was identified. The runway, to be located in the southeast portion of the Airport, would be established parallel to and widely separated from current Runway 06/24. Following the NEPA environmental approval of the future runway, a new NCP was prepared through a second 14 CFR Part 150 process approved by the FAA in May of 2006. The focus of this updated program was the expansion of the noise overlay zones to incorporate areas that would be affected by aircraft operations on the future runway. The same basic concept of the use of four overlay zones was maintained for the updated program. The result was the expansion of Overlay Zones 2, 3, and 4. Subsequent to the 14 CFR Part 150 Study approval by the FAA, the Lee County Commission incorporated the revised overlay zones into the Lee Plan and Lee County Land Development Code.

RSW 2006 Airport Noise Overlay Program

Following the completion of the 2006 14 CFR Part 150 Study for RSW, Lee County adopted the year 2020 composite 60 DNL noise contour as the level of land use compatibility for residential and other noise sensitive land uses. The composite 60 DNL contour reflected the outer boundary of the 60 DNL contour associated with various operating scenarios of the future parallel runway

system. The four associated airport overlay zones have been codified in the Lee County Land Development Code and are presented on **Figure 12.1**. The four zones are described in Section 34-1004 – Airport Noise Zones of the Lee County Land Development Code as follows:

" (a) *Purpose.* The purpose of this section is to establish standards for land use and for noise compatibility requirements with respect to noise and overflights associated with the normal operation of Southwest Florida International Airport (SWFIA). This section establishes noise zones of differing intensities and land uses in the vicinity of SWFIA. This section establishes permitted land uses within the noise zones and establishes requirements for providing notification to current and prospective purchasers or developers of real estate within the noise zones.

(b) *Noise zones defined; permitted uses.* There are hereby created and established four airport noise zones pertaining to land uses surrounding the SWFIA. The noise zones are based upon the most recent composite DNL contours developed in accordance with the Federal Aviation Regulations, Part 150, Noise Compatibility Study for the Southwest Florida International Airport, in combination with an area subject to repetitive, low altitude aircraft over flights associated with flight training activity on the planned parallel runway, as approved by the Board of Port Commissioners and the FAA. The four proposed zones were adopted by the Board of County Commissioners and are on file at the Lee County Port Authority. The purpose and intent of these noise zones is to define and set forth specific regulations for all properties within the described areas. These noise zones are set forth as overlay zoning districts in that they provide regulations and restrictions in addition to those set forth in the planned development or conventional zoning districts in which the property is located, as defined in this chapter. Except as otherwise provided in this section, no land, body of water or structure may be used or permitted to be used and no structure may be hereafter erected, constructed, moved, reconstructed or structurally altered or maintained in any of these airport noise zones that is designed, arranged or intended to be used or occupied for any purpose other than as defined in the following:

(1) *Airport Noise Zone A.*

a. *Location.* Airport Noise Zone A is the land within the SWFIA boundary as identified in Appendix C.

b. *Restrictions.* Noise Zone A is restricted to uses that are compatible with airports and air commerce, including but not limited to those necessary to provide services and convenience goods principally to airline passengers, and those uses generally associated with the airport operations, including aircraft and aircraft parts manufacturers, air freight terminals, aviation and airline schools, aircraft repair shops, aerial survey offices, aircraft sales, equipment and parts storage, aviation research and testing laboratories, airline catering services, governmental facilities and, other compatible non-aviation uses such as light industrial/warehouses, offices, hotels, and gas stations.

(2) *Airport Noise Zone B.*

a. *Location.* Airport Noise Zone B consists of that area of land located between Noise Zone A and the 2020 Composite 60 DNL contour line as determined in the adopted FAR Part 150 Study for SWFIA (2006) and identified in Appendix C.

b. *Restrictions.* This zone allows any use permitted by this chapter, provided that no residential living units, places of worship, libraries, schools, hospitals, correctional institutions or nursing homes are permitted. However, residential units, including mobile homes that are lawfully existing as of June 27, 2000 will be treated as legally permitted uses and not as nonconforming uses. Lawfully existing mobile or manufactured homes may be replaced with new mobile or manufactured homes or conventional single-family construction and existing conventional single-family homes may be replaced with new conventional homes so long as such replacement would be otherwise allowed by this Code. However, an existing conventional home may not be replaced with a new mobile or manufactured home. One conventional single-family home is permitted on each lot in a plat properly recorded before June 27, 2000 if such use would have been permitted on the lot prior to June 27, 2000. This zone requires formal notification in accord with section 34-1004.

(3) *Airport Noise Zone C.*

a. *Location.* Airport Noise Zone C consists of that area of land located between Noise Zone B and the 2020 Composite 55 DNL contour line as determined in the adopted FAR Part 150 Study for SWFIA (2006)

b. *Restrictions.* This zone allows any use permitted by this chapter. This zone requires formal notification in accord with section 34-1004.

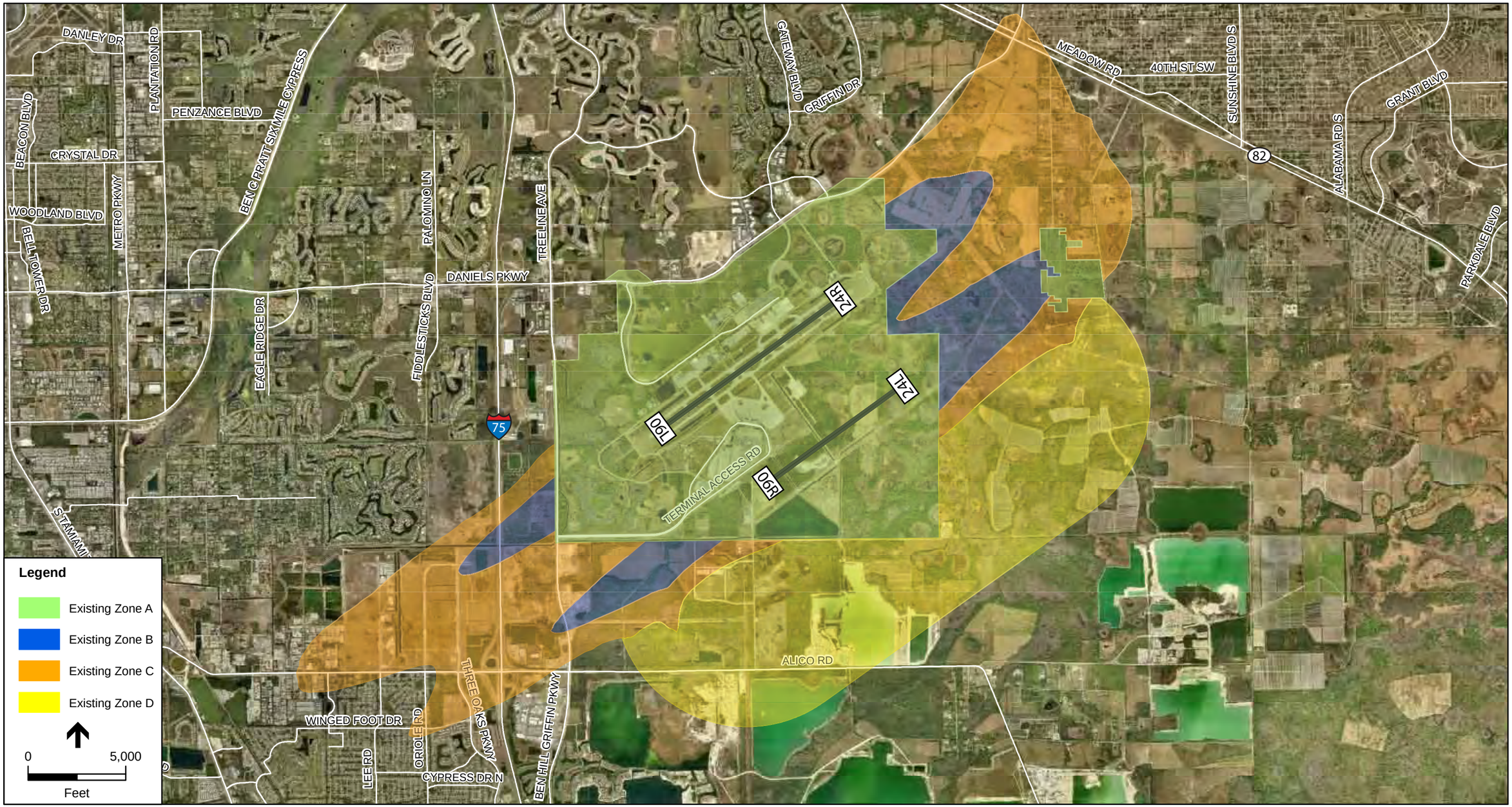
(4) *Airport Noise Zone D.*

a. *Location.* Airport Noise Zone D consists of that area of land located southeast of Airport Noise Zone C and represented the area designated for Flight Training associated with the planned south parallel runway. This zone comprises the area within a half mile of the expected centerline of the training pattern depicted in the adopted FAR Part 150 Study for SWFIA (2006) and identified in Appendix C

b. *Restrictions.* This zone allows any use permitted by this chapter. This zone requires formal notification in accord with section 34-1004.

c. *Noise zone notification.* Noise Zones B, C and D require formal notification that the property is within a particular Airport Noise Zone and may be subject to aircraft noise and overflights. Formal notification is provided by recording a Notice in the official county records that sets forth the legal description of the 2020 Composite DNL noise contours and the flight training overflight area as defined in the Federal Regulations Part 150 Noise Compatibility Study for the SWFIA (2006)."[1]

[1] http://www.lee-county.com/gov/dept/dcd/zoning/Pages/LDC.aspx



SOURCE: ESA Airports, 2012; INM 7.0b; Lee County GIS Department
NOTE: Zones are based on 2020 activity levels in the 2006 14 CFR Part 150 Study

Southwest Florida International Airport 14 CFR Part 150 Study, 210140

Figure 12.1
Existing Airport Noise Overlay Zones

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Overlay Zone Update

Currently, much of the property within the overlay zones has zoning and land use restrictions that seek to ensure land use compatibility through 2020. Since completion of the 2006 Part 150 Study, the 2020 Lee County Comprehensive Plan (Lee Plan) has been updated to reflect the land use conditions within the County expected in the year 2030. As part of this Study to be consistent with the Lee Plan's long term approach to land use planning, an update to the overlays was evaluated that reflects the increased number of operations projected in future year 2030 as well as the noise effects of anticipated changes in the individual types of aircraft in the fleet mix (some aircraft being relatively quiet, and some being relatively noisy).

Using the FAA's December 2010 Terminal Area Forecast (TAF), composite 2030 DNL contours were generated using INM 7.0b as discussed in **Appendix P**. **Figure 12.2** depicts the 2030 noise contour. As stated previously, the 2030 DNL contours increase when compared to the previous Study's 2020 DNL contours in size due to the increased amount of projected operations. The projected change in activity results in the overlay zones shown in **Figure 12.3**. It should be noted that the updated noise overlay zones include the four zones from the previous 2006 14 CFR Part 150 Study (A, B, C, D). **Figure 12.4** shows the differences between the existing and proposed Airport noise overlay zones.

The basis for the limits of the overlay zones recommended in this Study are similar to those currently in use in Lee County's Land Development Code in that they utilize noise exposure contours and a two runway system.

The geographical limits of the zones surrounding the Airport are not equal, indicating the fact that noise exposure is not equal on all sides of the Airport. This can be attributed to the amount and type of operations projected for each runway end at the Airport as discussed in Appendix P.

Recommendation: ***This Study recommends*** *that the Airport and Lee County update the current Airport noise overlay zones consistent with the goals and objectives of local government for long term land use compatibility with activities at RSW*

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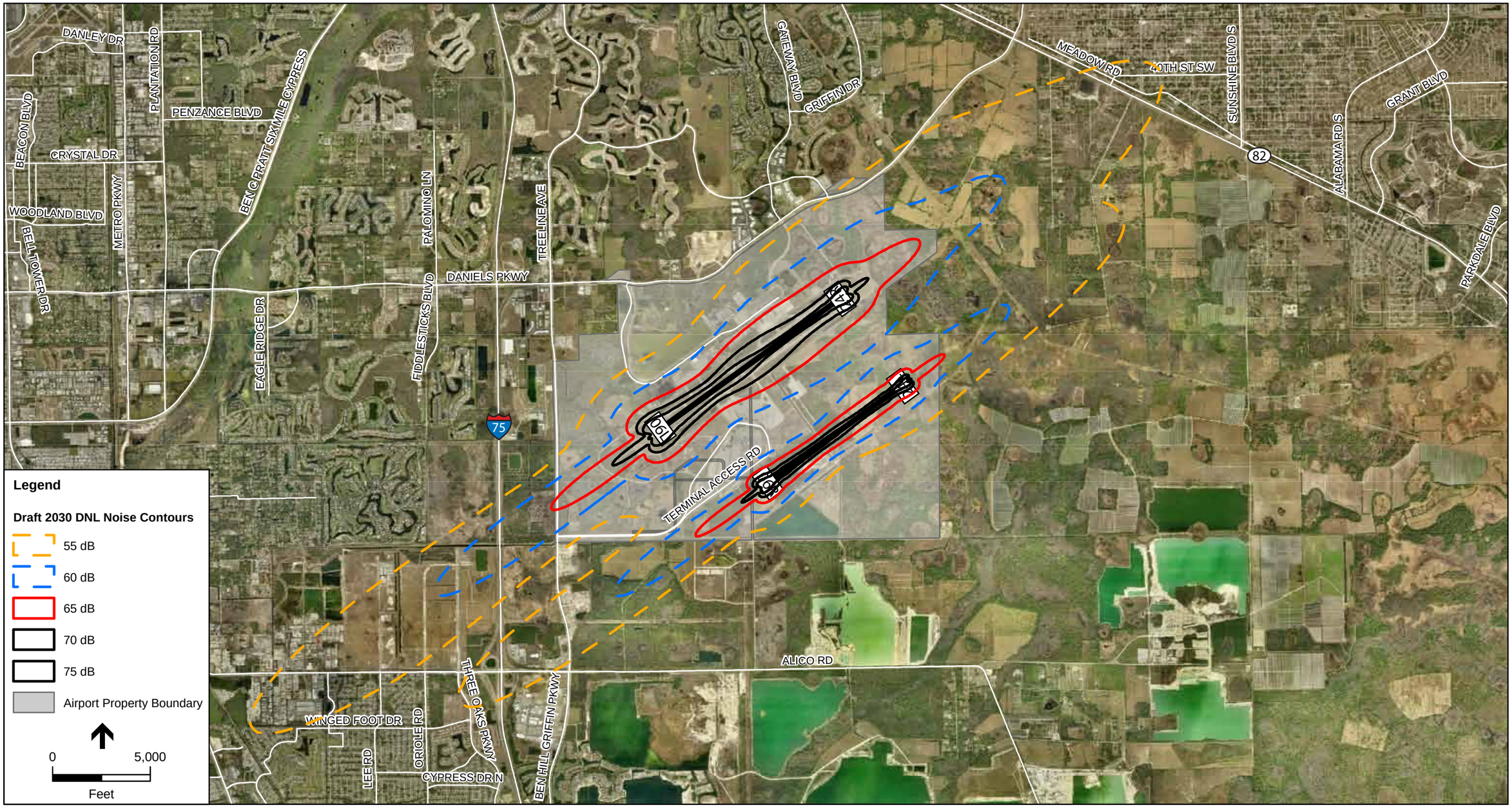

SOURCE: ESA Airports, 2011; INM 7.0c; Lee County GIS Department

Southwest Florida International Airport 14 CFR Part 150 Study, 210140

Figure 12.2
2030 DNL Noise Contours

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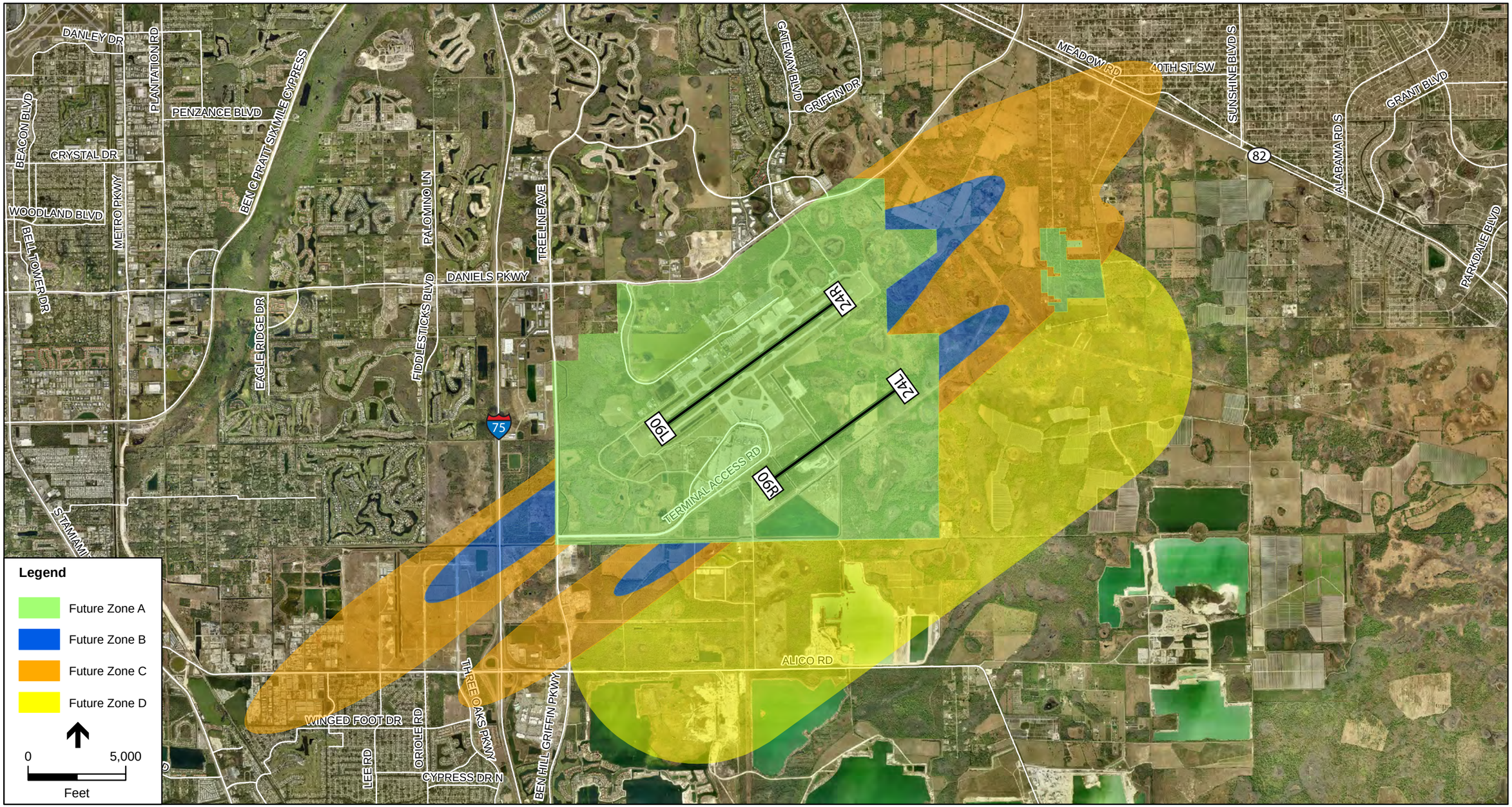

SOURCE: ESA Airports, 2012; INM 7.0b; Lee County GIS Department
Revised 3/2018 to reflect correct Zone D

Figure 12.3
Proposed (2030) Airport Noise Overlay Zones

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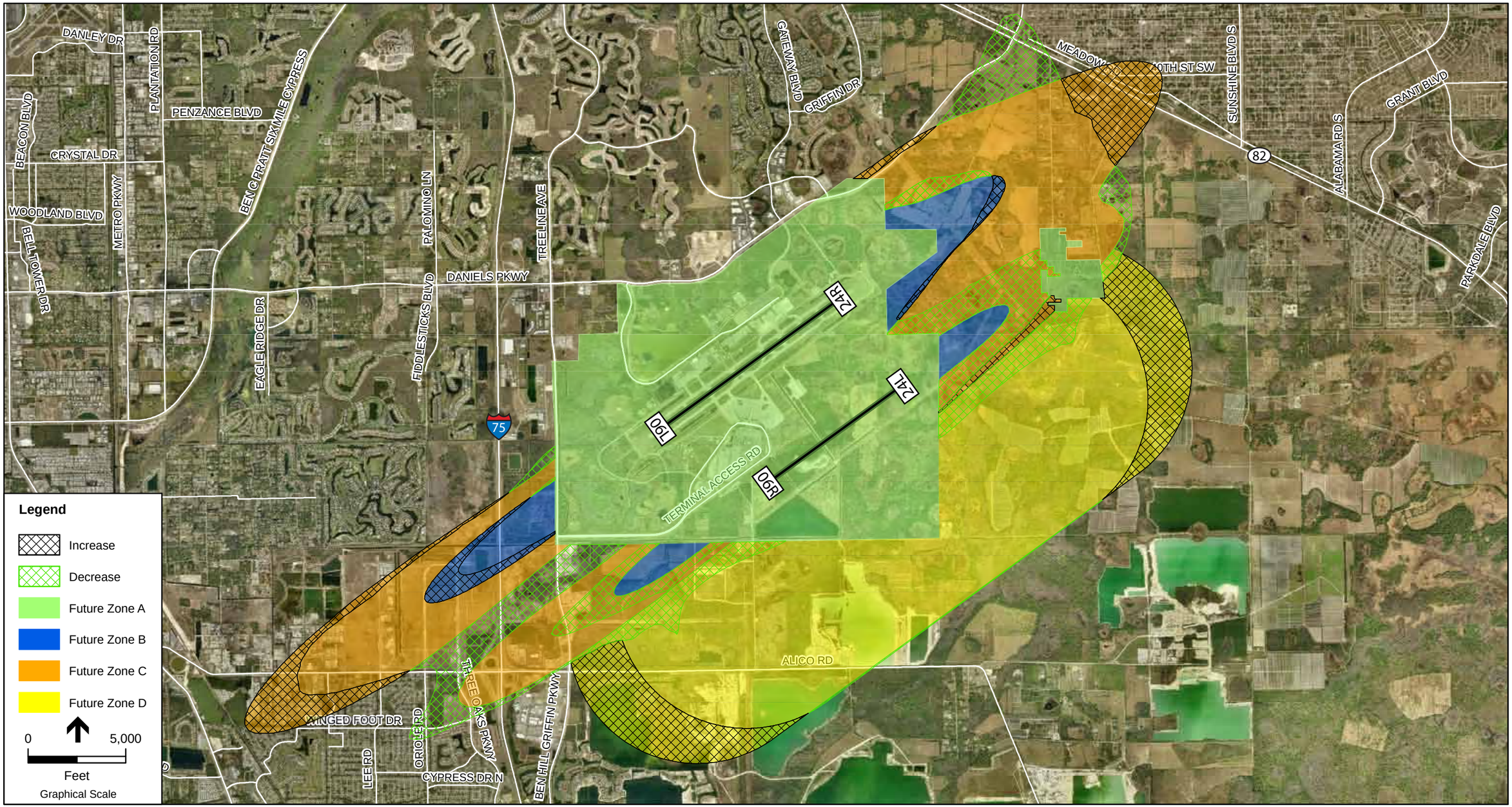


SOURCE: ESA Airports, 2012; INM 7.0b; Lee County GIS Department

Figure 12.4

Existing Airport Noise Overlay Zones Vs. Proposed (2030) Airport Noise Overlay Zones

CHAPTER 13
Noise Program Administrative Measures

A successful noise compatibility program requires dedication and effort on the part of the Lee County Port Authority (LCPA) staff to ensure the program elements are successfully implemented. Through previous 14 CFR Part 150 Studies, RSW has a noise management program that addresses citizen's noise concerns related to aircraft noise and, when possible, attempts to reduce the effects and exposure of aircraft noise. This section presents existing administrative measures that were approved by the FAA as part of the previous 2006 RSW 14 CFR Part 150 Study, as well as those administrative measures considered in this Study Update to ensure the continued successful implementation of the noise compatibility program (NCP) at RSW.

13.1 Existing Administrative Measures and Noise Program Management

13.1.1 Purchase and Install Flight Tracking Equipment

The 2006 RSW 14 CFR Part 150 Study recommended and was approved by the FAA to purchase and install a flight tracking system that allows for better monitoring and tracking of actual aircraft operational characteristics at RSW. The LCPA continues to work with the FAA in implementing the flight tracking system, which will assist the LCPA in the management of its NCP.

Flight track monitoring systems obtain information on local aircraft operations from either the FAA radar used by Air Traffic Control or from a passive radar system that collects data from the aircraft's transponder. The information contained in these systems allows the user to see the location of the aircraft, the altitude of the aircraft, the type of aircraft, the operator (airline or tail number), and the speed of the aircraft. This information in turn can assist the user in answering questions from the public regarding their aircraft noise concerns. It is important to note that flight track monitoring systems do not have detailed information on all aircraft. The flight track monitoring systems will see these aircraft and be able to identify their location and altitude, but may not be able to identify the type of aircraft or operator.

Recommendation: This Study recommends *the LCPA continues to work with the FAA in implementing a flight tracking system at RSW.*

13.2 Proposed Administrative Measures and Noise Program Management

13.2.1 Noise Compatibility Program Management

The Lee County Port Authority (LCPA) is the owner/operator of RSW and has the current responsibility for working with the operators at the Airport to establish and implement the NCP at RSW. As needed, the LCPA may assign staff to assist in this effort and should implement and manage the recommendations from this Study Update because of their familiarity with the development and implementation of the existing NCP.

Recommendation: *This Study recommends the LCPA manage the implementation of the NCP from this Study Update.*

13.2.2 Update Noise Program as Mandated by Lee Plan

The FAA, through 14 CFR Part 150 regulations, requires airport sponsors to prepare and submit revised noise exposure maps (NEM) if changes in operations of the Airport would result in a substantial amount of new incompatible land uses beyond what has been represented in the most recent approved NEMs. The FAA defines a substantial new incompatible land use as a noise sensitive area that would experience a 1.5 dB or greater increase in DNL for noise sensitive land uses exposed to 65 dB DNL and above or when any land use that was formerly considered compatible would become an incompatible land use with the increase in noise levels.

To understand the noise environment, the LCPA staff should continue to routinely examine the number of operations as well as the operational characteristics, such as runway use and fleet mix, to determine if any major changes in operations at the Airport have resulted in increased aircraft noise exposure to noise sensitive land uses. Major changes in operations would constitute an increase or decrease by more than 15 percent from what was modeled in the FAA approved NEMs, or a significant change in the aircraft fleet mix from what was modeled in the NEMs. A major change in operational characteristics of RSW would involve items such as changes in runway use or a significant shift in the number of operations from daytime to nighttime hours. A routine analysis of these characteristics should be performed on an annual basis by LCPA staff to determine if the NEMs and the associated NCP are still representative of, and responsive to, the noise environs around the Airport.

If no updates appear to be needed based on the annual review, the noise program should be updated as required by the Lee County Comprehensive Plan to remain current and take into account improvements in Airport and aircraft technological advancements, and improvements in technology used for aircraft noise modeling.

Recommendation: ***This Study recommends*** *LCPA staff continue to routinely examine operating characteristics at RSW to determine if significant changes have occurred that would require an update to the NEMs. If a significant change has occurred, then the NEMs should be updated as appropriate consistent with the requirement of the FAA and by the Lee County Port Authority..*

13.2.3 Noise Forums with RSW Air Traffic Control

The LCPA should continue to work with the RSW air traffic controllers (ATC) in an effort to highlight areas where opportunities might exist, in the operation of the Airport, to address community concerns. Quarterly or yearly meetings should be held between the two parties so that the latest issues impacting ATC and the LCPA can be addressed and to determine if any mitigating efforts can be established. The idea is not for the LCPA to tell ATC how they should do their job, but to open up a direct line of communication so that beneficial impacts to the airport can be achieved by all Airport stakeholders.

Recommendation: ***This Study recommends*** *the LCPA meet with RSW ATC on a quarterly or yearly basis to address concerns raised by both parties and to explore potential solutions that can be beneficial for all Airport stakeholders.*

13.2.4 Develop a Jeppesen Insert on Noise Abatement Programs at RSW

Pilot education is one of the strongest tools for addressing noise concerns at an airport. Since operations at RSW are mostly conducted by air carrier operations, educating pilots on the airport's specific procedures or noise concerns can be a challenge since the same pilots may not regularly fly in and out of RSW.

This measure involves development of a Jeppesen type insert that contains all noise abatement information, including graphics, for the Airport. Jeppesen is the predominant support company for air carrier approach plates and the half page specially formatted inserts allow integration into the pilot flight manuals. This allows pilots to be aware of noise sensitive areas and noise consideration at an airport that might not have yet been integrated into the specific operational notices (green sheets or dash 7 pages) for a specific carrier. It will also assist in communicating these measures to non-commercial pilots through distribution by RSW's fixed based operators (FBOs).

Recommendation: ***This Study recommends*** *that the Airport voluntarily work with RSW ATCT, air carrier station managers, and the FAA to publish Jeppesen Type pilot handouts notifying pilots of the noise abatement measures in place at RSW for better awareness and compliance of preferred measures.*

13.2.5 Install Runway End and Noise Abatement Reminder Signs

While locally based pilots may be familiar with the noise abatement or noise measures implemented at an airport, RSW is predominantly an air carrier airport with very little locally based aircraft. To continue to educate and raise awareness of noise concerns for unfamiliar pilots, airports will often use runway end reminder signs. Runway end and noise abatement reminder signs are typically placed on the airfield so they are visible to pilots just prior to takeoff. The signs can help reduce noise exposure by increasing pilot awareness of implemented noise measures. The signs can also identify locations of noise sensitive areas by directing pilots to avoid certain turns or fly certain instrument procedures aimed at avoiding noise sensitive sites.

There are currently no reminder signs at RSW. Because the majority of operations are air carrier and there are some specific areas with higher residential concentrations that could benefit (the Forest, Fiddlesticks, Gateway, etc.), the addition of signs may be beneficial to emphasize the importance of following these measures. It should be noted that while runway end reminder signs can raise overall awareness of noise concerns, they are only primarily useful to departing aircraft.

Recommendation: ***This Study recommends RSW*** *install noise abatement reminder signs at the end of each runway in an effort to create pilot awareness of the noise sensitivity of the communities in proximity to RSW.*

CHAPTER 14
Noise Compatibility Program Implementation and Management

The overall objective of the Noise Compatibility Program (NCP) at RSW is to achieve and maintain aircraft noise/off-Airport land use compatibility through the continued efforts of noise abatement procedures and implementation of noise mitigation measures. Through the analysis of existing and future noise conditions, the direct input from a wide variety of interests including citizens, various air traffic control and procedures specialists from RSW and Miami Air Route Traffic Control Center, and the Airport, a series of recommended operational, land use and administrative measures were identified.

The recommended NCP for RSW consists of both existing measures and new measures. Existing measures consist of those that have been approved and implemented through previous 14 CFR Part 150 Studies and will be continued as part of the baseline conditions at the airport. New measures, where FAA approval is requested, will complement the existing measures to continue progress towards addressing noise concerns in the area of the airport. The roles of each primary stakeholder as well as the existing and recommended measures, and associated benefits, costs, and timing of implementation are discussed in the following sections.

14.1 Overall Roles and Responsibilities

The Southwest Florida International Airport Management (LCPA)

The LCPA, as owners and operators of RSW, are responsible for the development of information to support the noise compatibility planning effort. This support includes the preparation of master plans, noise compatibility studies, this 14 CFR Part 150 Study, community involvement measures, coordination with Airport users related to operational procedures, and the interaction with local planners and elected officials related to land use compatibility. In addition, Airport staff is responsible for assisting with the implementation of the approved NCP measures and applying for funds (grants) from the Federal Aviation Administration (FAA) associated with eligible items included in the NCP.

Federal Aviation Administration

The FAA Airports Division is responsible for developing guidance for preparing noise studies, providing technical support, approving those 14 CFR Part 150 Study Update recommendations that meet its guidance, establishing eligibility requirements for the use of noise related funding, and distributing Federal funds in support of approved NCP noise-related recommendations. The

FAA ATC is responsible for the movement of aircraft both on the airfield and in the air and has the sole authority to implement noise abatement operational procedures for aircraft in flight.

Local Governments and Elected Officials

Local land use planners and elected officials are responsible for local land use planning. These entities and individuals are responsible for the establishment and implementation of zoning and land use regulations and the application of these actions by taking into consideration the compatibility of land uses in aircraft noise exposure areas.

Aircraft Operators

Pilots of all aircraft types are responsible for safely operating their aircraft, but when able to do so, are asked to operate their aircraft according to the noise abatement procedures established at an airport.

Residents and Prospective Residents

The residents in areas surrounding an airport should provide input regarding their concerns associated with aircraft noise exposure especially when non-standard flight conditions occur that adversely affect them. This is often accomplished through the noise hotline or other means of contact. Residents should also strive to understand the actions that can and cannot legally be taken to minimize the effect of aircraft noise. Future residents should acquaint themselves with noise and flight corridor information prior to buying a home.

14.2 Existing Noise Abatement Procedures and Measures to Continue

14.2.1 Existing Aircraft and Airport Operations Noise Abatement and Mitigation Measures carried forward from Previous 2006 RSW 14 CFR Part Study

The following measures are part of the currently approved NCP at RSW and are reflected in baseline noise conditions (2012 NEM). These measures will be continued into the future. The disposition of each is highlighted in Chapter 10.

A. Preferential Runway Use: This existing measure calls for Runway 6 to be the preferred runway for noise mitigation when conditions permit (i.e. favorable winds). See Section 11.2 (1).

B. Visual Approaches: Aircraft on a right downwind leg to Runway 6 or left downwind leg to Runway 24 will normally be kept above 5,000 Ft. mean sea level (MSL) until abeam the Airport. Aircraft arriving to Runway 6 and intercepting the extended centerline over the Gulf of Mexico west of Ft. Myers Beach should remain above 3,000 Ft. MSL, if able, to reduce noise over Ft. Myers Beach. See Section 11.2 (2).

C. "Keep'em High": The Airport participates in the Keep'em High program and turbojet aircraft are encouraged to keep as high as possible when arriving to the airport. See Section 11.2 (3).

D. MAPUL-1 Standard Instrument Departure (SID): Properly equipped turbojet aircraft departing Runway 24 are encouraged to use the MAPUL-1 SID that is currently designated the CSHEL FOUR Departure Procedure (DP). See Section 11.2 (4).

E. ALICO THREE DP: Turbojet aircraft that are departing RSW on Runway 24 and which are not properly equipped to follow the MAPUL-1 SID (CSHEL FOUR DP) should fly the ALICO THREE DP. See Section 11.2 (5).

F. AOPA Recommended Noise Abatement Procedures: Promotes use of the Aircraft Owners and Pilots Association's best practices for flying quietly with piston powered aircraft. See Section 11.2 (6).

G. NBAA Recommended Noise Abatement Procedures: Promotes use of the National Business Aviation Association's approach and landing procedures as well as standard departure procedures for turbojet aircraft. See Section 11.2 (7).

H. Distant Noise Abatement Departure Procedure: Commercial aircraft should follow the Distant noise Abatement Departure Procedure Profile as defined in Advisory Circular AC91-53A. See Section 11.2 (8).

I. Run-up Procedures: No engine maintenance run-ups between the times of 11:00 PM and 6:00 AM local time without prior approval from the LCPA's Executive Director or his/her representative. See Section 11.2 (9).

J. Runway 6 Departure Procedures: Runway 6 departures will be held on tower frequency until crossing the departure end of the runway and will be turned no further west than 350 degrees until they are five miles from the Airport. See Section 11.2 (10).

K. Support Implementing/Funding RNAV Procedures (A): Continue to monitor the potential for this type of procedure and further evaluate it when the technology is more readily available. See Section 11.2 (11).

L. Support Implementing/Funding RNAV Procedures (B): The FAA should continue implementation of the MAPUL-1 RNAV procedure, and other actions or combinations of actions which would have a beneficial noise control or abatement impact on the public. See Section 11.2 (12).

14.2.2 Existing Off-Airport Land Use Compatibility Planning Measures

A. Update Noise Overlay Zones: The previous RSW 14 CFR Part 150 Study developed overlay zones approved based on the RSW 2004 Master Plan for operations project in 2020. See Section 12.4.1.

14.2.3 Existing Noise Program Administrative Measures

A. Purchase and Install Flight Tracking System: The FAA approved the purchase of a flight tracking system to assist the LCPA in managing the previous RSW 14 CFR Part 150 Study Noise Compatibility Program and monitor the compliance with noise compatibility program measures. See Section 13.1.1.

14.3 Proposed New Noise Abatement Procedures and Measures

14.3.1 Proposed New Aircraft and Airport Operations Noise Abatement and Mitigation Measures

The following are the new recommended measures for which the LCPA is seeking FAA approval:

1. Promote Use of RNAV Visual Optimized Profile Descent (OPD) to Runway 06: This Study recommends that the Airport, the FAA, and various stakeholders including air carriers continue to promote the use of the RNAV Visual OPD procedures at RSW highlighting the benefits of fuel efficiency and noise reduction to surrounding communities. See Section 11.3.1.

2. Initiate RNAV Optimized Profile Descent Further From the Airport: This Study recommends that the Airport, in working with the FAA, continue to explore the feasibility of implementing new RNAV OPD arrival technology that will allow aircraft to initiate continuous descent arrivals further from the airport, thereby remaining higher over noise sensitive areas including the Estero Corridor. See Section 11.3.2.

3. Raise the Downwind to Runway 6: This Study recommends that the Airport, working with RSW ATCT, determine if raising the altitude of the south downwind leg is feasible from a safety and efficiency standpoint. This Study also recommends that the Airport continue to work with the FAA to develop arrival procedures that will take advantage of optimized profile descents or continuous descent approaches so that aircraft minimize leveling off at low altitude over residential areas during the arrival. See Section 11.3.3.

4. Shift Downwind Flight Track to the South: This Study recommends that with the completion of the new south parallel runway at RSW (Runway 06R-24L), the south downwind leg be shifted approximately one mile further south because of both operational need and a reduction in population impacts from aircraft overflights. See Section 11.3.4.

5. Publish Charted Visual Approach to Runway 06 from the North and South: This Study recommends that the Airport, working with the FAA, publish a charted visual approach procedure for Runway 06 to maximize routing of aircraft over compatible land uses when

conditions permit; and also allow for aircraft that are not capable of flying the RNAV Visual OPD to follow a similar track. See Section 11.3.5.

6. Keep Aircraft at 3,000 Ft. Over Ft. Myers Beach: This Study recommends the Airport, working with RSW ATCT, explore the feasibility of raising the altitude of aircraft arriving over Fort Myers Beach to Runway 06 by increasing the ILS intercept altitude for the ILS to Runway 06, creating a step down procedure, or some combination of both. See Section 11.3.6.

7. Delay Point at which Aircraft Lower their Landing Gear: It is recommended that the Airport work with air carrier operators to make sure they are aware of noise sensitive areas around the airport to reduce impacts associated with early dropping of landing gear on approach. See Section 11.3.7.

8. Increase Altitude of Early Morning Arrivals: This Study recommends the Airport work with the FAA ATCT and the operators to keep aircraft higher when arriving to the airport during early morning hours. See Section 11.3.8.

9. Change Runway 24 to Preferred Runway From 10:00 PM – 6:00 AM: This Study recommends that the Airport, working with RSW ATCT and air carriers who routinely operate at RSW, establish Runway 24 as the voluntary preferential runway from 10:00 PM to 6:00 AM local time when Airport and weather conditions permit. See Section 11.3.9.

10. Modify CSHEL FOUR Departure Procedure: This Study recommends the Airport work with the RSW ATCT to explore the advantages of having aircraft climb out at a speed of 220 knots, and once passing the MAPUL Intersection and upon leaving 3,000 ft. MSL, to avoid conflicts at FMY, make their right turns direct to CSHEL. This would keep aircraft on their current course south of the Fiddlesticks community, but allow the better performing aircraft to turn before reaching The Forest community, therefore not increasing overflights over the Fiddlesticks community, and reducing overflights over The Forest, as shown in Figure 11.10. This procedure would also reduce aircraft flight path distance and possibly reduce fuel burn. See Section 11.3.10.

14.3.2 Proposed New Off-Airport Land Use Compatibility Planning Measures

1. Update Noise Overlay Zones: This Study recommends that the Airport and Lee County update the current Airport noise overlay zones consistent with the goals and objectives of local government for long term land use compatibility with activities at RSW and consistent with the composite 2030 DNL Contours. See Section 12.4.1.

14.3.3 Proposed New Noise Program Administration Measures

1. Noise Compatibility Program Management: This Study recommends the LCPA manage the implementation of the NCP from this Study Update. See Section 13.2.1.

2. Update Noise Program as Mandated by Lee Plan: This Study recommends LCPA staff continue to routinely examine operating characteristics at RSW to determine if significant changes have occurred that would require an update to the NEMs. If a significant change has occurred, then the NEMs should be updated. The NEMs should be updated as required by the FAA, or as determined by the Lee County Port Authority. See Section 13.2.2.

3. Noise Forums with RSW Air Traffic Controller: This Study recommends the LCPA meet with RSW ATC on a quarterly or yearly basis to address concerns raised by both parties and to explore potential solutions that can be beneficial for all Airport stakeholders. See Section 13.2.3.

4. Develop a Jeppesen Insert on Noise Abatement Program at RSW: This Study recommends that the Airport voluntarily work with RSW ATCT, air carrier station managers, and the FAA to publish Jeppesen Type pilot handouts notifying pilots of the noise abatement measures in place at RSW for better awareness and compliance of preferred measures. See Section 13.2.4.

5. Install Runway End and Noise Abatement Reminder Signs: This Study recommends RSW install noise abatement reminder signs at the end of each runway in an effort to create pilot awareness of the noise sensitivity of the communities in proximity to RSW. See Section 13.2.5.

14.4 Benefits

The Noise Compatibility Program (NCP) is designed to provide noise reduction benefits to the overall communities in proximity to RSW. Implementation of the existing and new NCP measures can achieve noise reduction benefits and increased land use compatibility through the measures listed in Sections 14.2 and 14.3.

Aircraft Operational Measures Proposed for the Benefit of Existing Residents

A primary goal of this NCP is to decrease the non-compatible land uses impacted as a result of the airport's operation. Additionally, the LCPA seeks to limit the amount of noise exposure to the communities that receive overflights from aircraft operating at RSW. Several measures are recommended to help achieve these goals. Existing residents will benefit from the implementation of operational and administrative measures, while future residents will benefit from the preventative land use measure. The aircraft operations measures consist of the following:

- Keeping the existing voluntary procedures as approved by the FAA in the previous 2006 RSW 14 CFR Part 150 Study;

- Raising altitudes of arrivals and approaches that will provide noise reduction benefits for communities around RSW;

- Establishing a preferential runway use for operations occurring after 10:00 PM to use Runway 24 that will reduce the amount of arrivals over communities and not adversely affect departure noise;

- Revamping the CSHEL FOUR Departure Procedure so that communities under the departure do not receive a "railroad effect" of aircraft when Runway 24 is in use;

- Creating new arrival and approach procedures that keep aircraft in a continuous descent and route aircraft over areas that are more compatible for repetitive aircraft overflights.

Land Use Measures Proposed for the Benefit of Future Residents

Another primary goal of the recommended NCP was to update the current noise overlay zones that support noise compatible land use around the Airport. While no corrective land use programs are recommended for existing residents because there are no incompatible land uses within the existing (2012) and future (2017) 65 dB DNL noise contour, future residents will benefit from the preventative land use program.

- This measure will benefit future residents by restricting long term land uses that are in proximity to RSW to only those considered compatible with aircraft operations and their associated noise levels. It will also ensure that those further from the airport are aware of the potential for aircraft overflights and noise exposure.

Noise Program Administrative Measures Recommended to Benefit Continued Communication with Communities and Airport Users

Communication with local communities and airport users regarding the measures being recommended is critical to the success of any NCP. These measures include:

- Keeping lines of communication open through the noise comment phone line and email;

- Updating the Noise Exposure Maps if a significant change at the Airport occurs and update the Noise Compatibility Program every five years as mandated by the Airport Board;

- Opening the lines of communication to air traffic controllers, pilots, and airline station managers of the ongoing measures and procedures aimed at benefiting all stakeholders at the Airport;

14.5 Estimated NCP Costs and Timing for Implementation

Table 14.1 provides the estimated costs for the implementation of the NCP. The cost of some measures may be quantifiable and, for others, both the costs and the benefits are more qualitative. For those cases where the cost is quantifiable, the cost estimate represents a preliminary indication of the noise-related funding that may be requested from the FAA following the approval of the NCP.

The preliminary timing for implementation of each of the measures of the NCP is presented in **Table 14.2**. The timing presented in the table assumes that the NCP would be approved by the end of 2013. Many of the NCP measures are already the existing responsibilities of the Lee County Port Authority (LCPA), and can continue without waiting for NCP approval.

TABLE 14.1
ESTIMATED COST OF NOISE COMPATIBILITY PROGRAM
SOUTHWEST FLORIDA INTERNATIONAL AIRPORT
14 CFR PART 150 STUDY

	NOISE COMPATIBILITY PROGRAM MEASURE	ESTIMATED COST	IMPLEMENTING AUTHORITY
1.	Promote Use of RNAV Visual Optimized Profile Descent to Runway 06	Cost of implementation to be determined by vested parties including the FAA and RSW ATCT to include, but not limited to: planning, designing, training and publishing.	FAA/ RSW ATC
2.	Initiate RNAV Optimized Profile Descent Further From the Airport	Cost of implementation to be determined by vested parties including the FAA and RSW ATCT to include, but not limited to: planning, designing, training and publishing.	FAA / RSW ATC
3.	Raise the Downwind Altitude to Runway 06	Cost of implementation primarily consists of FAA and RSW ATCT staff time for planning, designing, training and publishing associated with the new measure.	FAA/ RSW ATC
4.	Shift Downwind Flight Track to the South	Cost of implementation to be determined by vested parties including the LCPA, FAA and RSW ATCT to include, but not limited to: planning, designing, training and publishing.	FAA/ RSW ATCT/ Airport Management
5.	Publish Charted Visual Approach to Runway 6 from the North and South	Cost of implementation to be determined by vested parties including the FAA and RSW ATCT to include, but not limited to: planning, designing, training and publishing.	FAA / RSW ATC
6.	Keep Aircraft at 3,000 Ft. Over Ft. Myers Beach	Cost of implementation to be determined by vested parties including the FAA and RSW ATCT to include, but not limited to: planning, designing, training and publishing.	FAA/ RSW ATC
7.	Delay Point at which Aircraft Lower their Landing Gear	Cost of implementation primarily consists of developing and distributing information through pamphlets, signage, City website, etc, regarding the voluntary procedures to the users of RSW as well at RSW ATC coordination.	Airport Management
8.	Increase Altitude for Early Morning Arrivals	Cost of implementation primarily consists of developing and distributing information through pamphlets, signage, City website, etc, regarding the voluntary procedures to the users of RSW as well at RSW ATC coordination.	Airport Management/ RSW ATCT/ FAA
9.	Change Runway 24 to Preferred Runway From 10:00 PM – 6:00 AM	Cost of implementation primarily consists of developing and distributing information through pamphlets, signage, City website, etc, regarding the voluntary procedures to the users of RSW as well at RSW ATC coordination.	RSW ATCT/ Airport Management
10.	Modify CSHEL FOUR Departure Procedure	Cost of implementation to be determined by vested parties including the FAA and RSW ATCT to include, but not limited to: planning, designing, training and publishing.	FAA / RSW ATC
11.	Update Noise Overlay Zones	Cost of Implementation primarily consists of developing and distributing information of the Updated Noise Overlay Zones and all hearings that need to take place for their implementation.	Airport Management/ Lee County

12.	Noise Compatibility Program Management	Managing the Noise Compatibility Program will have a negligible cost to the LCPA. These tasks can be incorporated into existing work plans.	Airport Management
13.	Update Noise Program as Mandated by Lee Plan	Monitoring the number of operations and operational characteristics at the Airport will have a negligible cost to the LCPA. These tasks can be incorporated into existing work plans.	Airport Management
14.	Noise Forums with RSW Air Traffic Controllers	Having quarterly or monthly meetings with all airport stake holders will have negligible cost except for the cost of a room and presentation materials, as well as stakeholder's time.	Airport Management/ RSW ATCT
15.	Develop a Jeppesen Insert on Nose Abatement Program at RSW	Implementing a Jeppesen insert will have a negligible cost to the LCPA. The cost will come from meetings with various air carrier station managers and the FAA)	Airport Management
16.	Install Runway End Reminder Signs	Installing runway end reminder signs will cost approximately $25,000, subject to funding availability.	Airport Management

TABLE 14.2
PRELIMINARY TIMING FOR IMPLEMENTATION OF THE NOISE COMPATIBILITY PROGRAM
SOUTHWEST FLORIDA INTERNATOINAL AIRPORT
14 CFR PART 150 STUDY

	NOISE COMPATIBILITY PROGRAM MEASURE	ESTIMATED TIME FOR IMPLEMENTATION
1.	Promote Use of RNAV Visual Optimized Profile Descent to Runway 06	Ongoing process. Implementation time will be a result of several factors including, but not limited to: planning, designing, training, and publishing.
2.	Initiate RNAV Optimized Profile Descent Further From the Airport	Implementation time will be a result of several factors including, but not limited to: planning, designing, training, and publishing.
3.	Raise the Downwind Altitude to Runway 6	Implementation time will be a result of several factors including, but not limited to: planning, designing, training, and publishing.
4.	Shift Downwind Flight Track to the South	It is anticipated that the implementation will be initiated with the opening of the proposed south parallel runway at RSW.
5.	Publish Charted Visual Approach to Runway 6 from the North and South	Ongoing Process. Implementation time will be a result of several factors including, but not limited to: planning, designing, training, and publishing.
6.	Keep Aircraft at 3,000 Ft. Over Ft. Myers Beach	Ongoing process. Implementation time will be a result of several factors including, but not limited to: planning, designing, training, and publishing.
7.	Delay Point at which Aircraft Lower their Landing Gear	It is anticipated that implementation will be initiated within 1 year of approval.
8.	Increase Altitude for Early Morning Arrivals	Implementation time will be a result of several factors including, but not limited to: planning, designing, training, and publishing.
9.	Change Runway 24 to Preferred Runway From 10:00 PM – 6:00 AM	It is anticipated that implementation will be initiated within 1 year of approval.
10.	Modify CSHEL FOUR Departure Procedure	It is anticipated that implementation would be initiated within 1 year of approval
11.	Update Noise Overlay Zones	Initiate within 1 year of approval.
12.	Noise Compatibility Program Management	Ongoing process.

13.	Update Noise Program as Mandated by Lee Plan	5 years or when an operational change warrants.
14.	Noise Forums with RSW Air Traffic Controllers	It is anticipated that implementation will be initiated within 1 year of approval.
15.	Develop a Jeppesen Insert on Nose Abatement Program at RSW	Implementation within 1 year of approval subject to funding availability
16.	Install Runway End Reminder Signs	Implementation within 2 years of approval, subject to funding available.

14.6 Review and Updates

The implementation of the operational measures proposed in this 14 CFR Part 150 Study Update combined with the noise-related land use controls around the Airport reduce the potential for future incompatible development.

To ensure effectiveness of the program, all FAA approved measures that make up the NCP should be reviewed periodically to make sure they are all implemented. This means that the existing noise abatement measures continue to be used, and that the new measures approved by the FAA through this Study Update are developed and implemented by the responsible parties.

A 14 CFR Part 150 Study revision should occur when it is likely a change has taken place at the airport that will cause a significant increase or decrease in the 65 DNL noise contour of 1.5 dB or greater over non-compatible land uses. Usually the reason for a NEM and NCP update is to ensure that the assumptions and data used in the INM to generate the existing and future condition NEM's remain valid (particularly the operational activity) and to document the success of the implemented NCP measures. An update would be appropriate for example, when RSW completes a planning study and new aviation forecasts are prepared and approved by the FAA that differ significantly from the actual and forecast operations that were used in this Study Update, or the number of and types of aircraft operations at RSW change significantly.

APPENDIX A

Aviation Acronyms

AVIATION ACRONYMS

AC - Advisory Circular
ADF - Automatic Direction Finder
ADAP - Airport Development Aid Program
AFD - Airport Facility Directory
AFL - Above Field Level
AGL - Airport Ground Level
ALP - Airport Layout Plan
AOA - Airport Operations Area
ARC - Airport Reference Code
ARFF - Aircraft rescue and Fire Fighting Facilities
ARTCC - Air Route Traffic Control Center
ARTS - Automated Radar Terminal System
ASOS - Automated Surface Observation System
ATIS - Automated Terminal Information Service
ATCT - Air Traffic Control Tower
DB - Decibel
DBA - A-weighted decibel
DNL - Day Night Sound Level
ERG - Effective Runway Gradient
EPA - Environmental Protection Agency
EPNL - Effective Perceived Noise Level
FAA - Federal Aviation Administration
FAF - Final Approach Fix
FAR - Federal Aviation Regulation
FBO - Fixed Base Operator
FSS - Flight Service Station
GA - General Aviation
IAF - Initial Approach Fix
IFR - Instrument Flight Rules
ILS - Instrument Landing System
IM - Inner Marker
IMC - Instrument Meteorological Conditions
INM - Integrated Noise Model
Leq - Equivalent Noise Level
Lmax - Maximum Sound Level
LOA - Letter of Agreement
MOA - Military Operating Area
MSL - Mean Sea Level
NAVAIDS- Navigational Aids
NCP - Noise Compatibility Program
NDB - Non-Directional Beacon
NEM - Noise Exposure Map
NLR - Noise Level Reduction
NOTAM- Notice to Airmen
NAS - National Airspace System
NPIAS- National Plan of Integrated Airport Systems
OAG - Official Airline Guide

OM - Outer Marker
PAPI - Precision Approach Path Indicator
RPZ - Runway Protection Zone
RSA - Runway Safety Area
RWY - Runway
SEL - Sound Exposure Level
TAC - Technical Advisory Committee
TACAN- Tactical Air Navigation
TAF - Terminal Area Forecasts
TRACON- Terminal Radar Approach Control Facility
TW - Taxiway
VFR - Visual Flight Rules
VHF - Very High Frequency
VMC - Visual Meteorological Conditions
VOR - VHF Omni Directional Radar Beacon
VORDME- VHF Omni Directional Radar Beacon with Distance Measuring Equipment
VORTAC- VHF Omni Directional Range with Tactical Aircraft Approach & Navigation

APPENDIX B

Aviation Glossary

AVIATION GLOSSARY

A-Weighted Sound (DBA): A measurement representing a sound generally as the human ear hears it by filtering out as much as 20 to 40 decibels of sound below 100 hertz. Used for aircraft noise evaluations.

Airman's Information Manual: A publication containing basic flight information and ATC procedures designed primarily as a pilot's information and instructional manual for use in the Nation Air Space.

Air Route Traffic Control Center (ARTCC): An FAA facility established to provide air traffic control service to aircraft operating on an IFR flight plan within controlled airspace during the en route portion of a flight.

Air Traffic: Aircraft operating in the air or on an airport surface, exclusive of loading ramps and parking areas.

Air Traffic Control: Control of the airspace by an appropriate authority to promote the safe, orderly and expeditious movement of terminal air traffic.

Aircraft Operation: An aircraft arrival or departure from an airport with FAA airport traffic control service. There are two types of operations: local and itinerant.

Airport: Any public use airport, including heliports, as defined by the Aviation Safety and Noise Abatement Act of 1979 (ASNA), including: (a) Any airport which is used or to be used for public purposes, under the control of a public agency, the landing area of which is publicly owned; (b) any privately owned reliever airport; and (c) any privately owned airport which is determined by the Secretary to enplane annually 2,500 or more passengers and receive scheduled passenger service of aircraft, which is used or to be used for public purposes.

Airport Master Plan: A planning document, including appropriate documents and drawings, that describes the development of a specific airport from a physical, economical, social, environmental and political jurisdictional perspective. The airport layout plan drawing is part of the Master Plan.

Airport Noise Compatibility Program: A program including the measures proposed or taken by the airport owner to reduce existing incompatible land uses and to prevent the introduction of additional incompatible land uses within the area.

Airport Owner: Any person or authority having the operational control of an airport as defined in the ASNA Act.

Airport Noise and Capacity Act of 1990: This act required the establishment of a National Noise Policy and a requirement to eliminate Stage 2 aircraft weighing 75,000 pounds or greater operating in the contiguous United States by the year 2000.

Airport Sponsor: A public agency or tax-supported organization such as an airport authority, that is authorized to own and operate the airport, to obtain property interests, to obtain funds, and to legally, financially and otherwise able to meet all applicable requirements of current laws and regulations.

Air Traffic Control Tower (ATCT): The air traffic control facility located on an airport that is responsible for providing air traffic control services to airborne aircraft near the airport and to aircraft operating on the airport movement area.

Airside: That portion of the airport facility where aircraft movements take place, airline operations areas, and areas that directly serve the aircraft, such as taxiway, runway, maintenance and fueling areas.

Airspace: The space lying above the earth or above a certain area of land or water that is necessary to conduce aviation operations.

Airway: A corridor of controlled airspace whose centerline is established by radio navaids.

ASNA Act: The Aviation Safety and Noise Abatement Act of 1979, as amended (49 U.S.C. 2101 et seq.).

Attenuation: Acoustical phenomenon whereby a reduction of sound energy is experienced between the noise source and the receiver. This energy loss can be attributed to atmospheric conditions, terrain, vegetation, man made features, and natural features.

Average Sound Level: The level in decibels, of the mean square, A-weighted sound pressure during a specified period, with reference to the square of the standard reference sound pressure of 20 micropascals.

Avigation Easement: A grant of a property interest in land over which a right of unobstructed flight in the airspace is established.

Aviation Safety and Noise Capacity Act: Provides assistance to airport operators to prepare and carry out noise compatibility programs. Authorizes the FAA to help airport operators develop noise abatement programs and makes them eligible for AIP grants.

Based Aircraft: An aircraft permanently stationed at an airport by agreement between the aircraft owner and the airport management.

Class A Airspace: Generally, that airspace from 18,000 feet MSL up to and including FL600, including the airspace overlying the waters within 12 nautical miles of the coast of the 48 contiguous States and Alaska. Unless otherwise authorized, all persons must operate their aircraft under IFR.

Class B Airspace: Generally, that airspace from the surface to 10,000 feet MSL surrounding the nation's busiest airports in terms of IFR operations or passenger enplanements. The configuration of each Class B airspace area is individually tailored and consists of a surface area and two or more layers (some Class B airspace areas resemble upside-down wedding cakes), and is designed to contain all published instrument procedures once an aircraft enters the airspace. An ATC clearance is required for all aircraft to operate in the area, and all aircraft that are so cleared receive separation services within the airspace. The cloud clearance requirement for VFR operations is "clear of clouds."

Class C Airspace: Generally that airspace from the surface to 4,000 feet above the airport elevation (charted in MSQ surrounding those airports that have an operational control tower, are serviced by a radar approach control, and that have a certain number of IFR operations or passenger enplanements. Although the configuration of each Class C airspace area is individually tailored, the airspace usually consists of a surface area with a 5NM radius, and an outer circle with a 1 ONM radius that extends from 1,200 feet to 4,000 feet above the airport elevation. Each person must establish two-way radio communications with the ATC facility providing air traffic services prior to entering the airspace and thereafter maintain those communications while within the airspace. VFR aircraft are only separated from IFR aircraft within the airspace.

Class D Airspace: Generally, that airspace from the surface to 2,500 feet above the airport elevation (charted in MSQ surrounding those airports that have an operational control tower. The configuration of each Class D airspace area is individually tailored and when instrument procedures are published, the airspace will normally be designed to contain the procedures. Arrival extensions for instrument approach procedures may be Class D or Class E airspace. Unless otherwise authorized, each person must establish two-way radio communications with the ATC facility providing air traffic services prior to entering the airspace and thereafter maintain those communications while in the airspace. No separation services are provided to VFR aircraft.

Class E Airspace: Generally, if the airspace is not Class A, Class B, Class C, or Class D, and it is controlled airspace, it is Class E airspace. Class E airspace extends upward from either the surface or a designated altitude to the overlying or adjacent controlled airspace. When designated as a surface area, the airspace will be configured to contain all instrument procedures. Also in this class are Federal airways, airspace beginning at either 700 or 1,200 feet AGIL used to transition to/from the terminal or enroute environment, enroute domestic, and offshore airspace areas designated below 18,000 feet MSL. Unless designated at a lower altitude, Class E airspace begins at 14,500 MSL over the United States, including that airspace overlying the waters within 12 nautical miles of the coast of the 48 contiguous States and Alaska. Class E airspace does not include the airspace

18,000 MSL or above.

Commercial Service Airport: A public airport that has at least 2,500 passenger boarding each year and is receiving scheduled passenger aircraft service.

Commuter Aircraft: Commuters are those operators that provide regularly scheduled passenger or cargo service with aircraft seating 72 passengers or less.

Compatible Land Use: As defined in FAR Part 150: The use of land (e.g., commercial, industrial, agricultural) that is normally compatible with aircraft and airport operations, or sound insulated lands uses (e.g., sound insulated homes, schools, nursing homes, hospitals, libraries) that would otherwise be considered incompatible with aircraft and airport operations. See Table X, Land Use Compatibility Guidelines – FAR Part 150, to review the FAA land use compatibility table.

Comprehensive Plan: Similar to a Master Plan, the comprehensive plan is a governmental entity's official statement of its plans and policies for long-term development. The plan includes maps, graphics and written proposals, which indicate the general location for streets, parks, schools, public buildings, airports, and other physical development of the jurisdiction.

Controlled Airspace: An airspace of defined dimensions within which air traffic control service is provided to I FR flights and to VFR flights in accordance with the airspace classification.

Day-Night Average Sound Level (DNL): A noise measure used to describe the average aircraft noise levels over a 24-hour period, typically an average day over the course of a year. DNL considers aircraft operations occurring between the hours of 10 p.m. and 7 a.m. to be ten decibels louder than operations occurring during the daytime to account for increased annoyance when ambient noise levels are lower and residents are sleeping. DNL may be determined for individual locations or expressed in noise contours.

Decibel (dB): Sound is measured by its pressure or energy in terms of decibels. The decibel scale is logarithmic; when the scale increases by ten, the perceived sound is two times as loud.

Displaced Threshold: A threshold that is located at a point on the runway other than the designated beginning of the runway. The portion of pavement behind a displaced threshold may be available for takeoffs and landings from the opposite direction.

Effective Perceived Noise Level (EPNL): Time integrated perceived noise level calculated with adjustments for irregularities in the sound spectrum, such as that caused by discrete frequency components (tone correction)

Enplanement: A passenger boarding of a commercial flight.

Equivalent Sound Level (LEQ)- The steady A-weighted sound level over any specified time period. It is used to identify the average sound level over a period of time.

FAR Part 36, Certificated Airport Noise Levels: Noise certification standards for civil turbojet and large transport category aircraft. Provides a reference source for aircraft noise levels.

Far Part 150, Airport-Land Use Compatibility Planning: Designed to assist airport operators in determining the extent and nature of noise impacts at a given airport.

Federal Aviation Administration (FAA): A federal agency charged with regulating air commerce to promote its safety and development, encouraging and developing civil aviation, air traffic control and air navigation and promoting the development of a national system of airports.

Federal Aviation Regulations (FAR): Regulations established and administered by the FAA that governs civil aviation and aviation-related activities.

Final Approach (IFR): The flight path of an aircraft which is inbound to the airport on an approved final instrument approach course.

Final Approach (VFR): The flight path, normally in the standard traffic pattern, of a landing aircraft along the extended centerline of the runway centerline. Final approach is preceded by a base leg in the standard traffic pattern.

Fix: A geographical position.

Fixed-Base Operator (FBO): An airport facility that serves the general aviation community by selling and repairing aircraft and parts, selling fuel, and providing flight and ground-school instruction.

General Aviation (GA): Refers to all civil aircraft and operations that are not classified as air carrier, commuter or regional. The types of aircraft used in general aviation activities cover a wide spectrum from corporate multi-engine jet aircraft piloted by professional crews to amateur-built single engine piston acrobatic planes, balloons and dirigibles.

Incompatible Land Use: The use of land, which is defined in Appendix A, Table 1 of FAR Part 150, which is normally incompatible with the aircraft and airport operations (such as homes, schools, nursing homes, hospitals, and libraries). See Table X, Land Use Compatibility Guidelines – FAR Part 150, of this guide to review the FAA land use compatibility table.

Instrument Approach: A series of predetermined maneuvers for the orderly transfer of an aircraft under instrument flight conditions from the beginning of the initial approach to a landing or to a point from which a landing may be made visually.

Instrument Flight Rules (IFR): Rules governing the procedure for conducting instrument flight. In addition, a term used by pilots and controller to indicate a type of flight plan.

Instrument Landing System (ILS): An electronic system installed at some airports which helps guide pilots to runways during periods of limited visibility or inclement weather.

Integrated Noise Model (INM): FAA's computer model used by the civilian aviation community for evaluating aircraft noise impacts near airports. The INM uses a standard database of aircraft characteristics and applies them to an airport's average operational day to produce noise contours.

Itinerant Operation: Any aircraft arrival and/or departure other than a local operation.

Knots: Airspeed measured as the distance in nautical miles covered in one hour.

Land Use Controls: Measures established by state or local government that are designed to carry out land use planning. The controls include among other measures: zoning, subdivision regulations, planned acquisition, easements, covenants or conditions in building codes and capital improvement programs, such as establishment of sewer, water, utilities or their service facilities.

Land Use Management Measures: Land use management techniques that consist of both remedial and preventive measures. Remedial, or corrective, measures typically include sound insulation or land acquisition. Preventive measures typically involve land use controls that amend or update the local zoning ordinance, comprehensive plan, subdivision regulations, and building code.

Landside: That part of an airport used for activities other than the movement of aircraft, such as vehicular access roads and parking.

Ldn: Ldn is used in place of DNL in mathematical equations.

Leq: Equivalent Sound Level

Local Operation: Any operation performed by an aircraft that: (a) operates in the local traffic pattern or within sight of the tower or airport, or (b) is known to be departing for, or arriving from, flight in local practice areas located with a 20-mile radius of the control tower or airport, or (c) executes a simulated instrument approach or low pass at the airport.

Loudness: The subjective intensity of sound.

National Plan of Integrated Airport Systems (NPIAS): A primary purpose of the NPIAS is to identify the airports that are important to national transportation and, therefore, eligible to receive grants under the Airport Improvement Program (AIP). The NPIAS is composed of all commercial service airports, all reliever airports, and selected general aviation airports.

Nautical Mile: A measure of distance equal to one minute of arc on the earth's surface, which is approximately 6,076 feet.

Navigation Aids (NAVAIDS): Any facility used by an aircraft for guiding or controlling flight in the air or the landing or take-off of an aircraft.

Noise: Unwanted sound

Noise Abatement Procedures: Changes in runway usage, flight approach and departure routes and procedures, and vehicle movement, such as ground maneuvers or other air traffic procedures that shift aviation impacts away from noise sensitive areas.

Noise Compatibility Plan (NCP): The NCP consists of an optimum combination of preferred noise abatement and land use management measures, and a plan for the implementation of the measures. For planning purposes, the implementation plan also includes the estimated cost for each of the recommended measures to the airport sponsor, the FAA, airport users, and the local units of government.

Noise Exposure Contours: Lines drawn about a noise source indicating constant energy levels of noise exposure. DNL is the measure used to describe community exposure to noise.

Noise Exposure Map (NEM): The NEM is a scaled map of the airport, its noise contours and surrounding land uses. The NEM depicts the levels of noise exposure around the airport, both for the existing conditions and forecasts for the five-year planning period. The area of noise exposure is designated using the DNL (Day-Night Average Sound Level) noise metric.

Noise Level Reduction (NLR): The amount of noise level reduction in decibels achieved through incorporation of noise attenuation (between outdoor and indoor levels) in the design and construction of a structure.

Noise-Sensitive Area: Areas where aircraft noise may interfere with existing or planned use of the land. Whether noise interferes with a particular use depends upon the level of noise exposure and the types of activities that are involved. Residential neighborhoods, educational, health, and religious structures and sites, outdoor recreational, cultural and historic sites may be noise sensitive areas.

Nonconforming Use: Any pre-existing structure, tree, or use of land that is inconsistent with the provisions of the local land use or airport master plans.

Overlay Zone: A mapped zone that imposes a set of requirements in addition to those of the underlying zoning district.

Part 150 Study: Part 150 is the abbreviated name for the airport noise compatibility planning process outlined in Part 150 of the Federal Aviation Regulation (FAR) that allows airport owners to voluntarily submit noise exposure maps and noise compatibility programs to the FAA for review and approval. See Noise Compatibility Plan.

Primary Runway: The runway used for the majority of airport operations. Large, high-activity airports may operate two or more parallel primary runways.

Profile: The physical position of the aircraft during landings or takeoffs in terms of altitude and distance in relation to the runway.

Propagation: Sound propagation refers to the spreading or radiation of sound energy from the noise source.

Public Use Airport: A publicly or privately owned airport that offers the use of its facilities to the public without prior notice or special invitation or clearance.

Reliever Airport: An airport that meets certain FAA criteria and relieves the aeronautical demand on a busier air carrier airport.

Run Up: A routine procedure for testing aircraft at high power settings conducted by maintenance personal.

Runway: A defined area on an airport for the purpose of landing and takeoff.

Runway Protection Zone (RPZ): A trapezoidal-shaped area centered about the extended runway centerline that is used to enhance the safety of aircraft operations. It begins 200 feet beyond the end of the runway or area usable for takeoff or landing. The RPZ dimensions are functions of the design aircraft, type of operation and visibility minimums.

Runway Use Program: A noise abatement runway selection plan designed to enhance noise abatement efforts with regards to airport communities for arriving and departing aircraft.

Single Event: An occurrence of audible noise usually above a specified minimum noise level.

Sound Attenuation: Acoustical phenomenon whereby a reduction of sound energy is experienced between the noise source and the receiver. This energy loss can be attributed to atmospheric conditions, terrain, vegetation, constructed features (e.g., sound insulation) and natural features.

Sound Exposure Level (SEL): A measure of the physical energy of the noise event that takes into account both intensity and duration. By definition SEL values are referenced to a duration of one second. SEL is higher than the average and the maximum noise levels as long as the event is longer than one second is. Sound exposure level is expressed in decibels (dB). People do not hear SEL.

Special Use Airspace: Six types of airspace designated to special uses and defined in the Airmans informational manual. It identifies areas wherein activities must be confined because of their nature and/or wherein limitations may be imposed upon aircraft operations that are not part of those activities.

Stage 2 Aircraft: Aircraft that meet the noise levels prescribed by FAR Part 36 and are less stringent than noise levels established for the quieter designation Stage 3 aircraft. The Airport Noise and Capacity Act requires the phase-out of all Stage 2 aircraft by December 31, 1999, with case-by-case exceptions through the year 2003.

Stage 3 Aircraft: Aircraft that meet the most stringent noise levels set forth in FAR Part 36.

Standard Instrument Departure Procedure (SID): A preplanned IFR air traffic control departure printed for pilot use in graphic and or text form. SID's provide transition from the terminal to the en route structure.

Standard Terminal Arrival Routes (STARS): A preplanned IFR air traffic control departure printed for pilot use in graphic and or text form. STARS provide transition from an en route structure to an outer fix or a instrument approach fix in the terminal area.

Statute Mile: A measure of distance equal to 5,280 feet.

Taxiway: A defined path established for taxing of aircraft from one part of an airport to another.

Terminal Area: A general term used to describe airspace in which airport traffic control or approach control service is provided.

Terminal Radar Approach Control (TRACON): An FAA Air Traffic Control Facility which uses radar and two way communication to provide separation of air traffic within a specified geographic area in the vicinity of one or more airports.

Threshold: The beginning of the usable section of a runway.

Time Above (TA): Time above indicates the time in minutes that a given DBA level is exceeded in a 24 hour period.

Traffic Patterns: A traffic flow that is prescribed for aircraft landing at and taking off from an airport.

Transfer of Development Rights: This involves separate ownership and use of the various "rights" associated with a parcel of real estate. Under this concept, some of the property's development rights are transferred to a remote location where they may be used to intensify allowable development.

Turbojet Aircraft: Aircraft operated by jet engines incorporating a turbine-driven air compressor to take in and compress the air for the combustion of fuel, the gases of combustion (or the heated air) being used both to rotate the turbine and to create a thrust-producing jet.

Turboprop Aircraft: Aircraft in which the main propulsive force is supplied by a gas turbine driven conventional propeller. Additional propulsive force may be supplied from the discharged turbine exhaust gas.

Variance: An authorization for the construction or maintenance of a building or structure, or for the establishment or maintenance of a use of land that is prohibited by a zoning ordinance. A lawful exception from specific zoning ordinance standards and regulations predicated on the practical difficulties and/or unnecessary hardships on the petitioner being required to comply with those regulations and standards from which an exemption or exception is sought.

Vector: Compass heading instructions issued by ATC to provide navigational guidance by radar.

Visual Approach: An approach to an airport conducted with visual reference to the terrain.

Visual Flight Rules (VFR): Rules that govern flight procedures in good weather, with conditions usually being at least 1,000-foot ceiling and three miles visibility.

Visual Meteorological Conditions (VMC): Weather conditions equal to or greater than those specified in 14 CFR 91.155 for aircraft operations under Visual Flight Rules.

VORTAC: Very High Frequency Omnidirectional Range with Tactical Air Navigation. A navigational aid providing VOR azimuth and TACAN distance measuring equipment at one site.

Zoning: The partitioning of land parcels in a community by ordinance into zones and the establishment of regulations in the ordinance to govern the land use and the location, height, uses, and land coverage of buildings within each zone. The zoning ordinance usually consists of text and zoning map.

Zoning Ordinance: Primarily a legal document that allows a local government effective and legal regulation of uses of property while protecting and promoting the public interest.

APPENDIX C

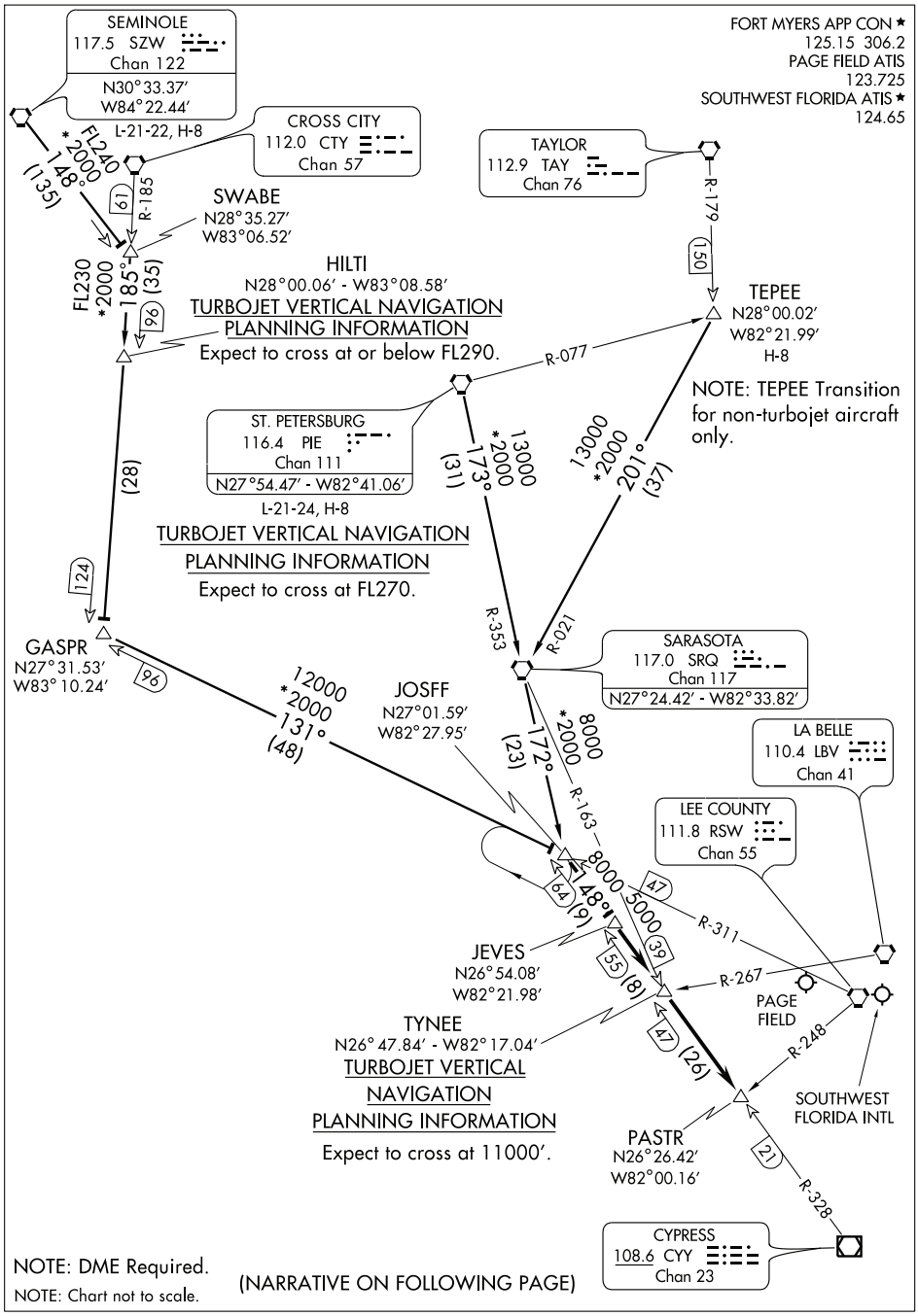
RSW Published IFR Procedures

(JOSFF.JOSFF4) 11013

JOSFF FOUR ARRIVAL

ST-154 (FAA)

FORT MYERS, FLORIDA



SE-3, 15 DEC 2011 to 12 JAN 2012

SE-3, 15 DEC 2011 to 12 JAN 2012

JOSFF FOUR ARRIVAL

FORT MYERS, FLORIDA

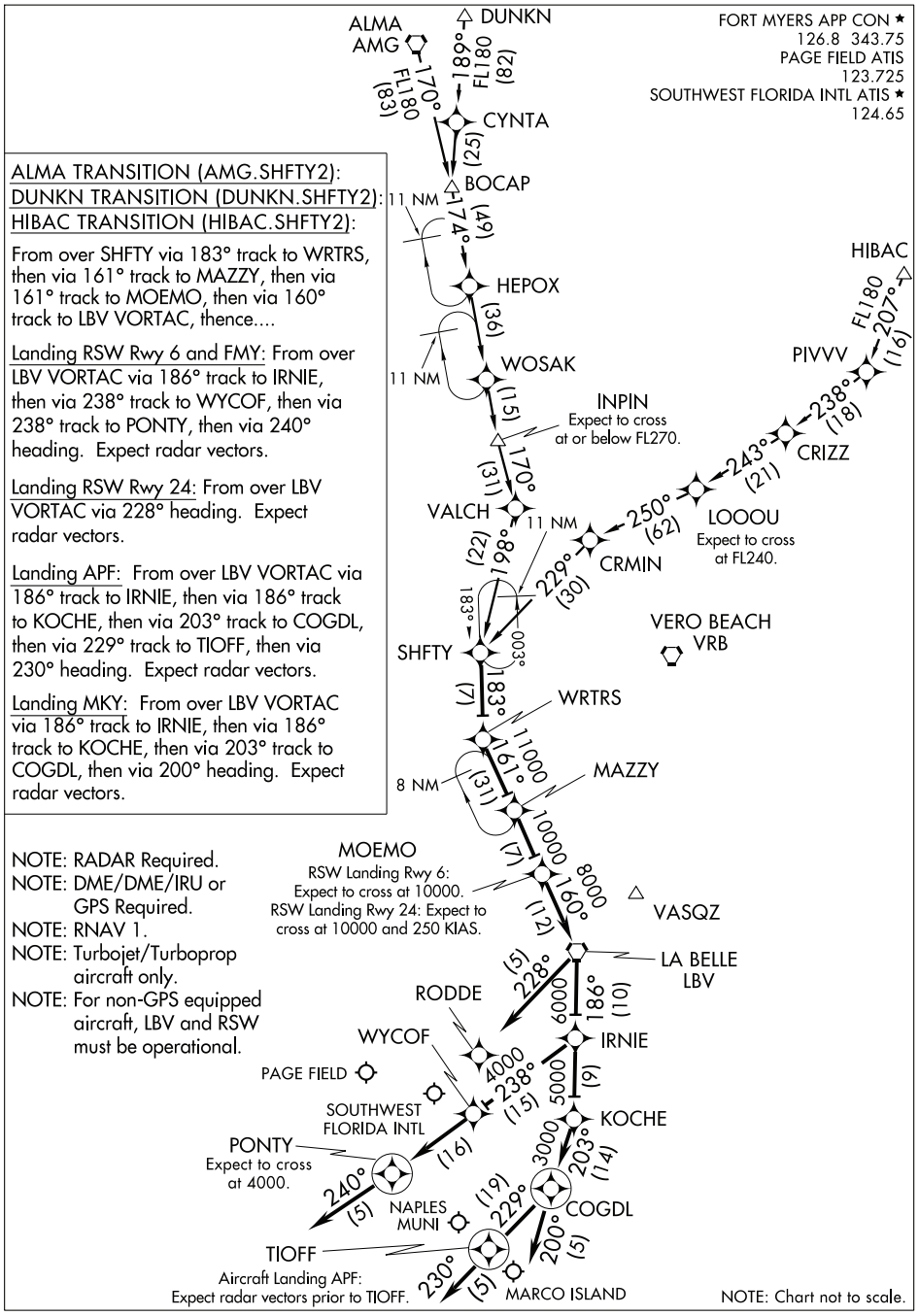
(JOSFF.JOSFF4) 11013

(SHFTY.SHFTY2) 11349

ST-154 (FAA)

SHFTY TWO ARRIVAL (RNAV)

FORT MYERS, FLORIDA



SE-3, 15 DEC 2011 to 12 JAN 2012

SE-3, 15 DEC 2011 to 12 JAN 2012

SHFTY TWO ARRIVAL (RNAV)

FORT MYERS, FLORIDA

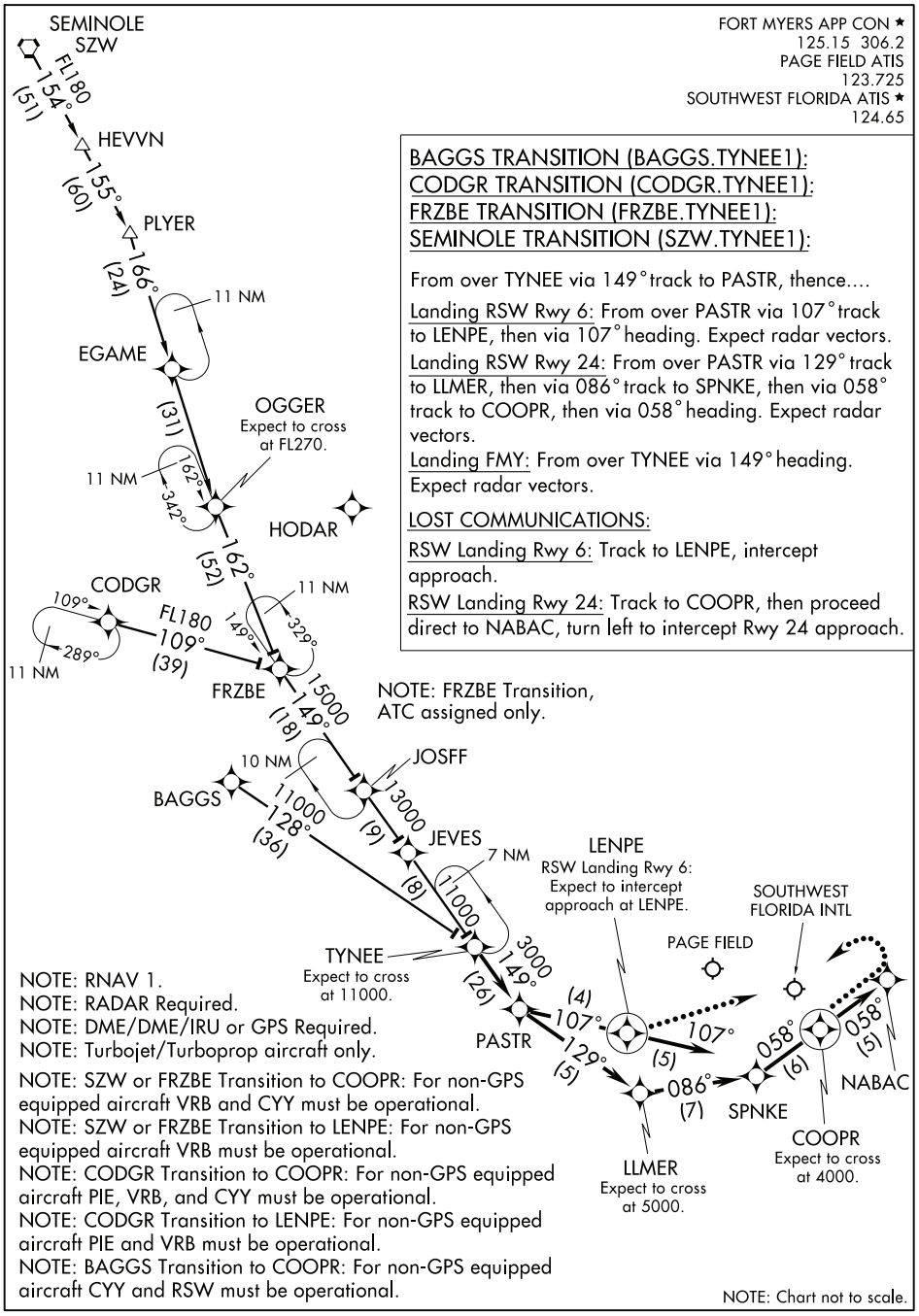
(SHFTY.SHFTY2) 11349

(TYNEE.TYNEE1) 11013

TYNEE ONE ARRIVAL (RNAV)

ST-154 (FAA)

FORT MYERS, FLORIDA



SE-3, 15 DEC 2011 to 12 JAN 2012

SE-3, 15 DEC 2011 to 12 JAN 2012

TYNEE ONE ARRIVAL (RNAV)

FORT MYERS, FLORIDA

(TYNEE.TYNEE1) 11013

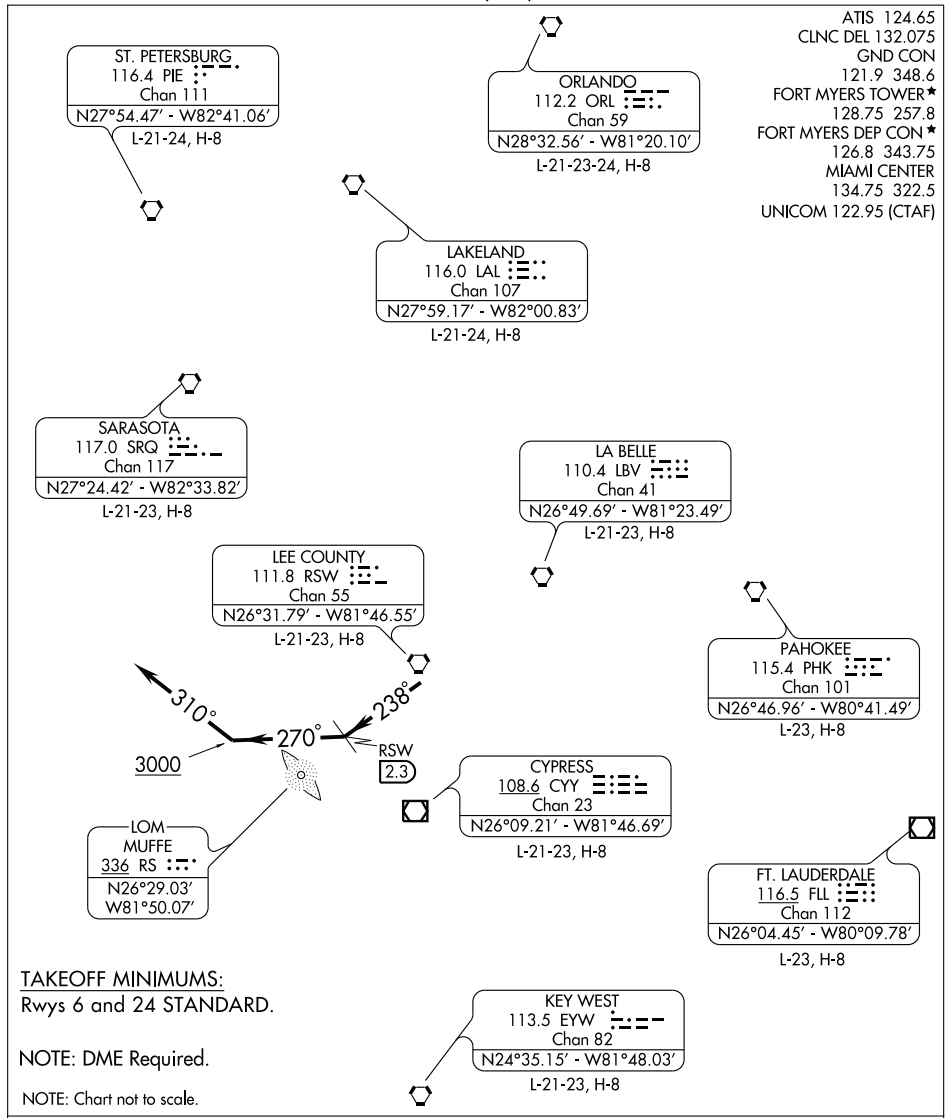
(ALICO3.ALICO) 11349

ALICO THREE DEPARTURE

FORT MYERS/SOUTHWEST FLORIDA INTL (RSW)

SL-6757 (FAA)

FORT MYERS, FLORIDA



TAKEOFF MINIMUMS:
Rwys 6 and 24 STANDARD.

NOTE: DME Required.

NOTE: Chart not to scale.

DEPARTURE ROUTE DESCRIPTION

TAKE-OFF RUNWAY 6: Climb on runway heading or as assigned for vectors to join filed route.
TAKE-OFF RUNWAY 24: Fly heading 238° (or as assigned) until RSW 2.3 DME, then turn right heading 270°. Leaving 3000 feet, turn right heading 310.° Expect radar vectors to assigned route.
All aircraft maintain 4000 feet or assigned lower altitude. Expect further clearance to filed altitude within 10 minutes after departure.

ALICO THREE DEPARTURE
(ALICO3.ALICO) 11349

FORT MYERS, FLORIDA
FORT MYERS/SOUTHWEST FLORIDA INTL (RSW)

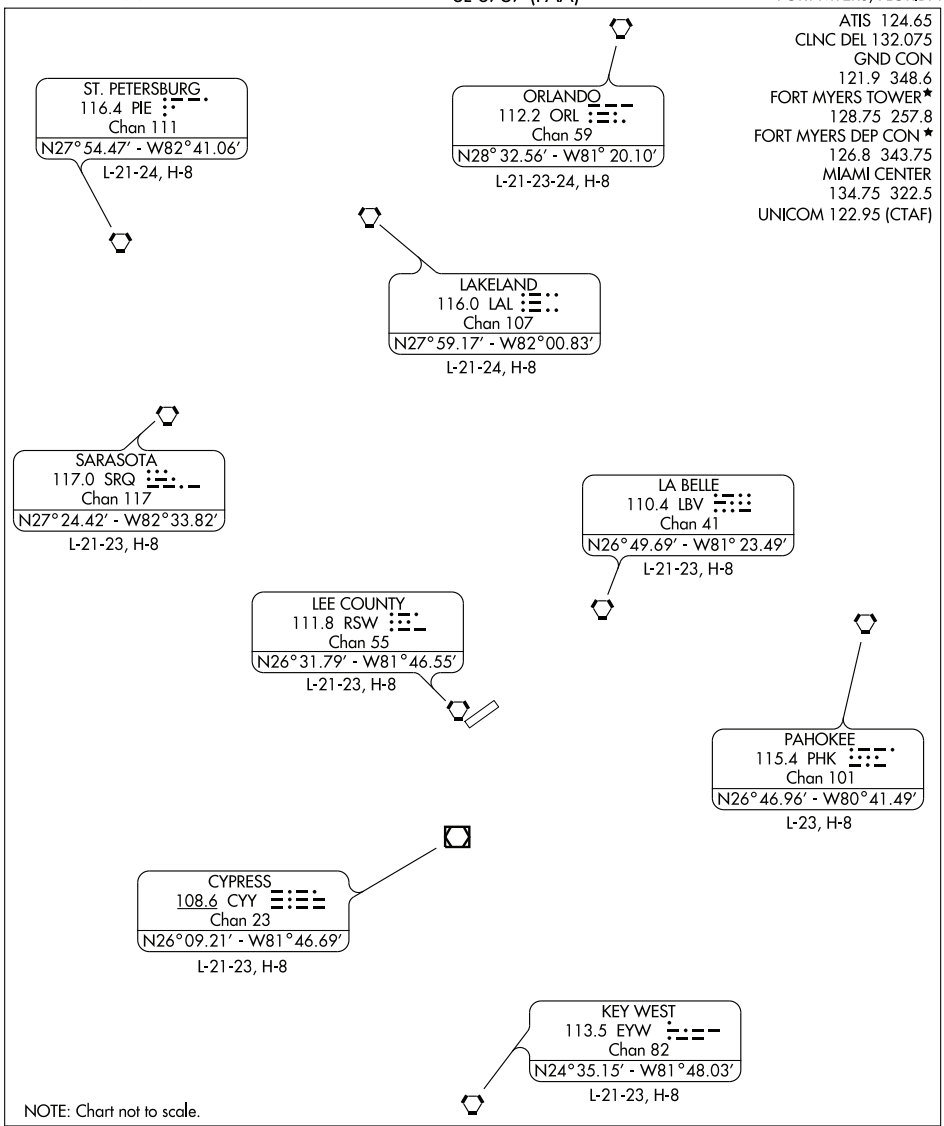
SE-3, 15 DEC 2011 to 12 JAN 2012

(SCUBY2.SCUBY) 11349

SCUBY TWO DEPARTURE

FORT MYERS/SOUTHWEST FLORIDA INTL (RSW)
SL-6757 (FAA)
FORT MYERS, FLORIDA

SE-3, 15 DEC 2011 to 12 JAN 2012



SE-3, 15 DEC 2011 to 12 JAN 2012

DEPARTURE ROUTE DESCRIPTION

TAKE-OFF RUNWAY 6: Fly runway heading or as assigned for vectors to join filed route.

TAKE-OFF RUNWAY 24: (Southbound) fly runway heading or as assigned for vectors to join filed route.

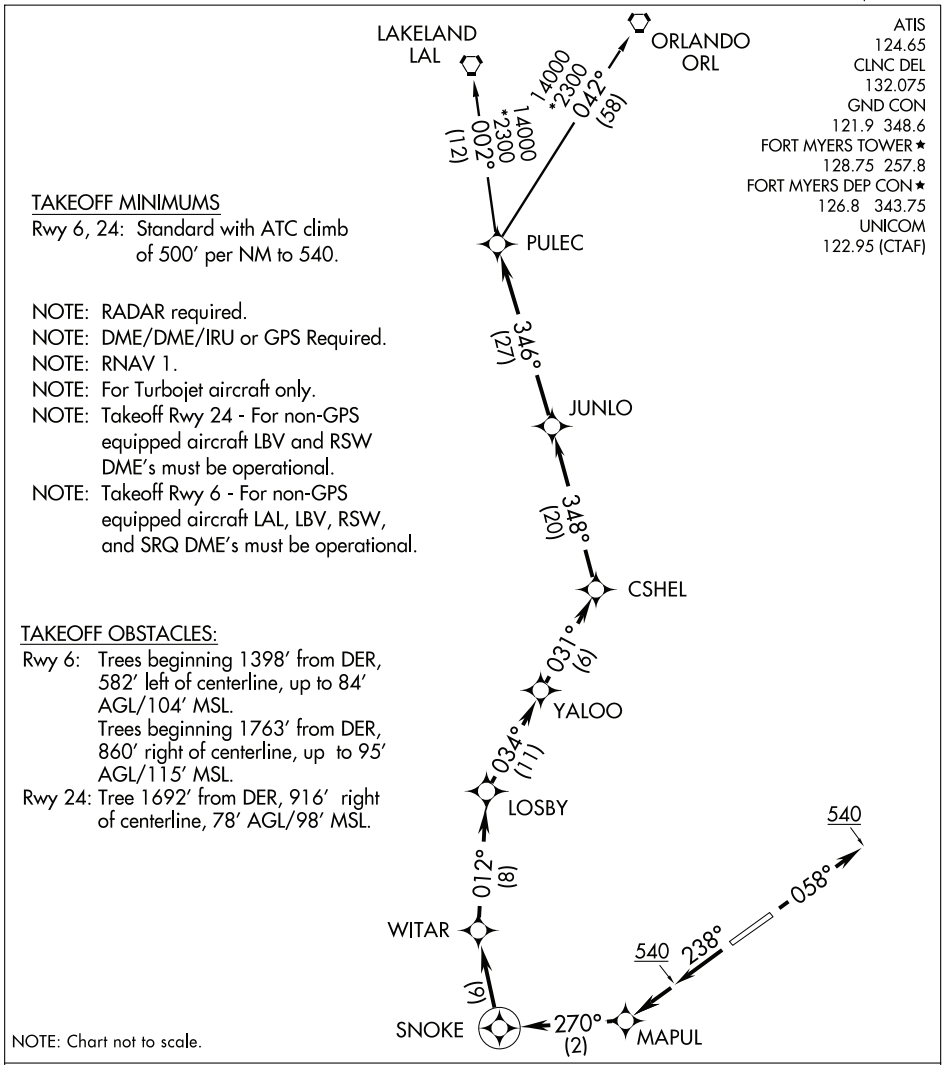
All aircraft maintain 4000 feet or assigned lower altitude. Expect further clearance to filed altitude within 10 minutes after departure.

SCUBY TWO DEPARTURE
(SCUBY2.SCUBY) 11349

FORT MYERS, FLORIDA
FORT MYERS/SOUTHWEST FLORIDA INTL (RSW)

CSHEL FOUR DEPARTURE (RNAV)

FORT MYERS/ SOUTHWEST FLORIDA INTL (RSW)
FORT MYERS, FLORIDA



TAKEOFF MINIMUMS
Rwy 6, 24: Standard with ATC climb of 500′ per NM to 540.

NOTE: RADAR required.
NOTE: DME/DME/IRU or GPS Required.
NOTE: RNAV 1.
NOTE: For Turbojet aircraft only.
NOTE: Takeoff Rwy 24 - For non-GPS equipped aircraft LBV and RSW DME's must be operational.
NOTE: Takeoff Rwy 6 - For non-GPS equipped aircraft LAL, LBV, RSW, and SRQ DME's must be operational.

TAKEOFF OBSTACLES:
Rwy 6: Trees beginning 1398′ from DER, 582′ left of centerline, up to 84′ AGL/104′ MSL.
Trees beginning 1763′ from DER, 860′ right of centerline, up to 95′ AGL/115′ MSL.
Rwy 24: Tree 1692′ from DER, 916′ right of centerline, 78′ AGL/98′ MSL.

NOTE: Chart not to scale.

DEPARTURE ROUTE DESCRIPTION

TAKEOFF RUNWAY 6: Climb heading 058° or as assigned by ATC to 540. Expect vectors to CSHEL, then via depicted route to PULEC, thence....
TAKEOFF RUNWAY 24: Climb heading 238° to 540, then direct MAPUL, then climb via 270° track to SNOKE, then right turn direct WITAR, then via depicted route to PULEC, thence....

....via (transition). Maintain 4000 or as assigned by ATC, expect filed altitude/flight level 10 minutes after departure.

LAKELAND TRANSITION (CSHEL4.LAL):
ORLANDO TRANSITION (CSHEL4.ORL):

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SE-3, 15 DEC 2011 to 12 JAN 2012

FORT MYERS, FLORIDA

AL-6757 (FAA)

ILS or LOC RWY 6

FORT MYERS/ SOUTHWEST FLORIDA INTL (RSW)

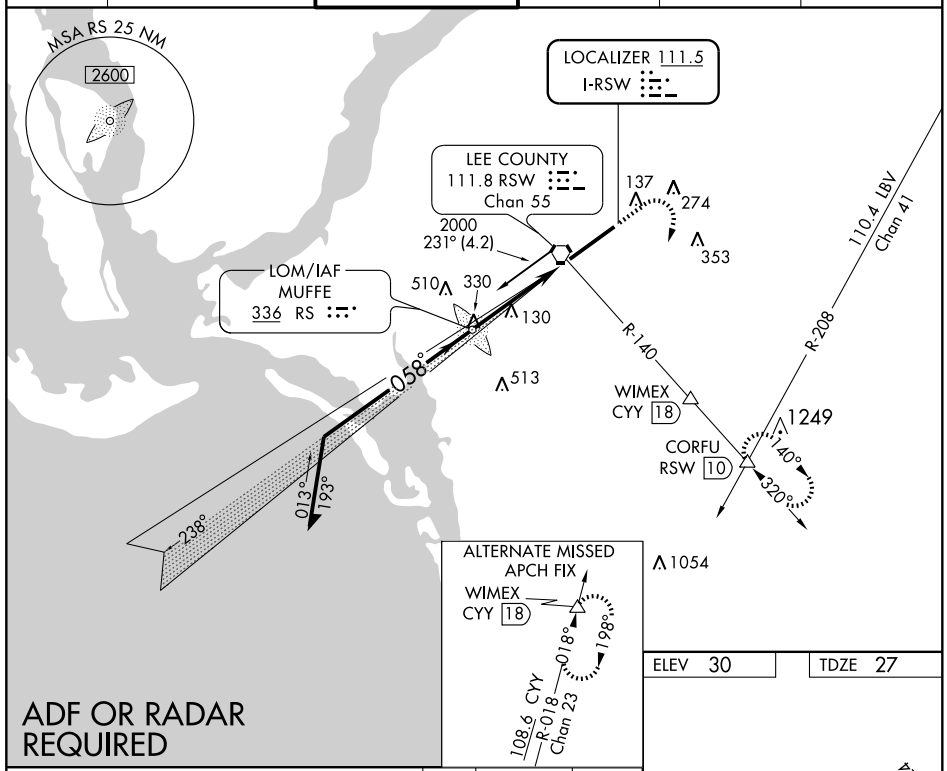
LOC I-RSW	APP CRS	Rwy Idg	12000
111.5	058°	TDZE	27
		Apt Elev	30

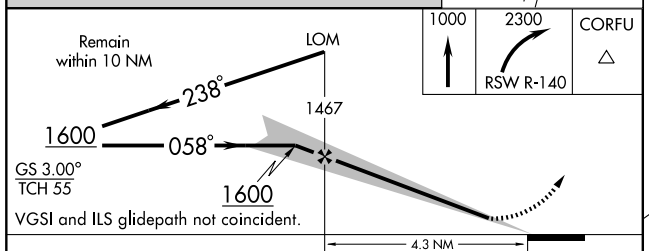
Cat. E procedure turn NA-RADAR Required. For inoperative MALSR, increase S-ILS-6 Cat. E visibility to RVR 4000 and S-LOC-6 Cat. E visibility to RVR 6000.

MALSR

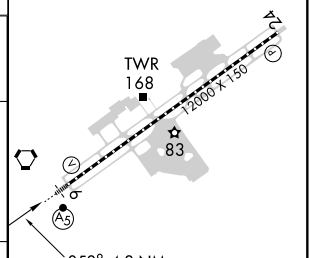
MISSED APPROACH: Climb to 1000 then climbing right turn to 2300 via RSW VORTAC R-140 to CORFU Int/ RSW 10 DME and hold.

ATIS	FORT MYERS APP CON ★	FORT MYERS TOWER ★	GND CON	CLNC DEL	UNICOM
124.65	126.8 343.75	128.75 257.8	121.9 348.6	132.075	122.95 (CTAF)





1000	2300	CORFU
	RSW R-140	



ELEV 30 | TDZE 27

REIL Rwy 24
TDZ/CL Rwy 6
HIRL Rwy 6-24

CATEGORY	A	B	C	D	E
S-ILS-6	227/18 200 (200-½)				227/24 200 (200-½)
S-LOC-6	380/24 353 (400-½)			380/40 353 (400-¾)	
CIRCLING	500-1 470 (500-1)		500-1½ 470 (500-1½)	580-2 550 (600-2)	720-2½ 690 (700-2½)

FAF to MAP 4.3 NM

Knots	60	90	120	150	180
Min:Sec	4:18	2:52	2:09	1:43	1:26

SE-3, 15 DEC 2011 to 12 JAN 2012

SE-3, 15 DEC 2011 to 12 JAN 2012

FORT MYERS, FLORIDA

AL-6757 (FAA)

RNAV (GPS) RWY 6

FORT MYERS/ SOUTHWEST FLORIDA INTL (RSW)

WAAS	APP CRS	Rwy Idg 12000
CH 65619	058°	TDZE 27
W06A		Apt Elev 30

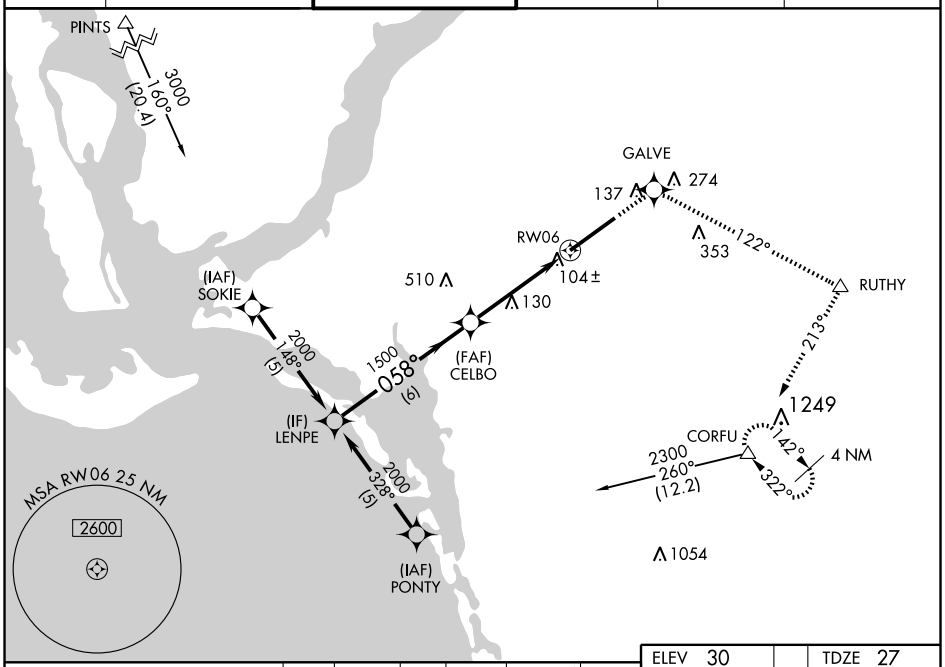
For uncompensated Baro-VNAV systems, LNAV/VNAV NA below -15°C (5°F) or above 48°C (118°F). DME/DME RNP-0.3 NA. For inoperative MALSR increase LPV all Cats visibility to RVR 5000, and LNAV Cat. D visibility to RVR 6000.

MALSR

MISSED APPROACH: Climb to 2300 direct GALVE and via 122° track to RUTHY and right turn via 213° track to CORFU and hold.

ATIS	FORT MYERS APP CON ★	FORT MYERS TOWER ★	GND CON	CLNC DEL	UNICOM
124.65	126.8 343.75	128.75 257.8	121.9 348.6	132.075	122.95 (CTAF)

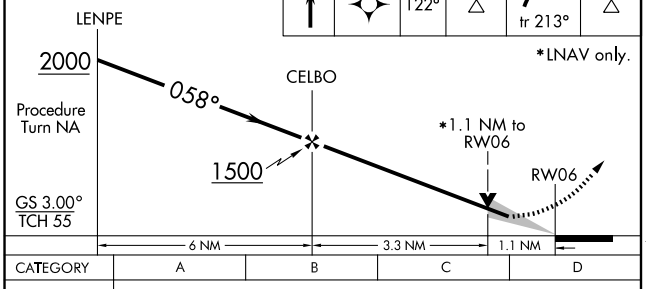
SE-3, 15 DEC 2011 to 12 JAN 2012



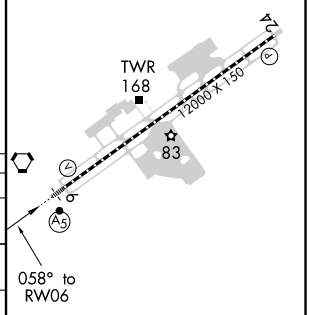
SE-3, 15 DEC 2011 to 12 JAN 2012

2300	GALVE	tr 122°	RUTHY	tr 213°	CORFU

*LNAV only.



ELEV 30 TDZE 27



REIL Rwy 24
TDZ/CL Rwy 6
HIRL Rwy 6-24

CATEGORY	A	B	C	D
LPV DA	330/24 303 (300-½)			
LNAV/VNAV DA	380/40 353 (400-¾)			
LNAV MDA	440/24 413 (500-½)		440/40 413 (500-¾)	440/50 413 (500-1)
CIRCLING	500-1 470 (500-1)		500-1½ 470 (500-1½)	580-2 550 (600-2)

FORT MYERS, FLORIDA
Amdt 1B 11349

26°32'N-81°45'W

FORT MYERS/SOUTHWEST FLORIDA INTL (RSW)

RNAV (GPS) RWY 6

FORT MYERS, FLORIDA

AL-6757 (FAA)

WAAS	APP CRS	Rwy Idg 12000
CH 70319	238°	TDZE 30
W24A		Apt Elev 30

RNAV (GPS) RWY 24

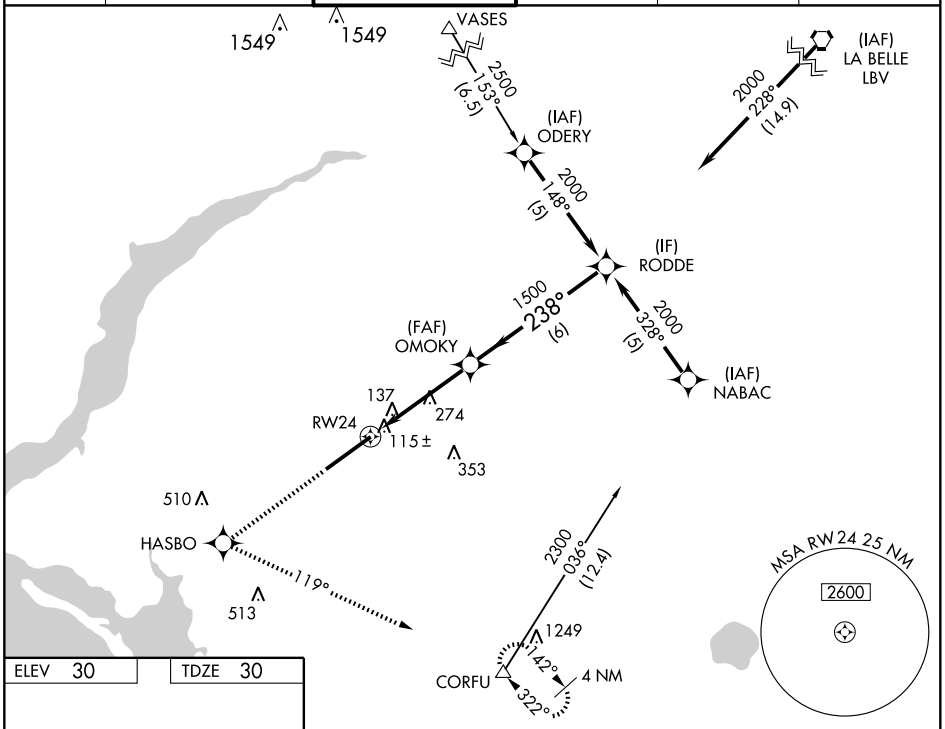
FORT MYERS/SOUTHWEST FLORIDA INTL (RSW)

For uncompensated Baro-VNAV systems, LNAV/VNAV NA below -15°C (5°F) or above 48°C (118°F). DME/DME RNP-0.3 NA.

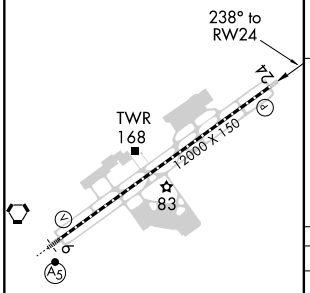
MISSED APPROACH: Climb to 2300 direct HASBO and left turn via 119° track to CORFU and hold.

ATIS	FORT MYERS APP CON ★	FORT MYERS TOWER ★	GND CON	CLNC DEL	UNICOM
124.65	126.8 343.75	128.75 257.8	121.9 348.6	132.075	122.95 (CTAF)

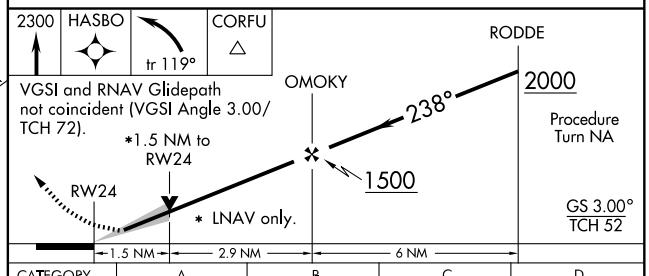
SE-3, 15 DEC 2011 to 12 JAN 2012



ELEV 30	TDZE 30



REIL Rwy 24
TDZ/CL Rwy 6
HIRL Rwy 6-24



CATEGORY	A	B	C	D
LPV DA	280-¾ 250 (300-¾)			
LNAV/VNAV DA	420-1¼ 390 (400-1¼)			
LNAV MDA	580-1 550 (600-1)		580-1½ 550 (600-1½)	580-1¾ 550 (600-1¾)
CIRCLING	580-1 550 (600-1)		580-1½ 550 (600-1½)	580-2 550 (600-2)

SE-3, 15 DEC 2011 to 12 JAN 2012

FORT MYERS, FLORIDA

AL-6757 (FAA)

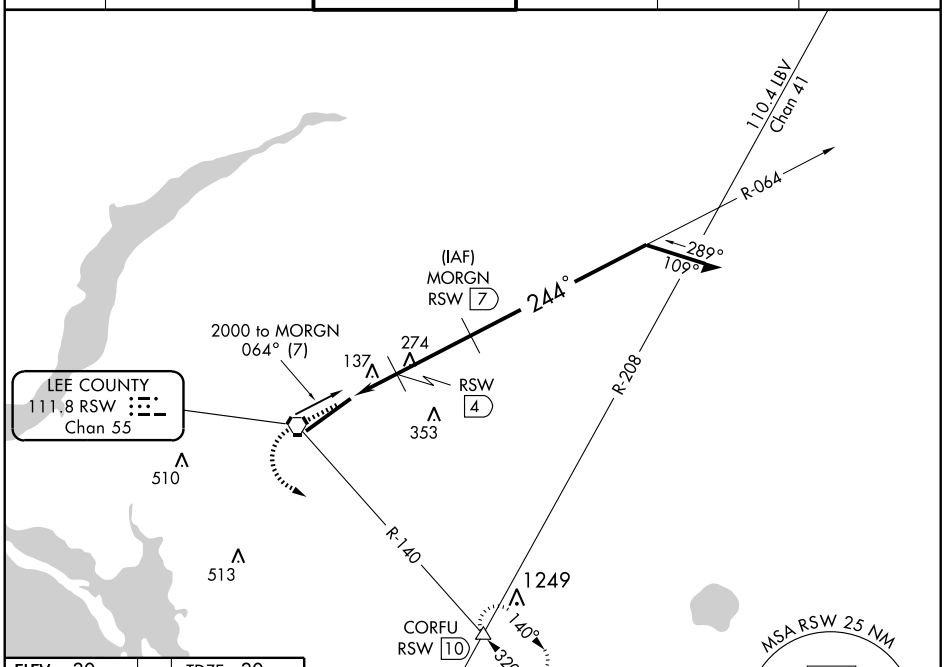
VORTAC RSW 111.8 Chan 55	APP CRS 244°	Rwy Idg 12000 TDZE 30 Apt Elev 30

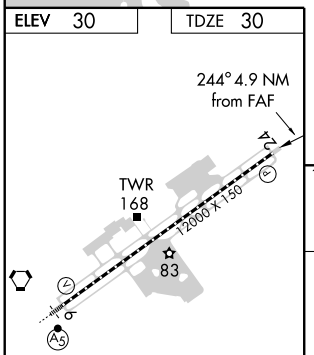
VOR/DME or TACAN RWY 24

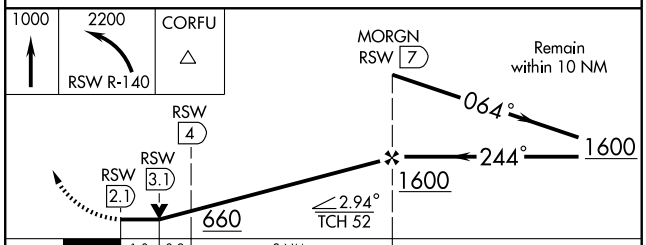
FORT MYERS/ SOUTHWEST FLORIDA INTL (RSW)

MISSED APPROACH: Climb to 1000 then climbing left turn to 2200 via RSW R-140 to CORFU/RSW 10 DME and hold.

ATIS	FORT MYERS APP CON ★	FORT MYERS TOWER ★	GND CON	CLNC DEL	UNICOM
124.65	126.8 343.75	128.75 257.8	121.9 348.6	132.075	122.95 (CTAF)







CATEGORY	A	B	C	D
S-24	400-1 370 (400-1)			400-1¼ 370 (400-1¼)
CIRCLING	500-1 470 (500-1)		500-1½ 470 (500-1½)	580-2 550 (600-2)

REIL Rwy 24
TDZ/CL Rwy 6
HIRL Rwy 6-24

FORT MYERS, FLORIDA
Amdt 2 11349

26°32'N-81°45'W

FORT MYERS/ SOUTHWEST FLORIDA INTL (RSW)

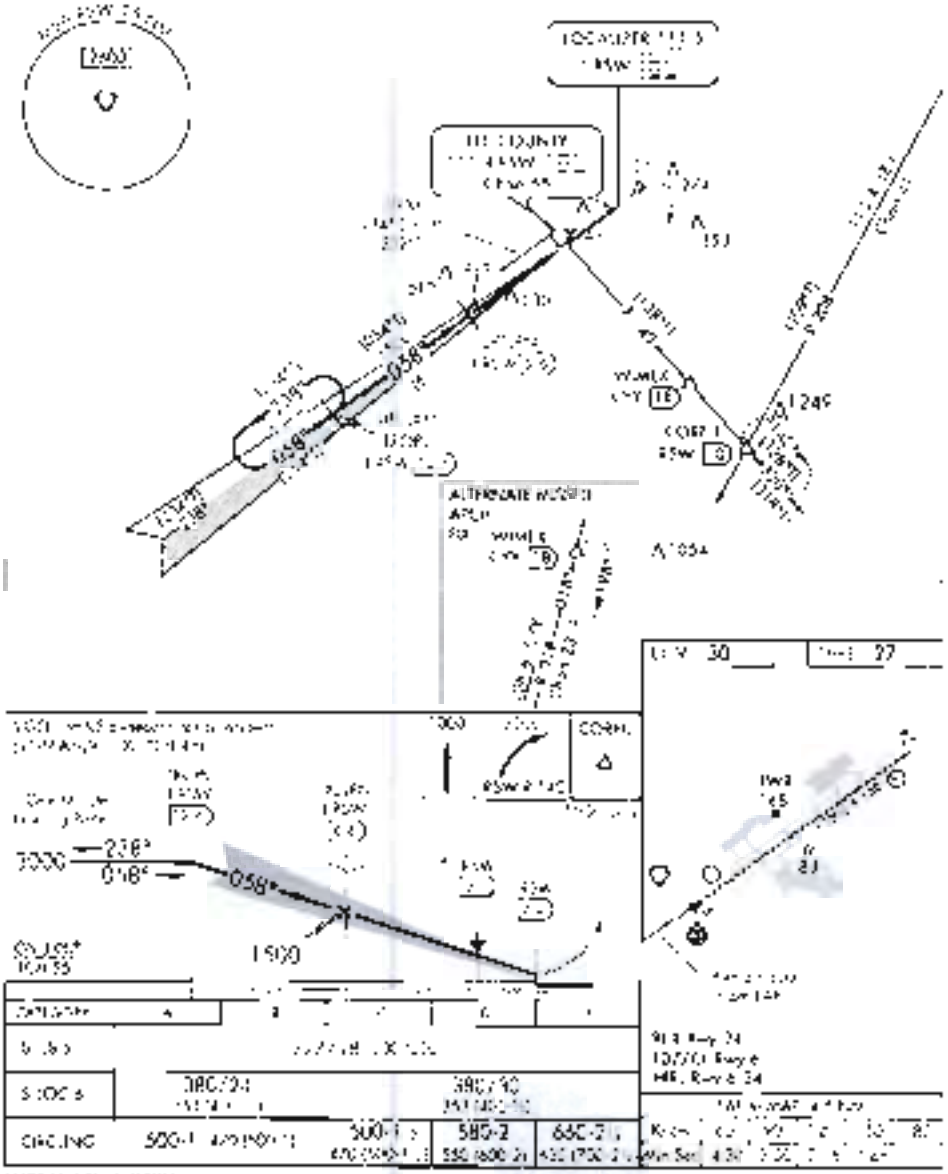
VOR/DME or TACAN RWY 24

SE-3, 15 DEC 2011 to 12 JAN 2012

SE-3, 15 DEC 2011 to 12 JAN 2012

ILS or LOC/DME RWY 6

FORT MYERS/SOUTHWEST FLORIDA INTL (RSW)



APPENDIX D

June 15, 2011 Study Kick-Off Meeting

Southwest Florida International Airport

FAR Part 150 Overview

ATC Meeting #1

Noise Study Goals

- Document Current and Future Noise Exposure Around the Airport
- Encourage noise abatement alternatives that don't sacrifice one neighborhood for another
- Evaluate Additional Noise Abatement Opportunities
- Provide Opportunity for Community Input
- Develop Recommendations for Noise Abatement and Noise Mitigation Measures
- Comply with Lee Plan Requirements

Day Night Average Sound Level (DNL)

- The Amount of Noise Exposure is determined by:
  - Aircraft Types
  - Number of Annual Average Day Operations
  - Nighttime Weighting (1 nighttime op = 10 daytime ops)
- The Noise Exposure Distribution is determined by:
  - Runway Configuration and Use
  - Flight Track Locations
  - Flight Track Use
- Annual average day aircraft noise exposure is calculated over a broad area and then depicted using contour lines of equal noise levels.

Recommendations from Previous Study

- Continue Existing Voluntary Measures
  - Preferential Runway Use – Runway 6
  - Maintain Altitude on Downwind and over Beaches on Visual Approaches
  - Keep 'em High
  - Runway 24 Departures – Use MAPCL 1 SID or ALICO 3 SID
  - Propeller Aircraft – Use SOPS recommended noise abatement procedures
  - Turbojet Aircraft – Use Aircraft manufacturers recommended procedures or NBAA recommended process, or Standard Departure Procedure
  - Commercial Aircraft – Use Distant Noise Abatement Departure Profile
  - No Engine run-ups between 11:00pm and 6:00am with prior approval
  - Modify existing Runway 6 departure to use CWE turn
- Purchase and Install Flight Tracking System
- Continue to explore RNAV opportunities
- Implement RNAV procedure for Alico Corridor
- Implement updated overlay zone

Current RSW Noise Zones

Two Phase Process

Phase 1 - Noise Exposure Maps (NEM)


Two Phase Process
Phase 2 – Noise Compatibility Plan


Annual Activity Levels - Operations


Operations Fluctuate by Month


Runway Use Fluctuates by Month


Pre FLOWCAR Overflight Comments

Post FLOWCAR Overflight Comments

Flight Procedures vs. Comments

Operational Discussion Points

- Existing procedures
  - TYNEE ONE
  - SHIFTY TWO
  - CSHEL FOUR
  - ALICO THREE
- FLOWCARS
  - Routing East vs. West
- Miami ARTCC/RSW MOA

RNAV Arrival Runway 24

RNAV Arrivals Runway 06

CSHEL FOUR Departure – Rwy 24

ALICO THREE Departure – Rwy 24

Next Steps

- Introductory Public Workshops
- Complete Data Collection
- Develop Noise Exposure Maps
- Conduct Assessment of Noise Sensitive Sites
- NEM Community Meetings & Public Workshops
- ASMC/Board Briefing and Endorsement
- Submit Noise Exposure Map Report to FAA for Acceptance
- Start Noise Compatibility Program

Southwest Florida International Airport

FAR Part 150 Overview

Community Meeting #1
Fort Myers Beach

Overview

- Who is ESA Airports?
- What is a Federal Aviation Regulations (FAR) Part 150?
- Noise 101
- Airport Noise Modeling
- Part 150 Process/Schedule
- Key Observations related to RSW
- Concerns of Fort Myers Beach
- Next Steps

ESA Overview

- Established in 1969 shortly after passage of the National Environmental Policy Act (NEPA)
- Airports Division focuses on Noise, Land Use Planning, Environmental Compliance, and Community Outreach for Airports
- FAR Noise Study experience at more than 120 airports throughout US
- Airports Staff include :
  - Former Airport Noise Officers
  - Former Commercial Airline Pilots
  - Former Airport Environmental Managers
  - Operations Specialists, Noise Analysts, Airport Planners, and GIS Specialists

National Noise Study Experience

Florida Noise Study Experience

What is a FAR Part 150 Study?

- A program an airport can voluntarily undertake to address noise and land use compatibility
- Federal Aviation Regulation (FAR) Part 150 is the rule that implements the *Aviation Safety and Noise Abatement Act of 1979*
- Components for conducting an FAR Part 150 Study are established by the Federal Aviation Administration
  - Evaluate Existing Conditions (Land Use, Zoning, etc.)
  - Evaluate Existing Noise Environment
  - Evaluate Future Noise Environment
  - Evaluate Noise Abatement Alternatives
  - Evaluate Land Use Alternatives
  - Make Recommendations
- Must follow FAR Part 150 process to be accepted by FAA
- Study recommendations approved by the FAA become eligible for federal funding and implementation

Why Conduct a Voluntary Noise Study?

- To evaluate operational procedures and land use controls to reduce aircraft-related noise impacts and overflights on communities surrounding the airport
- To educate residents of the region on what procedures can and cannot be taken to minimize impacts
- Use as a "comprehensive voice" of Lee County residents and the airport to express their concerns to the FAA regarding overflights

Noise Study Goals

- Document Current and Future Noise Exposure Around the Airport
- Encourage noise abatement alternatives that don't sacrifice one neighborhood for another
- Evaluate Additional Noise Abatement Opportunities
- Provide Opportunity for Community Input
- Develop Recommendations for Noise Abatement and Noise Mitigation Measures
- Comply with Law Plan Requirements

FAR Part 150 Study
Who is involved?

- LCPA voluntarily initiates and manages the study
- Participants
  - Consultant - Subject Matter Expert
  - Public/Communities
  - FAA
  - Airlines
- Approved by
  - Lee County Board of Port Commissioners – Airport
  - Lee County Board of County Commissioners - Local land use
  - FAA - Operational procedures

Roles and Responsibilities

- **Three core organizations involved in aircraft operations at RSW**
  - Federal Aviation Administration (FAA)
  - Airlines and pilots
  - Lee County Port Authority (LCPA)
- Pilot in command has sole responsibility for the safe operation of his/her aircraft

Regulatory Framework

- Federal law sets aircraft noise standards, prescribes operating rules, establishes the compatibility planning process, and limits airport proprietor's ability to restrict aircraft operations
- State law sets forth compatibility planning guidelines and noise standards but exempts aircraft
- Local noise ordinances set noise standards and provide for compatible land use planning but exempts aircraft

FEDERAL LAW PREEMPTS STATE AND LOCAL REGULATIONS

Regulatory Framework

- There are many Federal Aviation Regulations (FARs) related to aircraft noise, including but not limited to:
  - FAR Part 36 – Noise Standards: Aircraft Type and Airworthiness Certification
  - FAR Part 91 – General Operating and Flight Rules
  - FAR Part 150 – Airport Noise Compatibility Planning
  - FAR Part 161 – Notice and Approval of Airport Noise and Access Restrictions

Quantifying Noise Exposure

- Noise exposure can be quantified using:
  - Measurements
  - Modeling

Quantifying Noise Exposure

- Measuring sound levels will accurately tell us:
  - The sound levels at a specific location for the time period measurements were made
  - Historical record of the sound levels at a specific location
  - Historical trends; but measurements do not predict future noise levels
  - Relationship between measured events and modeled events

Quantifying Noise Exposure

- Modeling sound exposure accurately tells us the sound levels
  - Over broad geographic areas as well as at specific locations for a specific time period
  - Modeling can produce a historical record
  - Modeling can be predictive by showing expected trends
- Modeling is the only FAA approved means of determining sound exposure

Aircraft Noise Modeling

- Noise modeling must comply with FAR Part 150 requirements
- Use the current FAA-approved Integrated Noise Model (INM) Version 7.0b
- Use annual-average day aircraft operations
- Use aircraft types from the INM's database
- Use FAA-approved aircraft substitutions
- Use the Day-Night Average Sound Level [DNL] metric to assess impact

Departure Lamax Contours

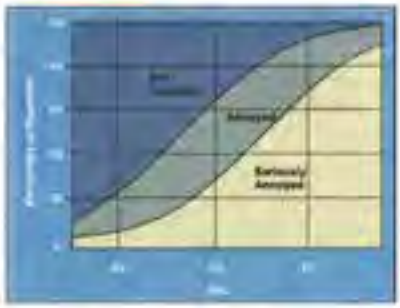
Day Night Average Sound Level (DNL)

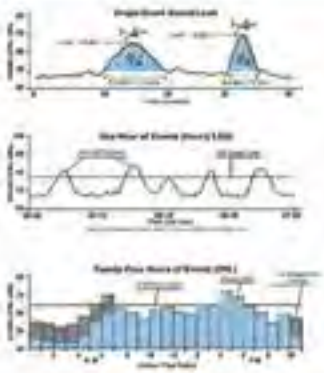
- The Amount of Noise Exposure is determined by:
  - Aircraft Types
  - Number of Annual Average Day Operations
  - Nighttime Weighting (1 nighttime op = 10 daytime ops)
- The Noise Exposure Distribution is determined by:
  - Runway Configuration and Use
  - Flight Track Locations
  - Flight Track Use
- Annual average day aircraft noise exposure is calculated over a broad area and then depicted using contour lines of equal noise levels.

Noise Significance

- Federal Aviation Regulations (FAR) Part 150 identifies 65 DNL as the sound level recognized by the FAA and the US Department of Housing and Urban Development (HUD) that is incompatible with residential, schools, hospitals and other noise-sensitive uses near airports.
- Lee County has adopted the 60 DNL contour as the level within which noise sensitive uses are not allowed for the purposes of planning land use in the vicinity of the airport.

Noise is Subjective





Rules of Thumb

- It takes a 3 dB level change of a source for most people to notice a difference
- A 10 dB increase or decrease is typically perceived as doubling or halving of the loudness, respectively
- Doubling or halving of the distance from the source the receiver equates to +/- 6 dB sound level change
- A doubling or halving the airport operations equates to a +/- 3 dB change in DNL
- Using DNL, one nighttime flight will be equivalent to 10 flights during the day

RSW FAR Part 150 Study History & Background

- Three Part 150 studies have been voluntarily conducted for RSW in 1988, 1995 and 2006
- The Board of County Commissioners amended county regulations to require that RSW noise contours be updated every 5 years, starting in 2006.

Recommendations from Previous Study

- Continue Existing Voluntary Measures
  - Preferential Runway Use – Runway 8
  - Maintain Altitude on Downwind and over Beaches on Visual Approaches
  - Keep 'em High
  - Runway 24 Departures – Use MAPLS 1 SID or ALIGG 3 SID
  - Propeller Aircraft – Use AOPA recommended noise abatement procedures
  - Turbojet Aircraft – Use Aircraft manufacturers recommended procedures or NBAA recommended procedures, or Standard Departure Procedure
  - Commercial Aircraft – Use Detect Noise Abatement Departure Paths
  - No Engine run-ups between 11:00pm and 6:00am with prior approval
  - Modify existing Runway 8 departure to use DME turn
- Purchase and Install Flight Tracking System
- Continue to explore RNAV opportunities
- Implement RNAV procedure for Alico Corridor
- Implement updated overlay zone

Current RSW Noise Zones

Two Phase Process

Phase 1 - Noise Exposure Maps (NEM)

Two Phase Process

Phase 2 – Noise Compatibility Plan

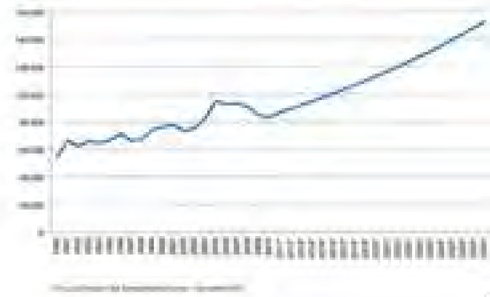
2011 NEM Timeline

2011/2012 NCP Timeline

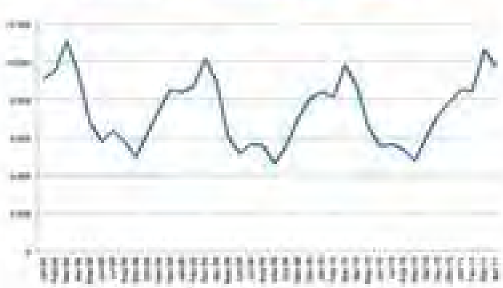
Public Outreach Opportunities

- Community Meetings
- Public Workshops
- Website
- E-mail Database
- Study Related Comment Database
- Public Hearing

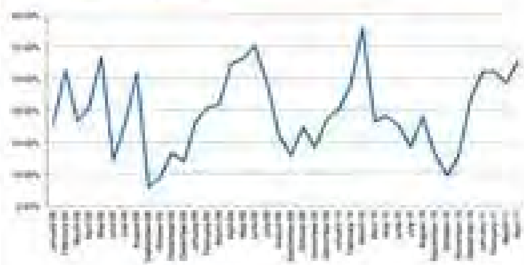
Annual Activity Levels - Operations



Operations Fluctuate by Month



Runway Use Fluctuates by Month



RSW Ranking - US

- 51st in total Passenger Enplanements
- 53rd in Air Carrier Operations
- 267th in Total Operations

RSW Ranking - Florida

- 5th in total Passenger Enplanements
- 5th in Air Carrier Operations
- 37th in Total Operations

FAA Challenges – RSW vs Other Airports

AIRPORT	ANNUAL OPERATIONS	Total Population Inside			TOTAL
		65-70 DNL	70-75 DNL	75+ DNL	
Key West	71,449	669*	247*	79*	1,009*
White Plains, NY	189,213	804	786	0	1,590
Teterboro	173,000	3,858	377	0	4,235
Chicago Midway	267,139	4,707*			4,707*
LaGuardia	384,000	7,343	0	0	7,343
Cleveland	235,000	7,031	1,498	0	8,529
Minn.-St. Paul	448,849	8,807	907	0	9,714
St. Louis	248,987	13,809	1,512	3	15,324
O'Hare	881,556	16,960*			16,960*
San Diego	226,147	25,944	2,402	148	28,494
Miami	373,000	38,854	3,493	0	42,347
Seattle-Tacoma	343,000	37,702	7,100	0	44,802
Los Angeles	613,000	41,000	23,412	4,168	68,[illegible]

FAA Challenges – RSW vs Other Airports

Community Issues:

Fort Myers Beach

Pre FLOWCAR Overflight Comments

Post FLOWCAR Overflight Comments

Post FLOWCAR Overflight Comments

Flight Procedures vs. Comments

Fort Myers Beach Concerns

- Change in operational characteristics
- Arrival overflight frequency
- Overflight altitude
- Others?

Other Items for Consideration

- Noise Monitoring/NEM Correlation Sites
- Additional Discussion

Next Steps

- Introductory Public Workshops
- Complete Data Collection
- Develop Noise Exposure Maps
- Conduct Assessment of Noise Sensitive Sites
- NEM Community Meetings & Public Workshops
- ASMC/Board Briefing and Endorsement
- Submit Noise Exposure Map Report to FAA for Acceptance
- Start Noise Compatibility Program

Port Authority Meeting - June 15, 2011

Purpose To share what the Town of Fort Myers Beach would like to have addressed during the FAA Part 150 Noise and Land Use Compatibility Study

Key Issues for the Town of Fort Myers Beach:

1. An increasing number of low flying aircraft over highly populated Fort Myers Beach and the environmentally sensitive areas of Estero Island
2. Aircraft noise
3. Outside air quality from aircraft
4. Safety concerning bird strikes
5. Safety from laser beams

Specific Requests.

1. Decrease the number of over flights by recommending alternative arrival routes that would by pass Estero Island where the Town of Fort Myers Beach is located
   a. Currently 80% of aircraft land to the northeast and arrive over the island of Fort Myers Beach. Evaluate threshold conditions to see if more aircraft can land to the southwest.
   b. Request that controllers of aircraft arriving on the SHEFTY route be allowed to release aircraft so that they can return to the airport using a route that goes over Black Island or Lovers Key and then over uninhabited Estero Bay rather than over highly populated Estero Island. Aircraft using the TYNER arrival route are allowed to arrive over uninhabited Estero Bay

2. Recommend implementation of a more formal solution to the "Keep 'em High" Noise Abatement Program recommended in the last Part 150 study
   a. Currently, aircraft arrival procedures recommend that aircraft stay above 3,000 ft until past the Town of Fort Myers Beach, but the approach plates used by the pilots allow altitudes as low as 1,600 ft
   b. A procedural change is requested to require that aircraft stay above 3,000 ft until 10 nautical miles from the airport.

3. Recommend use of Optimized Profile Descent (OPD) or Constant Descent Approach (CDA) procedures be used for aircraft arriving Southwest Florida International Airport in order to reduce noise and fuel consumption

4. Reduce the number of aircraft flying over Estero Island between midnight and 6 AM when aircraft are being controlled by Miami Center.
   a. These aircraft are often late arrivals, coming from overseas or are cargo carriers. Since there should be minimal air traffic during these hours, the arrival approach, whether on the TYNER or SHEFTY, should be able to fly over uninhabited Estero Bay rather than over the highly populated Town of Fort Myers Beach at from midnight to 6 AM

5. Implement a flight tracking system as recommended in the last Part 150 study

Submitted by Tom Babcock on behalf of residents and visitors of the Town of Fort Myers Beach

APPENDIX E

June 15, 2011 Ft. Myers Beach Community Meeting

Southwest Florida International Airport

FAR Part 150 Overview

Community Meeting #1
Fort Myers Beach

ESA Airports

Overview

- Who is ESA Airports?
- What is a Federal Aviation Regulations (FAR) Part 150?
- Noise 101
- Airport Noise Modeling
- Part 150 Process/Schedule
- Key Observations related to RSW
- Concerns of Fort Myers Beach
- Next Steps

ESA Overview

- Established in 1969 shortly after passage of the National Environmental Policy Act (NEPA)
- Airports Division focuses on Noise, Land Use Planning, Environmental Compliance, and Community Outreach for Airports
- FAR Noise Study experience at more than 120 airports throughout US
- Airports Staff include :
  - Former Airport Noise Officers
  - Former Commercial Airline Pilots
  - Former Airport Environmental Managers
  - Operations Specialists, Noise Analysts, Airport Planners, and GIS Specialists

National Noise Study Experience

Florida Noise Study Experience

What is a FAR Part 150 Study?

- A program an airport can voluntarily undertake to address noise and land use compatibility
- Federal Aviation Regulation (FAR) Part 150 is the rule that implements the *Aviation Safety and Noise Abatement Act of 1979*
- Components for conducting an FAR Part 150 Study are established by the Federal Aviation Administration
  - Evaluate Existing Conditions (Land Use, Zoning, etc.)
  - Evaluate Existing Noise Environment
  - Evaluate Future Noise Environment
  - Evaluate Noise Abatement Alternatives
  - Evaluate Land Use Alternatives
  - Make Recommendations
- Must follow FAR Part 150 process to be accepted by FAA
- Study recommendations approved by the FAA become eligible for federal funding and implementation

Why Conduct a Voluntary Noise Study?

- To evaluate operational procedures and land use controls to reduce aircraft-related noise impacts and overflights on communities surrounding the airport
- To educate residents of the region on what procedures can and cannot be taken to minimize impacts
- Use as a "comprehensive voice" of Lee County residents and the airport to express their concerns to the FAA regarding overflights

Noise Study Goals

- Document Current and Future Noise Exposure Around the Airport
- Encourage noise abatement alternatives that don't sacrifice one neighborhood for another
- Evaluate Additional Noise Abatement Opportunities
- Provide Opportunity for Community Input
- Develop Recommendations for Noise Abatement and Noise Mitigation Measures
- Comply with Lee Plan Requirements

FAR Part 150 Study Who is involved?

- LCPA voluntarily initiates and manages the study
- Participants
  - Consultant - Subject Matter Expert
  - Public/Communities
  - FAA
  - Airlines
- Approved by
  - Lee County Board of Port Commissioners – Airport
  - Lee County Board of County Commissioners - Local land use
  - FAA - Operational procedures

Roles and Responsibilities

- **Three core organizations involved in aircraft operations at RSW**
  - Federal Aviation Administration (FAA)
  - Airlines and pilots
  - Lee County Port Authority (LCPA)
- Pilot in command has sole responsibility for the safe operation of his/her aircraft

Regulatory Framework

- Federal law sets aircraft noise standards, prescribes operating rules, establishes the compatibility planning process, and limits airport proprietor's ability to restrict aircraft operations
- State law sets forth compatibility planning guidelines and noise standards but exempts aircraft
- Local noise ordinances set noise standards and provide for compatible land use planning but exempts aircraft

FEDERAL LAW PREEMPTS STATE AND LOCAL REGULATIONS

Regulatory Framework

- There are many Federal Aviation Regulations (FARs) related to aircraft noise, including but not limited to:
  - FAR Part 36 – Noise Standards: Aircraft Type and Airworthiness Certification
  - FAR Part 91 – General Operating and Flight Rules
  - FAR Part 150 – Airport Noise Compatibility Planning
  - FAR Part 161 – Notice and Approval of Airport Noise and Access Restrictions

Quantifying Noise Exposure

- Noise exposure can be quantified using:
  - Measurements
  - Modeling

Quantifying Noise Exposure

- Measuring sound levels will accurately tell us:
  - The sound levels at a specific location for the time period measurements were made
  - Historical record of the sound levels at a specific location
  - Historical trends; but measurements do not predict future noise levels
  - Relationship between measured events and modeled events

Quantifying Noise Exposure

- Modeling sound exposure accurately tells us the sound levels
  - Over broad geographic areas as well as at specific locations for a specific time period
  - Modeling can produce a historical record
  - Modeling can be predictive by showing expected trends
- Modeling is the only FAA approved means of determining sound exposure

Aircraft Noise Modeling

- Noise modeling must comply with FAR Part 150 requirements
- Use the current FAA-approved Integrated Noise Model (INM) Version 7.0b
- Use annual-average day aircraft operations
- Use aircraft types from the INM's database
- Use FAA-approved aircraft substitutions
- Use the Day-Night Average Sound Level (DNL) metric to assess impact

Departure Lamax Contours

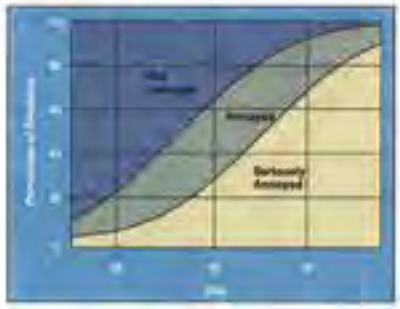
Day Night Average Sound Level (DNL)

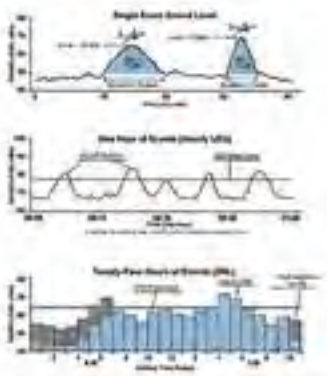
- The Amount of Noise Exposure is determined by:
  - Aircraft Types
  - Number of Annual-Average Day Operations
  - Nighttime Weighting (1 nighttime op = 10 daytime ops)
- The Noise Exposure Distribution is determined by:
  - Runway Configuration and Use
  - Flight Track Locations
  - Flight Track Use
- Annual average day aircraft noise exposure is calculated over a broad area and then depicted using contour lines of equal noise levels.

Noise Significance

- Federal Aviation Regulations (FAR) Part 150 identifies 65 DNL as the sound level recognized by the FAA and the US Department of Housing and Urban Development (HUD) that is incompatible with residential, schools, hospitals and other noise-sensitive uses near airports.
- Lee County has adopted the 60 DNL contour as the level within which noise sensitive uses are not allowed for the purposes of planning land use in the vicinity of the airport.

Noise is Subjective





Rules of Thumb

- It takes a 3 dB level change of a source for most people to notice a difference
- A 10 dB increase or decrease is typically perceived as doubling or halving of the loudness, respectively
- Doubling or halving of the distance from the source the receiver equates to +/- 6 dB sound level change
- A doubling or halving the airport operations equates to a +/- 3 dB change in DNL
- Using DNL, one nighttime flight will be equivalent to 10 flights during the day

RSW FAR Part 150 Study History & Background

- Three Part 150 studies have been voluntarily conducted for RSW in 1989, 1999 and 2006
- The Board of County Commissioners amended county regulations to require that RSW noise contours be updated every 5 years, starting in 2006.

Recommendations from Previous Study

- Continue Existing Voluntary Measures
  - Preferential Runway Use – Runway 6
  - Maintain Altitude on Downwind and over Beaches on Visual Approaches
  - Keep 'em High
  - Runway 24 Departures – Use MAPLI, 1 SID or ALICO 2 SID
  - Propeller Aircraft – Use AOPA recommended noise abatement procedures
  - Turbojet Aircraft – Use Aircraft manufacturers recommended procedures or NBAA recommended procedure, or Standard Departure Procedure
  - Commercial Aircraft – Use Distant Noise Abatement Departure Profile
  - No Engine run-ups between 11:00pm and 6:00am with prior approval
  - Modify existing Runway 6 departure to use GME navs
- Purchase and Install Flight Tracking System
- Continue to explore RNAV opportunities
- Implement RNAV procedure for Alico Corridor
- Implement updated overlay zone

Current RSW Noise Zones

Two Phase Process

Phase 1 - Noise Exposure Maps (NEM)

Two Phase Process

Phase 2 – Noise Compatibility Plan

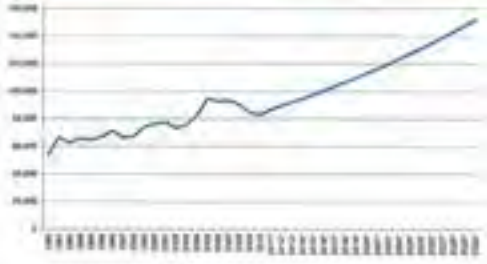
2011 NEM Timeline

2011/2012 NCP Timeline

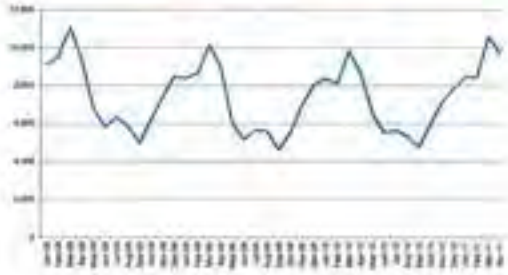
Public Outreach Opportunities

- Community Meetings
- Public Workshops
- Website
- E-mail Database
- Study Related Comment Database
- Public Hearing

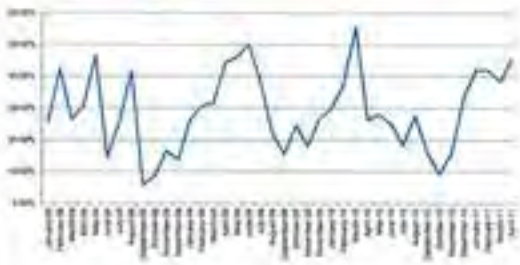
Annual Activity Levels - Operations



Operations Fluctuate by Month



Runway Use Fluctuates by Month



RSW Ranking - US

- 51st in total Passenger Enplanements
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- 5th in total Passenger Enplanements
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FAA Challenges – RSW vs Other Airports

AIRPORT	ANNUAL OPERATIONS	Total Population Inside			
		65-70 DNL	70-75 DNL	75+ DNL	TOTAL
Key West	71,043	809*	247*	78*	1,234*
White Plains, NY	180,218	604	786	0	1,390
Teterboro	173,699	2,666	577	0	4,245
Chicago Midway	267,529	4,700*			4,700*
LaGuardia	384,980	7,342	0	0	7,342
Cleveland	235,389	7,333	1,496	0	8,829
Minn.-St. Paul	446,840	8,807	927	0	9,734
St. Louis	248,347	13,966	1,372	0	15,304
O'Hare	881,086	10,200*			10,200*
San Diego	328,167	20,984	2,402	148	23,603
Miami	373,434	38,654	5,853	0	44,507
Seattle-Tacoma	349,038	37,700	7,100	0	44,800
Los Angeles	615,525	41,830	23,812	4,184	69,816

FAA Challenges – RSW vs Other Airports

Community Issues:

Fort Myers Beach

Pre FLOWCAR Overflight Comments

Post FLOWCAR Overflight Comments

Post FLOWCAR Overflight Comments

Flight Procedures vs. Comments

Fort Myers Beach Concerns

- Change in operational characteristics
- Arrival overflight frequency
- Overflight altitude
- Others?

Other Items for Consideration

- Noise Monitoring/NEM Correlation Sites
- Additional Discussion

Next Steps

- Introductory Public Workshops
- Complete Data Collection
- Develop Noise Exposure Maps
- Conduct Assessment of Noise Sensitive Sites
- NEM Community Meetings & Public Workshops
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Port Authority Meeting - June 15, 2011

Purpose To share what the Town of Fort Myers Beach would like to have addressed during the FAA Part 150 Noise and Land Use Compatibility Study

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1. An increasing number of low flying aircraft over highly populated Fort Myers Beach and the environmentally sensitive areas of Estero Island
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3. Recommend use of Optimized Profile Descent (OPD) or Constant Descent Approach (CDA) procedures be used for aircraft arriving Southwest Florida International Airport in order to reduce noise and fuel consumption

4. Reduce the number of aircraft flying over Estero Island between midnight and 6 AM when aircraft are being controlled by Miami Center.
   a. These aircraft are often late arrivals, coming from overseas or are cargo carriers. Since there should be minimal air traffic during these hours, the arrival approach, whether on the TYNER or SHEFTY, should be able to fly over uninhabited Estero Bay rather than over the highly populated Town of Fort Myers Beach at from midnight to 6 AM

5. Implement a flight tracking system as recommended in the last Part 150 study

Submitted by Tom Babcock on behalf of residents and visitors of the Town of Fort Myers Beach

APPENDIX F

July 8, 2011 Estero Community Meeting

LEE COUNTY PORT AUTHORITY

Estero 7/5/11

NAME	LAST NAME	COMPANY	PHONE #	EMAIL ADDRESS
M. K	Bato	Estero [illegible] Services	287-4708(cell) 948-3791	MRUBJR[illegible]
Dr.	[illegible]	Estero Council of Community Leaders	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
JOHN	WOOD	ESTERO NOISE	239-949-1130	johnwood@comcast.net
MICHAEL	ARNOLD	ESA AIRPORTS	407-312-1294	marnold@esassoc.com
[illegible]	[illegible]	ESA [illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	LCPA	239 590-4804	[illegible]
Ellen	[illegible]	LCPA		
Emily	[illegible]	LCPA		
[illegible]	[illegible]	LCPA		
GORDON	REYNOLDS	AIR TRAFFIC CONSULTING SERVICE	904 635 5701	[illegible]

Southwest Florida International Airport

FAR Part 150 Overview

Community Meeting #1
Estero

Today's Discussion

- Who's Who?
- Overview of Federal Aviation Regulations (FAR) Part 150?
- Study Schedule
- Key RSW Observations
- Community Issues - Estero
- Next Steps

Who's Who?

Roles and Responsibilities

- Federal Aviation Administration (FAA)
  - Directs the safe movement of aircraft in the air and on the ground
- Airline Pilots
  - Final responsibility for safe aircraft operation
- Lee County Port Authority
  - Landlord of the airport – Contracts and property managers
  - No control over where aircraft fly
  - Consultant hired by LCPA – ESA Airports

ESA Airports Overview

- Established in 1969
- Noise Study experience = 120 airports throughout US
- ESA Staff include:
  - Former Airport Noise Officers
  - Former Commercial Airline Pilots
  - Former Airport Environmental Managers
  - Operations Specialists, Noise Analysts, Airport Planners, and GIS Specialists

National Noise Study Experience

Florida Noise Study Experience

Overview of FAR Part 150

Overview of FAR Part 150

- Airport noise studies are ***voluntary***
- Must follow FAR Part 150 process to be considered and accepted by FAA
- Why conduct a noise study?
  - Educate communities on the Federal process and what can and cannot be done
  - Determine existing noise conditions at an airport
  - Evaluate the feasibility of possible flight procedure/land use changes
  - "Comprehensive voice" for southwest Florida to the FAA – not just 1 community
  - Submit local Board endorsed recommendations to the FAA and airlines

FAR Part 150 – Measuring Noise

- Single Aircraft Overflight Noise (departures)

FAR Part 150 – Measuring Noise

- Annual Cumulative Event Noise
  - FAA required measurement = Day-Night Average Sound Level (DNL)
  - Measured by:
    - Aircraft Types
    - Aircraft Flight Tracks
    - Aircraft Frequency
    - Runway Use
    - Nigisome penalty weighting (1 nighttime flight = 10 daytime flights)
    - Computer Generates an Annualized Average Noise Contour – DNL

FAR Part 150 – Measuring Noise

- 65 DNL and higher = FAA and the US Department of Housing and Urban Development (HUD) determined to be incompatible with residential, schools, hospitals and other noise-sensitive uses near airports.
- Less than 65 DNL = all uses compatible with airport noise

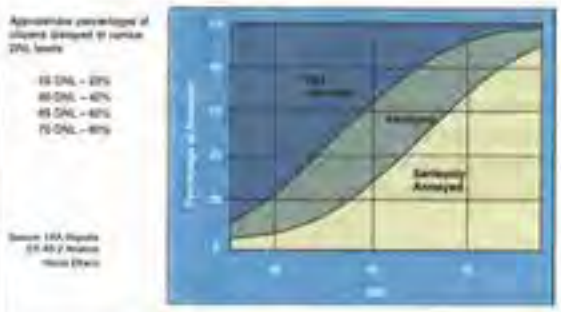
Sample Noise Contour (CLE)

2006 RSW Noise Contours

FAA Challenges – RSW vs Other Airports

AIRPORT	ANNUAL OPERATIONS	POPULATION INSIDE 65 DNL
Southwest Fla.	65,000	0
Key West	71,900	1,200
White Plains, NY	180,200	1,000
Teterboro	173,000	6,000
Chicago Midway	367,000	4,700
LaGuardia	384,000	7,000
Cleveland	230,000	8,500
Minn.-St. Paul	440,000	9,700
St. Louis	348,000	15,000
O'Hare	881,000	18,000
San Diego	309,147	22,000
Reno	103,000	42,000
Seattle-Tacoma	343,000	45,000
Los Angeles	615,000	88,000

Noise is Subjective



Part 1–Develop Noise Exposure Maps (NEMs)

- Identify existing and 5th year projected noise conditions
- Use FAA Integrated Noise Model (INM) computer program
- Compare INM computer program with live field noise measurements
- Develop airport noise contours
- Submitted to the FAA for acceptance – becomes baseline condition for Phase 2

Part 2–Develop Noise Compatibility Plan (NCP)

- Evaluate changes to flight procedures & land use
  - Can't compromise safety
  - Can't create delays in the air traffic system
  - Can't create a burden on FAA (i.e. time) or airlines (i.e., fuel)
  - Can't merely move flights over another community
- NCP approved by local Board
- Submitted to FAA for approval and implementation

Schedule

Part 1–Develop Noise Exposure Maps (NEMs)

- Data Acquisition – Spring/Summer 2011
- *Community/Public Meetings – Summer 2011*
- Field Measurements and Noise Modeling – Summer 2011
- Draft Noise Contours Developed – Summer/Fall 2011
- Community/Public Meetings – Fall 2011
- ASMC & Board Endorsement – Fall/Winter 2011/12
- Submit to FAA – Winter 2012
- FAA Approval of NEMs – Winter/Spring 2012

Part 2–Develop Noise Compatibility Plan (NCP)

- Develop/Evaluate Alternatives – Winter/Spring 2012
- Community/Public Meetings – Spring 2012
- Draft NCP Recommendations – Spring 2012
- ASMC & Board Endorsement – Summer 2012
- Submit to FAA – Summer/Fall 2012
- FAA Approval of NCP – Fall/Winter 2012
- Implementation of Recommendations – Winter 2012

Key RSW Observations

RSW Ranking - US

- 51st in total Passenger Enplanements
- 53rd in Air Carrier Operations
- 267th in Total Operations

RSW Ranking - Florida

- 5th in Total Passenger Enplanements
- 5th in Air Carrier Operations
- 37th in Total Operations

Current RSW Noise Zones


Annual Activity Levels - Operations


Operations Fluctuate by Month


Runway Use Fluctuates by Month


Community Issues:
Estero


Lehigh Acres


Pre FLOWCAR Overflight Comments

Post FLOWCAR Overflight Comments

Flight Procedures vs. Comments

Estero Concerns

- Change in operational characteristics
- RNAV VIS RW6
- Overflight altitude/frequency
- Others?

Other Items for Consideration

- Noise Monitoring/NEM Correlation Sites
- Additional Discussion

MEMO TO: Commissioner Frank Mann
Chairman

FROM: Robert M. Ball
Executive Director

LEE COUNTY PORT AUTHORITY

DATE: May 23, 2011

SUBJECT: Estero Community Proposal to the FAA

In response to your request, this correspondence confirms the Board's direction at the May 9, 2011, Port Authority Board Meeting that the consultant (ESA Airports) hired by the Board to prepare the voluntary 2011/12 Southwest Florida International Airport (RSW) Federal Aviation Regulations (FAR) Part 150 Noise Study Update will consider and evaluate the March 26, 2010, proposal (attached), previously submitted to the Federal Aviation Administration (FAA) by an Estero representative, as part of the consultant's scope of work.

ESA Airports has completed 28 FAR Part 150 airport noise studies and over 100 noise analyses at airports across the US, and was given Notice-To-Proceed to prepare the RSW FAR Part 150 Noise Study Update by Port Authority Staff on April 8, 2011. The development of the study must follow the timing and format outlined in FAR Part 150 in order for recommendations resulting from the study to be considered by the FAA. The first phase of the study involves the development of Noise Exposure Maps (NEMs). This involves gathering data regarding runway use, aircraft frequency and types using RSW, identifying where aircraft typically fly when arriving and departing RSW, field noise measurements of overflying aircraft, weather trends and conditions that affect the perception of aircraft noise, and other data needed to calibrate the NEM computer program, as specified by the FAA. This is a nine (9)-month effort that will result in the development of RSW noise contours for the base year (2011) and the projected fifth year (2016). Public community meetings will be a part of this Phase One effort, and this information will be presented to the Board after its completion prior to transmittal to the FAA for approval. The FAA must first approve the RSW NEMs before the consultant can begin the Phase Two portion of the study

The second phase of the study is the development of a Noise Compatibility Plan (NCP). The consultant will gather and evaluate suggestions from communities and individuals in southwest Florida, including Estero residents, through public workshops, e-mails, letters, voice-mail and via the Port Authority website, as well as develop recommendations of their own that could serve to reduce the number of aircraft overflights to noise-sensitive areas and southwest Florida communities. This typically involves recommended changes to local land uses and zoning, as well as recommendations to the FAA related to changes to aircraft flight procedures. The consultant will evaluate if suggestions benefit southwest Florida communities without creating a safety concern for arriving or departing aircraft, without merely moving overflights from one community to another, and without placing an unnecessary or hazardous burden on the airline pilot or the FAA Air Traffic Controller. This is a nine (9)-month effort whereby the consultant will evaluate suggestions and provide a written analysis within the study report as to why each suggestion is recommended or not. Public community meetings will also be a part of this Phase Two effort, and final NCP recommendations will be presented to the Board prior to transmittal to the FAA for final approval.

It is my understanding that representatives from the Estero community have been in direct contact with the FAA Southern Regional Office since 2009, and this most recent proposal is currently being considered by the FAA outside the RSW FAR Part 150 Noise Study Update. As the FAA, not the Port Authority is responsible for guiding and organizing the safe movement of aircraft both in the air and on the ground at RSW, nothing in the RSW FAR Part 150 Noise Study Update would hinder the Estero representatives from continuing to work directly with the FAA.

Please be assured that comments and suggestions by each southwest Florida community will be given serious consideration during the preparation of the RSW FAR Part 150 Noise Study Update, and we will keep the Board and the general public informed on the progress of the study on the Port Authority website and in the Monthly Project Summary.

Please let me know if you need any additional information.

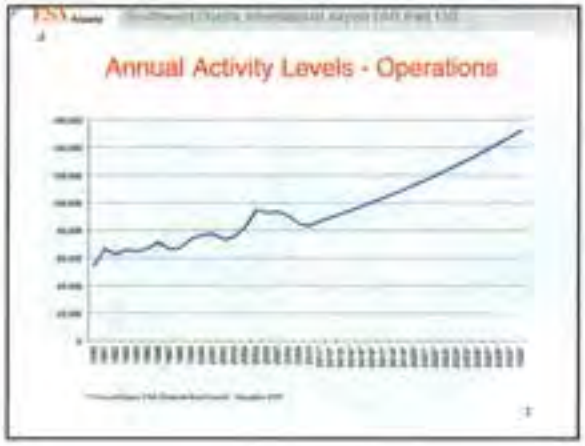
RMB cjs
Attachment

cc: Board of Port Commissioners (with attachment)
Doug Murphy, FAA Southern Regional Administrator (with attachment)
Mike Arnold, RSW Part 150 Study Project Manager, ESA Airports (with attachment)

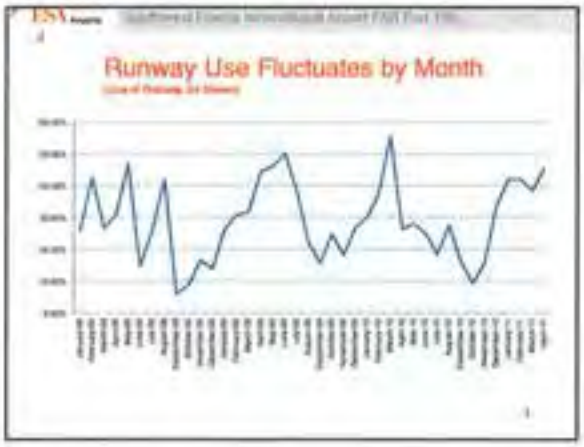
APPENDIX G

October 4, 2011 Estero Plan Meeting with RSW ATC and Eastern ATC Manager


Southwest Florida International Airport
FAR Part 150
ATC Meeting


Annual Activity Levels - Operations


Operations Fluctuate by Month


Runway Use Fluctuates by Month


Pre FLOWCAR Overflight Comments


Post FLOWCAR Overflight Comments


Flight Procedures vs. Comments


RSW Airspace Boundary


SHFTY and TYNEE


SHFTY to TYNEE Transition


Departure and Arrival Transitions


CSHEL FOUR and ALICO THREE

Victor Airways

Arrival Procedure Fix Usage

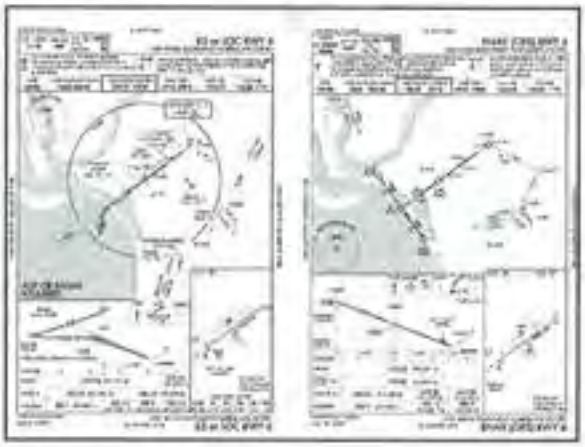
Arrival Procedure Fix Usage

Source	SHFTY	TYNEE
Actual	52.0%	48.0%
Based on Origination	56.8%	43.2%

Southwest Florida International Airport

FAR Part 150

ATC Meeting



APPENDIX H

October 27, 2011 Meeting with Miami Center

RSW
SFC-100
R25
240 - ABV
R7
110 - 230
R7
110 - 170
R24
180 - 230
R67
110 - 170
R-24
180 - 230
RSW
SFC-100
R7
110 - 170
R24
180 - 230
RSW
SFC-100
RSW
SFC-100
R24
110 - 230
R24
110 - 230
R24
SFC - 230
TYNEE ONE
TYNEE ONE
DEAKE THREE
CSTEL
BHREE
SHFTY TWO
SHFTY TWO
VIOLA
CHARO
STUUU
CEXAN
PUNTA GORDA
JEVES
RSTAA
YALOO
UTELE
VASC
PGD
110.2
PINTS
TYNEE
ERRIN
LOSBY
SERFS
VASES
LBV
110.4-41
LA BELLE MUNI
RXXAN
V579
2000
JICTI
WLACE
V225
2000
*1500
IRNIE
DYLY
ZEILR
Q102
WITAR
RSW
111.8-55
RODDE
NABAC
28
TIRTE
PAGE FIELD
SOUTHWEST FLORIDA INTL
IMOCK
GRAMS
WYCOF
SNOKE
COOPR
MAPUL
RUTHY
KOCHE
V521
IMMOKALEE RGNL
PASTR
LENPE
ELMER
HIGUP
CORFU
SPNKE
PONTY
V225
COGDL
V35
2200
FORTL
V7
2200
MILES
CITAG
RSW
SFC-100
SHFTY TWO
...\master_WSTARS-10-2011.dgn 10/26/2011 10:21:29 AM

...\users\artcc\LEECOUNTY_1.DGN 10/26/2011 10:33:56 AM


NEPTA SFC - ABV
DARBS SFC - 269
MAYO 270 - 349
ZEPHYR 350 - ABV
JACKSONVILLE
MIAMI
R8 280 - ABV
R7 130 - 270
R8 SFC - ABV
R7 SFC - 270
R8 240 - ABV
R7 SFC - 230
R7 110 - 230
R7 130 - 270
TPA SFC-100
TPA SFC-030
F11 040-120
F11 040-100
TFA SFC-030
F11 SFC-160
F11 SFC-050
F11 055-090
R23 150 - 230
R23 170 - 230
R3 SFC - 040
R4 050 - 090
R22 100 - 230
R66 SFC - 090
R47 110 - 230
R46 110 - 230
R47 SFC - 230
RSW SFC-100
PBI SFC-070
MIAMI OCEANIC CTA/FIR
CONTIGUOUS U.S. ADIZ
DEFENSE AREA
TYNEE ONE
GANDY FOUR
SHIFTY TWO
DEAKK THREE
CSHEL
LAL 116.0-107
PIE 116.4-111
MCF 47-111.0
SRQ 117.0-117
RSW 11.8-58
PHK 115.4-101
VRB 117.3-120
ORL 112.2-59
LBV 110.4-41
PGD 110.2
VNC 206
FPR 275
SFB 408
LEE 335
RHZ 253

APPENDIX I

RSW Community Noise Monitoring

COMMUNITY NOISE MONITORING

For the purposes of developing a full understanding of community and aircraft noise levels, aircraft noise measurements were made at seven locations around RSW. The data collected was used to identify and compare relative levels of common community noise sources as well as specific aircraft types operating at RSW. It is important to note that under 14 CFR Part 150 regulations, the measured levels of aircraft noise may not be used to alter the noise data contained in the INM, and subsequently cannot be used to develop noise contours.

As described above and shown in **Table 1** and **Figure 1**, seven locations were chosen for the noise measurements. ESA contacted residents/neighborhoods from various areas around the Airport that both receive a high number of overflights due to arrival and departure procedures, and/or have a high number of concerns expressed by local residents. Since the last 14 CFR Part 150 Study, a redesign of the airspace was implemented by the FAA. This redesign is referred to as the Florida West Coast Airspace Redesign or FLOWCAR and changed the arrival paths aircraft arriving from destinations along the east coast of the U.S. This redesign was implemented in 2008 and established an arrival corridor over communities located south and southwest of the Airport when Runway 06 is in use. Prior to the implementation of FLOWCAR, communities southwest of the Airport received lower numbers of direct overflights. Because of the new arrival procedures associated with FLOWCAR, these areas were of particular interest for noise monitoring and measurements were taken in The Colony, Wildcat Run, and Shadow Wood Country Clubs. In addition, measurements were also recorded in communities located under the departure path for Runway 24 and the CSHEL Four Departure corridor. These communities included Fiddlesticks and The Forest Country Clubs. Neighborhoods that receive a high number of arrivals were also monitored and included Lehigh Acres and the Ft. Myers Beach area. The noise measurements, using the noise measurement procedures and guidelines from 14 CFR Part 150, were made during the time period of Monday, August 15 through Friday, August 19, 2011.

TABLE 1
RSW NOISE MEASUREMENT LOCATIONS

1.	The Colony Country Club
2.	Wildcat Run Country Club
3.	The Forest
4.	Fiddlesticks
5.	Lehigh Acres
6.	18 Avenida Carita, Ft. Myers Beach
7.	Shadow Wood Country Club

For each measurement site, a noise monitor was used to record the noise levels at that location. The noise monitors recorded the sound levels of aircraft overflights as well as the ambient (non-aircraft) background levels. Staff was also at each location for extended periods of time during the measurements to record observations related to aircraft activities as well as local noise sources such as roadways, wildlife, landscaping equipment, etc. Observations recorded during the measurement exercise are included in this appendix.

The amount of noise measurement data collected was quite voluminous. To provide meaningful interpretation of the data, the measured data was sorted by location and aircraft type. In **Table 2** and **Figure 2**, single event level (SEL), as described in Chapter 3, ranges are provided where appropriate for each location and aircraft type based on the number of noise events recorded.

Many individuals have a difficult time understanding what the noise levels measured means. To assist with this, it is often helpful to associate the noise level measured for an aircraft overflight to everyday common sounds. Everyday common sounds are commonly reported using Lmax, or the peak sound level reached. To accurately compare the data to everyday common sounds, the noise levels must be converted to Lmax to represent the general peak noise level present. To accomplish this, 10 dBA is subtracted from the SEL value to achieve the general Lmax value. It is important to understand the Lmax of a noise event is always less than the SEL value. In **Table 3** and **Figure 3**, Lmax ranges are provided for each location and aircraft type recorded. Also identified in Table 3 and Figure 3 are Common Sounds Ranges at each location that shows the Lmax value for sounds not associated with aircraft that include lawn equipment, passing cars, insect/wildlife noise, storm alarms, etc. It is important to note that the Common Sounds Ranges were not calculated by subtracting 10 dBA from and SEL value, but rather the Lmax value read directly from the noise measurement equipment at the time of monitoring. Records of the common sounds range for each location can be found in the noise monitoring sheets included in this appendix.

Figures 4 through **6** show the Lmax range recorded during noise monitoring and compares them with common indoor and outdoor noise levels by each monitoring location.

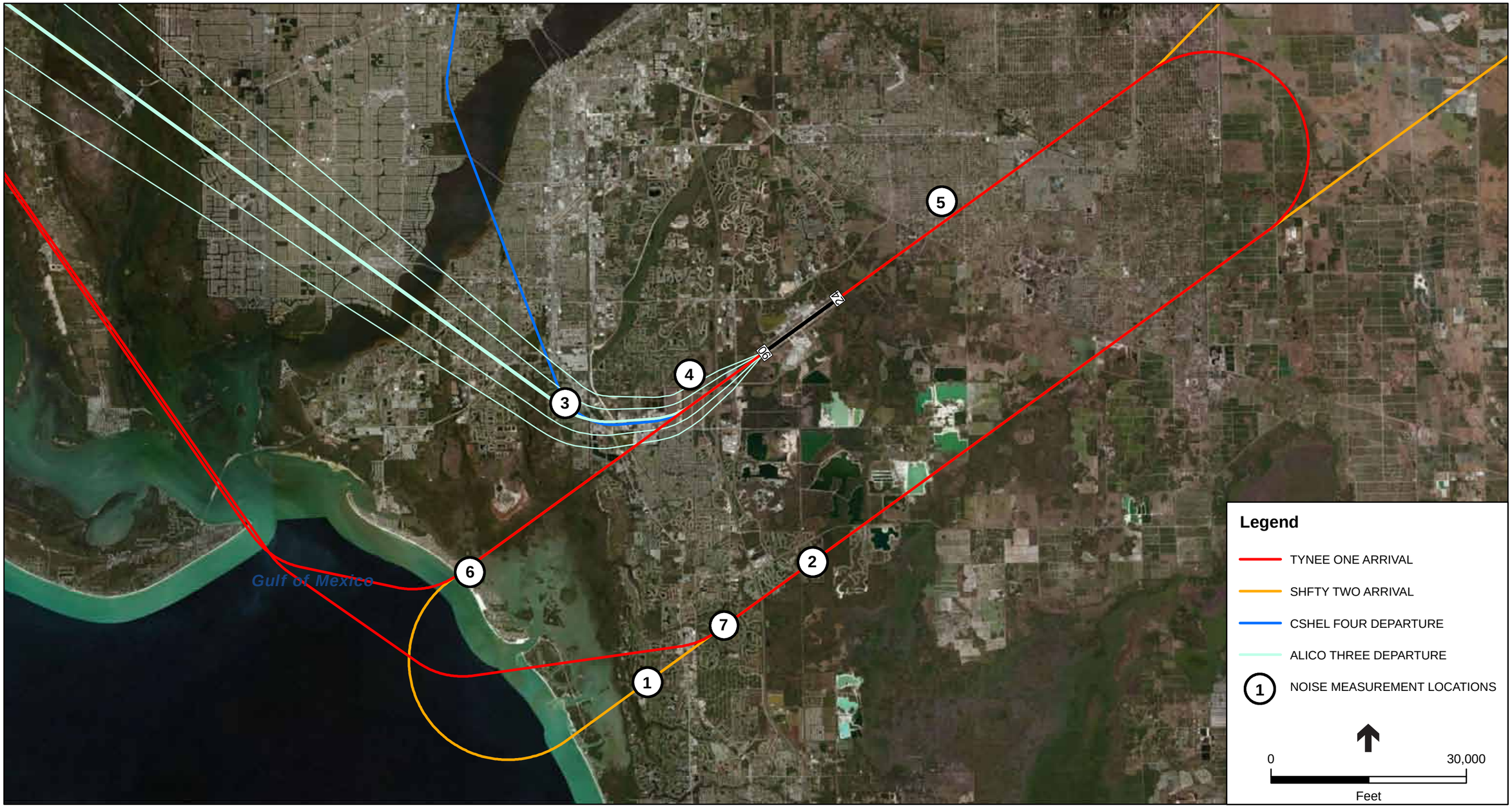
TABLE 2
RSW SINGLE EVENT NOISE MEASUREMENT RESULTS

Neighborhood	SEL Range MIN	SEL Range MAX
(1) The Colony (Arrival)		
717-200	61.87	68.99
737 Series	72.7	79
Airbus 320	70.12	
MD-88	69.52	72.74
(2) Wildcat Run CC (Arrival)		
717-200	66.99	74.15
737 Series	70.97	73.78
Airbus 330	69.68	
MD-88	73.26	75.63
(3)The Forest (Departures)		
717-200	71.38	76.39
737 Series	70.74	85.05
Airbus 319/320 Series	76.12	79.44
Airbus 330	80.21	
Embraer 145XR	69.45	
Embraer 170/190 Series	76.36	78.41
MD-80 Series	81.4	86.65
(4) Fiddlesticks (Departures)		
717-200	74.08	75.13
737 Series	80.33	83.58
Airbus 319/320 Series	77.25	77.78
Citation X	71.86	
Embraer 145XR	74.58	

Neighborhood	SEL Range MIN	SEL Range MAX
(4) Fiddlesticks (Departures) (Cont.)		
Embraer 170/190 Series	79.17	81.23
Gulfstream IV	76.44	
MD-88	76.44	87.17
Piaggio 180	78.52	
(5) Lehigh Acres (Arrivals)		
737-300	79.05	
Airbus 319/320 Series	72.17	75.94
Citation 560	69.87	
Embraer 145 XR	71.84	
Embraer 170	78.93	
Gulfstream IV	75.91	
Piaggio 180	85.22	
(6) 18 Avenida Carita (Arrivals)		
717-200	68.29	76.4
737 Series	68.32	83.72
757-200	63.15	
Airbus 319/320 Series	62.39	75.42
Cessna Citation X	71.35	
Embraer 145	60.85	71.05
Embraer 190	73.22	
MD-88	70.19	
(7) Shadow Wood Country Club (Arrival)		
737 Series	67.73	76.84
Airbus 319	73.46	

TABLE 3
RSW LMAX MEASUREMENT RESULTS

Neighborhood	LMAX Range MIN	LMAX Range MAX
(1) The Colony (Arrival)		
717-200	51.87	58.99
737 Series	62.70	69
Airbus 320	60.12	
MD-88	59.52	62.74
Common Sounds Range	59.40	66
(2) Wildcat Run CC (Arrival)		
717-200	56.99	64.15
737 Series	60.97	63.78
Airbus 330	59.68	
MD-88	63.26	65.63
Common Sounds Range	53	73
(3)The Forest (Departures)		
717-200	61.38	66.39
737 Series	60.74	75.05
Airbus 319/320 Series	66.12	69.44
Airbus 330	70.21	
Embraer 145XR	59.45	
Embraer 170/190 Series	66.36	68.41
MD-80 Series	71.4	76.65
Common Sounds Range	50	86
(4) Fiddlesticks (Departures)		
717-200	64.08	65.13
737 Series	70.33	73.58
Airbus 319/320 Series	67.25	67.78
Citation X	61.86	
Embraer 145XR	64.58	
Embraer 170/190 Series	69.17	71.23
Gulfstream IV	66.44	
MD-88	66.44	77.17
Piaggio 180	68.52	
Common Sounds Range	65.4	87
(5) Lehigh Acres (Arrivals)		
737-300	69.05	
Airbus 319/320 Series	62.17	65.94
Citation 560	59.87	
Embraer 145 XR	61.84	
Embraer 170	68.93	
Gulfstream IV	65.91	
Piaggio 180	75.22	
Common Sounds Range	56	76
(6) 18 Avenida Carita (Arrivals)		
717-200	58.29	66.40
737 Series	58.32	73.72
757-200	53.15	
Airbus 319/320 Series	52.39	65.42
Cessna Citation X	61.35	
Embraer 145	50.85	61.05
Embraer 190	63.22	
MD-88	60.19	
Common Sounds Range	55	70
(7) Shadow Wood Country Club (Arrival)		
737 Series	57.73	66.84
Airbus 319	63.46	
Common Sounds Range	60	78



SOURCE Lee County GIS Department; ESRI and ESA Airports, 2011

Southwest Florida International Airport CFR Part 150 .210140

Figure 1
Noise Measurement Locations

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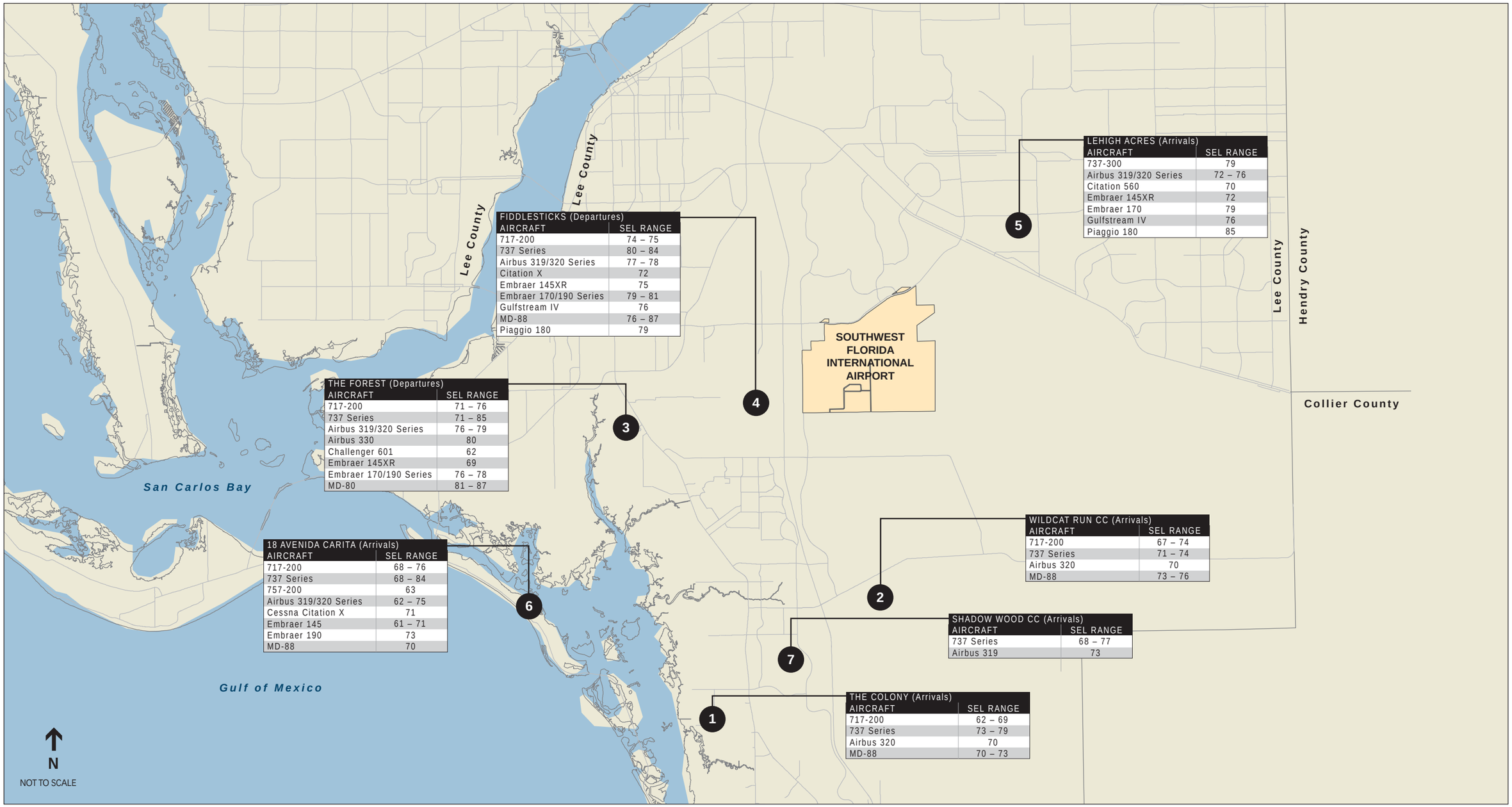

FIDDLESTICKS (Departures)	
AIRCRAFT	SEL RANGE
717-200	74 – 75
737 Series	80 – 84
Airbus 319/320 Series	77 – 78
Citation X	72
Embraer 145XR	75
Embraer 170/190 Series	79 – 81
Gulfstream IV	76
MD-88	76 – 87
Piaggio 180	79

THE FOREST (Departures)	
AIRCRAFT	SEL RANGE
717-200	71 – 76
737 Series	71 – 85
Airbus 319/320 Series	76 – 79
Airbus 330	80
Challenger 601	62
Embraer 145XR	69
Embraer 170/190 Series	76 – 78
MD-80	81 – 87

LEHIGH ACRES (Arrivals)	
AIRCRAFT	SEL RANGE
737-300	79
Airbus 319/320 Series	72 – 76
Citation 560	70
Embraer 145XR	72
Embraer 170	79
Gulfstream IV	76
Piaggio 180	85

18 AVENIDA CARITA (Arrivals)	
AIRCRAFT	SEL RANGE
717-200	68 – 76
737 Series	68 – 84
757-200	63
Airbus 319/320 Series	62 – 75
Cessna Citation X	71
Embraer 145	61 – 71
Embraer 190	73
MD-88	70

WILDCAT RUN CC (Arrivals)	
AIRCRAFT	SEL RANGE
717-200	67 – 74
737 Series	71 – 74
Airbus 320	70
MD-88	73 – 76

SHADOW WOOD CC (Arrivals)	
AIRCRAFT	SEL RANGE
737 Series	68 – 77
Airbus 319	73

THE COLONY (Arrivals)	
AIRCRAFT	SEL RANGE
717-200	62 – 69
737 Series	73 – 79
Airbus 320	70
MD-88	70 – 73

SOURCE: Lee County GIS Department; ESRI; and ESA Airports, 2011

Figure 2
Noise Measurement Results

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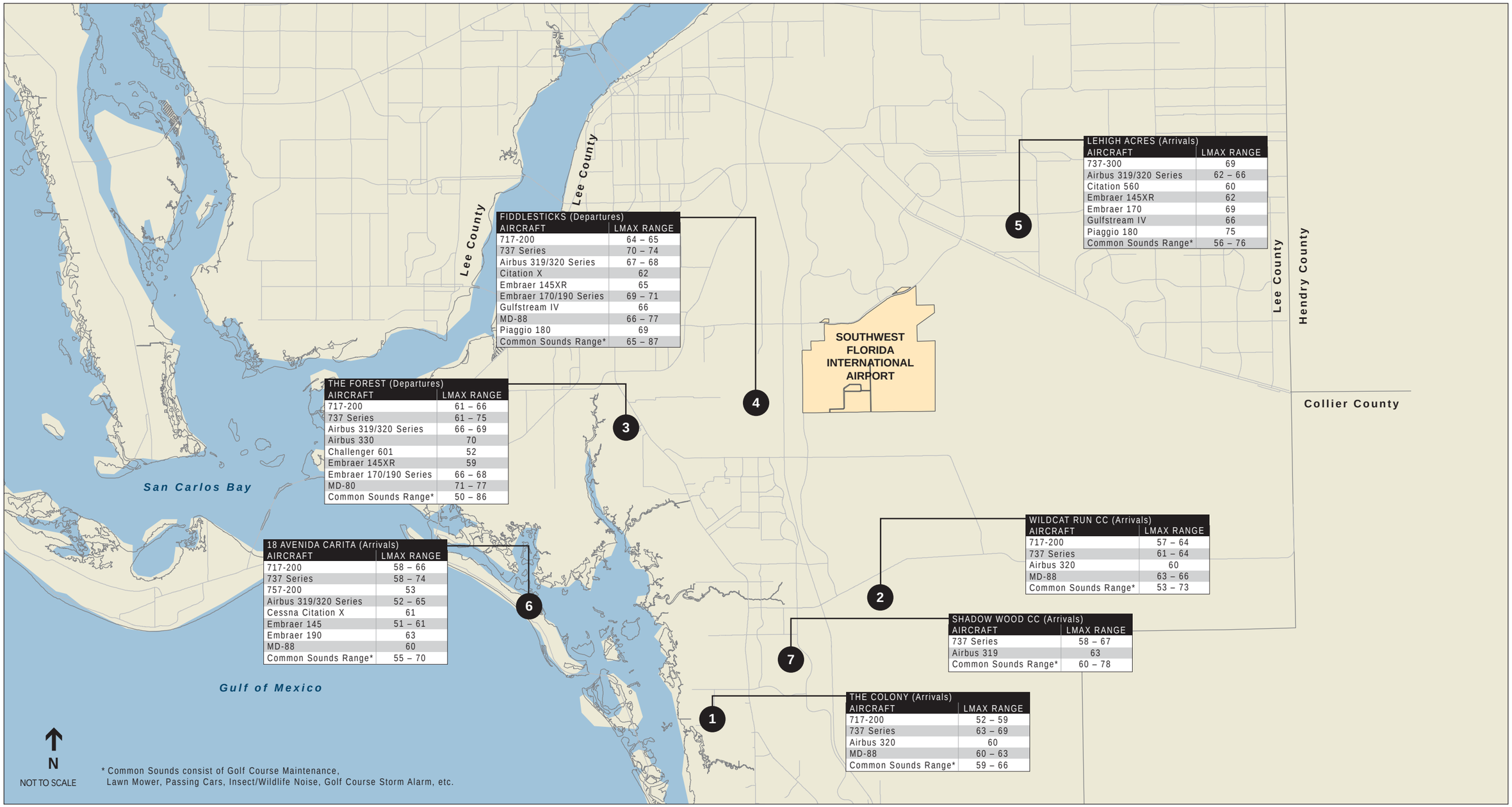

SOURCE: Lee County GIS Department; ESRI; and ESA Airports, 2011

Southwest Florida International Airport CFR Part 150 . 210140

Figure 3
Noise Measurement Results

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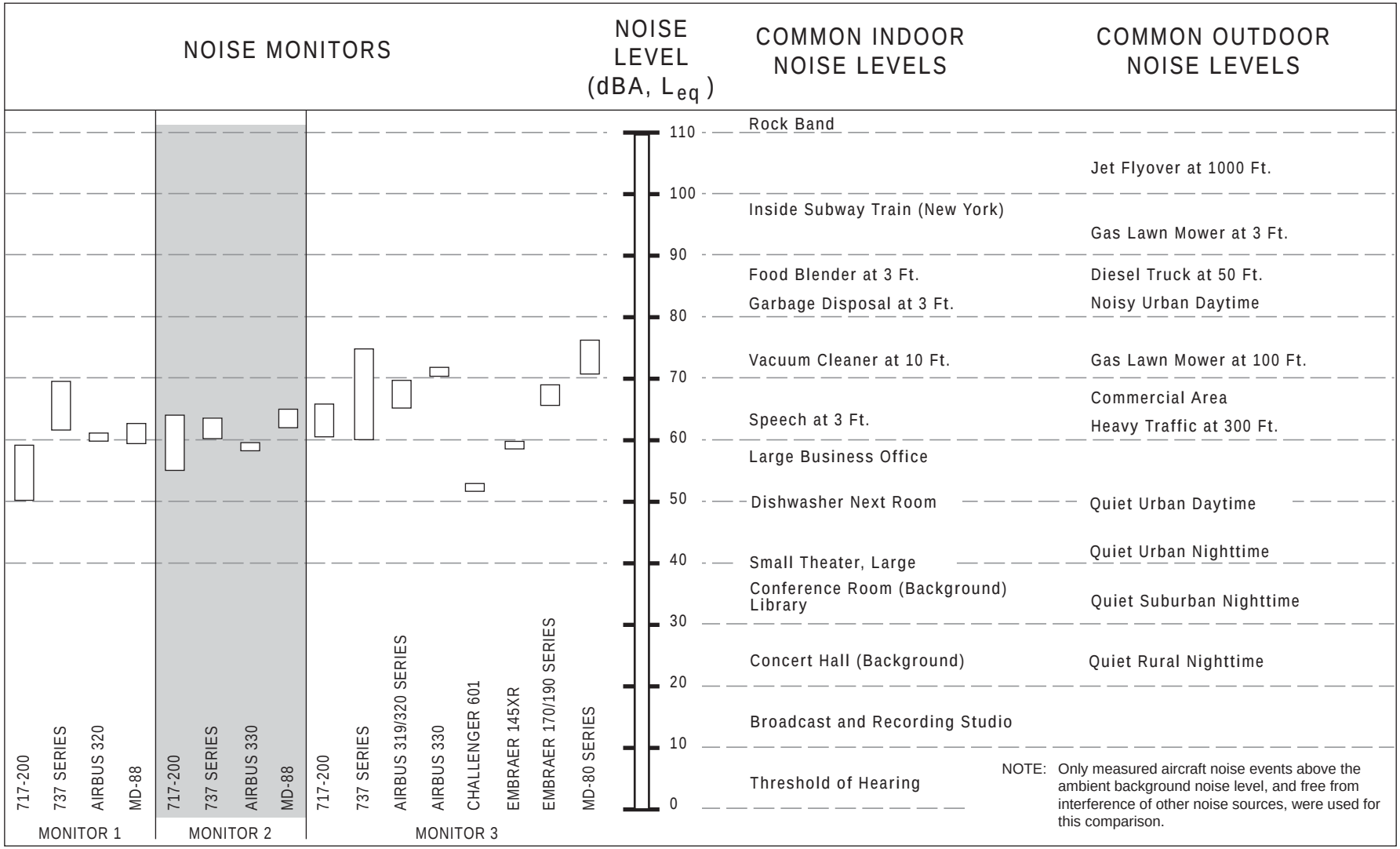
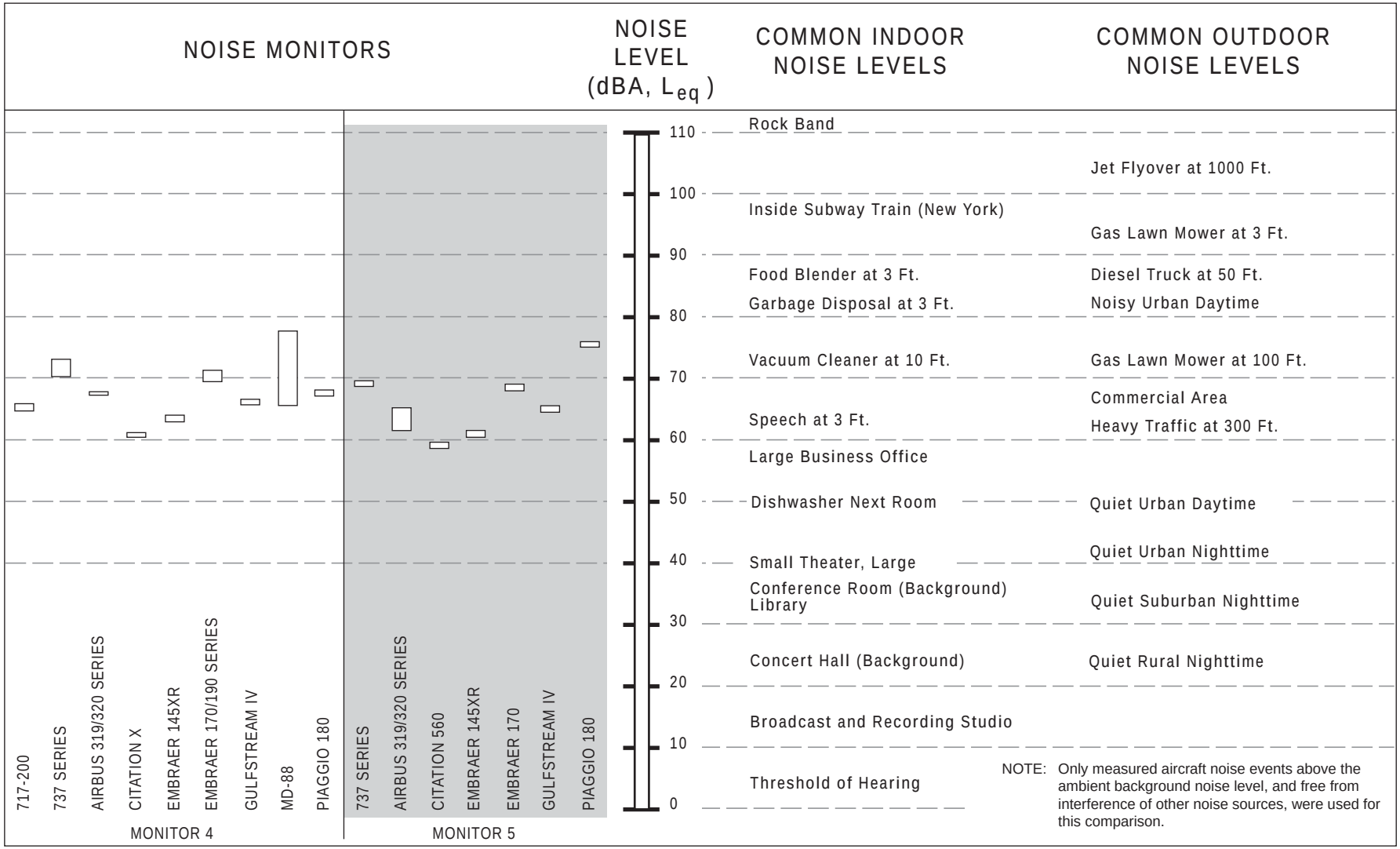


SOURCE: ESA, 2011

Southwest Florida International Airport CFR Part 150 . 210140

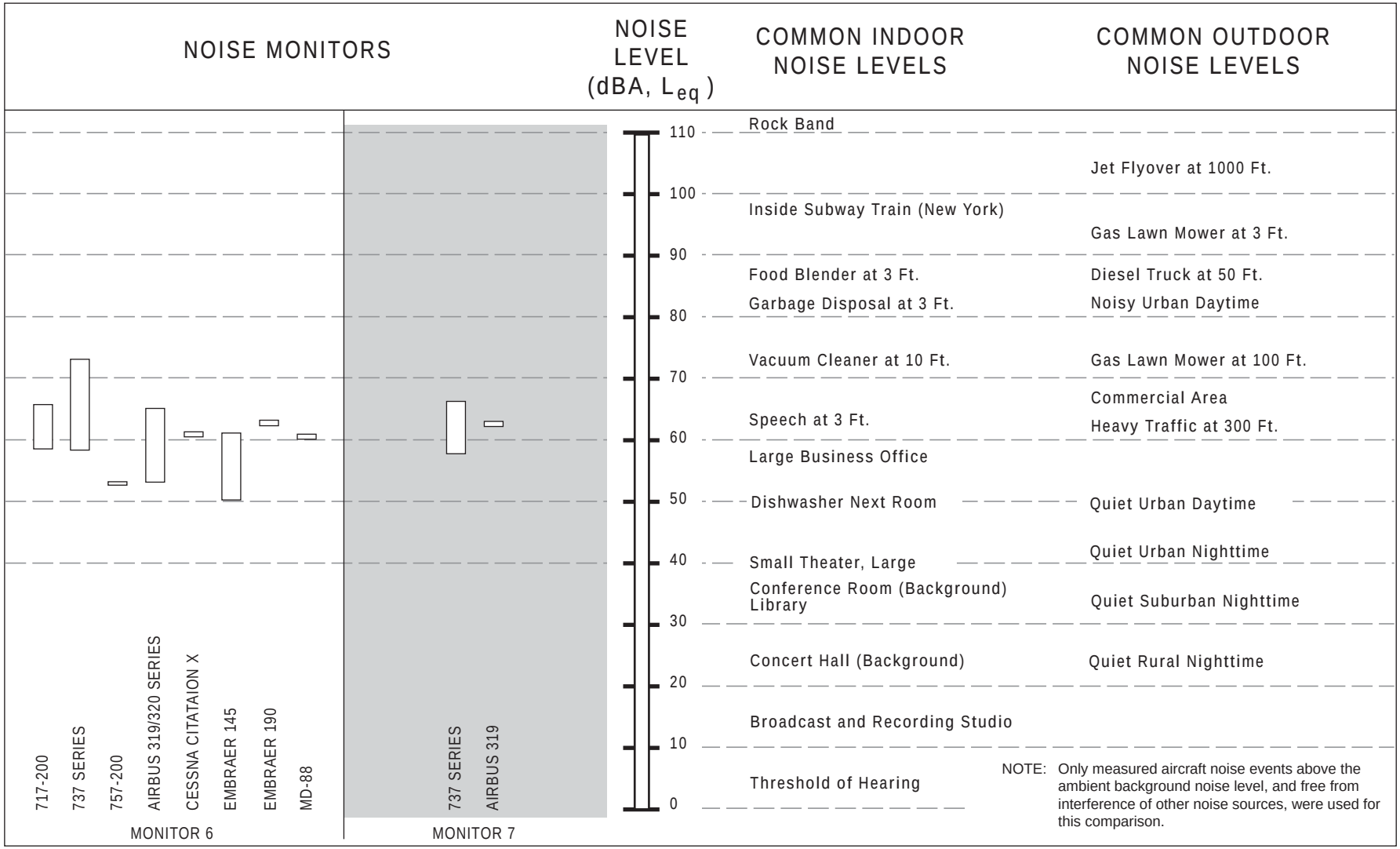
Figure 4
Common Sound Comparison



SOURCE: ESA, 2011

Southwest Florida International Airport CFR Part 150 . 210140

Figure 5
Common Sound Comparison



SOURCE: ESA, 2011

Figure 6
Common Sound Comparison

SOUND LEVEL MEASUREMENT DATA SHEET

Date: August 15, 2011 Measurement Taken By: Scott Sindel

Project: **RSW FAR Part 150 Study**

Site Identification/Notes: The Colony Golf Course

Weather Conditions: Sky: Clear Partly Cloudy **X** Cloudy Other: _____

Temperature:NA Wind Speed: Calm to 10 mph

Wind Direction: **Using Runway 24** Humidity: Typical Background Levels (range):

Equipment:

Sound Level Meter

Type: Serial Number:

Date of Last Traceable Meter Calibration:

Field Calibration Reading: Battery Check:

Response Settings: Weighting Scale:

Calibrator

Type:

Runway 24 Downwind Overflights (Tynee Arrival)
Observations ½ mile north of monitoring location

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
10:00	Ambient Noise Level	46-47	Y	Ambient Noise
10:09	Insect Noise	64	Y	Insect Noise
10:10:15	Runway 24 Downwind	65.5	N	AirTran Boeing 717 with Insect Noise
10:12:40	Runway 24 Downwind	59	Y	Delta MD-88
10:27:50	Insect Noise	62.2	Y	Insect Noise
10:44:30	Bird Noise (Falcon)	66.0	Y	Falcon Screech
10:55:25	Overflight North to South	58.6	Y	Diamond Twin-Start (DA-42)
11:01:15	Runway 24 Downwind	59.1	Y	Delta MD-88
11:12:25	Runway 24 Downwind	49.1	Y	AirTran Boeing 717
11:15-11:35	Ambient Noise Increase	62-65	Y	Ambient Noise up to 62-65 dBA for Insect Noise
11:34:22	Bird Noise (Falcon)	62.8	Y	Falcon Screech
11:36:55	Runway 24 Downwind	60.8	Y	Delta MD-88
11:42:40	Runway 24 Downwind	59.5	Y	AirTran Boeing 717 Direct Overflight
11:48:48	Lawn Mower	59.4	Y	Lawn Mower (Golf Course)
11:53	Lawn Mower	62.2	Y	Lawn Mower (Golf Course)

SOUND LEVEL MEASUREMENT DATA SHEET

Date: August 19, 2011 Measurement Taken By: Michael Arnold

Project: **RSW FAR Part 150 Study**

Site Identification/Notes: **The Colony CC**

Weather Conditions: Sky: Clear Partly Cloudy **X** Cloudy Other: _____

Temperature: Wind Speed:

Wind Direction: Humidity: Typical Background Levels (range):

Equipment:

Sound Level Meter

Type: Serial Number:

Date of Last Traceable Meter Calibration:

Field Calibration Reading: Battery Check:

Response Settings: Weighting Scale:

Calibrator

Type:

SHFTY TWO Arrival to Runway 06
Technical Difficulties with Noise Monitor

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
10:40:11	SHFTY TWO Overflight	59.7	Y	JetBlue Airbus 320 Directly Overhead
10:51:00	SHFTY TWO Overflight	65.3	Y	Continental 737-800, ½ Mile North
11:05:20	Overflight	58.7	Y	Cessna 172, ½ Mile South
11:14:36	SHFTY TWO Overflight	69.1	N	US Airways 737-400 Directly Overhead
11:29:40	Car	62.0	Y	Car Driving Bye
11:34:10	SHFTY TWO Overflight	57.6	N	Southwest 737
11:50:40	SHFTY TWO Overflight	62.6	Y	Southwest 737, Directly Overhead
12:30:30	SHFTY TWO Overflight	48.0	N	American Eagle EMB-145, ½ Mile North
12:42:30	SHFTY TWO Overflight	68.3	Y	US Airway 737-400 at 3,000 Ft. for WX.
12:46:10	SHFTY TWO Overflight	71.3	N	Spirit Airbus 319, Directly Overhead

SOUND LEVEL MEASUREMENT DATA SHEET

Date: August 15, 2011 Measurement Taken By: Donald Ambroziak

Project: **RSW FAR Part 150 Study**

Site Identification/Notes: **Wildcat CC**

Weather Conditions: Sky: Clear Partly Cloudy **X** Cloudy Other: _____

Temperature: Wind Speed:

Wind Direction: Humidity: Typical Background Levels (range):

Equipment:

Sound Level Meter

Type: Serial Number:

Date of Last Traceable Meter Calibration:

Field Calibration Reading: Battery Check:

Response Settings: Weighting Scale:

Calibrator

Type:

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
11:32	Ambient Wind	61	Y	Wind
11:37	Overflight	64	Y	Delta MD-88
11:41	Golfer	65	Y	Golfswing
11:43	Overflight	60	Y	Delta MD-88
11:49	Overflight	61	Y	Small Single Engine Piston
11:59	Ambient Noise	53	Y	Golf Course Maintenance
12:06	Ambient Wind	55	Y	Wind
12:39-12:47	Ambient Noise	54-69	Y	Golf Course Maintenance and Wind
12:49- 12:55	Ambient Noise	60	Y	Golf Course Maintenance
12:59	Overflight	63	Y	Delta Airbus 320
13:04	Overflight	--	N	Small Single Engine Prop with Mx Noise
13:22	Overflight	56	Y	Small Single Engine Prop (Not on Flight Track)
13:35	Ambient Wind	56	Y	Wind
13:38	Overflight	62	Y	Southwest 737
13:40	Overflight	61	Y	AirTran 717-200

Site Identification: _Wildcat CC_____August 15, 2011_____

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
13:47	Overflight	67	Y	US Airways Airbus 319??
13:57	Ambient Wind	58	Y	Wind
13:58	Overflight	59	Y	AirTran 717-200
13:59	Ambient Wind	58	Y	Wind
14:01	Ambient Wind	66	Y	Wind
14:04	Overflight	63	Y	Delta MD-88
14:09	Overflight	60	Y	Delta MD-88
14:29-14:39	Ambient Noise	64-70	Y	Lawn Mower/Yard Work
14:50	Overflight	58	Y	AirTran 717-200
15:03	Overflight	60	Y	Southwest 737
15:13	Overflight	61	Y	Southwest 737
15:39	Ambient Wind	57	Y	Wind

SOUND LEVEL MEASUREMENT DATA SHEET

Date: August 16, 2011 Measurement Taken By: Donald Ambroziak

Project: **RSW FAR Part 150 Study**

Site Identification/Notes: **Wildcat CC**

Weather Conditions: Sky: Clear Partly Cloudy Cloudy **X** Other: _____

Temperature: Wind Speed:

Wind Direction: Humidity: Typical Background Levels (range):

Equipment:

Sound Level Meter

Type: Serial Number:

Date of Last Traceable Meter Calibration:

Field Calibration Reading: Battery Check:

Response Settings: Weighting Scale:

Calibrator

Type:

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
9:41	Overflight	--	N	Small Single Engine Prop (N to S)
9:50	Overflight	--	N	Couldn't Determine Aircraft nor Location
10:01	Overflight	--	N	Couldn't Determine Sound Level
10:01	Ambient Noise	45.5	Y	Ambient Noise
11:09	Overflight	52	Y	Prop, Not on RSW Flight Path
11:09	Overflight	63	Y	Delta MD-88
11:15	Overflight	56	Y	AirTran 717-200
11:44	Overflight	56	Y	AirTran 717-200
11:51	Overflight	60.2	Y	American 737-800
12:24	Overflight	57.7	Y	AirTran 717-200
12:56:18 - 13:15	Ambient Noise	56-68	Y	Lawn Mower
13:06:30	Overflight	66.4	N	Airbus 320 w/ Lawn Mower
13:12:25	Overflight	57.7	N	Southwest 737 w/ Lawn Mower
13:15	Ambient Noise	--	Y	Mower Left Area
13:22	Overflight	57.2	Y	AirBerlin Airbus 330

Site Identification: _Wildcat CC_____August 16, 2011_____

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
13:42-13:45	Ambient Noise	72	Y	Golf Course Maintenance
13:47	Overflight	56	Y	AirTran 717-200
13:49-13:56	Ambient Noise	70-73	Y	Golf Course Maintenance
13:58	Overflight	60	Y	737
14:00	Overflight	66	Y	Delta MD-88
14:10	Overflight	61	Y	AirTran 717-200
14:19	Overflight	60	Y	EMB-145
14:37	Overflight	55	Y	Airbus 319
14:40	Overflight	61	Y	Delta MD-88
14:44	Overflight	59.5	Y	AirTran 717-200
15:18	Overflight	61	Y	Helicopter
15:33	Overflight	63	Y	Delta MD-88

SOUND LEVEL MEASUREMENT DATA SHEET

Date: August 15, 2011 Measurement Taken By: Scott Sindel

Project: **RSW FAR Part 150 Study**

Site Identification/Notes: **The Forest**

Weather Conditions: Sky: Clear Partly Cloudy **X** Cloudy Other: _____

Temperature: Wind Speed:

Wind Direction: Humidity: Typical Background Levels (range):

Equipment:

Sound Level Meter

Type: Serial Number:

Date of Last Traceable Meter Calibration:

Field Calibration Reading: Battery Check:

Response Settings: Weighting Scale:

Calibrator

Type: **Runway 24 Departure CSHEL Departure**

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
13:00	Ambient	44	Y	Ambient Noise Level
13:11:50	Runway 24 Departure	68.1	Y	Southwest 737
13:18:35	Ambient Noise	66.3	Y	Insect Noise
13:19:40	Overflight	65.5	N	Cessna Caravan Flying North to South
13:32:20	Ambient Noise	61-65	Y	Lawn Mowers (Golf Course)
13:35:10	Runway 24 Departure	66.6	Y	JetBlue Embraer 190
13:37:15	Lawn Mower	65.4	Y	Lawn Mowers (Golf Course)
13:42:25	Runway 24 Departure	74.9	Y	Delta MD-88
14:00:00	Lawn Mowers	64.5	Y	Lawn Mowers (Golf Course)
14:03:20	Insect Noise	63.8	Y	Insect Noise (Continuous)
14:04:28	Runway 24 Departure	67	Y	Spirit Airlines Airbus 319
14:26:00	Runway 24 Departure	Missed	N	Southwest 737
14:36:35	Insect Noise	66.9	Y	Insect Noise (Continuous)
14:50:47	Runway 24 Departure	67.0	N	Continental Express Embraer 145
14:53:00	Insect Noise	66.1	Y	Insect Noise (Continuous)

Site Identification: _____The Forrest _____August 15, 2011_____

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
14:59:40	Runway 24 Departure	70.9	Y	US Airways 737-400
15:09:18	Runway 24 Departure	66.0	Y	US Airways Airbus 320
15:12:15	Runway 24 Departure	64.1	Y	AirTran 717-200
15:30:32	Insect Noise	66.2	Y	Insect Noise (Continuous)
15:33:15	Runway 24 Departure	74.7	N	American MD-82/83
16:06:30	Runway 24 Departure	68.3	N	Southwest 737
16:08:00	Insect Noise	66.7	Y	Insect Noise (Continuous)
16:11:00	Runway 24 Departure	67.4	Y	Delta Airbus 319
16:19:20	Insect Noise	66.3	Y	Insect Noise (Continuous)
16:40:18	Runway 24 Departure	50.8	N	Challenger 601
16:59:45	Runway 24 Departure	74.8	N	Delta MD-88

SOUND LEVEL MEASUREMENT DATA SHEET

Date: August 16, 2011 Measurement Taken By: Scott Sindel

Project: **RSW FAR Part 150 Study**

Site Identification/Notes:

Weather Conditions: Sky: Clear Partly Cloudy Cloudy **X** Other: _____Rain Showers_____

Temperature: Wind Speed:

Wind Direction: Humidity: Typical Background Levels (range):

Equipment:

Sound Level Meter

Type: Serial Number:

Date of Last Traceable Meter Calibration:

Field Calibration Reading: Battery Check:

Response Settings: Weighting Scale:

Calibrator

Type: **Runway 24 Departure CSHEL Departure**

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
10:00	Ambient	41-45	Y	Ambient Noise Level
10:11:30	Golf Course Alarm	85.5	Y	Golf Course Lightning Alarm
10:32:22	Runway 24 Departure	63.0	Y	AirTran 717-200
10:42:15	Runway 24 Departure	52.9	Y	Piper Cheyenne (Turned Early)
10:43:00	Lawn Trimmer	55.0	Y	Lawn Trimmer (Continuous)
10:46:20	Lawn Mowers	60.9	Y	Lawn Mowers (Golf Course)
10:47:05	Lawn Mowers	62.5	Y	Lawn Mowers (Golf Course)
11:17:26	Runway 24 Departure	63.6	Y	AirTran 717-200
11:20:00	Runway 24 Departure	71.9	Y	Delta MD-88
11:24:15	Runway 24 Departure	62.4	Y	AirTran 717-200
11:31:20	Runway 24 Departure	----	N	Delta 757-200 Turned Very Early
11:41:10	Runway 24 Departure	65.5	Y	Southwest 737
12:06:15	Runway 24 Departure	59.0	Y	AirTran 717-200 Direct Overflight Leveled 4,000 Ft.
12:11:43	Runway 24 Departure	57.9	Y	Continental Express EMB-145 Direct Overflight Leveled 4,000 Ft.
12:14:22	Runway 24 Departure	67.8	Y	JetBlue Airbus 320 Direct Overflight Leveled 4,000 Ft.

Site Identification: _____The Forrest _____August 16, 2011____

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
12:16:20	Runway 24 Departure	65.9	Y	US Airways 737-400 Direct Overflight Leveled 4,000 Ft.
12:18:06	Runway 24 Departure	58	Y	Southwest 737 Direct Overflight Leveled 4,000 Ft.
12:20:32	Runway 24 Departure	68.5	Y	Continental 737-800 Direct Overflight Leveled 4,000 Ft.
12:22:56	Runway 24 Departure	71.4	Y	Delta MD-88
12:25:18	Runway 24 Departure	58.5	Y	AirTran 717 Direct Overflight
12:43:25	Runway 24 Departure	59.1	Y	AirTran 717 Direct Overflight
12:59:32	Runway 24 Departure	62.9	Y	Southwest 737
13:01:30	Insect Noise	65.6	Y	Insect Noise
13:12:18	Runway 24 Departure	66.7	Y	JetBlue EMB-190
13:20:30	Insect Noise	60-67	Y	Insect Noise (Continuous)
13:34:40	Runway 24 Departure	70.0	Y	Delta MD-88
13:35-14:00	Insect Noise	50-69	Y	Insect Noise (Continuous)
14:07	Lawn Mower	68.5	Y	Lawn Mower
14:15	Runway 24 Departure	72	N	US Airways 737-400 w/Insect Noise
14:16:30	Runway 24 Departure	68.5	N	Spirit Airbus 319 w/Insect Noise
14:22:55	Runway 24 Departure	71.0	N	Delta Airbus 320 w/Insect Noise
14:26:08	Runway 24 Departure	69.4	N	WestJet 737-700
14:38-14:44	Insects Noise	66-69	Y	Insect Noise
14:54:42	Runway 24 Departure	70.2	Y	Southwest 737
15:04:05	Runway 24 Departure	65.3	N	US Airways Airbus 319
15:16:20	Runway 24 Departure	65.3	N	AirTran 717-200 w/Insect Noise
15:21:01	Overflight	68.3	N	Helicopter Overflight w/Insect Noise
15:25:50	Runway 24 Departure	76	N	American MD-82/83 w/Insect Noise
15:26:00	Insect	66-68	Y	Insect Noise
15:43:32	Runway 24 Departure	68.5	N	Shuttle America Emb-170 w Insect Noise
15:47:40	Runway 24 Departure	69.6	N	Southwest 737 w/ Insect Noise
16:02:43	Runway 24 Departure	65.5	N	Delta 757-200 w/Insect Noise
16:05:28	Runway 24 Departure	69.0	N	AirBerlin A330 w/Insect noise

SOUND LEVEL MEASUREMENT DATA SHEET

Date: August 17, 2011 Measurement Taken By: Scott Sindel

Project: **RSW FAR Part 150 Study**

Site Identification/Notes: **Fiddlesticks**

Weather Conditions: Sky: Clear Partly Cloudy **X** Cloudy Other: _____

Temperature: Wind Speed:

Wind Direction: Humidity: Typical Background Levels (range):

Equipment:

Sound Level Meter

Type: Serial Number:

Date of Last Traceable Meter Calibration:

Field Calibration Reading: Battery Check:

Response Settings: Weighting Scale:

Calibrator

Type: **Runway 24 Departure CSHEL Departure**

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
11:00	Ambient	42-47	Y	Ambient Noise
11:12-11:26	Lawn Mower	87.4	Y	Continuous Mower Noise from 11:11am till 11:26 am
11:14:40	Runway 24 Departure	75.6	N	AirTran 717-200 w/Lawn Mower Noise
11:20:28	Runway 24 Departure	82.4	N	Delta MD-88 w/ Lawn Mower Noise
11:22:50	Runway 24 Departure	70.1	N	AirTran 717-200 w/ Lawn Mower Noise
11:24:50	Lawn Mower	87.3	Y	Lawn Mower
11:28:35	Insect Noise	65.7	Y	Insect Noise Continuous
11:29:40	Insect Noise	67.8	Y	Insect Noise Continuous
11:30:47	Runway 24 Departure	69.9	N	Delta MD-88 w/Insect Noise
11:38:10	Runway 24 Departure	72.3	Y	Southwest 737
11:54:35	Weed Whacker	79.2	Y	Weed Whacker Continuous 11:45am-12:00pm
11:56:05	Runway 24 Departure	69.3	N	AirTran 717-200 w/Weed Whacker
11:58:18	Blower	71.7	Y	Lawn Blower
12:07:45	Runway 24 Departure	66.3	Y	JetBlue Airbus 320
12:10:56	Runway 24 Departure	72.6	Y	US Airways 737-400

Site Identification: _____The Fiddlesticks _____August 17, 2011____

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
12:17:00	Runway 24 Departure	68.5	Y	Continental 737-800
12:18:55	Runway 24 Departure	78.2	Y	Delta MD-88
12:20:35	Runway 24 Departure	63.0	Y	Continental Express EMB-145XR
12:22:28	Runway 24 Departure	65.5	Y	AirTran 717-200
12:30:00	Insect Noise	65.4	Y	Insect Noise (Continuous)
12:47:20	Runway 24 Departure	59.3	N	CJ2 (Corporate Jet) w/Insect Noise
12:55:20	Runway 24 Departure	63.1	Y	AirTran 717-200
13:02:38	Runway 24 Departure	68.9	Y	JetBlue EMB-190
13:05:52	Runway 24 Departure	71.4	Y	Southwest 737
13:18:38	Runway 24 Departure	70.4	Y	Southwest 737
13:30:10	Runway 24 Missed Approach	51.7	Y	FAA King Air 200 Turboprop
13:32:08	Runway 24 Departure	66.1	Y	Spirit Airbus 319
13:41:38	Runway 24 Departure	79.1	Y	Delta MD-88
14:04:45	Runway 24 Departure	69.3	Y	Shuttle America (Delta) EMB-170
14:15:28	Runway 24 Departure	69.4	Y	AvantAir Piaggio 180
14:16:20	Insect Noise	65.5	Y	Insect Noise
14:18:45	Runway 24 Departure	60.4	Y	Citation X (Corporate Jet)
14:21:47	Runway 24 Departure	68.3	Y	Delta Airbus 320
14:26:20	Runway 24 Departure	65.3	Y	Gulfstream IV
15:24:32	Runway 06 Arrival	61.4	Y	Delta MD-88
15:35:38	Runway 06 Arrival	61.7	Y	Southwest 737
15:51:18	Runway 06 Arrival	62.8	Y	Southwest 737

SOUND LEVEL MEASUREMENT DATA SHEET

Date: August 17, 2011 Measurement Taken By: Donald Ambroziak

Project: **RSW FAR Part 150 Study**

Site Identification/Notes: **Lehigh Acres**

Weather Conditions: Sky: Clear Partly Cloudy **X** Cloudy Other: _____

Temperature: Wind Speed:

Wind Direction: Humidity: Typical Background Levels (range):

Equipment:

Sound Level Meter

Type: Serial Number:

Date of Last Traceable Meter Calibration:

Field Calibration Reading: Battery Check:

Response Settings: Weighting Scale:

Calibrator

Type:

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
12:33	Overflight	63	Y	Spirit Airbus 319
12:38	Overflight	69.4	Y	Southwest 737
12:39	Car	65.9	Y	Passing Car
12:40	Overflight	65	Y	Gulfstream IV
12:42	Overflight	61	Y	EMB-145
12:43	Ambient Noise	36	Y	Ambient Noise
12:48	Overflight	69.2	Y	Shuttle America (Delta) EMB-170
12:49	Ambient Noise	49-52	Y	Ambient Noise
13:33	Overflight	64	Y	US Airways Airbus 319
13:35	Car	56	Y	Passing Car
13:36	Overflight	59	Y	Cessna Citation 560
13:40	Car	68	Y	Passing Car
13:43	Thunder	63	Y	Thunder
13:45	Thunder	60	Y	Thunder
13:45	Overflight	75	Y	AvantAir Piaggio 180

Site Identification: _Lehigh Acres_____August 17, 2011_____

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
13:47	Car	74	Y	Passing Car
13:50	Car	65	Y	Passing Car
13:50-13:54	Thunder	62-66	Y	Thunder
13:56	Car	71	Y	Passing Car
14:03	Car	64	Y	Passing Car
14:04	Thunder	76	Y	Thunder
14:08	Thunder	73	Y	Thunder
14:11	Overflight	55	Y	AirTran 717-200, Mile West due to Storm
14:11	Car	66	Y	Passing Car
14:12	Cars	76-67	Y	Two Passing Cars
14:14	Overflight	56.7	Y	Southwest 737
14:15	Thunder	56	Y	Thunder

SOUND LEVEL MEASUREMENT DATA SHEET

Date: 8/17/11 Measurement Taken By: RES

Project: **RSW FAR Part 150 Study**

Site Identification/Notes: 18 Avenida Carita

Weather Conditions: Sky: Clear Partly Cloudy **Cloudy** Other: _____

Temperature:90s Wind Speed:

Wind Direction: Humidity: High Typical Background Levels (range): 39-42 dBA

Equipment:

Sound Level Meter

Type: LD820 Serial Number:

Date of Last Traceable Meter Calibration:

Field Calibration Reading: Battery Check:

Response Settings: Weighting Scale:

Calibrator
Type:

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
17:56	Arrival	61.4 (?)	Y	Delta 757-200 (directly overhead)
18:02	Departure	59.4	Y	Aircraft at high altitude heading west
18:10:45	Arrival	64.0	Y	JetBlue A320
18:18:15	Arrival	60.9	Y	USAir 737-400 (1/2 mile east turning)
18:27:57	Arrival	70.0	Y	Southwest 737-300 (directly overhead)

SOUND LEVEL MEASUREMENT DATA SHEET

Date: 8/18/11 Measurement Taken By: RES

Project: **RSW FAR Part 150 Study**

Site Identification/Notes: 18 Avenida Carita

Weather Conditions: Sky: **Clear** Partly Cloudy Cloudy Other: _____

Temperature:90s Wind Speed: Calm

Wind Direction: Humidity: High Typical Background Levels (range): 42-43 dBA

Equipment:

Sound Level Meter

Type: LD820 Serial Number:

Date of Last Traceable Meter Calibration:

Field Calibration Reading: Battery Check:

Response Settings: Weighting Scale:

Calibrator
Type:

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
11:15:30	Arrival	65.9	Y	Continental 737-800 (directly overhead)
11:23:40	Arrival	66.0	Y	AirTran 717-200
11:26:15	Arrival	61.2	Y	American Eagle E145 (1/2 mile east of site and turning)
11:35:45	Arrival	59.7	Y	Southwest 737 (3/4 mile south of site)
11:40:00	Arrival	61.5	Y	Cessna 750 (came from north)
11:58:45	Arrival	56.0	Y	AirTran 717-200 (directly overhead)
12:09:00	Arrival	59.0	Y	Delta MD88 (north of site)
12:23:15	Arrival	52.0	Y	Spirit A319 (1 mile north and east of site)
12:39:05	Arrival	54.4	Y	American Eagle E145
12:44:00	Arrival	47.2	Y	JetBlue E190 (1 mile east)
12:49:05	Arrival	60.5	Y	Diamond DA-40
12:57:20	Arrival	53.6	Y	Delta A320 (1 mile east)
13:01:00	Overflight	50.2	Y	Chinook Helicopter (several miles north flying west to east)
13:21:45	Arrival	60.4	Y	Westjet 737-700
13:26:15	Community	64.0	Y	Next door neighbor using tablesaw

SOUND LEVEL MEASUREMENT DATA SHEET

Date: 8/19/11 Measurement Taken By: RES

Project: **RSW FAR Part 150 Study**

Site Identification/Notes: 18 Avenida Carita

Weather Conditions: Sky: **Clear** Partly Cloudy Cloudy Other: _____

Temperature:90s Wind Speed:

Wind Direction: Humidity: High Typical Background Levels (range): 40 dBA

Equipment:

Sound Level Meter

Type: LD820 Serial Number:

Date of Last Traceable Meter Calibration:

Field Calibration Reading: Battery Check:

Response Settings: Weighting Scale:

Calibrator
Type:

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
12:00:00	Community		N/A	Neighbor using electric drill
12:11:53	Arrival	62.5	Y	JetBlue E190 (overhead turning from north)
12:16:45	Community	70.0	N/A	Neighbor using electric saw
12:22:45	Community	55.0	N/A	Neighbor using electric drill
12:32:40	Arrival	46.6	Y	American Eagle E145 (1/2 mile south of site)
12:37:50	Community	70.5	N/A	Neighbor using electric saw
12:42:10	Community		N/A	Neighbor using electric drill
12:43:33	Community		N/A	Neighbor using electric drill
12:45:12	Arrival	75.5	Y	USAir 737-400 (directly overhead and at lower altitude due to incoming weather)
12:45:45	Community	55.0	N/A	Neighbor using mower
12:49:30	Arrival		N	Could not hear over mower (aircraft 1 mile south of site)
12:56:40	Arrival		N	Delta MD90 (not a clean measurement due to noise from mower)
1:12:30	Arrival	52.4	Y	Delta A320 (1 mile east of site)

SOUND LEVEL MEASUREMENT DATA SHEET

Date: Thursday August 18 Measurement Taken By: DSA

Project: **RSW FAR Part 150 Study**

Site Identification/Notes: Shadow Wood

Weather Conditions: Sky: Clear Partly Cloudy Cloudy Other: _____

Temperature: Wind Speed:

Wind Direction: Humidity: Typical Background Levels (range):

Equipment:

Sound Level Meter

Type: Serial Number:

Date of Last Traceable Meter Calibration:

Field Calibration Reading: Battery Check:

Response Settings: Weighting Scale:

Calibrator

Type:

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
9:37				Me on golf cart
9:39		60		Maintenance
9:44		61.7		Engines on front white and blue bottom
				Ambient ~ 53
9:49		65		Loud bang
9:52		57		Sing engine prop
9:53		60		maintenance
9:59		78		maintenance
10:00				Ambient~24 monitor wrong
10:02				Ambient ~ 40
10:12				Engines on wings white and blue bottom. With four maintenance carts registering only 33 dbA
10:15		58		Small jet engines in back
10:22				Dropped to ambient 18
10:23				White with blue bottom engines in back only registered 23 dBA
10:25		60		maintenance

SOUND LEVEL MEASUREMENT DATA SHEET

Date: Thursday August 18, 2011 Measurement Taken By: DSA

Project: **RSW FAR Part 150 Study**

Site Identification/Notes: Shadow Wood

Weather Conditions: Sky: Clear Partly Cloudy Cloudy Other: _____

Temperature: Wind Speed:

Wind Direction: Humidity: Typical Background Levels (range):

Equipment:

Sound Level Meter

Type: Serial Number:

Date of Last Traceable Meter Calibration:

Field Calibration Reading: Battery Check:

Response Settings: Weighting Scale:

Calibrator
Type:

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
9:37				Me on golf cart
9:39		60		Maintenance
9:44		61.7		Engines on front white and blue bottom
				Ambient ~ 53
9:49		65		Loud bang
9:52		57		Sing engine prop
9:53		60		maintenance
9:59		78		maintenance
10:00				Ambient~24 monitor wrong
10:02				Ambient ~ 40
10:12				Engines on wings white and blue bottom. With four maintenance carts registering only 33 dbA
10:15		58		Small jet engines in back
10:22				Dropped to ambient 18
10:23				White with blue bottom engines in back only registered 23 dBA
10:25		60		maintenance

SOUND LEVEL MEASUREMENT DATA SHEET

Date: August 19, 2011 Measurement Taken By: Scott Sindel

Project: **RSW FAR Part 150 Study**

Site Identification/Notes: Shadow Wood CC

Weather Conditions: Sky: Clear Partly Cloudy Cloudy **X** Other: _____Rain Showers_____

Temperature: Wind Speed:

Wind Direction: Humidity: Typical Background Levels (range):

Equipment:

Sound Level Meter

Type: Serial Number:

Date of Last Traceable Meter Calibration:

Field Calibration Reading: Battery Check:

Response Settings: Weighting Scale:

Calibrator

Type:

Runway 06 Arrivals SHFTY TWO Arrival
Technical Difficulties with Noise Monitor during Monitoring

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
9:50:50	Overflight	52.4	Y	Helicopter Overflight 1 Mile North
9:53:14	Lawn Mower	76.5	Y	Lawn Mower (Golf Course)
9:54:18	Insect Noise	60.5	Y	Insect Noise
10:06:10	Sprayer Equipment	60.3	Y	Sprayer (Golf Course)
10:06:50	Golf Cart Equipment	69.6	Y	Golf Cart (Golf Course)
10:14:30	Golf Cart	67.4	Y	Golf Cart (Golf Course)
10:23:00	SHFTY TWO Overflight	58.4	Y	Southwest 737
10:50:20	SHFTY TWO Overflight	59.7	Y	Continental 737-800
11:03:48	Overflight	60.3	Y	Single Engine Piston flying North to South
11:13:58	SHFTY TWO Overflight	67.1	Y	US Airway 737-400
11:32:20	Lawn Mower	56.6	Y	Lawn Mower (Golf Course)
11:33:30	SHFTY TWO Overflight	52.3	Y	Southwest 737
11:36:50	Lawn Mower	64.0	Y	Lawn Mower (Golf Course)
11:50:50	SHFTY TWO Overflight	58.0	Y	Southwest 737
12:01:05	Insect Noise	56.9	Y	Insect Noise

Site Identification: _____Shadow Wood _____August 19, 2011____

Time	Event Type (if discernable)	Lmax	Clean Measurement (Y or N)	Notes / Observations
12:07:53	Golf Cart	64.9	Y	Golf Cart (Golf Course)
12:30:20	SHFTY TWO Overflight	---	N	American Eagle 1 mile S. for WX. Lawn Mowers. Not Good Reading
12:41:55	SHFTY TWO Overflight	63.5	Y	US Airways 737-400 at 3,000 Ft. for WX.
12:45:22	SHFTY TWO Overflight	63.2	Y	Spirit Airbus 319
12:55:05	Overflight	55.8	Y	Multiengine flying South to North

APPENDIX J

November 3, 2011 The Forest Community Meeting

Southwest Florida International Airport

FAR Part 150 Overview

Community Meeting
The Forest

Today's Discussion

- Who's Who?
- Overview of Federal Aviation Regulations (FAR) Part 150
- Study Schedule
- Key RSW Observations
- Community Issues – The Forest
- Next Steps

Who's Who?

Roles and Responsibilities

- Federal Aviation Administration (FAA)
  - Directs the safe movement of aircraft in the air and on the ground
- Airline Pilots
  - Final responsibility for safe aircraft operation
- Lee County Port Authority
  - Landlord of the airport – Contracts and property managers
  - No control over where aircraft fly
  - Consultant hired by LCPA = ESA Airports

ESA Airports Overview

- Established in 1969
- Noise Study experience = 120 airports throughout US
- ESA Staff include:
  - Former Airport Noise Officers
  - Former Commercial Airline Pilots
  - Former Airport Environmental Managers
  - Operations Specialists, Noise Analysts, Airport Planners, and GIS Specialists

National Noise Study Experience

Florida Noise Study Experience

Overview of FAR Part 150

Overview of FAR Part 150

- Airport noise studies are ***voluntary***
- Must follow FAR Part 150 process to be considered and accepted by FAA
- Why conduct a noise study?
  - Educate communities on the Federal process and what *can and cannot* be done
  - Determine existing noise conditions at an airport
  - Evaluate the feasibility of possible flight procedure/land use changes
  - "Comprehensive voice" for southwest Florida to the FAA – not just 1 community
  - Submit local Board endorsed recommendations to the FAA and airlines

FAR Part 150 – Measuring Noise

- Single Aircraft Overflight Noise (departures)

FAR Part 150 – Measuring Noise

- Annual Cumulative Event Noise
  - FAA required measurement = Day-Night Average Sound Level (DNL)
  - Measured by:
    - Aircraft Types
    - Aircraft Flight Tracks
    - Aircraft Frequency
    - Runway Use
    - Nighttime penalty weighting (1 nighttime flight = 10 daytime flights)
    - Computer Generates an Annualized Average Noise Contour = DNL

FAR Part 150 – Measuring Noise

- 65 DNL and higher = FAA and the US Department of Housing and Urban Development (HUD) determined to be incompatible with residential, schools, hospitals and other noise-sensitive uses near airports.
- Less than 65 DNL = all uses compatible with airport noise

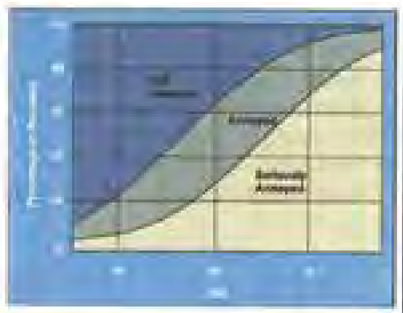
Sample Noise Contour (CLE)

2006 RSW Noise Contours

FAA Challenges – RSW vs Other Airports

AIRPORT	ANNUAL OPERATIONS	POPULATION INSIDE 65 DNL
Southwest Fla.	[illegible]	0
Key West	[illegible]	[illegible]
White Plains, NY	[illegible]	[illegible]
Teterboro	[illegible]	[illegible]
Chicago Midway	[illegible]	4,700
LaGuardia	[illegible]	[illegible]
Cleveland	[illegible]	[illegible]
Minn.-St. Paul	[illegible]	[illegible]
St. Louis	[illegible]	[illegible]
O'Hare	[illegible]	[illegible]
San Diego	[illegible]	[illegible]
Miami	[illegible]	[illegible]
Seattle-Tacoma	[illegible]	[illegible]
Los Angeles	[illegible]	[illegible]

Noise is Subjective



Part 1–Develop Noise Exposure Maps (NEMs)

- Identify existing and 5th year projected noise conditions
- Use FAA Integrated Noise Model (INM) computer program
- Compare INM computer program with live field noise measurements
- Develop airport noise contours
- Submitted to the FAA for acceptance – becomes baseline condition for Phase 2

Part 2–Develop Noise Compatibility Plan (NCP)

- Evaluate changes to flight procedures & land use
  - Can't compromise safety
  - Can't create delays in the air traffic system
  - Can't create a burden on FAA (i.e. time) or airlines (i.e., fuel)
  - Can't merely move flights over another community
- NCP approved by local Board
- Submitted to FAA for approval and implementation

Schedule

Part 1–Develop Noise Exposure Maps (NEMs)

- Data Acquisition – Spring/Summer 2011
- Community/Public Meetings – Summer 2011
- Field Measurements and Noise Modeling – Summer 2011
- Draft Noise Contours Development – Summer/Fall 2011
- *Community/Public Meetings – Fall 2011*
- Submit to FAA – Winter 2012
- FAA Approval of NEMs – Winter/Spring 2012

Part 2–Develop Noise Compatibility Plan (NCP)

- Develop/Evaluate Alternatives – Winter/Spring 2012
- Community/Public Meetings – Spring 2012
- Draft NCP Recommendations – Spring 2012
- ASMC & Board Endorsement – Summer 2012
- Submit to FAA – Summer/Fall 2012
- FAA Approval of NCP – Fall/Winter 2012
- Implementation of Recommendations – Winter 2012

Key RSW Observations

RSW Ranking - US

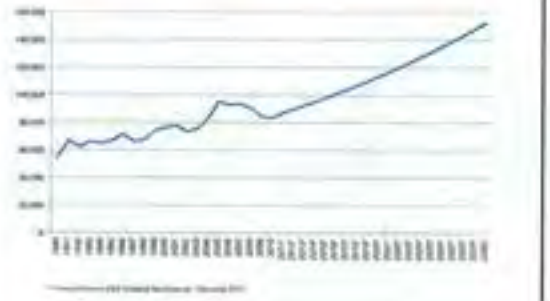
- 51st in total Passenger Enplanements
- 53rd in Air Carrier Operations
- 267th in Total Operations

RSW Ranking - Florida

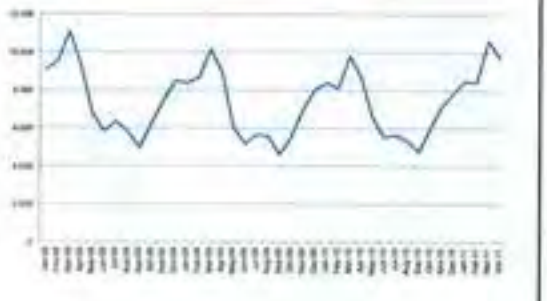
- 6th in Total Passenger Enplanements
- 5th in Air Carrier Operations
- 37th in Total Operations

Current RSW Noise Zones

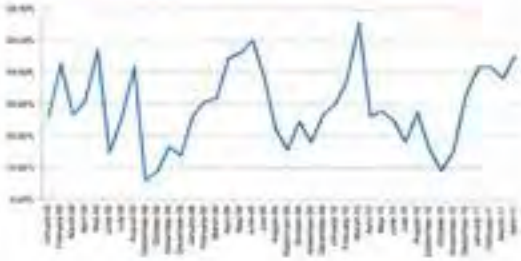
Annual Activity Levels - Operations



Operations Fluctuate by Month



Runway Use Fluctuates by Month



Community Issues:

The Forest

Pre FLOWCAR Overflight Comments

Post FLOWCAR Overflight Comments

Flight Procedures vs. Comments

The Forest Concerns

- Overflight frequency during certain periods
- Overflight altitudes
- Lack of Fanning Aircraft
- Others?

Next Steps

- Public Workshop
  - Present updated noise contours
  - Identify measures for evaluation
- Submit noise exposure maps to FAA
- Evaluate potential measures

APPENDIX K

December 15, 2011 Estero Community Members Meeting on SHIFTY Transition to TYNEE

LEE COUNTY PORT AUTHORITY

ECCL Airplane Noise Committee 3/13/10

NAME	LAST NAME	COMPANY	PHONE #	EMAIL ADDRESS
Peder	Engebretsen		239-221-8098	Lpengebretsen@aol.com
John	Wood		" 949-1136	johndwd@comcast.net
BUD	ROEDEMA		948-4046	KROEDEMA@AOL.COM
Rudy	[illegible]		304-389-7523	[illegible]@comcast.net
Don	Eslick		949-4050	doneslick@comcast.net
Ann	Lacis		947-8463	annlacis@yahoo.com
Mehra	Arnold		407-312-1294	marnold@esassoc.com
Scot	Sidel		(813) 207-7200	ssidel@esassoc.com
GORDON	REYNOLDS		904 635 5701	airgordon1@msn.com
Josh	Philpott		239-590-4618	Jphilpott@FlyLCPA.com
Emily	Underhill		239-590-4601	emunderhill@flylcpa.com
ELLEN	LINDBLAD		" 590-4620	ELLINDBLAD@FLYLCPA.com
Chad	Roberson		590-4624	[illegible]@flylcpa.com
Mark	Fisher			mfisher@flylcpa.com

Southwest Florida International Airport

SHFTY to TYNEE Transition

Estero Community Meeting

Objective of Analysis

"To understand specific FAA objections to the proposed Shifty Transition to the Tynee Arrival and determine if FAA denial of the procedure was appropriate by conducting a detailed airspace analysis to identify traffic flows and procedures that would be impacted."

FAA Coordination

- July 13, 2011 –Filed data request with FAA ATL
- August 11, 2011 – Filed formal FAA FOIA request
- September 15th, 2011 – Received initial RSW operational data from FAA
- October 4, 2011 - Met with FAA RSW ATC and Eastern Support Manager
- October 27, 2011 – Met with the FAA's Miami Center
- November 9, 2011 – Received final data package from FAA

FMY Approach Control

Delegated Airspace (SFC-10,000)

Current SHFTY and TYNEE STARS

Proposed SHFTY to TYNEE Transition

FMY Approach Control Departure and Arrival Transition Areas

Low Altitude Airway Structure Through FMY Approach Control Airspace

Arrival Procedure Fix Usage

Arrival Procedure Fix Usage

Source	SHIFTY	TYNEE
Actual	52.0%	48.0%
Based on Origination	56.8%	43.2%

ESA-LCPA-FAA MIAMI ARTC CENTER MEETING
OCTOBER 27, 2011

REQUESTED TRAFFIC ANALYSIS
EVALUATE IMPACT OF PROPOSED SHFTY TRANSITION

Miami Center Provided
Florida West Coast Area Traffic Analysis

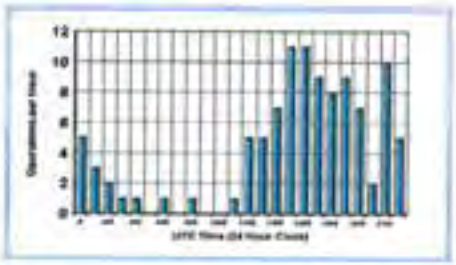
January 2 and 3, 2011 Busy Day Analysis

- **TPA TRACON Departures & Arrivals Crossing Proposed SHFTY Transition**
- **CSHEL Four RNAV Departure**

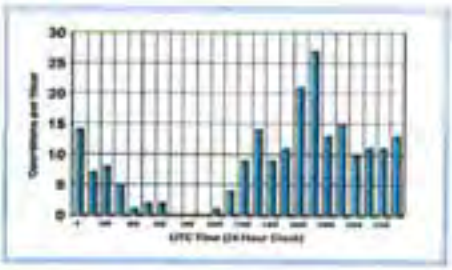
TRACON & ARTCC SECTORIZATION

Departure & Arrival Routes TPA TRACON

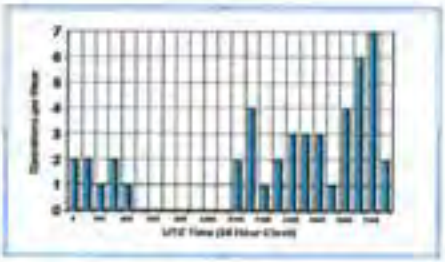
TPA/PIE/SRQ Departures (127) Jan 2, 2011



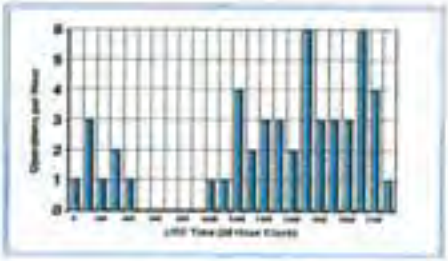
TPA/PIE/SRQ Departures (109) Jan 3, 2011



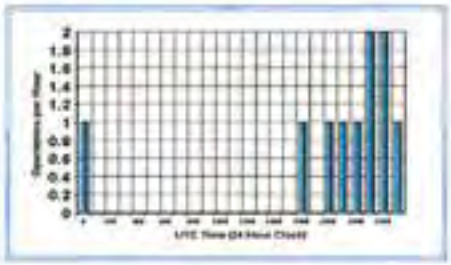
TPA/PIE Arrivals (47) Jan 2, 2011



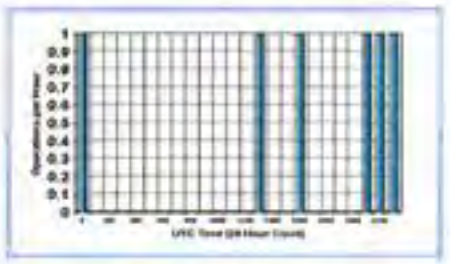
TPA/PIE Arrivals (50) Jan 3, 2011



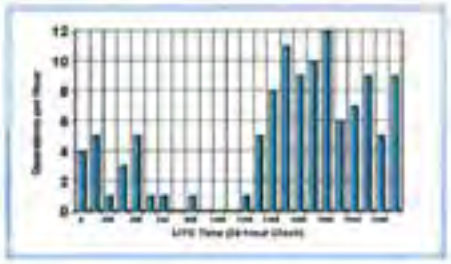
SRQ Arrivals (10)
Jan 2, 2011



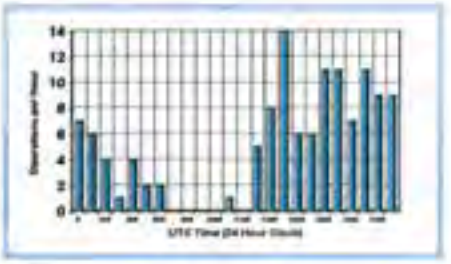
SRQ Arrivals (6)
Jan 3, 2011



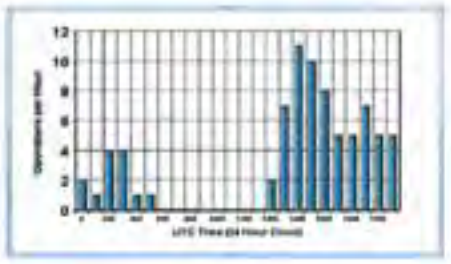
SHFTY Arrivals (113)
Jan 2, 2011



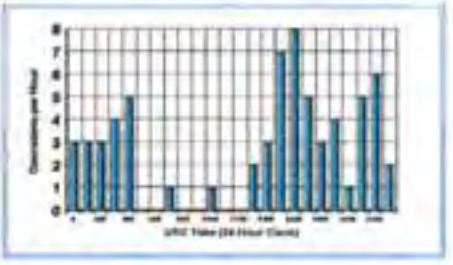
SHFTY Arrivals (126)
Jan 3, 2011



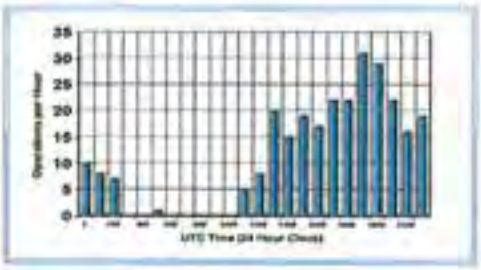
TYNEE Arrivals (78)
Jan 2, 2011



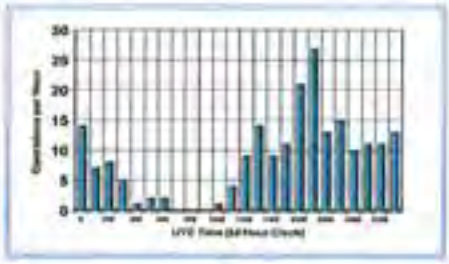
TYNEE Arrivals (66)
Jan 3, 2011



CSHEL Departures over LAL or ORL (270) Jan 2, 2011



CSHEL Departures over LAL or ORL (208) Jan 3, 2011



Traffic Totals Jan 2 & 3, 2011

	Jan 2nd	Jan 3rd
GANDY FOUR (RNAV) Departure (TPA/PIE/SRQ)	127	109
CSHEL FOUR (RNAV) Departure (RSW-FMY-APF-MKY)	270	208
BRDGE SIX Arrival & DEAKK THREE (RNAV) Arrivals (TPA/PIE/SRQ)	47	50
TOTAL:	444	367

Traffic Totals (Con't)

	Jan 2nd	Jan 3rd
GANDY4/BRDGE6/DEAKK3/ CSHEL4	444	367
SHFTY TWO (RNAV)	113	126
TYNEE ONE (RNAV)	75	66
TOTAL:	632	559

Departure & Arrival Routes TPA TRACON

SHFTY to TYNEE Proposal

FAA: "The proposed "procedural transition" from SHFTY to TYNEE waypoint would cause both the SHFTY and TYNEE RNAV STAR streams to merge at TYNEE waypoint. TYNEE is located inside the RSW terminal airspace. Thus forcing Miami ARTCC to receive multiple arrival streams of aircraft from Jacksonville ARTCC. Equating to unnecessary arrival delays for southwest Florida airports. The industry would experience increased spacing enroute with additional vectors, possible Traffic Management Initiatives (TMI) and Miles in Trail (MIT) or even Ground Delay Programs (GDP)."

SHFTY to TYNEE Proposal

- Aircraft would need to be vectored or leveled off for extended periods, increasing fuel burn and costs to the users.
- The proposed "procedural transition" from SHFTY to TYNEE waypoint would route aircraft across the CSHEL DP, which serves the RSW, Fort Myers Page (FMY), Naples (APF) and Marco Island (MKY) airports, and the DEAKK and BRDGE STARs, which serve Tampa (TPA), causing significant ATC delays to air traffic in the RSW and TPA terminal airspace areas.

APPENDIX L

Noise Exposure Maps

• *Respondents:* All Turkish and American YTYA Program participants from 2009 to 2011.
• *Estimated Number of Respondents:* 235.
• *Estimated Number of Responses:* 153.
• *Average Time per Response:* 30 minutes.
• *Total Estimated Burden Time:* 77 hours.
• *Frequency:* One time.
• *Obligation to Respond:* Voluntary.

We are soliciting public comments to permit the Department to:

• Evaluate whether the proposed information collection is necessary for the proper functions of the Department.
• Evaluate the accuracy of our estimate of the time and cost burden for this proposed collection, including the validity of the methodology and assumptions used.
• Enhance the quality, utility, and clarity of the information to be collected.
• Minimize the reporting burden on those who are to respond, including the use of automated collection techniques or other forms of information technology. Please note that comments submitted in response to this Notice are public record. Before including any detailed personal information, you should be aware that your comments as submitted, including your personal information, will be available for public review.

Abstract of Proposed Collection

This request for a new information collection will allow ECA/P/V to conduct a survey to provide data not currently available. The survey is designed to assess the effectiveness of the YTYA Program in achieving its stated goals and objectives, and assess the outcomes of this two-way, bi-lateral exchange program that included 235 young Turkish and young American participants from 2009 to 2011. This study is authorized by the Mutual Educational and Cultural Exchange Act of 1961, as amended (also known as the Fulbright-Hays Act) (22 U.S.C. 2451 et seq.). The survey will be sent electronically to be completed via web survey to all program participants of the years stated above. Data gathered will enable analysis that can potentially be used to design similar bi-lateral exchange programs, improve existing programs, and to inform ongoing and future exchange programs in ECA.

Methodology

The survey and all notifications will be entirely electronic to ease any burden on the participant. The survey will be distributed and responses received electronically using the survey application Vovici.

Dated: January 31, 2013.

Matt Lussenhop,

Director of the Office of Policy and Evaluation, Bureau of Educational and Cultural Affairs, Department of State.

[FR Doc. 2013–02901 Filed 2–7–13; 8:45 am]

BILLING CODE 4710–05–P

DEPARTMENT OF TRANSPORTATION

Office of the Secretary

Applications for Certificates of Public Convenience and Necessity and Foreign Air Carrier Permits

Notice of Applications for Certificates of Public Convenience and Necessity and Foreign Air Carrier Permits Filed Under Subpart B (formerly Subpart Q) during the Week Ending January 26, 2013. The following Applications for Certificates of Public Convenience and Necessity and Foreign Air Carrier Permits were filed under Subpart B (formerly Subpart Q) of the Department of Transportation's Procedural Regulations (see 14 CFR 301.201 et seq.). The due date for Answers, Conforming Applications, or Motions to Modify Scope are set forth below for each application. Following the Answer period DOT may process the application by expedited procedures. Such procedures may consist of the adoption of a show-cause order, a tentative order, or in appropriate cases a final order without further proceedings.

Docket Number: DOT–OST–2013–0018.

Date Filed: January 23, 2013.

Due Date for Answers, Conforming Applications, or Motion to Modify Scope: February 13, 2013.

Description

Application of Ultimate JETCHARTERS, LLC requesting authority to operate scheduled passenger service as a commuter air carrier.

Barbara J. Hairston,

Acting Program Manager, Docket Operations, Federal Register Liaison.

[FR Doc. 2013–02866 Filed 2–7–13; 8:45 am]

BILLING CODE 4910–9X–P

[redacted]

SUMMARY: The Federal Aviation Administration (FAA) announces its determination that the Noise Exposure Maps submitted by the Lee County Port Authority for the Southwest Florida International Airport under the provisions of 49 U.S.C. 47501 et. Seq (Aviation Safety and Noise Abatement Act) and 14 CFR Part 150 are in compliance with applicable requirements.

DATES: This notice is effective February 8, 2013, and is applicable beginning January 30, 2013.

FOR FURTHER INFORMATION CONTACT: Allan Nagy, Federal Aviation Administration, Orlando Airports District Office, 5950 Hazeltine National Drive Citadel International Building, Suite 400, Orlando, FL 32822, 407–812–6331.

SUPPLEMENTARY INFORMATION: This notice announces that the FAA finds that the Noise Exposure Maps submitted for Southwest Florida International Airport are in compliance with applicable requirements of Title 14 Code of Federal Regulations (CFR) Part 150, effective November 15, 2012. Under 49 U.S.C. section 47503 of the Aviation Safety and Noise Abatement Act (the Act), an airport operator may submit to the FAA Noise Exposure Maps which meet applicable regulations and which depict non-compatible land uses as of the date of submission of such maps, a description of projected aircraft operations, and the ways in which such operations will affect such maps. The Act requires such maps to be developed in consultation with interested and affected parties in the local community, government agencies, and persons using the airport. An airport operator who has submitted Noise Exposure Maps that are found by FAA to be in compliance with the requirements of 14 CFR Part 150, promulgated pursuant to the Act, may submit a Noise Compatibility Program for FAA approval which sets forth the measures the airport operator has taken or proposes to take to reduce existing non-compatible uses and prevent the introduction of additional non-compatible uses.

The FAA has completed its review of the Noise Exposure Maps and

accompanying documentation submitted by the Lee County Port Authority. The documentation that constitutes the ''Noise Exposure Maps'' as defined in Section 150.7 of 14 CFR Part 150 includes: Table 4.1, RSW Noise Measurement Locations; Table 7.1, 2011 Annual Operations; Table 7.2, 2011 Annual-Average Day Fleet Mix (Itinerant Operations); Table 7.3, 2011 Annual-Average Day Fleet Mix (Local Operations); Table 7.4, 2017 Annual Operations; Table 7.5, 2017 Annual-Average Day Fleet Mix (Itinerant Operations); Table 7.6, 2017 Annual-Average Day Fleet Mix (Local Operations); Table 7.7, 2011 and 2017 Air Carrier Aircraft Stage Length Percentages; Table 7.8, 2011 Runway Use Percentages; Table 7.9, 2011 and 2017 Departure Flight Track Use Percentages; Table 7.10, 2011 and 2017 Arrival Flight Track Use Percentages; Table 7.11, 2011 and 2017 Local (Touch and Go) Flight Track Use Percentages; Table 8.1, 2012 DNL Contour Surface Areas; Table 8.2, 2017 DNL Contour Surface Areas; Table 8.3, 14 CFR Part 150 Land Use Compatibility Guidelines; Table 8.4, Lee County Airport Noise Zones; Figure 1.2, Airport Location Map; Figure 1.3, Existing Land Uses; Figure 2.1, Airport Diagram; Figure 2–2, U.S. National Airspace System; Figure 2.3, Southwest Florida International Airspace; Figure 2–7, RSW Published Arrivals and Departures; Figure 5.1, RSW RNAV Departures Established Since the 2006 14 CFR Part 150 Study; Figure 5–2, RSW RNAV Arrivals Established Since the 2006 14 CFR Part 150 Study; Figure 5–3, Monthly Operations; Figure 7.1, Modeled Flight Tracks—Northeast Flow; Figure 7.2, Modeled Flight Tracks—Southwest Flow; Figure 7.3, Modeled Flight Tracks—Touch and Go; Figure 8.1, 2012 DNL Noise Contours; Figure 8.2, 2017 DNL Noise Contours; Figure 8.3, Future Land Use; Figure 8.4, Airport Noise Zones; Appendix C, RSW Published IFR Procedures; Appendix L, Map ''A'' 2012 NEM and Map ''B'', 2017; NEM Chapter 9, Page 9–1, Airport Sponsor's Noise Exposure Map Certification; November 1, 2012 Airport Sponsor NEM Submittal Letter.

The FAA has determined that these Noise Exposure Maps and accompanying documentation are in compliance with applicable requirements. This determination is effective on January 30, 2013.

FAA's determination on the airport operator's Noise Exposure Maps is limited to a finding that the maps were developed in accordance with the procedures contained in Appendix A of 14 CFR Part 150. Such determination does not constitute approval of the airport operator's data, information or plans, or a commitment to approve a Noise Compatibility Program or to fund the implementation of that Program. If questions arise concerning the precise relationship of specific properties to noise exposure contours depicted on a Noise Exposure Map submitted under Section 47503 of the Act, it should be noted that the FAA is not involved in any way in determining the relative locations of specific properties with regard to the depicted noise exposure contours, or in interpreting the Noise Exposure Maps to resolve questions concerning, for example, which properties should be covered by the provisions of Section 47506 of the Act. These functions are inseparable from the ultimate land use control and planning responsibilities of local government. These local responsibilities are not changed in any way under 14 CFR Part 150 or through FAA's review of Noise Exposure Maps. Therefore, the responsibility for the detailed overlaying of noise exposure contours onto the map depicting properties on the surface rests exclusively with the airport operator that submitted those maps, or with those public agencies and planning agencies with which consultation is required under Section 47503 of the Act. The FAA has relied on the certification by the airport operator, under Section 150.21 of 14 CFR Part 150, that the statutorily required consultation has been accomplished.

Copies of the full Noise Exposure Maps documentation and of the FAA's evaluation of the maps are available for examination at the following locations: Federal Aviation Administration, Orlando Airports District Office, 5950 Hazeltine National Drive, Citadel International Building, Suite 400, Orlando, FL 32822.

Questions may be directed to the individual named above under the heading, **FOR FURTHER INFORMATION CONTACT**.

Issued in Orlando, FL, on January 30, 2013.

Bart Vernace,

Manager, Orlando Airports District Office, Federal Aviation Administration.

[FR Doc. 2013–02894 Filed 2–7–13; 8:45 am]

BILLING CODE 4910–13–P

DEPARTMENT OF TRANSPORTATION

Surface Transportation Board

[Docket No. FD 35661]

Grand Trunk Western Railroad Company—Acquisition of Operating Easement—CSX Transportation, Inc.

AGENCY: Surface Transportation Board, DOT.

ACTION: Notice of exemption.

SUMMARY: The Board is granting an exemption under 49 U.S.C. 10502 from the prior approval requirements at 49 U.S.C. 11323–25 for Grand Trunk Western Railroad Company (GTW), an indirect, wholly owned subsidiary of Canadian National Railway Company, to acquire from CSX Transportation, Inc. (CSXT) an exclusive, perpetual, non-assignable railroad operating easement over approximately 2.1 miles of CSXT's Memphis Terminal Subdivision, between Leewood, Tenn., milepost 00F371.4, and Aulon, Tenn., milepost 00F373.4 (Leewood-Aulon Line), subject to employee protective conditions. The Leewood-Aulon Line is currently owned by CSXT. Illinois Central Railroad Company, a GTW affiliate, operates over it via trackage rights. Along with the proposed easement acquisition by GTW, CSXT would retain local and overhead trackage rights over the Leewood-Aulon Line.

GTW's easement acquisition is one part of an Agreement for Exchange of Perpetual Easements between GTW and CSXT. In exchange for GTW's acquiring an easement from CSXT over the Leewood-Aulon Line, GTW has agreed to grant CSXT an exclusive, perpetual, non-assignable railroad operating easement over 22.37 miles of GTW track on the Elsdon Subdivision between the connection with CSXT at Munster, Ind., milepost 31.07, and Elsdon, Ill., milepost 8.7, which connects to the southern end of the BNSF Railway Company's Corwith Yard. The Board is separately granting authority for CSXT's acquisition of this operating easement in the Chicago area in Docket Nos. FD 35522 *et al.*[1]

DATES: This exemption will be effective on March 10, 2013. Petitions to stay must be filed by February 19, 2013. Petitions to reopen must be filed by February 28, 2013.

ADDRESSES: Send an original and 10 copies of all pleadings referring to Docket No. FD 35661 to: Surface Transportation Board, 395 E Street SW.,

[1] *See CSX Transp. Inc.—Acquis. of Operating Easement—Grand Trunk W. R.R.,* FD 35522, *et al.* (STB served February 8, 2013).

U.S. Department
of Transportation
**Federal Aviation
Administration**

ORLANDO AIRPORTS DISTRICT OFFICE
5950 Hazeltine National Drive
Citadel International Building, Suite 400
Orlando, FL 32822
Phone: 407-812-6331 Fax: 407-812-6978

November 27, 2012

Ms. Juliet S. Inglesias
Grants Manager
Southwest Florida International Airport
11000 Terminal Access Road
Suite 8671
Fort Myers, FL 33913-8213

xc: Ellen L.
Chad R.

RE: Noise Exposure Maps Compliance Determination

Dear Ms. Inglesias

This is to notify you that the Federal Aviation Administration (FAA) has evaluated your final submission of the Noise Exposure Maps (NEM) and supporting documentation transmitted by your letter of November 1, 2012 in accordance with Section 103(a)(1) of the Aviation Safety and Noise Abatement Act of 1979 (ASNA), (49 U.S.C., Section 47503). We have determined that they are in compliance with applicable requirements of 14 CFR Part 150. Further, we have determined that the maps entitled "2012 Noise Exposure Map" and "2017 Noise Exposure Map" fulfill the requirements for the current year and the future year noise exposure maps.

FAA's determination that your Noise Exposure Maps are in compliance is limited to a finding that the maps were developed in accordance with the procedures contained in Appendix A of 14 CFR Part 150. Such determination does not constitute approval of your data, information or plans.

Should questions arise concerning the precise relationship of specific properties to noise exposure contours depicted on your Noise Exposure Maps, you should note that the FAA will not be involved in any way in determining the relative locations of specific properties with regard to the depicted noise exposure contours, or in interpreting the maps to resolve questions concerning, for example, which properties should be covered by the provisions of Section 107 of ASNA (49 U.S.C., Section 47506). These functions are inseparable from the ultimate land use control and planning responsibilities of local government. These local responsibilities are not changed in any way under Part 150 or through FAA's determination relative to your Noise Exposure Maps.

Therefore, the responsibility for the detailed overlaying of noise exposure contours onto the maps depicting properties on the surface rests exclusively with you, the airport operator, or with those public agencies and planning agencies with which consultation is required under Section 103 of ASNA (49 U.S.C., Section 47503). The FAA relies on the certification by you, under 150.21 of 14 CFR part 150, that the statutorily required consultation has been accomplished.

The FAA will publish notice in the Federal Register announcing its determination on the Noise Exposure Maps for the Southwest Florida International Airport.

Your notice of this determination and the availability of the Noise Exposure Maps, when published at least three times in a newspaper of general circulation in the county or counties where affected parties are located, will satisfy the requirements of Section 107 of the ASNA Act (49 U.S.C., Section 47506).

Your attention is called to the requirements of Section 150.21(d) of 14 CFR Part 150, involving the prompt preparation and submission of revisions to these maps of any actual or proposed change in the operation of the Southwest Florida International Airport which might create any substantial, new, noncompatible use in any areas depicted on the Noise Exposure Maps, or significant reduction in noise over noncompatible land uses that were previously included in the Noise Exposure Map contour. Remedial mitigation is limited to existing non-compatible land uses located within the existing 65 DNL noise exposure contour of the official Noise Exposure Map (2012 Noise Exposure Map) and is consistent with FAA's 1998 remedial mitigation policy (64 FR 16409).

Sincerely,

Bart Vernace, P.E.
Manager, FAA Orlando Airports District Office

cc:
APP-400
ASO-610
ASO-7
Allan Nagy, Orlando ADO Environmental Program Specialist

[4910-13]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

Noise Exposure Map Notice
Southwest Florida International Airport,
Fort Myers, FL

AGENCY: Federal Aviation Administration, DOT.

ACTION: Notice.

SUMMARY: The Federal Aviation Administration (FAA) announces its determination that the Noise Exposure Maps submitted by the Lee County Port Authority for the Southwest Florida International Airport under the provisions of 49 U.S.C. 47501 et. Seq (Aviation Safety and Noise Abatement Act) and 14 CFR Part 150 are in compliance with applicable requirements.

EFFECTIVE DATE: The effective date of the FAA's determination on the noise exposure maps is November 27, 2012.

FOR FURTHER INFORMATION CONTACT: Allan Nagy, Federal Aviation Administration, Orlando Airports District Office, 5950 Hazeltine National Drive Citadel International Building, Suite 400, Orlando, FL 32822, 407-812-6331.

SUPPLEMENTARY INFORMATION: This notice announces that the FAA finds that the Noise Exposure Maps submitted for Southwest Florida International Airport are in compliance with applicable requirements of Title 14 Code of Federal Regulations (CFR)

Part 150, effective November 15, 2012. Under 49 U.S.C. section 47503 of the Aviation Safety and Noise Abatement Act (the Act), an airport operator may submit to the FAA Noise Exposure Maps which meet applicable regulations and which depict non-compatible land uses as of the date of submission of such maps, a description of projected aircraft operations, and the ways in which such operations will affect such maps. The Act requires such maps to be developed in consultation with interested and affected parties in the local community, government agencies, and persons using the airport. An airport operator who has submitted Noise Exposure Maps that are found by FAA to be in compliance with the requirements of 14 CFR Part 150, promulgated pursuant to the Act, may submit a Noise Compatibility Program for FAA approval which sets forth the measures the airport operator has taken or proposes to take to reduce existing non-compatible uses and prevent the introduction of additional non-compatible uses.

The FAA has completed its review of the Noise Exposure Maps and accompanying documentation submitted by the Lee County Port Authority. The documentation that constitutes the "Noise Exposure Maps" as defined in Section 150.7 of 14 CFR Part 150 includes: Table 4.1, RSW Noise Measurement Locations; Table 7.1, 2011 Annual Operations; Table 7.2, 2011 Annual-Average Day Fleet Mix (Itinerant Operations); Table 7.3, 2011 Annual-Average Day Fleet Mix (Local Operations); Table 7.4, 2017 Annual Operations; Table 7.5, 2017 Annual-Average Day Fleet Mix (Itinerant Operations); Table 7.6, 2017 Annual-Average Day Fleet Mix (Local Operations); Table 7.7, 2011 and 2017 Air Carrier Aircraft Stage Length Percentages; Table 7.8, 2011 Runway Use Percentages; Table 7.9, 2011 and 2017 Departure Flight Track Use

Percentages; Table 7.10, 2011 and 2017 Arrival Flight Track Use Percentages; Table 7.11, 2011 and 2017 Local (Touch and Go) Flight Track Use Percentages; Table 8.1, 2012 DNL Contour Surface Areas; Table 8.2, 2017 DNL Contour Surface Areas; Table 8.3,14 CFR Part 150 Land Use Compatibility Guidelines; Table 8.4, Lee County Airport Noise Zones; Figure 1.2, Airport Location Map; Figure 1.3, Existing Land Uses; Figure 2.1, Airport Diagram; Figure 2-2, U.S. National Airspace System; Figure 2.3, Southwest Florida International Airspace; Figure2-7, RSW Published Arrivals and Departures; Figure 5.1, RSW RNAV Departures Established Since the 2006 14 CFR Part 150 Study; Figure 5-2, RSW RNAV Arrivals Established Since the 2006 14 CFR Part 150 Study; Figure 5-3, Monthly Operations; Figure 7.1, Modeled Flight Tracks – Northeast Flow; Figure 7.2, Modeled Flight Tracks – Southwest Flow; Figure 7.3, Modeled Flight Tracks – Touch and Go; Figure 8.1, 2012 DNL Noise Contours; Figure 8.2, 2017 DNL Noise Contours; Figure 8.3, Future Land Use; Figure 8.4, Airport Noise Zones; Appendix C, RSW Published IFR Procedures; Appendix L, Map "A" 2012 NEM and Map "B", 2017; NEM Chapter 9, Page 9-1, Airport Sponsor's Noise Exposure Map Certification; November 1, 2012 Airport Sponsor NEM Submittal Letter.

The FAA has determined that these Noise Exposure Maps and accompanying documentation are in compliance with applicable requirements. This determination is effective on November 27, 2012.

FAA's determination on the airport operator's Noise Exposure Maps is limited to a finding that the maps were developed in accordance with the procedures contained in

Appendix A of 14 CFR Part 150. Such determination does not constitute approval of the airport operator's data, information or plans, or a commitment to approve a Noise Compatibility Program or to fund the implementation of that Program. If questions arise concerning the precise relationship of specific properties to noise exposure contours depicted on a Noise Exposure Map submitted under Section 47503 of the Act, it should be noted that the FAA is not involved in any way in determining the relative locations of specific properties with regard to the depicted noise exposure contours, or in interpreting the Noise Exposure Maps to resolve questions concerning, for example, which properties should be covered by the provisions of Section 47506 of the Act. These functions are inseparable from the ultimate land use control and planning responsibilities of local government. These local responsibilities are not changed in any way under 14 CFR Part 150 or through FAA's review of Noise Exposure Maps. Therefore, the responsibility for the detailed overlaying of noise exposure contours onto the map depicting properties on the surface rests exclusively with the airport operator that submitted those maps, or with those public agencies and planning agencies with which consultation is required under Section 47503 of the Act. The FAA has relied on the certification by the airport operator, under Section 150.21 of 14 CFR Part 150, that the statutorily required consultation has been accomplished.

Copies of the full Noise Exposure Maps documentation and of the FAA's evaluation of the maps are available for examination at the following locations:

Federal Aviation Administration

Orlando Airports District Office

5950 Hazeltine National Drive,Citadel International Building, Suite 400

Orlando, FL 32822

Questions may be directed to the individual named above under the heading, FOR FURTHER INFORMATION CONTACT.

Issued in Orlando, FL on November 27, 2012.

Bart Vernace, P.E.

Manager, Orlando Airports District Office

Federal Aviation Administration

THE NEWS-PRESS

Published every morning
Daily and Sunday
Fort Myers, Florida

Affidavit of Publication

STATE OF FLORIDA
COUNTY OF LEE

Before the undersigned authority, personally appeared **Susan Wright** who on oath says that he/she is the **Legal Assistant** of the News-Press, a daily newspaper, published at Fort Myers, in Lee County, Florida; that the attached copy of advertisement, being a

Miscellaneous Notices

in the matter of

Federal Aviation Administration Noise Exposure Maps Available

in the Court was published in said newspaper in the issues of

May 13, 15, 17, 2013

Affiant further says that the said News-Press is a paper of general circulation daily in Lee, Charlotte, Collier, Glades and Hendry Counties and published at Fort Myers, in said Lee County, Florida and that said newspaper has heretofore been continuously published in said Lee County, Florida, each day, and has been entered as a second class mail matter at the post office in Fort Myers in said Lee County, Florida, for a period of one year next preceding the first publication of the attached copy of the advertisement, and affiant further says that he/she has neither paid nor promised any person, firm or corporation any discount, rebate, commission or refund for the purpose of securing this advertisement for publication in the said newspaper.

Susan Wright

Sworn to and subscribed before me this 17th day of May, 2013.

by **Susan Wright**
personally known to me or who has produced

_____

as identification, and who did or did not take an oath.

Notary Public Jessica Hanft

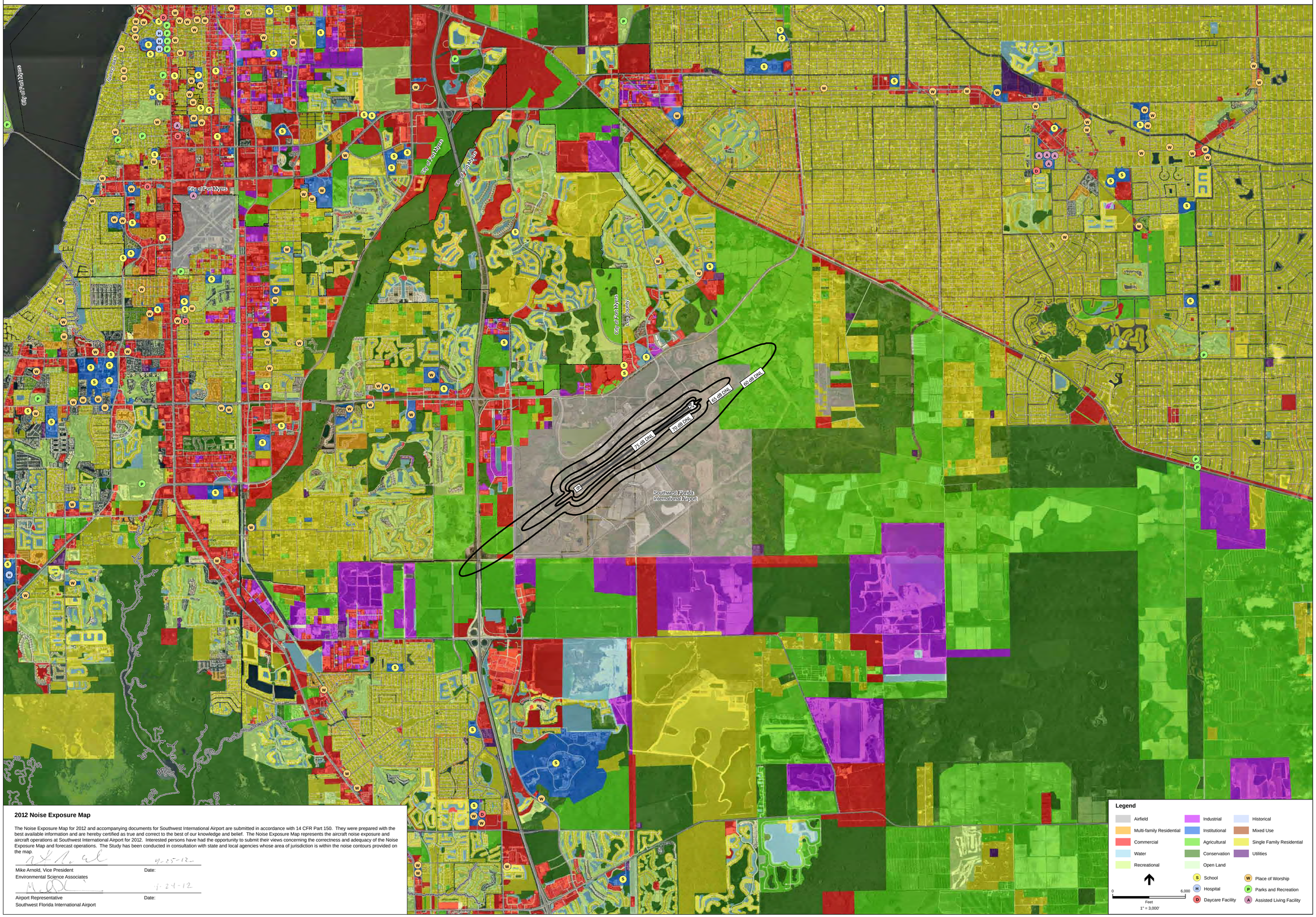
Print Name **Jessica Hanft**
My commission Expires: **February 12, 2017**

JESSICA HANFT
MY COMMISSION # EE874397
EXPIRES February 12, 2017
(407) 398-0153 FloridaNotaryService.com

1095

The Federal Aviation Administration (FAA) has evaluated the Noise Exposure Maps (NEMs) that were developed for Southwest Florida International Airport under Title 14 Code of Federal Regulations (CFR) Part 150, Airport Noise Compatibility Planning and has determined that they are in compliance with applicable requirements of 14 CFR Part 150. Further, the FAA has determined that the maps entitled "2012 Noise Exposure Map and 2017 Noise Exposure Map" fulfills the requirements for the current year and the future year noise exposure maps. These maps are available at

Map A - 2012 Noise Exposure Map



2012 Noise Exposure Map

The Noise Exposure Map for 2012 and accompanying documents for Southwest International Airport are submitted in accordance with 14 CFR Part 150. They were prepared with the best available information and are hereby certified as true and correct to the best of our knowledge and belief. The Noise Exposure Map represents the aircraft noise exposure and aircraft operations at Southwest International Airport for 2012. Interested persons have had the opportunity to submit their views concerning the correctness and adequacy of the Noise Exposure Map and forecast operations. The Study has been conducted in consultation with state and local agencies whose area of jurisdiction is within the noise contours provided on the map.

Mike Arnold, Vice President — Date: 4-25-12
Environmental Science Associates

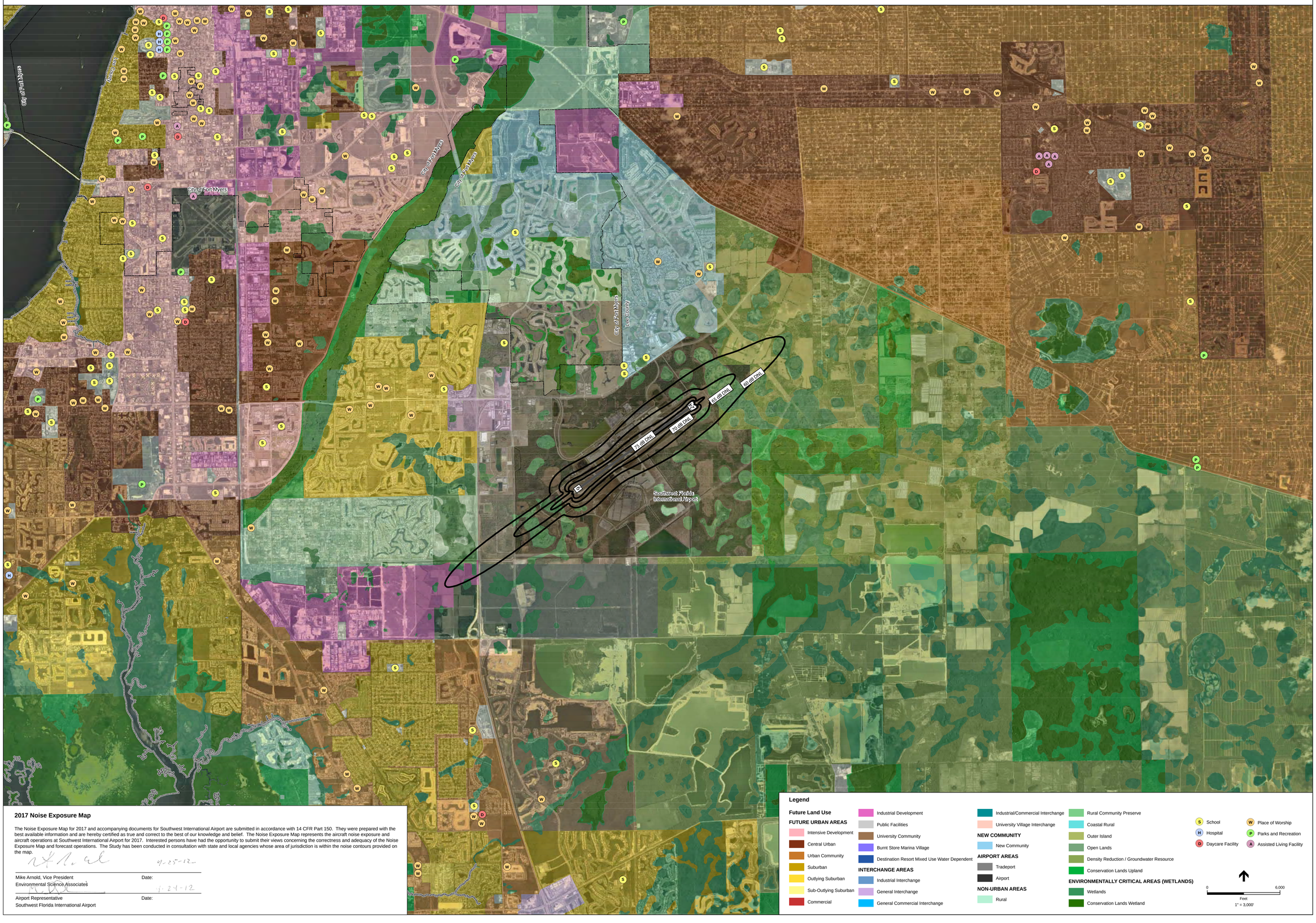
Airport Representative — Date: 4-24-12
Southwest Florida International Airport

Legend

- Airfield
- Multi-family Residential
- Commercial
- Water
- Recreational
- Industrial
- Institutional
- Agricultural
- Conservation
- Open Land
- Historical
- Mixed Use
- Single Family Residential
- Utilities
- School
- Hospital
- Daycare Facility
- Place of Worship
- Parks and Recreation
- Assisted Living Facility

0 — 6,000 Feet
1" = 3,000'

Map B - 2017 Noise Exposure Map



2017 Noise Exposure Map

The Noise Exposure Map for 2017 and accompanying documents for Southwest International Airport are submitted in accordance with 14 CFR Part 150. They were prepared with the best available information and are hereby certified as true and correct to the best of our knowledge and belief. The Noise Exposure Map represents the aircraft noise exposure and aircraft operations at Southwest International Airport for 2017. Interested persons have had the opportunity to submit their views concerning the correctness and adequacy of the Noise Exposure Map and forecast operations. The Study has been conducted in consultation with state and local agencies whose area of jurisdiction is within the noise contours provided on the map.

4-25-12

Mike Arnold, Vice President — Date:
Environmental Science Associates

4-24-12

Airport Representative — Date:
Southwest Florida International Airport

Legend

Future Land Use

FUTURE URBAN AREAS
- Intensive Development
- Central Urban
- Urban Community
- Suburban
- Outlying Suburban
- Sub-Outlying Suburban
- Commercial
- Industrial Development
- Public Facilities
- University Community
- Burnt Store Marina Village
- Destination Resort Mixed Use Water Dependent

INTERCHANGE AREAS
- Industrial Interchange
- General Interchange
- General Commercial Interchange
- Industrial/Commercial Interchange
- University Village Interchange

NEW COMMUNITY
- New Community

AIRPORT AREAS
- Tradeport
- Airport

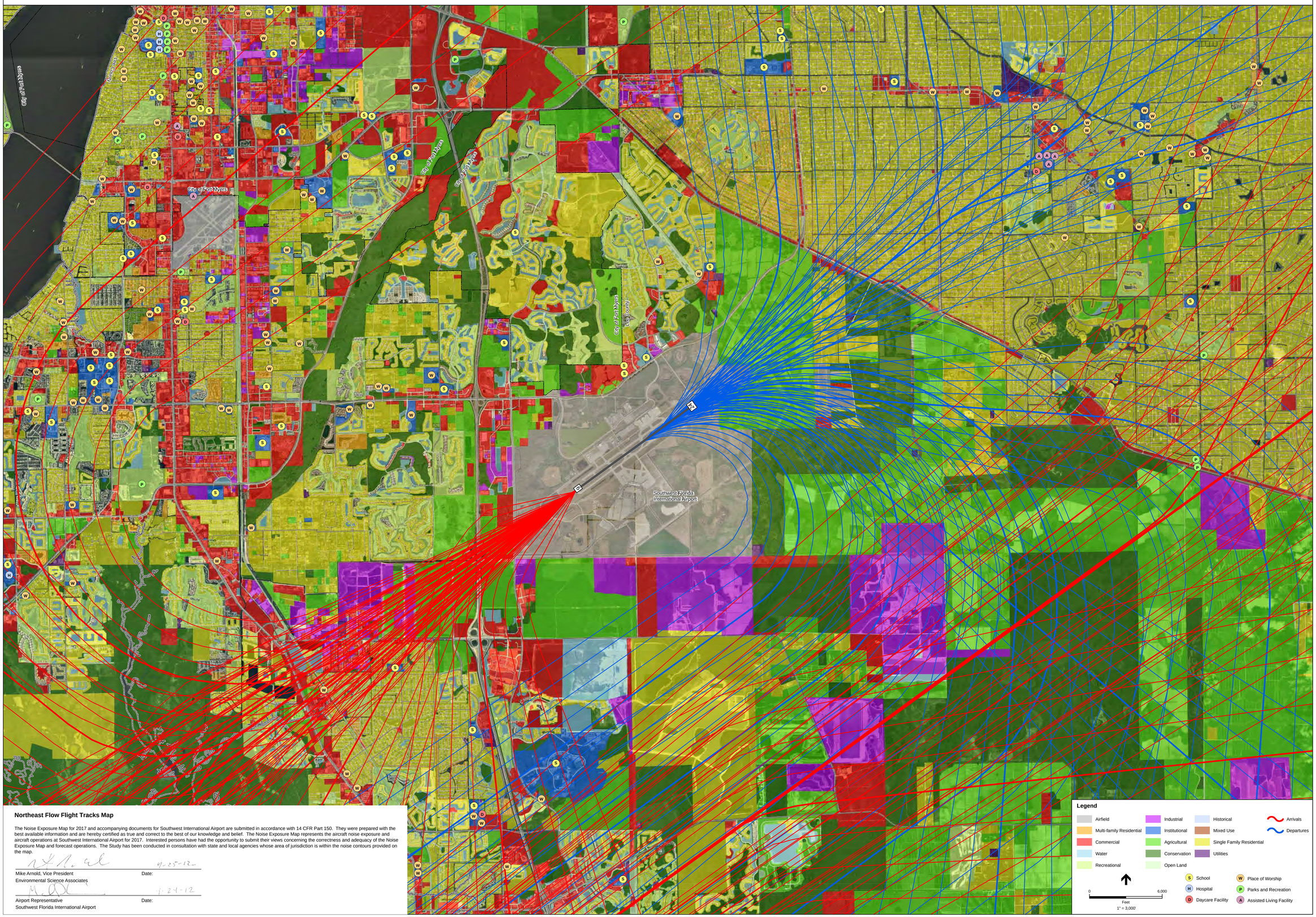
NON-URBAN AREAS
- Rural
- Rural Community Preserve
- Coastal Rural
- Outer Island
- Open Lands
- Density Reduction / Groundwater Resource
- Conservation Lands Upland

ENVIRONMENTALLY CRITICAL AREAS (WETLANDS)
- Wetlands
- Conservation Lands Wetland

- S School
- W Place of Worship
- H Hospital
- P Parks and Recreation
- D Daycare Facility
- A Assisted Living Facility

0 — 6,000
Feet
1" = 3,000'

Map C - Northeast Flow Flight Tracks



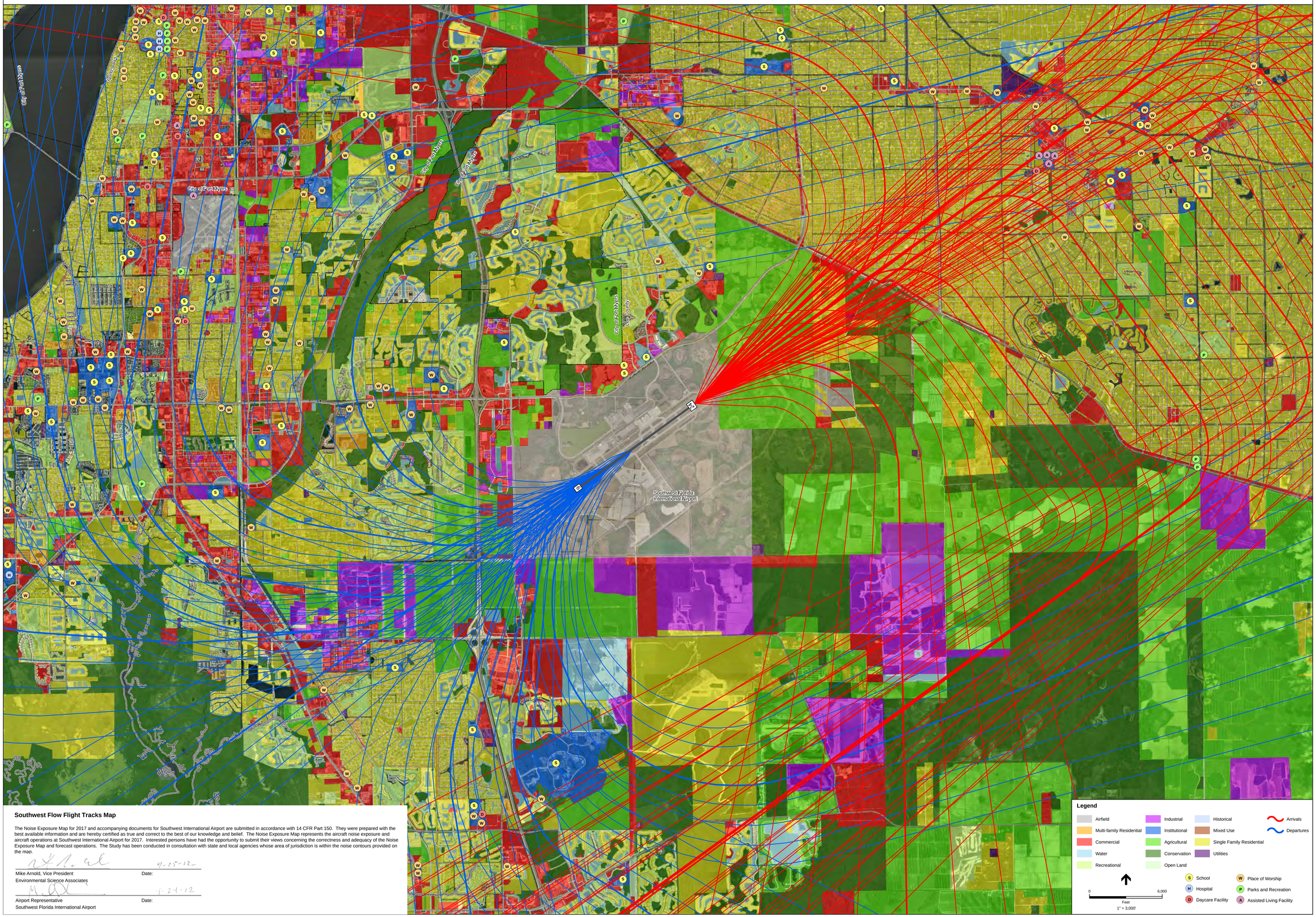
Northeast Flow Flight Tracks Map

The Noise Exposure Map for 2017 and accompanying documents for Southwest International Airport are submitted in accordance with 14 CFR Part 150. They were prepared with the best available information and are hereby certified as true and correct to the best of our knowledge and belief. The Noise Exposure Map represents the aircraft noise exposure and aircraft operations at Southwest International Airport for 2017. Interested persons have had the opportunity to submit their views concerning the correctness and adequacy of the Noise Exposure Map and forecast operations. The Study has been conducted in consultation with state and local agencies whose area of jurisdiction is within the noise contours provided on the map.

Mike Arnold, Vice President — Date: 4-25-12
Environmental Science Associates

Airport Representative — Date: 4-24-12
Southwest Florida International Airport

Map D - Southwest Flow Flight Tracks



Southwest Flow Flight Tracks Map

The Noise Exposure Map for 2017 and accompanying documents for Southwest International Airport are submitted in accordance with 14 CFR Part 150. They were prepared with the best available information and are hereby certified as true and correct to the best of our knowledge and belief. The Noise Exposure Map represents the aircraft noise exposure and aircraft operations at Southwest International Airport for 2017. Interested persons have had the opportunity to submit their views concerning the correctness and adequacy of the Noise Exposure Map and forecast operations. The Study has been conducted in consultation with state and local agencies whose area of jurisdiction is within the noise contours provided on the map.

Mike Arnold, Vice President — Date: 9-25-12
Environmental Science Associates

Airport Representative — Date: 9-24-12
Southwest Florida International Airport

APPENDIX M

Noise Exposure Map Checklist

PART 150 NEM CHECKLIST – PART I

PROGRAM REQUIREMENT	YES	NO	SUPPORTING PAGES/REVIEW COMMENTS
I. Submitting And Identifying The NEM:			
A. Submission is properly identified:		Y	
1. 14 C.F.R. Part 150 NEM?	Y		See Airport Sponsor's Formal Transmittal Letter of the new NEM document.
2. NEM and NCP together?		N	
3. Revision to NEMs FAA previously determined to be in compliance with Part 150?		N	The NEM's in this document replace the 2006 NEM's.
B. Airport and Airport Operator's name are identified?	Y		See Airport Sponsor's Formal Transmittal Letter of the new NEM document.
C. NCP is transmitted by airport operator's dated cover letter, describing it as a Part 150 submittal and requesting appropriate FAA determination?			NA
II. Consultation: [150.21(b), A150.105(a)]			
A. Is there a narrative description of the consultation accomplished, including opportunities for public review and comment during map development?	Y		See Chapter 4
B. Identification of consulted parties:			
1. Are the consulted parties identified? a. FAA ARP Region b. FAA Region ATO & others c. State officials d. Public & Planning agencies within 65* e. Other Federal officials w/local responsibility for land uses w/in 65 f. Air Carries (if applicable) g. Other airport users to extent practicable	Y Y Y Y Y Y Y		a. See Section 4.4.1 b. See Section 4.4.1 and Appendix "H". c. See Section 4.4.3 and additional planning agency coordination detail is provided in Section 4.4.2 d. See Section 4.4.4 e. See Section 4.4.2 and 4.4.3 f. See Section 4.4.4 g. See Section 4.0
2. Do they include all those required by 150.21(b) and A150.105 (a)?		Y	See above

PART 150 NEM CHECKLIST – PART I

3. Agencies in 2, above, correspond to those indicated on the NEM?	Y		See Section 4.4.3
C. Does the documentation include the airport operator's certification, and evidence to support it, that interested persons have been afforded adequate opportunity to submit their views, data, and comments during map development and in accordance with 150.21(b)?	Y		See Chapter 4 & Volume II. Volume II Includes copies of public notice publication affidavits & presentation materials for the various public/stakeholder meetings. See Airport Sponsor's formal submission transmittal letter to ADO for Part 150 NEM document.
D. Does the document indicate whether written comments were received during consultation and, if there were comments that they are on file with the FAA regional airports division manager?	Y		Yes –Volume II Includes copies of all written Comments received over the course of the NEM study.
III. General Requirements: [150.21]			
A. Are there two maps, each clearly labeled on the face with year (existing condition year and one that is at least 5 years into the future)?	Y		See Chapter 9, Figure 9.1: 2012 NEM And Figure 9.2: 2017 NEM. Also see full size NEM's in Appendix "L", Map "A" (2012 NEM) and Map "B" (2017 NEM).
B. Map currency:			
1. Does the year on the face of the existing condition map graphic match the year on the airport operator's NEM submittal letter?	Y		See Chapter 9, Figure 9.1, 2012 NEM, Appendix "L", Map "A" and the Airport Sponsor's formal NEM document transmittal letter.
2. Is the forecast year map based on reasonable forecasts and other planning assumptions and is it for at least the fifth calendar year after the year of submission?	Y		See Section 8.1.
3. If the answer to 1 and 2 above is no, the airport operator must verify in writing that data in the documentation are representative of existing condition and at least 5 years' forecast conditions as of the date of submission?		NA	

PART 150 NEM CHECKLIST – PART I

PROGRAM REQUIREMENT	YES	NO	SUPPORTING PAGES/REVIEW COMMENTS
III. General Requirements: [150.21] ***[continued]***			
C. If the NEM and NCP are submitted together:		N	NA
1. Has the airport operator indicated whether the forecast year map is based on either forecast conditions without the program or forecast conditions if the program is implemented?			NA
2. If the forecast year map is based on program implementation:			NA
a. Are the specific program measures that are reflected on the map identified?			NA
b. Does the documentation specifically describe how these measures affect land use compatibilities depicted on the map?			NA
3. If the forecast year NEM does not model program implementation, the airport operator must either submit a revised forecast NEM showing program implementation conditions [B150.3(b), 150.35(f)] or the sponsor must demonstrate the adopted forecast year NEM with approved NCP measures would not change by plus/minus 1.5 DNL? (150.21(d))			NA
IV. Map Scale, Graphics, And Data Requirements: [A150.101, A150.103, A150.105, 150.21(a)]			
A. Are the maps of sufficient scale to be clear and readable (they must not be less than 1" to 2,000'), and is the scale indicated on the maps? (*Note (1) if the submittal uses separate graphics to depict flight tracks and/or noise monitoring sites, these must be of the same scale, because they are part of the documentation required for NEMs*.) (*Note (2) supplemental graphics that are not required by the regulation do not need to be at the 1" to 2,000' scale*)	Y		The existing and future NEM's in Appendix "L" are at a scale of 1"=2000'. Flight track maps in Appendix "L" are to the same scale as the existing and future NEM's.
B. Is the quality of the graphics such that required information is clear and readable? (*Refer to C. through G., below, for specific graphic depictions that must be clear and readable*)	Y		

PART 150 NEM CHECKLIST – PART I

PROGRAM REQUIREMENT	YES	NO	SUPPORTING PAGES/REVIEW COMMENTS
IV. Map Scale, Graphics, And Data Requirements: [A150.101, A150.103, A150.105, 150.21(a)] ***[continued]***			
C. Depiction of the airport and its environs:			
1. Is the following graphically depicted to scale on both the existing condition and forecast year maps?	Y		
a. Airport boundaries	Y		
b. Runway configurations with runway end numbers	Y		
2. Does the depiction of the off-airport data include?			
a. A land use base map depicting streets and other identifiable geographic features	Y		
b. The area within the DNL[1] 65 dB (or beyond, at local discretion)	Y		
c. Clear delineation of geographic boundaries and the names of all jurisdictions with planning and land use control authority within the DNL 65 dB (or beyond, at local discretion)	Y		The Airport and the existing and future Noise Contours are entirely within the limits of Lee County. However, nearby municipal jurisdictions are also depicted on the existing and future NEM's.
D. 1.Continuous contours for at least the DNL 65, 70, and 75 dB?	Y		
2. Has the local land use jurisdiction(s) adopted a lower local standard and if so, has the sponsor depicted this on the NEMs?	Y		See Section 8.2, 8.5 and last page of Chapter 8 - Objective 1.7: Special Treatment Areas
3. Based on current airport and operational data for the existing condition year NEM, and forecast data representative of the selected year for the forecast NEM?	Y		See Section 8.1.
E. Flight tracks for the existing condition and forecast year timeframes (these may be on supplemental graphics which must use the same land use base map and scale as the existing condition and forecast year NEM), which are numbered to correspond to accompanying narrative?	Y		
F. Locations of any noise monitoring sites (these may be on supplemental graphics which must use the same land use base map and scale as the official NEMs)	Y		See Section 4.3.2. Also, Noise Monitoring locations falling within the extents of the noise contours are depicted on the existing and future NEM's.
G. *Noncompatible* land use identification:			
1. Are noncompatible land uses within at least the DNL 65 dB noise contour depicted on the map graphics?		NA	There are no non-compatible land uses located within the DNL 65 dBA noise contour of either the existing or future NEM's. See Section 8.4 and Appendix "L", Maps "A" and "B".
2. Are noise sensitive public buildings and historic properties		NA	There are no non-compatible land uses located within the DNL

[1] [CNEL for California airports]

identified? (*Note: If none are within the depicted NEM noise contours, this should be stated in the accompanying narrative text.*)			65 dBA noise contour of either the existing or future NEM's. See Section 8.4. and Appendix "L", Maps "A" and "B".
3. Are the noncompatible uses and noise sensitive public buildings readily identifiable and explained on the map legend?		NA	There are no non-compatible land uses located within the DNL 65 dBA noise contour of either the existing or future NEM's. See Section 8.4 and Appendix "L", Maps "A" and "B".
4. Are compatible land uses, which would normally be considered noncompatible, explained in the accompanying narrative?		NA	NA

PART 150 NEM CHECKLIST – PART I

PROGRAM REQUIREMENT	YES	NO	SUPPORTING PAGES/REVIEW COMMENTS
V. Narrative Support Of Map Data: [150.21(a), A150.1, A150.101, A150.103]			
A. 1. Are the technical data and data sources on which the NEMs are based adequately described in the narrative?	Y		See Chapter 2.1.1; Figure 2.1; Section 7.7.1; Section 7.7.2 and Section 7.7.3.
2. Are the underlying technical data and planning assumptions reasonable?	Y		
B. Calculation of Noise Contours:			
1. Is the methodology indicated? a. Operations numbers w/Fleet Mix identified b. Stage length for each aircraft to determine appropriate departure profile c. Runway Utilization d. Flight Tracks Use Percent Used e. Day/Night Split and Percent Used f. Geography/topography inputs g. Helicopters	Y Y Y Y Y Y Y		a. See Sections 7.1 and 7.2 b. See Section 7.3 c. See Section 7.4 d. See Section 7.5 e. See Section 7.6 Existing year (Tables 7.2 & 7.3)) & Future year (Tables 7.5 & 7.6)) f. See Section 7.1.1 g. Negligible helicopter activity takes place at the Airport
a. Is it FAA approved?	Y		INM 7.0b was used for this Study. INM Version 7.0c came out on 01-03-12. However, the NEM's had been completed and circulated to all stakeholders prior to the issuance of the new version of the INM.
b. Was the same model used for both maps? (*Note: The same model also must be used for NCP submittals associated with NEM determinations already issued by FAA where the NCP is submitted later, unless the airport sponsor submits a combined NEM/NCP submittal as a replacement, in which case the model used must be the most recent version at the time the update was started.*)	Y		INM 7.0b was used for both the Existing Condition NEM (2012) and the Future Condition NEM (2017).
c. Has AEE approval been obtained for use of a model other than those that have previous blanket FAA approval?		NA	NA
2. Correct use of noise models:			
a. Does the documentation indicate, or is there evidence, the airport operator (or its consultant) has adjusted or calibrated FAA-approved noise models or substituted one aircraft type for another that was not included on the FAA's pre-approved list of aircraft substitutions?		N	NA
b. If so, does this have written approval from AEE, and is that written approval included in the submitted document?		NA	NA
3. If noise monitoring was used, does the narrative indicate that Part 150 guidelines were followed?		N	Section 4.3.2 notes that the noise monitoring was conducted in accordance with Part 150 guidelines.

4. For contours below DNL 65 dB, does supporting doc include explain. of local reasons? (*Note: Narrative explan., inc.evidence local jurisdiction(s) have adopted a noise level less than DNL 65 dB as sensitive for the local community(ies), & inc.a table or other depiction of differences from the Fed table, is highly desirable but not specifically required by the rule. However, if the airport sponsor submits NCP measures w/in the locally signif noise contour, an explanation must be included if it wants the FAA to consider the measure(s) for approval for purposes of eligibility for Federal aid.*)	Y		See Sections 8.2 and 8.5 and last page of Chapter 8 - Objective 1.7: Special Treatment Areas.

PART 150 NEM CHECKLIST – PART I

PROGRAM REQUIREMENT	YES	NO	SUPPORTING PAGES/REVIEW COMMENTS
V. Narrative Support Of Map Data: [150.21(a), A150.1, A150.101, A150.103] ***[continued]***			
C. Noncompatible Land Use Information:			
1. Does the narrative (or map graphics) give estimates of the number of people residing in each of the contours (DNL 65, 70 and 75, at a minimum) for both the existing condition and forecast year maps?	Y		There are none
2. Does the documentation indicate whether the airport operator used Table 1 of Part 150?	Y		See section 8.5.
a. If a local variation to table 1 was used:			
(1) Does the narrative clearly indicate which adjustments were made and the local reasons for doing so?			NA
(2) Does the narrative include the airport operator's complete substitution for table 1?			NA
3. Does the narrative include information on self- generated or ambient noise where compatible or noncompatible land use identifications consider non-airport and non-aircraft noise sources?			NA
4. Where normally noncompatible land uses are not depicted as such on the NEMs, does the narrative satisfactorily explain why, with reference to the specific geographic areas?			NA
5. Does the narrative describe how forecast aircraft operations, forecast airport layout changes, and forecast land use changes will affect land use compatibility in the future?			NA
VI. Map Certifications: [150.21(b), 150.21(e)]			
A. Has the operator certified in writing that interested persons have been afforded adequate opportunity to submit views, data, and comments concerning the correctness and adequacy of the draft maps and forecasts?		N	Transmittal letter to ADO for Part 150 Update submission must be submitted for formal review. P. 1-1 of the report
B. Has the operator certified in writing that each map and description of consultation and opportunity for public comment are true and complete under penalty of 18 U.S.C. § 1001?		N	Transmittal letter to ADO for Part 150 Update submission must be submitted for formal review. P. 1-1 of the report

APPENDIX N

2006 RSW 14 CFR Part 150 Record of Approval

RECORD OF APPROVAL
SOUTHWEST FLORIDA INTERNATIONAL AIRPORT
FORT MYERS, FLORIDA

The approvals listed herein include approvals of actions that the airport recommends be taken by the Federal Aviation Administration (FAA). It should be noted that these approvals indicate only that the actions would, if implemented, be consistent with the purposes of Part 150. The FAA has provided technical advice and assistance to the airport to ensure that the operational elements are feasible (see 14 CFR 150.23(c)). These approvals do not constitute decisions to implement the actions. Later decisions concerning possible implementation of measures in this ROA will be subject to applicable environmental or other procedures or requirements, including Section 106 of the National Historic Preservation Act (NHPA).

The operational and land use control measures below summarize as closely as possible the airport operator's recommendations in the Noise Compatibility Program (NCP) and are cross-referenced to the program. The statements contained within the summarized operational and land use control measures and before the indicated FAA approval, disapproval, or other determination do not represent the opinions or decisions of the FAA.

OPERATIONAL MEASURES

1. Continue Existing Operational Noise Mitigation Procedures Except Procedure # 6.

This measure is to continue nine of ten existing voluntary operational Noise Mitigation Procedures in place. Benefits of these existing measures are summarized at Table 11-3:

1. Preferential Runway Use Program-Runway 6 is the preferred runway when the wind, weather, and activity permit.
2. Visual Approaches-Turbojet aircraft will normally be vectored to intercept the extended runway centerline seven miles or more from the end of the runway (as activity levels permit). Aircraft on the right downwind leg to Runway 6 or left downwind to Runway 24 will normally be kept above 5000 feet until they are abeam the Airport. Aircraft arriving to Runway 6 and intercepting the extended centerline over the Gulf of Mexico west of Fort Myers Beach should remain above 3,000 feet, if able, to reduce the noise over Fort Myers Beach.
3. "Keep 'em High"-The Airport participates in the "Keep 'em High" program, and turbojet aircraft are encouraged to keep as high as possible.
4. Properly equipped turbojet aircraft departing Runway 24 are encouraged to use the MAPUL-1 Standard Instrument Departure (SID) that is pending implementation by the FAA.

5. Runway 24 turbojet departures that are not properly equipped to follow the MAPUL-1 SID should request the Alico Three Departure SID.
7. Propeller aircraft should reference AOPA's recommended noise abatement procedures.
8. Turbojet business aircraft should use either the aircraft manufacturer's recommended noise Abatement Procedures, the NBAA's Approach and Landing Procedure (VFR and IFR), or Standard Departure Procedure.
9. Commercial aircraft should follow the Distant Noise Abatement Departure Profile as defined by FAA Advisory Circular AC91-53A.
10. At no time shall engines be run up for test or maintenance purposes between 2300 hours (11:00 PM) and 0600 hours (6:00 AM) without prior approval from the Executive Director or his/her representative.

(NCP, pages 11-2 thru 11-3; Exhibits 11-1; and Table 11-3)

FAA Action: **Approved as a continuation of the voluntary measures in place, subject to traffic, weather, and airspace safety and efficiency**. The FAA approved these measures submitted in previous Part 150 studies (1990, 1995) as demonstrating noise mitigating benefits at the airport. They place aircraft over less noise-sensitive corridors and keep aircraft at higher altitudes over noise-sensitive sites.

2. Modify Existing Noise Mitigation Procedure # 6; Runway 6 Departure Procedure

This measure is to modify Existing Operational Noise Mitigation Procedure number 6 (Runway 6 Departure Procedure). The existing measure 6 states "Runway 6 departures will be held on tower frequency until crossing departure end of runway and will be turned no further west than 350 degrees until they are five miles from the airport." The NCP recommends that the noise abatement procedure be modified to use RSW 2.7 DME to demarcate the turn for Northbound turbojet aircraft departing on Runway 6. The procedure would provide "For turbojet aircraft, no turns before RSW 2.7 DME unless directed by air traffic control". A lighted sign would also be added to the Runway 6 departure end once FAA determines where the turning point is located. The modified procedure should be included in an updated pilot briefing handout. (NCP, pages 11-2 thru 11-3).

FAA Action: Continuation of the voluntary measure in place is approved. Modifications to the procedure are disapproved for purposes of part 150, pending submission of additional information to demonstrate noise benefits. The existing measure, approved by the FAA in earlier Part 150 studies, is intended to move overflights from the school.

3. Purchase and Install Flight Tracking Equipment

It is recommended that a radar flight tracking system be implemented at the Airport to assist the Lee County Port Authority in monitoring the voluntary noise mitigation

procedures and to assist in the development of modifications to these procedures that will benefit the citizens living in proximity to the Airport. The system will not be used for mandatory enforcement of the voluntary procedures. It is recommended that the flight tracking system output be used to review all recommended operational procedures during the next part 150 update (NCP, pages 11-8; and Tables 11-1, 11-2, 11-3, and 13-1 through 13-3)

FAA Action: Approved. The flight tracking system must technically be able to interface with the FAA equipment and operations, and meet FAA data download requirements. For purposes of aviation safety, this approval does not extend to the use of monitoring equipment for enforcement purposes by in-situ measurement of any pre-set noise thresholds and shall not be used for mandatory enforcement of any voluntary measure.

4. Support the implementation/funding for the implementation of RNAV procedures. While Table 13-1, Summary of Recommended Measures, describes this as a single measure, the NCP describes this support in two ways. (NCP, pages 11-5 thru 11-6; 11-8 and 11-9; Tables 11-1, 11-2, 11-3, and 13-1).

(a) Pages 11-5 and 11-6 suggest a curved RNAV approach to Runway 6, the "MAPUL 1 Instrument Departure Procedure (IDP) in reverse" might be feasible in the future. The NCP states "This approach would also likely provide the most benefit if implemented primarily during nighttime hours. The NCP recommendation is to "continue to monitor the potential for this type of approach and further evaluate it when the technology is more readily available." The airport sponsor recommends the FAA study advance technology navigational procedures to determine if they can be used for noise mitigation at RSW

FAA Action: Approved as to sponsor efforts to monitor and evaluate this RNAV approach.

(b) At pages 11-8 and 11-9, the NCP evaluates "Other actions or combinations of actions which would have a beneficial noise control or abatement impact on the public." The NCP states in relevant part "...the MAPUL-1 RNAV procedure is currently pending publication and implementation. This procedure will help reduce the potential for drift as aircraft depart runway 24 and climb out through the Alico corridor. The MAPUL-1 RNAV procedure will allow properly equipped aircraft to make adjustments to their course as may be required to...minimize the impacts on the surrounding residential communities." In the NCP, it is recommended that the FAA continue with the planned implementation of MAPUL-1 RNAV procedure and maintain support for the expansion of the RNAV program.

FAA Action: No Action Required.

LAND USE MEASURES

The analysis of recommendations in Chapter 11 refers to a single land use measure described in Chapter 12 of the NCP (page 11-6, Options Required for Consideration by

FAR Part 150). That recommendation is to update overlay zones and the requirements therein for Lee County.

5. Update Noise Overlay Zones

During the Noise Overlay Zone Land Development Code approval process (completed in 2000), the Lee County Commission directed the Lee County Port Authority to reevaluate the overlay zone in an Update to the FAR Part 150 study to be completed by 2006. The Commission recognized that quieter aircraft were being added to the air carrier and cargo fleet mix and felt that the update should occur to determine whether the extent of the overlay zone limits and associated controls should be maintained or modified

Proposed overlay zones are shown on Exhibit 12-2 and are for the year 2020. This is to address potential long range noise impacts and expected growth in airport operations (page 12-6). A summary of the land uses for the four zones depicted on Exhibit 12-2 is on page 12-4. Zone B encompasses the DNL 60 dB noise contour. No new noise-sensitive land uses would be allowed. Overflights and notice of potential noise associated with the airport would apply to all development, new and existing. Land uses in Zone B compare to previous Zone 3, with the addition of public notification.

Due to the reduction in noise exposure since the last Part 150 study (approved in 1995), the zones and controls have been modified. Zones C and D (encompassing areas larger than Zone B), would include notification of potential noise and overflights. Notification will include reference to factual information about flight corridors, proposed long range airport development, and anticipated growth in operations at the airport for the 2020 timeframe (Zone C). Flight training notice would be provided for Zone D (page 12-9).

The LCPA will be proactive about publishing notification and preparing a noise notification brochure for distribution as described on page 12-10. It will provide facts about corridors and discourage noise sensitive development in the corridors (page 12-11, Exhibit 12-10). Also, LCPA will have a record of flight corridors used, via passive radar (Measure 3 in this ROA). LCPA proposes to update forecasts in five years per Lee Plan Policy 1.7.1 or sooner if events occur to significantly alter the contours (pages 12-12 and 12-13).

(NCP, pages 12-1 thru 12-13; Exhibits 12-1, 12-2, 12-3, 12-4, 12-5, 12-6, 12-7, 12-8, 12-9, and 12-10; and Tables 12-1, 12-2, and 13-1)

FAA Action: Approved. This is within the authority of the local land use jurisdictions; the Federal government does not control local land use. Outside the DNL 65 dB noise contour, FAA as a matter of policy encourages local efforts to prevent new noncompatible development immediately abutting the DNL 65 dB contour and to provide a buffer for possible growth in noise contours beyond the forecast period.

###

APPENDIX O

Published Charted Visual Approaches

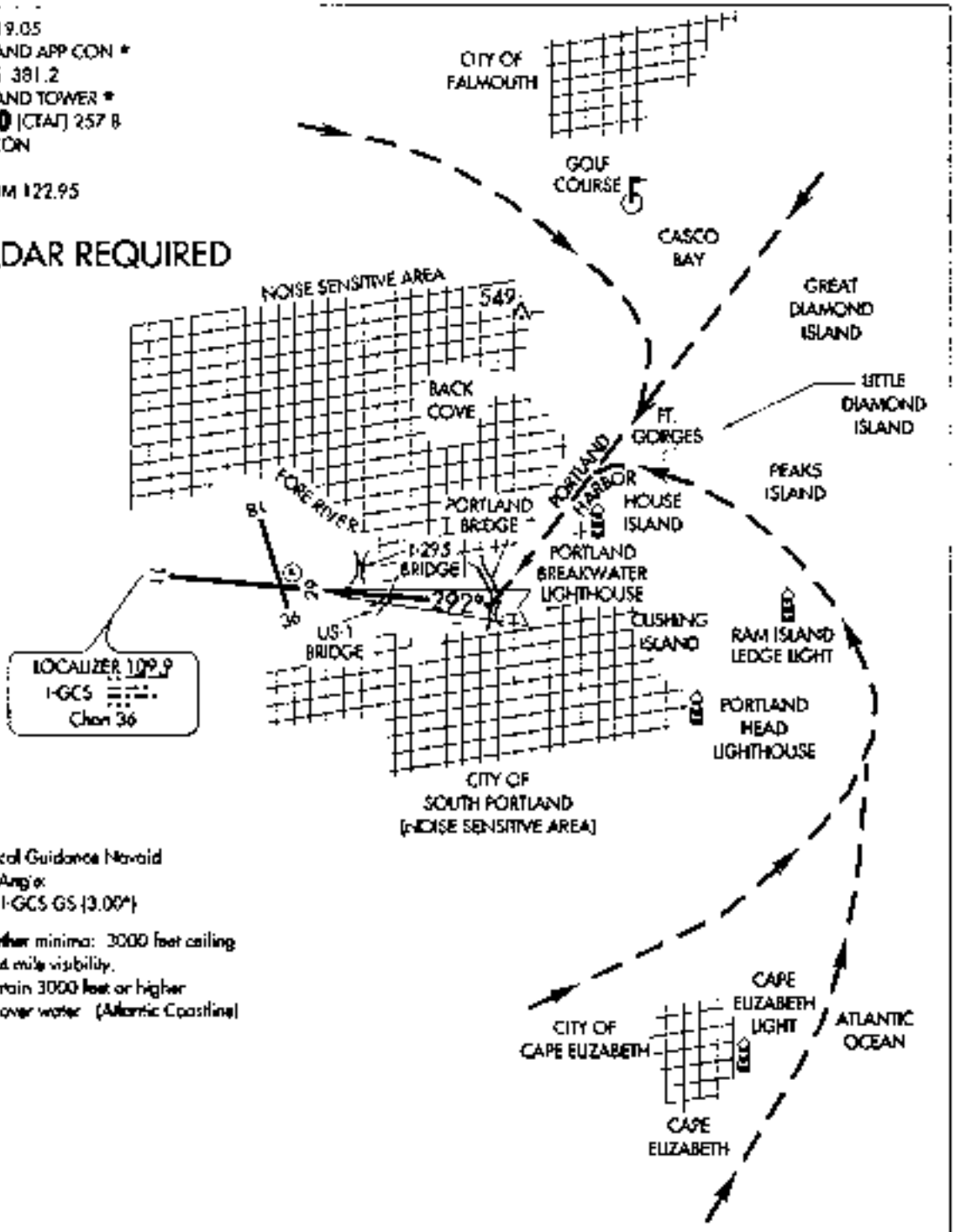
HARBOR VISUAL RWY 29

AL-329 (FAA)

PORTLAND INTL JETPORT (PWM)
PORTLAND, MAINE

ATIS 119.05
PORTLAND APP CON *
119.75 381.2
PORTLAND TOWER *
120.9 (CTAF) 257.8
GND CON
121.9
UNICOM 122.95

RADAR REQUIRED



Vertical Guidance Navaid and Angle
LOC I-GCS GS (3.00°)

Weather minima: 3000 feet ceiling and 4 mile visibility.
Maintain 3000 feet or higher until over water (Atlantic Coastline)

PROCEDURE NOT AUTHORIZED AT NIGHT.

HARBOR VISUAL RWY 29

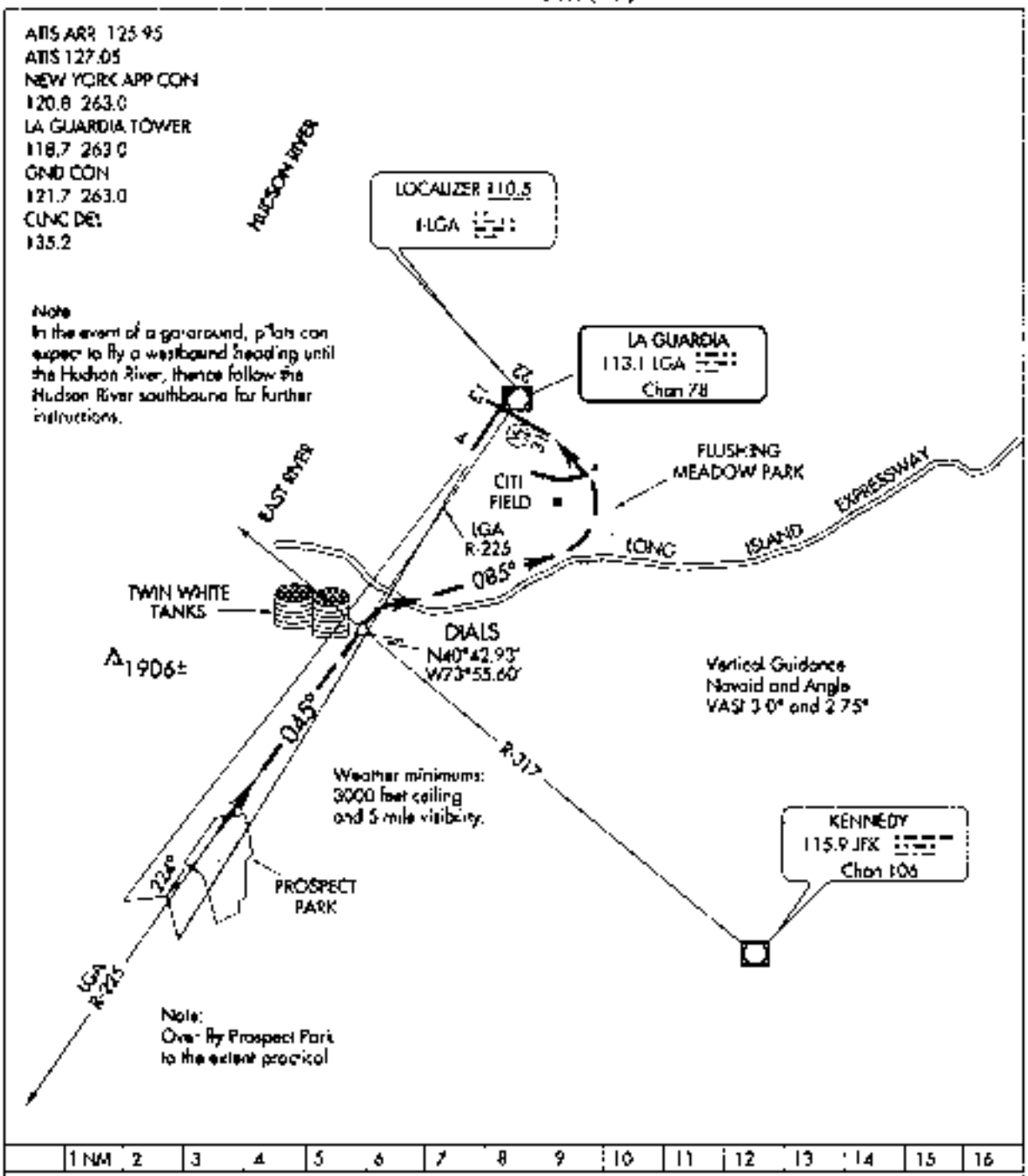
43°39'N-70°19'W

PORTLAND INTL JETPORT (PWM)
PORTLAND, MAINE

Amdt 2 11069

NE-1, 20 SEP 2012 to 18 OCT 2012

EXPRESSWAY VISUAL RWY 31 AL-289 (FAA)



EXPRESSWAY VISUAL RWY 31

When cleared for an Expressway Approach to Rwy 31 (while on LGA VOR/DME R-225) cross **DIALS INT** at 2500 feet or above. Turn right at **DIALS INT** heading 085° and descend to Runway 31 via Long Island Expressway and Flushing Meadow Park.
Use LGA Rwy 4 localizer for course guidance when LGA VOR is not available.

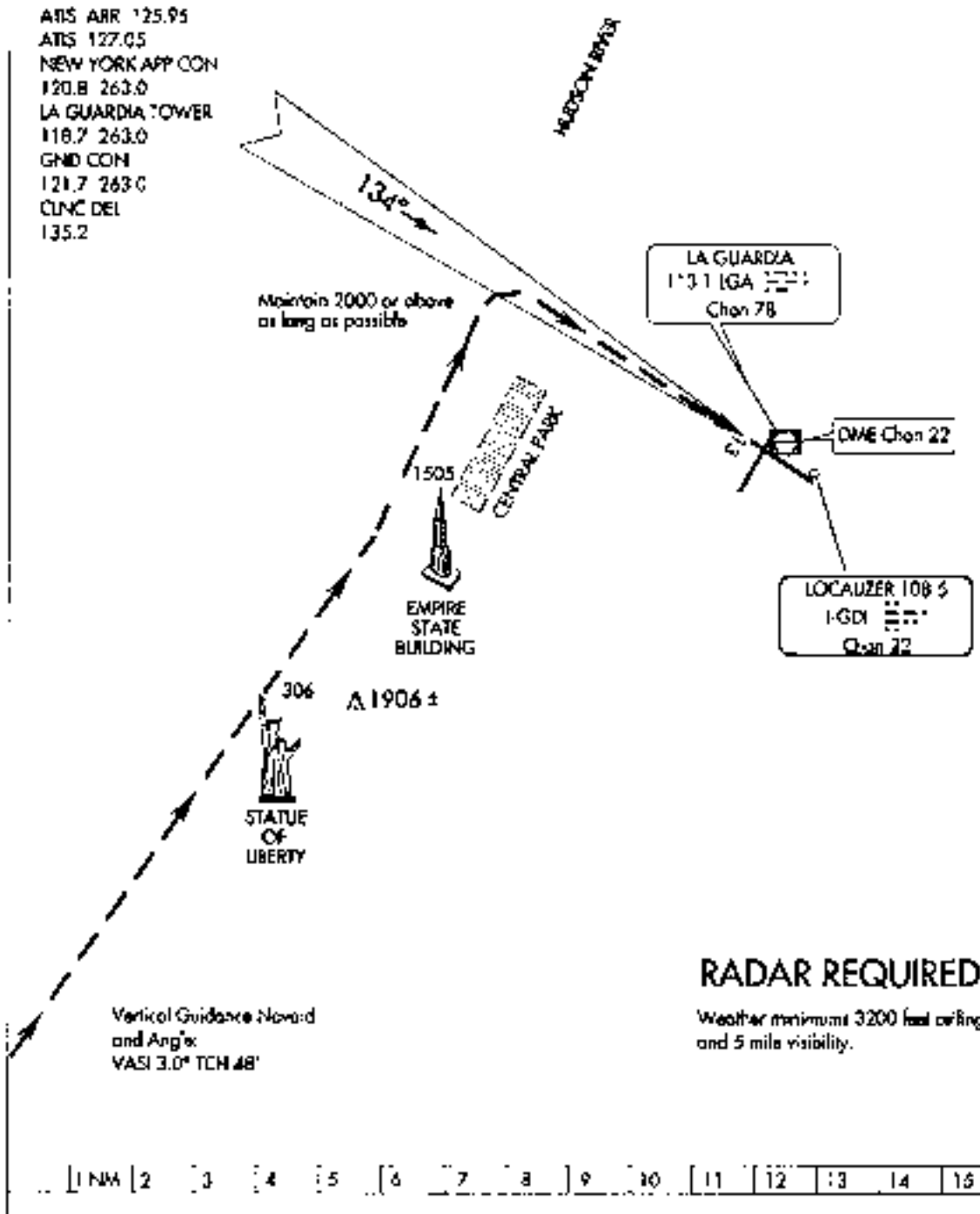
NE-2, 20 SEP 2012 to 18 OCT 2012

NE-2, 20 SEP 2012 to 18 OCT 2012

RIVER VISUAL RWY 13

AL-289 (FAA)

NEW YORK/LA GUARDIA (LGA)
NEW YORK, NEW YORK



RIVER VISUAL RWY 13

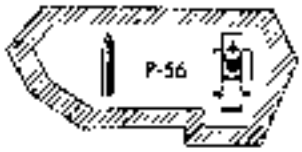
When cleared for a RIVER VISUAL Rwy 13 approach, remain over the Hudson River until starting the turn to final approach north of Central Park. Expect 3500 feet until abeam Central Park (2500 feet when authorized by ATC).

NE-2, 20 SEP 2012 to 18 OCT 2012

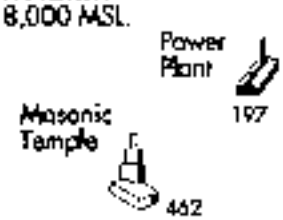
MOUNT VERNON VISUAL RUNWAY 1

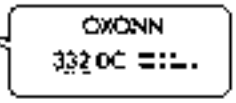
AL-443 (FAA) WASHINGTON, DC

ATIS 132.65
POTOMAC APP CON
124.7 338.2
WASHINGTON TOWER
119.1 257.6
GRN CON
121.7 257.6
CLNC DEL
128.25
AWOS-3
128.8



NOTE: PROHIBITED AREA (P-56) 1.5 NM NORTH OF DCA-AVOID-SURFACE TO 18,000 MSL.

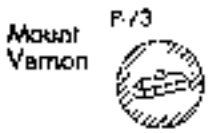




RADAR REQUIRED

Vertical Guidance
Noyad and Angle
I-DCA 3°

Weather Minimums: 3000 foot ceiling and 4 mile visibility.

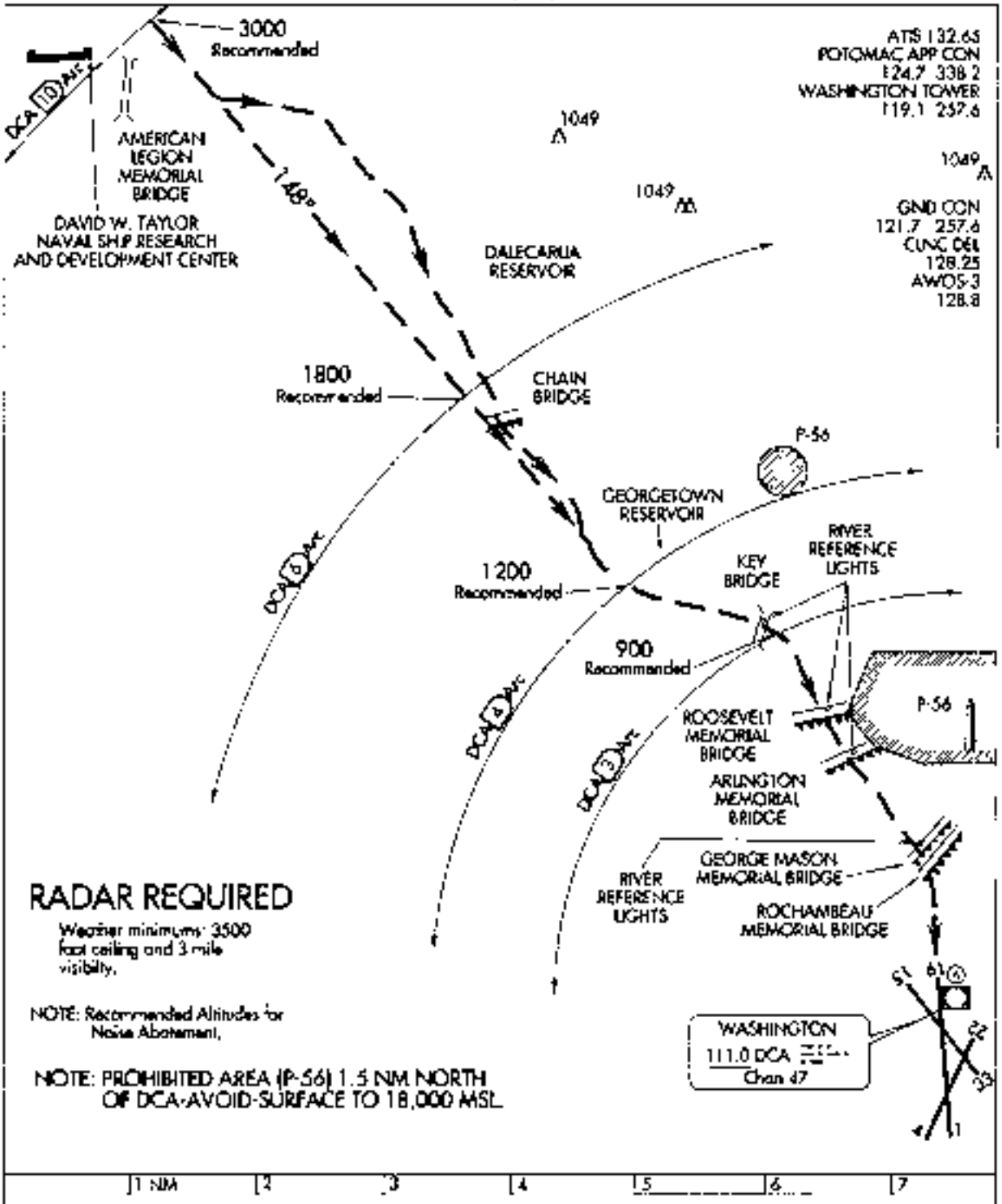


Aircraft may proceed via DCA VOR/DME R-189 (009° inbound) to DCA 5.6 DME, then follow the Potomac River to the airport.

NE-3, 20 SEP 2012 to 18 OCT 2012
NE-3, 20 SEP 2012 to 18 OCT 2012

RIVER VISUAL RWY 19

WASHINGTON/ RONALD REAGAN WASHINGTON NATIONAL (DCA)
AL-443 (FAA)
WASHINGTON, DC



NE-3, 20 SEP 2012 to 18 OCT 2012

NE-3, 20 SEP 2012 to 18 OCT 2012

RIVER VISUAL RWY 19

Aircraft may visually follow the river to the airport, or may proceed via the DCA VOR/DME R-328 (148° inbound) or via the Rosslyn LDA Rwy 19 Approach to abeam Georgetown Reservoir or the DCA 4 NM DME fix, then follow the river to the airport.

NOTE: Clearance for visual approach does not authorize penetration of P-56.

APPENDIX P

Future Year 2030 Aircraft Operations

APPENDIX P

RSW Long Term Land Use Planning (FY 2030 Operations)

1.0 Overview

The methodology for calculating the noise exposure surrounding the Southwest Florida International Airport (RSW) includes the use of an FAA-approved computer simulation model and airport specific data including the types of aircraft operating at the airport, runway use, primary flight track utilization, aircraft stage lengths, and the time of day for aircraft operations as discussed in Chapter 6 of this Study Update. The Integrated Noise Model (INM) generates a Day-Night Average Sound Level (DNL) contour. The following text identifies the INM input data used in preparing the DNL contours at RSW for the future year 2030.

2.0 INM Input Data

In order to develop the 2030 DNL noise contours, the INM uses a series of input factors. Some of these factors are included in the database for the model (such as engine noise levels, thrust settings, aircraft profiles and aircraft speeds) and others are airport-specific and need to be determined for each condition analyzed. These airport-specific data include the airport elevation, average annual temperature, runway layout, the mathematical description of ground tracks above which aircraft fly, and the assignment of specific aircraft with specific engine types at specific takeoff weights to individual flight tracks. Other INM input factors specific to RSW include:

- Runway and flight track orientation and use
- Future 2030 aircraft operations, and fleet mix
- Time of day/night operations
- Stage lengths of aircraft

3.0 Runway and Flight Track Orientation and Use

In FY 2030, it is expected that Southwest Florida International Airport (RSW) will be operating on a two-runway system. The December 2010 Terminal Area Forecast (TAF) projects that by 2030, there will be 152,284 operations or a 77% increase from the existing (2012) 86,275 operations. The majority are air carrier operations that will be using the SHIFTY and TYNEE RNAV Arrival procedures. **Table 1** shows the current RNAV arrival percentages for RSW.

TABLE 1
EXISTING 2012 SHIFTY VS. TYNEE ARRIVALS

Runway	Direction	Number of Ops	Procedure	Percentage
24	East	6,359	SHFTY	19.40%
	West	4,051	TYNEE	12.40%
06	East	12,259	SHFTY	37.40%
	West	10,095	TYNEE	30.80%

Source: ESA Airports, 2012

These percentages were used to help estimate the runway-use percentages for the FY2030 two-runway operation.

3.1 FY 2030 Operational Considerations

From Table 1, roughly 57 percent of the aircraft arriving to RSW fly the SHIFTY RNAV Arrival and 43 percent fly the TYNEE RNAV arrival. When landing on Runway 06 (east flow), over 37 percent of arriving aircraft are flying the SHIFTY RNAV arrival south of the Airport, while 30.8 percent are arriving via the TYNEE RNAV Arrival west of the Airport. Although the percentage splits favor a higher loading of aircraft on the new south runway (6R), it is anticipated that the north runway (6L) will actually receive a higher percentage of activity due to the proximity and configuration of the gates.

When landing on Runway 24 (west flow), it is assumed that most aircraft flying the SHIFTY and TYNEE Arrival will want to land on the north runway, and only land on the south runway when there is a conflict with a departing aircraft.

From a departure stand point, it is believed that a majority of air carrier departures will depart to the north of RSW using the north runway because of shorter taxi-times from the gate and/or GA facilities on the north side of the Airport. Also, a potential conflict occurs when aircraft depart to the north from the south runway (6R-24L), as the majority do, with the missed approach procedure for aircraft arriving to the north runway (6L-24R).

3.2 FY 2030 Runway-Use Percentages

Tables 2 and **3** show estimates for the FY2030 runway-use percentages and operations totals with a parallel runway system at RSW based on the current operational flows and considerations outlined previously. As indicated, activity favors the north runway due to the shorter taxi-times to and from the gate.

TABLE 2
FY 2030 ARRIVAL AIRCRAFT OPERATIONS PER RUNWAY-USE

Runway	Percentage-Use	Total Operations
06L	38%	28,934
24R	20%	15,228
06R	30%	22,843
24L	12%	9,137
Total	100%	76,142

Source: ESA Airports, 2012

TABLE 3
FY 2030 DEPARTURE AIRCRAFT OPERATIONS PER RUNWAY-USE

Runway	Percentage-Use	Total Operations
06L	55%	41,878
24R	25%	19,036
06R	14%	10,660
24L	06%	4,569
Total	100%	76,142

Source: ESA Airports, 2012

Using the assumptions outlined above, **Table 4** shows the arrival, departure, and total operations for the both the north and south runway.

TABLE 4
FY 2030 AIRCRAFT OPERATIONS PER RUNWAY-USE

Runway	Arrivals	Departures	Total
06L - 24R (north)	44,162	60,914	105,076
06R - 24L(south)	31,980	15,228	47,208

Source: ESA Airports, 2012

3.3 Aircraft Operations, Stage Length, and Flight Tracks

As stated previously in this appendix, the 2030 operations levels are based on the FAA's December 2010 Terminal Area Forecast projected for future year 2030 as shown in **Table 5**. Total operations at the Airport for the future year 2030 are projected to be 152,284, or approximately 417 operations per average annual day. This total represents an increase of about 9 percent increase from the previous 2006 14 CFR Part 150 Study's future year 2020 projected operations number of 139,700 that was projected by the 2004 RSW Airport Master Plan.

TABLE 5
FUTURE YEAR 2030 FORECAST ANNUAL OPERATIONS

	Air Carrier	Air Taxi	Itinerant General Aviation	Local General Aviation	Itinerant Military	Local Military	Total
Yearly Totals	128,076	14,706	8,728	26	662	86	152,284
Average 24-Hour Day	350.89	40.29	23.91	0.07	1.81	0.24	417.21

Source: FAA December 2010 TAF

The largest increase in the FAA's TAF projections is for air carrier operations which are projected to increase 88% or 60,089 operations. Air Taxi operations are projected to increase by 5,669 operations between the years 2012 and 2030. Other operations levels including itinerant and local general aviation and military are projected to remain relatively consistent with minor increases and decreases. Flight tracks were modified to reflect the addition of the second runway.. Fleet changes were included based on trends at the airport and expected flight retirement and evolution. A breakdown of the 2030 itinerant operational activity and fleet mix that is used as the basis for the preparation of the 2030 noise contours is presented in **Table 6**. A breakout of local operations is presented in **Table 7**.

TABLE 6
2030 FORECAST ANNUAL-AVERAGE DAY FLEET MIX (ITINERANT OPERATIONS)

			Arrivals			Departures		
Category	Aircraft	INM Aircraft	Day	Night	Total	Day	Night	Total
Air Carrier	717-200	717200	10.24	0.39	10.63	10.58	0.05	10.63
	737-700	737700	13.54	1.29	14.83	14.25	0.58	14.83
	737-800	737800	6.91	1.77	8.68	7.22	1.46	8.68
	757-300	757300	0.23	0.09	0.32	0.31	0.01	0.32
	767-300	767300	0.02	0.00	0.02	0.02	0.00	0.02
	757-200	757PW	7.18	1.83	9.01	8.28	0.73	9.01
	757-200	757RR	0.12	0.00	0.12	0.12	0.00	0.12
	767-200	767CF6	0.01	0.00	0.01	0.01	0.00	0.01
	767-200	767JT9	0.01	0.00	0.01	0.01	0.00	0.01
	A300-600	A300-622R	0.01	0.02	0.03	0.01	0.02	0.03
	A310-304	A310-304	0.09	0.57	0.66	0.49	0.17	0.66
	A319-131	A319-131	8.40	0.88	9.28	8.68	0.60	9.28
	A320-211	A320-211	4.74	1.77	6.51	5.02	1.49	6.51
	A320-232	A320-232	5.69	1.03	6.72	5.81	0.91	6.72
	A321-232	A321-232	0.99	0.72	1.71	1.70	0.01	1.71
	A330-343	A330-343	0.48	0.00	0.48	0.48	0.00	0.48
	CRJ900-ER	CRJ9-ER	0.29	0.00	0.29	0.29	0.00	0.29
	ERJ 145L	EMB14L	0.81	0.00	0.81	0.81	0.00	0.81
	EMB170/190	GV	6.97	0.83	7.80	7.63	0.17	7.80
	EMB145	EMB145	0.46	0.02	0.48	0.45	0.03	0.48
Air Taxi/GA								

TABLE 6
2030 FORECAST ANNUAL-AVERAGE DAY FLEET MIX (ITINERANT OPERATIONS)

			Arrivals			Departures		
Category	**Aircraft**	**INM Aircraft**	**Day**	**Night**	**Total**	**Day**	**Night**	**Total**
Single Piston	Cessna 172	CNA172	0.22	0.02	0.24	0.22	0.02	0.24
	Cessna 182	CNA182	0.07	0.00	0.07	0.06	0.01	0.07
	Cessna 206	CNA206	0.07	0.00	0.07	0.07	0.00	0.07
	Piper Warrior	PA28	0.18	0.00	0.18	0.18	0.00	0.18
	Piper Navajo	PA31	0.10	0.00	0.10	0.10	0.00	0.10
	Fixed Pitch	GASEPF	0.02	0.00	0.02	0.01	0.01	0.02
	Variable Pitch	GASEPV	0.44	0.02	0.46	0.45	0.01	0.46
Twin Piston	Beech Baron	BEC58P	7.03	0.06	7.09	7.05	0.04	7.09
Turboprop	Beech 1900	1900D	0.19	0.00	0.19	0.18	0.01	0.19
	Cessna 208	CNA208	0.02	0.00	0.02	0.02	0.00	0.02
	Conquest	CNA441	0.27	0.03	0.30	0.27	0.03	0.30
	Dash-6	DHC6	1.23	0.04	1.27	1.25	0.02	1.27
	Donier 328	DO328	0.01	0.00	0.01	0.01	0.00	0.01
	ATR-72	HS748A	3.28	0.22	3.50	3.43	0.07	3.50
	Saab 340	SF340	0.03	0.00	0.03	0.03	0.00	0.03
Jet	Citation 3	CIT3	0.22	0.01	0.23	0.22	0.01	0.23
	Challenger 600	CL600	1.17	0.05	1.22	1.19	0.03	1.22
	Challenger 601	CL601	0.46	0.01	0.47	0.45	0.02	0.47
	Citation II	CNA500	0.55	0.03	0.58	0.57	0.01	0.58
	Citation Mustang	CNA510	0.07	0.01	0.08	0.07	0.01	0.08
	550 Citation Bravo	CNA55B	1.38	0.06	1.44	1.40	0.04	1.44
	Citation X	CNA750	0.47	0.02	0.49	0.47	0.02	0.49
	Eclipse 500	ECLIPSE500	0.01	0.00	0.01	0.01	0.00	0.01
	Gulfstream IV	GIV	0.42	0.03	0.45	0.44	0.01	0.45
	Astra 1125	IA1125	0.03	0.00	0.03	0.03	0.00	0.03
	Lear 35	LEAR35	2.50	0.19	2.69	2.58	0.11	2.69
	Falcon 50/900	FAL5090	0.26	0.02	0.28	0.26	0.02	0.28
	MU300-100	MU3001	1.92	0.10	2.02	1.42	0.60	2.02
Military	Sabreliner	LEAR25	0.32	0.00	0.32	0.32	0.00	0.32
	P-3 Orion	P3A	0.32	0.00	0.32	0.32	0.00	0.32
	King Air	DHC6	0.32	0.00	0.32	0.32	0.00	0.32
Total			**104.67**	**13.28**	**117.95**	**109.64**	**8.31**	**117.95**

SOURCE: FAA December 2010 TAF

TABLE 7
2030 FORECAST ANNUAL-AVERAGE DAY FLEET MIX (LOCAL OPERATIONS)

			Touch and Go		
Category	**Aircraft**	**INM Aircraft**	**Day**	**Night**	**Total**
General Aviation	Variable Pitch Propeller	GASEPV	0.14	-	0.14
Military	King Air	DHC6	0.17	-	0.17
Total			0.31	-	0.31

SOURCE: FAA December 2010 TAF

APPENDIX Q

April 24, 2012 LCPA & RSW Tower Meeting

Part 150 FAA ATC Meeting

4/24/2012

First Name	Last Name	Company	Phone Number	E-Mail Address
Jim	Dickinson	FAA Air Traffic Mgr	239-768-5985	Jim.Dickinson@FAA.GOV
Ken	Millan	FAA - ATCT	239-768-5985	Kenneth.C.Millan@faa.gov
Ed	Bass	FAA - ATCT	239-768-5985	Edward.J.Bass@faa.gov
Anthony	Failla	FAA - ATCT - NATCA	239-768-5985	anthony.failla@faa.gov
Frank	Asaro	FAA - ATCT - NATCA	239-768-5985	RSWNATCA@YAHOO.com
Mike	Arnold	ESA Airports	407-312-1241	marnold@esasoc.com
Scott	Sindel	ESA Airports	(813) 207-7218	ssindel@esasoc.com
Chad	Eisenstein	LCPA	239-590-4624	cmoscinski@flylcpa.com
Josh	Philpott	LCPA	239-590-4618	Jophilpott@Flylcpa.com
Mark	Fisher	LCPA	239-590-4600	mfisher@flylcpa.com
Juliet	Iglesias	LCPA	239-590-4612	JSIglesias@flylcpa.com

WELCOME

Southwest Florida International Airport

Federal Aviation Regulations (FAR) Part 150 Overview

FAA Review Meeting

April 2012

ESA Airports

where service and solutions meet

ESA Airports

Existing Flight Procedures

ESA Airports

FAA Integrated Noise Model
2011 Existing Baseline Noise Contours

ESA Airports

FAA Integrated Noise Model
2017 Future Baseline Noise Contours

ESA Airports

Operational Evaluation
Existing Measures & Recommendations

DRAFT

#	Existing Measure	Description	Pros/Cons	Recommendation
	Preferential Runway Use	Use Runway 06 during calm wind conditions	•Minimizes departures over the Forest and Fiddlesticks	Voluntary Measure to Remain
	Visual Approaches	•Keeps aircraft on downwind at 5,000 feet for as long as possible and at 3,000 feet over the Beach	•Minimizes noise exposure •May keep aircraft in non-controlled airspace •May create operational conflicts	Voluntary Measure to Remain
	"Keep 'em High" (voluntary)	Program to promote keeping aircraft at higher altitudes as long as possible	•Minimizes noise exposure •May keep aircraft in non-controlled airspace •May create operational conflicts	Voluntary Measure to Remain
	MAPUL-1 Standard Instrument Departure (SID)	Uses RNAV to maximize use of Alico industrial corridor for departures on Runway 24	•Concentrated flight path •Minimizes departure overflights of Fiddlesticks and communities immediately adjacent the airport •Routes aircraft directly over portion of the Forest	Voluntary Measure to Remain (Currently CSHEL FOUR) – possibly with modifications
	ALICO THREE Standard Instrument Departure	Maximizes use of Alico industrial corridor for non RNAV equipped departures on Runway 24	•Minimizes departure overflights of Fiddlesticks and communities immediately adjacent the airport •Delays departure path	Voluntary Measure to Remain
	AOPA Recommended Procedures	Promotes use of AOPA best practices for Propeller Aircraft	•Minimizes potential annoyance resulting from Piston Aircraft •Very Few operating at RSW	Voluntary Measure to Remain
	Turbojet Aircraft Manufacturer's or NBAA Noise Abatement Procedures	Promotes use of aircraft manufacturers recommended noise abatement procedures, the NBAA's Approach and Landing Procedure (VFR and IFR), or Standard Departure Procedure for Turbine powered aircraft	•Minimizes potential annoyance resulting from Turbine Powered Aircraft	Voluntary Measure to Remain

ESA Airports

Operational Evaluation
Existing Measures & Recommendations

DRAFT

#	Existing Measure	Description	Pros/Cons	Recommendation
	Distant Noise Abatement Departure Procedure	Promotes use of the Distant Noise Abatement Departure Profile as defined by the FAA Advisory Circular AC91-53A for commercial aircraft	•Gets aircraft higher quicker to minimize potential annoyance	Voluntary Measure to Remain
	Run Up Procedures	Limits engine maintenance run ups between 11:00PM and 6:00AM without prior approval	•Avoids very loud aircraft noise events during nighttime hours	Voluntary Measure to Remain
	Runway 06 Departure Procedure	Runway 6 departures are turned no further west than 350 degrees until they are five miles from the Airport	•Avoids early departure turns over Gateway	Voluntary Measure to Remain
	Purchase and Install Flight Tracking System	Assists in monitoring the voluntary noise mitigation procedures and assists in the development of modifications to these procedures that will benefit the citizens living in proximity of the Airport	•Allows evaluation of procedures •Provides better data for future studies	Voluntary Measure to Remain
	Support Implementation of RNAV Procedures (A)	Continue to monitor emerging technology and evaluate new opportunities when more readily available	•Use of emerging technology to reduce noise exposure	Voluntary Measure to Remain
	Support Implementation of RNAV Procedures (B)	Encourages FAA to implement new procedures that will provide noise abatement benefits to surrounding communities	•CSHEL FOUR is example of new technology implementation	Voluntary Measure to Remain

ESA Airports

Operational Evaluation

DRAFT

New Proposed Measures & Recommendations

#	New Measure	Description	Pros/Cons	Recommendation
	Raise Downwind to Runway 06	Raises altitude for aircraft on portion of downwind leg from 4,000 feet to 5,000 feet	•Provides a ~3 dB noise reduction in Estero Corridor •Potential increase in fuel efficiency •Aircraft will be located above 4,000 foot Class C controlled airspace ceiling	Recommended – reduces noise and potential annoyance
	Keep Aircraft at 3,500 feet over Fort Myers Beach	Raises aircraft from as low as 1,000 feet to 3,000 feet as aircraft fly over beach	•SEE BOARD FOR DETAILS	Recommended – Reduces noise and potential annoyance
	Promote Use of RNAV Visual Optimized Profile Descent to Runway 06	Encourages airlines to use the recently developed glide descent profile developed by the FAA.	•SEE BOARD FOR DETAILS	Recommended – Reduces potential annoyance and overflights.
	Initiate RNAV OPD Arrival Procedure Further from Airport	Expands the benefits of the current OPD procedure.	•SEE BOARD FOR DETAILS	Recommended – Reduces potential annoyance and overflights
	Publish Charted Visual Approach to Runway 6 from North	Develops visual approach to help aircraft avoid overflying noise sensitive areas along Fort Myers Beach	•Provides guidance to avoid overflights of non-compatible land uses •Available to all aircraft •Both vertical and horizontal navigation criteria can be published (i.e. 3,000' until passing FMB)	Recommended – avoids overflights of noise sensitive areas

ESA Airports

Operational Evaluation

DRAFT

New Proposed Measures & Recommendations

#	New Measure	Description	Pros/Cons	Recommendation
	Publish Charted Visual Approach to Runway 6 from South	Develops visual approach to help aircraft avoid overflying noise sensitive areas along areas to the south and Fort Myers Beach	•SEE BOARD FOR DETAILS	Recommended – avoids overflights of noise sensitive areas
	Modify CSHEL FOUR Departure Procedure	Modify RNAV departure turn to reduce overflight of residential areas	•SEE BOARD FOR DETAILS	Recommended – Reduces noise and potential annoyance
	Increase Altitude of Early Morning Flights	Work with operators to keep aircraft higher when arriving to the airport during early morning hours	•Reduces annoyance associated with early morning flights. •Difficult to manage during periods tower is closed.	Recommended – reduces noise and potential annoyance
	Delay Point Aircraft Put Landing Gear Down	Work with operators to highlight benefit of delaying point at which gear is lowered	•Reduces noise and annoyance associated with some aircraft overflights •Effectiveness depends on airline procedures	Recommended – reduces noise and potential annoyance

ESA Airports

Operational Evaluation

DRAFT

New Proposed Measures & Recommendations

#	New Measure	Description	Pros/Cons	Recommendation
	Shift Downwind Flight Track to the South	Shifts the downwind to Runway 06 approximately 1 mile to the south to potential location associated with future parallel runway	•Reduces number of people receiving overflights •May be required for future parallel runway •Slightly increases flight distance •Increases sequencing challenges with flow from north	Recommended – implement when new runway is constructed
	Change Runway 24 to preferred Runway after 10pm	Reduces arriving aircraft overflights of populated areas during nighttime hours	•SEE BOARD FOR DETAILS	Recommended reduces noise and potential annoyance
	Publish "Jeppesen" Type Pilot Handout	Informs pilots of noise abatement procedures	•Potential for reduced annoyance •Requires integration into each airline's procedures to maximize effectiveness	Recommended – increases pilot awareness
	Install Runway end and Noise Abatement Reminder Signs	Informs pilots of noise abatement procedures	•Reminds aircraft departing RW that there are noise sensitive neighborhoods located around the airport •Limited benefit for arriving aircraft •Signs must meet FAA requirements and have a cost	Recommended - increases pilot awareness

ESA Airports

Operational Evaluation

DRAFT

New Proposed Measures & Recommendations

#	New Measure	Description	Pros/Cons	Recommendation
	Change Preferential Runway Use	Change runway operation to favor operations on Runway 24 instead of Runway 06	•Slightly reduces number of overflights on south downwind •Some of the overflights on downwind will be 1,000' higher •Increases departures over the Forest and communities west of airport	Not recommended – increases flights over communities already being exposed to the highest noise levels
	SHFTY to TYNEE Transition (Estero Plan)	Transitions aircraft from SHFTY waypoint to TYNEE waypoint	•SEE BOARD FOR DETAILS	Not recommended - Focus on other measures
	Increase Glide Slope Angle from 3 to 3.5 degrees	Increases the glide slope angle for arriving aircraft using the instrument landing system (ILS)	•Increases altitude of arriving aircraft once they are established on the glide slope •Moving intercept point or altitude on current ILS can achieve many of same benefits •Rarely implemented by FAA to address noise concerns	Not recommended – only provides benefit once aircraft are established on glide slope
	Publish RNAV departure Procedure for Runway 06	Would establish an RNAV departure procedure for aircraft departing during northeast flow	•Would concentrate wide band of departing flights to a narrow corridor (rainout effect) •Would increase overflights for those areas under the corridor •No corridor stands out for potential routing	Not recommended – no clear corridor for routing of aircraft

ESA Airports

Operational Evaluation

DRAFT

New Proposed Measures & Recommendations

#	New Measure	Description	Pros/Cons	Recommendation
	Extend Aircraft Further Over Ocean Before Turning Toward FMB	Would route aircraft further out over ocean before turning them back toward FMB	•Would establish aircraft on stable flight path before they come over FMB •Increases flight distance and fuel use •Routes aircraft further outside Class C airspace	Not recommended – focus on avoiding aircraft overflights of FMB and raising aircraft altitudes
	Establish Helicopter Noise Abatement Flight Tracks	Would establish specific flight tracks over compatible land uses for helicopters to fly when they ingress and egress the Airport.	•Helicopters are currently in very limited use at the airport	Not recommended – limited application
	Establish Reverse Thrust Restrictions	Limits use of reverse thrusters on jet engines to slow aircraft	•Potential to reduce noise in close proximity to the airport •Potential safety issue	Not recommended – limited concerns noted

ESA Airports

Operational Evaluation
SHFTY to TYNEE Transition
(Estero Plan)

Pros

- Routes all aircraft down coast and reduces overflights of Estero and Fort Myers Beach
- Keeps aircraft higher longer
- Reduces flight distance and fuel use

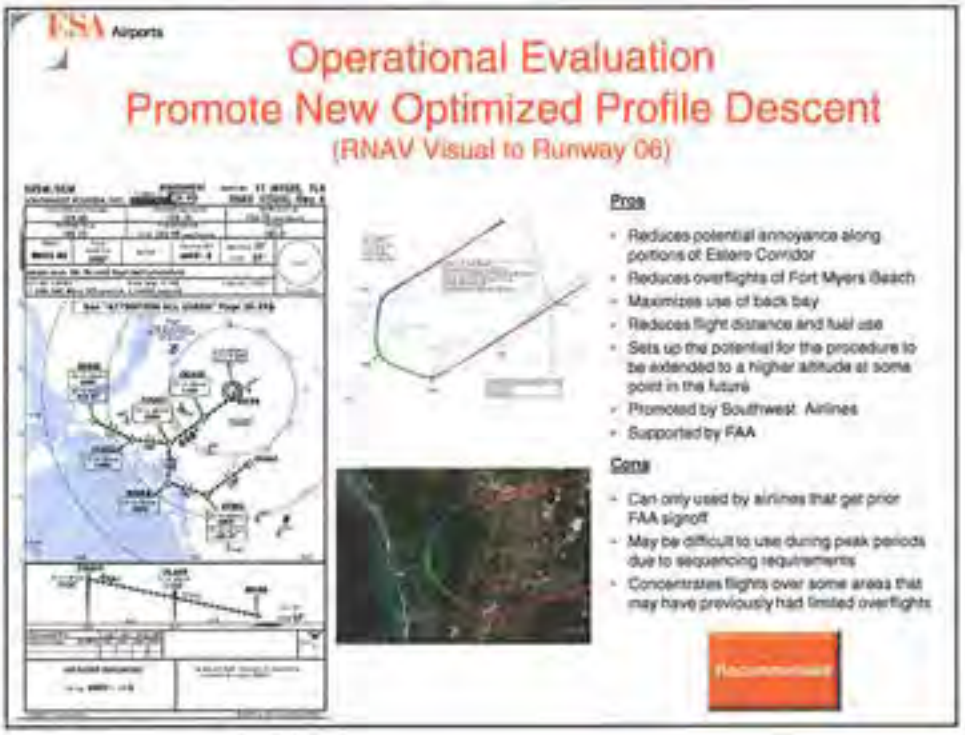
Cons

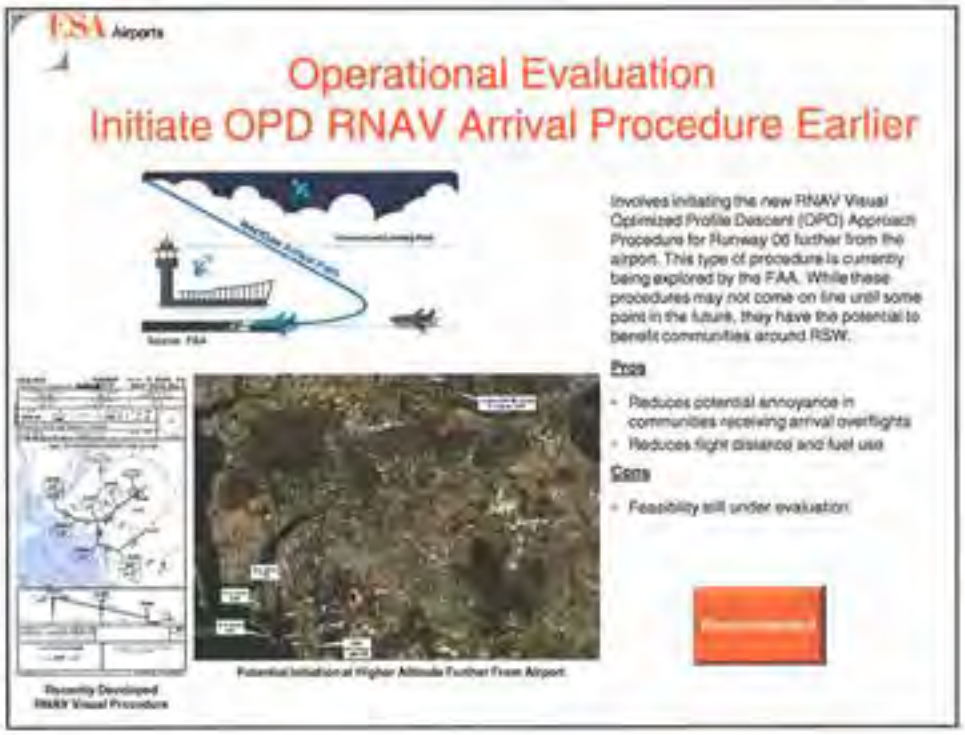
- Creates numerous crossing conflicts to the north
- Requires vectoring of aircraft outside RSW airspace
- Doesn't address local capacity issues – enroute delays during peak periods
- Not supported by the FAA

Note: After the FAA determined this transition was not feasible, ESA conducted an independent evaluation and met with the FAA's Air Traffic Eastern Support Manager, the FAA Miami Air Route Traffic Control Center (ARTCC), the RSW FAA Air Traffic Control Tower (ATCT) and members of the Estero Community.

Conclusion: Explore other measures

Not Recommended


ESA Airports
Operational Evaluation
Promote New Optimized Profile Descent
(RNAV Visual to Runway 06)
Pros
Reduces potential annoyance along portions of Estero Corridor
Reduces overflights of Fort Myers Beach
Maximizes use of back bay
Reduces flight distance and fuel use
Sets up the potential for the procedure to be extended to a higher altitude at some point in the future
Promoted by Southwest Airlines
Supported by FAA
Cons
Can only used by airlines that get prior FAA signoff
May be difficult to use during peak periods due to sequencing requirements
Concentrates flights over some areas that may have previously had limited overflights


ESA Airports
Operational Evaluation
Initiate OPD RNAV Arrival Procedure Earlier
Involves initiating the new RNAV Visual Optimized Profile Descent (OPD) Approach Procedure for Runway 06 further from the airport. This type of procedure is currently being explored by the FAA. While these procedures may not come on line until some point in the future, they have the potential to benefit communities around RSW.
Pros
Reduces potential annoyance in communities receiving arrival overflights
Reduces flight distance and fuel use
Cons
Feasibility still under evaluation

ESA Airports

Operational Evaluation
Change RW 24 to Preferred Runway after 10pm

Pros

- Reduces nighttime arrival overflights of Estero Corridor by 55 percent
- Few or no departures during time period

Cons

- Weather conditions may not support shift

Note: Nearly all air carrier activity occurring at the airport after 10 pm consists of arriving aircraft. A majority of these use the SHFTY RNAV arrival procedure. Using Runway 24 as the preferred runway after 10pm would allow these aircraft to avoid transiting the more populated corridors south of the airport without increasing the noise associated with Runway 24 departures.

Recommended

ESA Airports

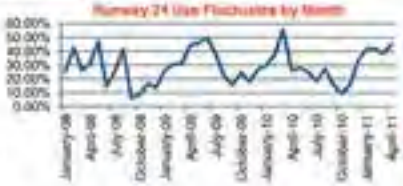
Operational Evaluation
Modify CSHEL FOUR Departure

Pros

- Reduces overflights of The Forest – which receives some of the highest noise level overflights
- Maintains use of the Alico industrial corridor during aircraft climbout
- Can be implemented without major modification to procedures

Cons

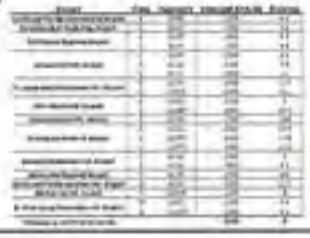
- Only provides benefit during 30 percent of time airport is in a southeast flow
- Increases flights over some areas that may have previously had limited overflights



Recommended

ESA Airports

Operational Evaluation
Raise Altitude to 3,000 over Beaches



Pros

- Provides ~8 dB noise reduction at the beach and some reduced noise benefit along the extended flight path
- Current voluntary procedure for visual approaches
- More fuel efficient

Cons

- Aircraft over beach are outside RSW Class C controlled Airspace
- Sequencing of two aircraft flows (north and south) creates FAA concerns

ESA Airports

Operational Evaluation
Implement Charted Visual Procedures From North and South

Sample Charted Visual Procedure

Pros

- Limits aircraft over noise sensitive areas
- Can be flown by aircraft that may not be able to fly other approaches
- Both vertical and horizontal navigation criteria can be published (i.e. 3,000' until passing FMB)

Cons

- Can only be used during visual flight conditions

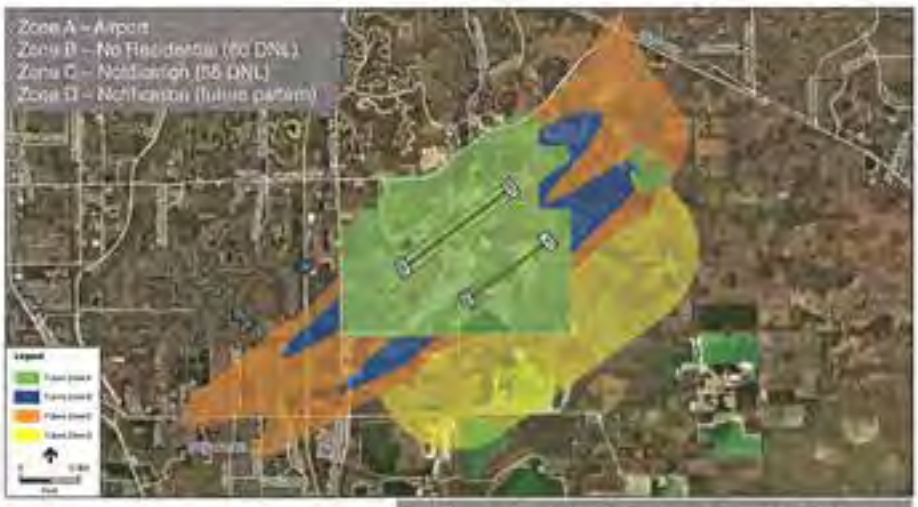
ESA Airports

Land Use Evaluation
Existing Measures and Recommendations

#	Existing Measure	Description	Pros/Cons	Recommendation
	Update Noise Overlay Zones	Establishes a series of zones around airport to ensure long term compatible land uses.	•Maximizes land use compatibility around airport •Protects land uses around future runway location •Protects land uses associated with future pattern area	Voluntary Measure to Remain

ESA Airports

Land Use Evaluation
Existing Overlay Zones

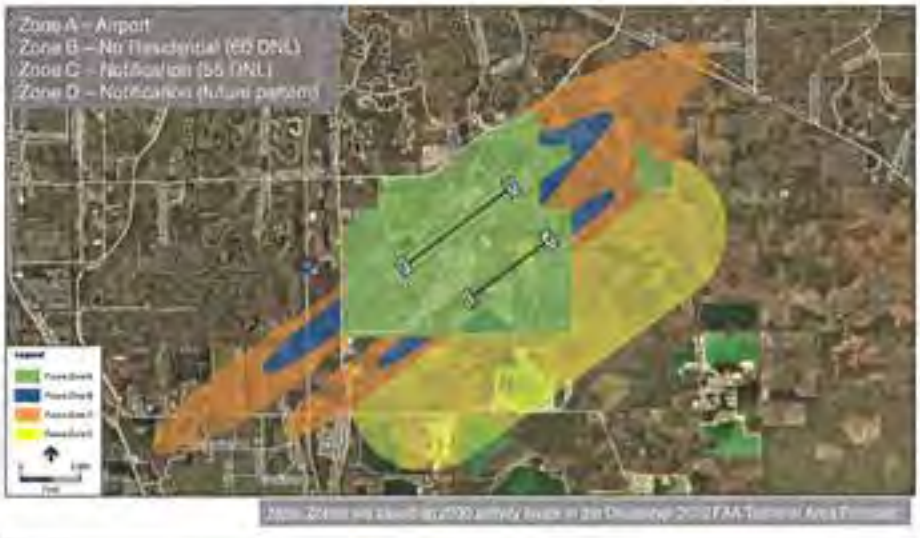


ESA Airports

Land Use Evaluation
2030 Projected Noise Contours

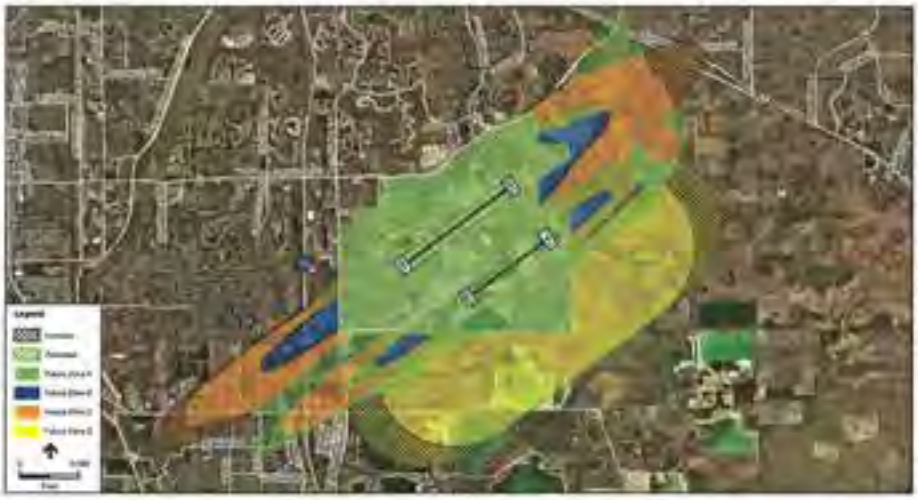
ESA Airports

Land Use Evaluation
Future Overlay Zones



ESA Airports

Land Use Evaluation
Overlay Zoning Revisions



ESA Airports

RSW Noise Study Schedule

- ✓Data Acquisition/Public Meetings Round #1 – Summer 2011
- ✓Field Measurements and Noise Modeling – Summer 2011
- ✓Draft Noise Contours Developed – Fall 2011
- ✓Round #2 Public Meetings – Fall 2011
- ✓ASMC Status Report – Winter 2012
- ✓Develop/Evaluate Alternatives – Winter 2012
- *Round #3 Public Meetings & Draft Recommendations – Spring 2012*
- Study Recommendations considered by Port Board – Fall 2012
- Submit to FAA – Fall 2012
- FAA Approval Final Approval/Implementation – 2013

ESA Airports

Thanks for your participation
in the
RSW FAR Part 150 Noise Study

APPENDIX R

August 20, 2012 ATC - Airline Coordination Meeting

Southwest Florida International ATCT User Meeting

Federal Aviation Administration

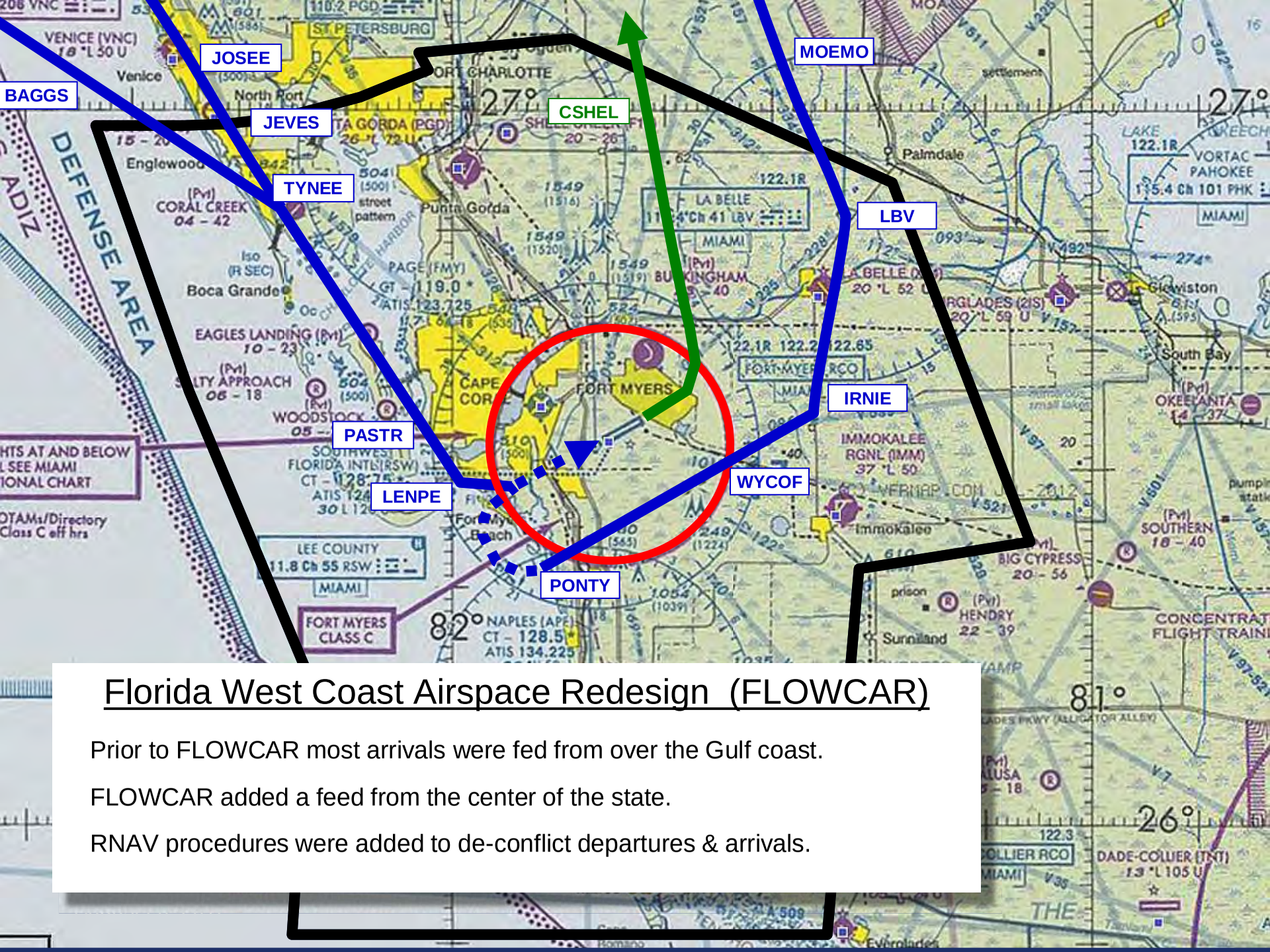
Presented to: Southwest Florida International Airport Users

By: Southwest Florida International ATCT

Date: August 20, 2012

Agenda

1. FLOWCAR
2. Community concerns about noise and flight patterns.
3. RNAV Visual RWY 6 Approach.
4. Proposed Charted Visual Approach.
5. 3,000’ ft. over Ft. Myers Beach

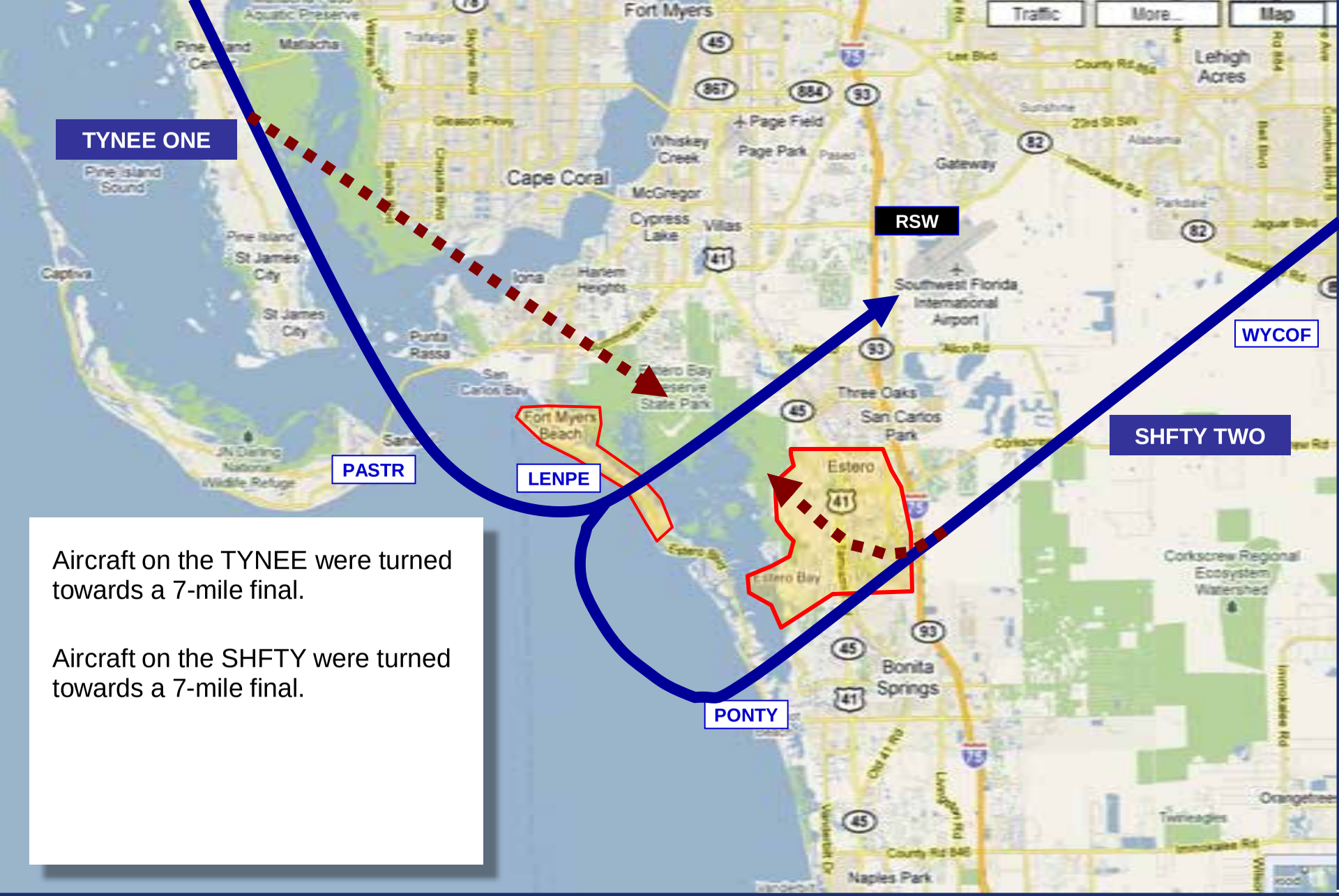


Florida West Coast Airspace Redesign (FLOWCAR)

Prior to FLOWCAR most arrivals were fed from over the Gulf coast.

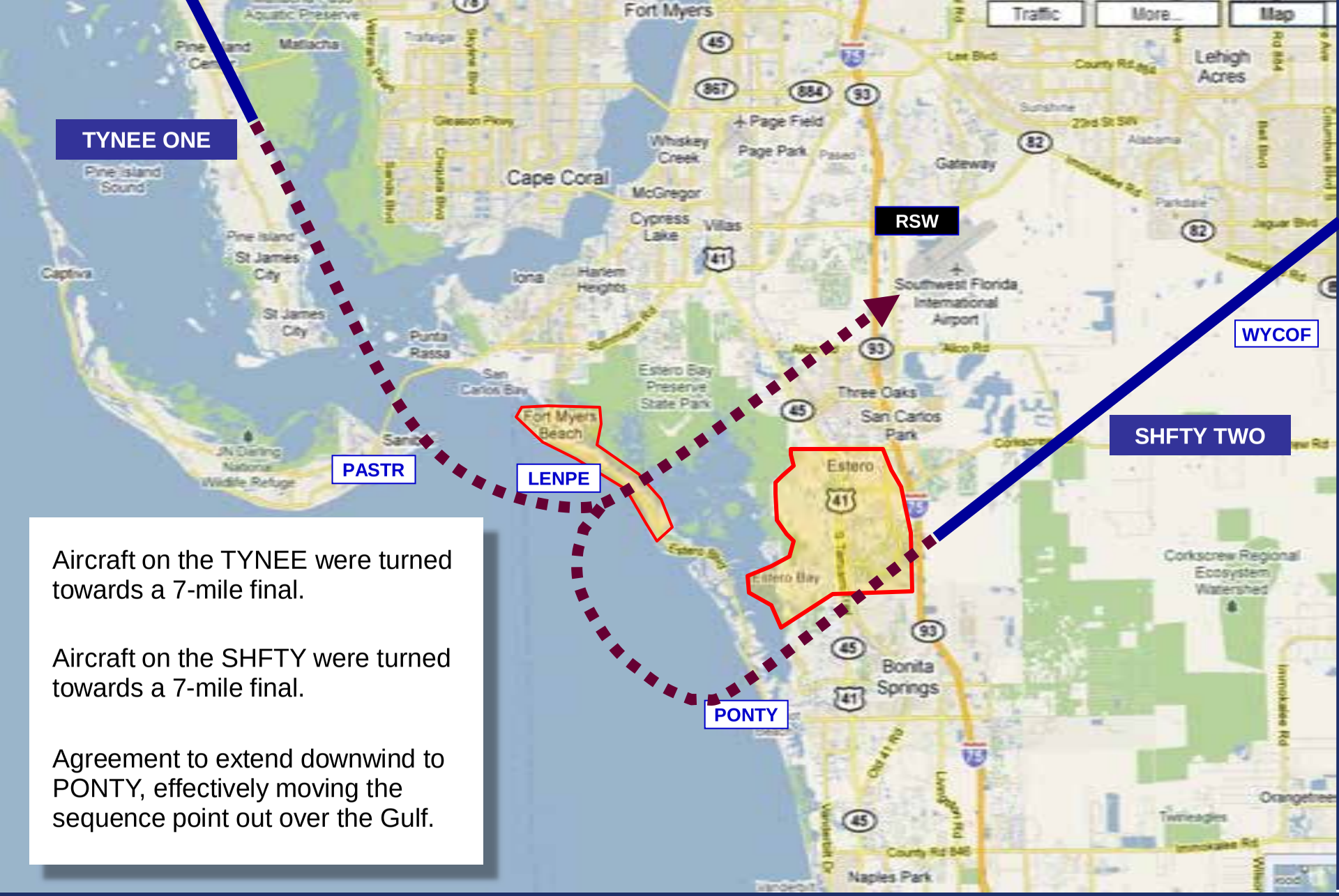
FLOWCAR added a feed from the center of the state.

RNAV procedures were added to de-conflict departures & arrivals.



Aircraft on the TYNEE were turned towards a 7-mile final.

Aircraft on the SHFTY were turned towards a 7-mile final.

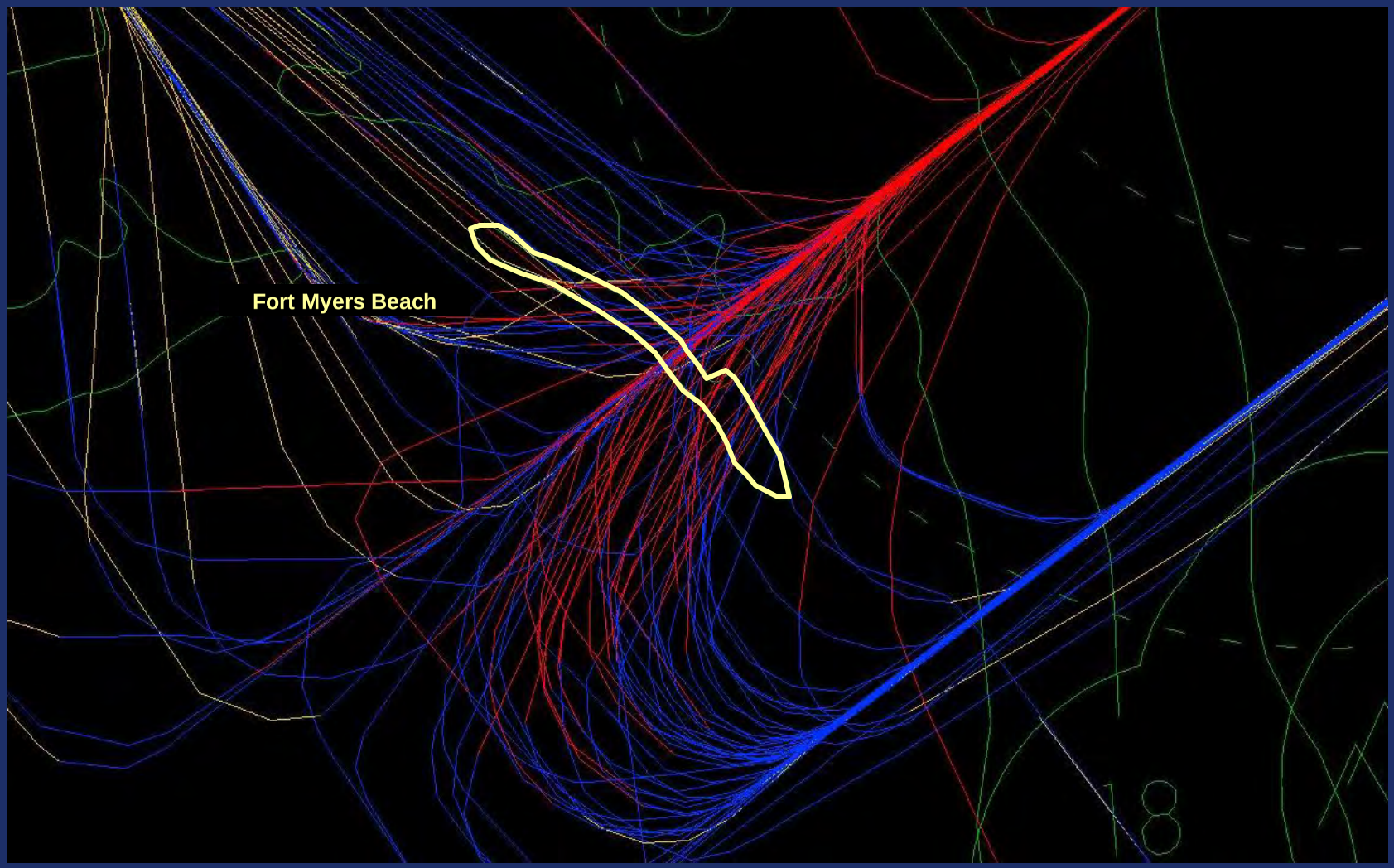


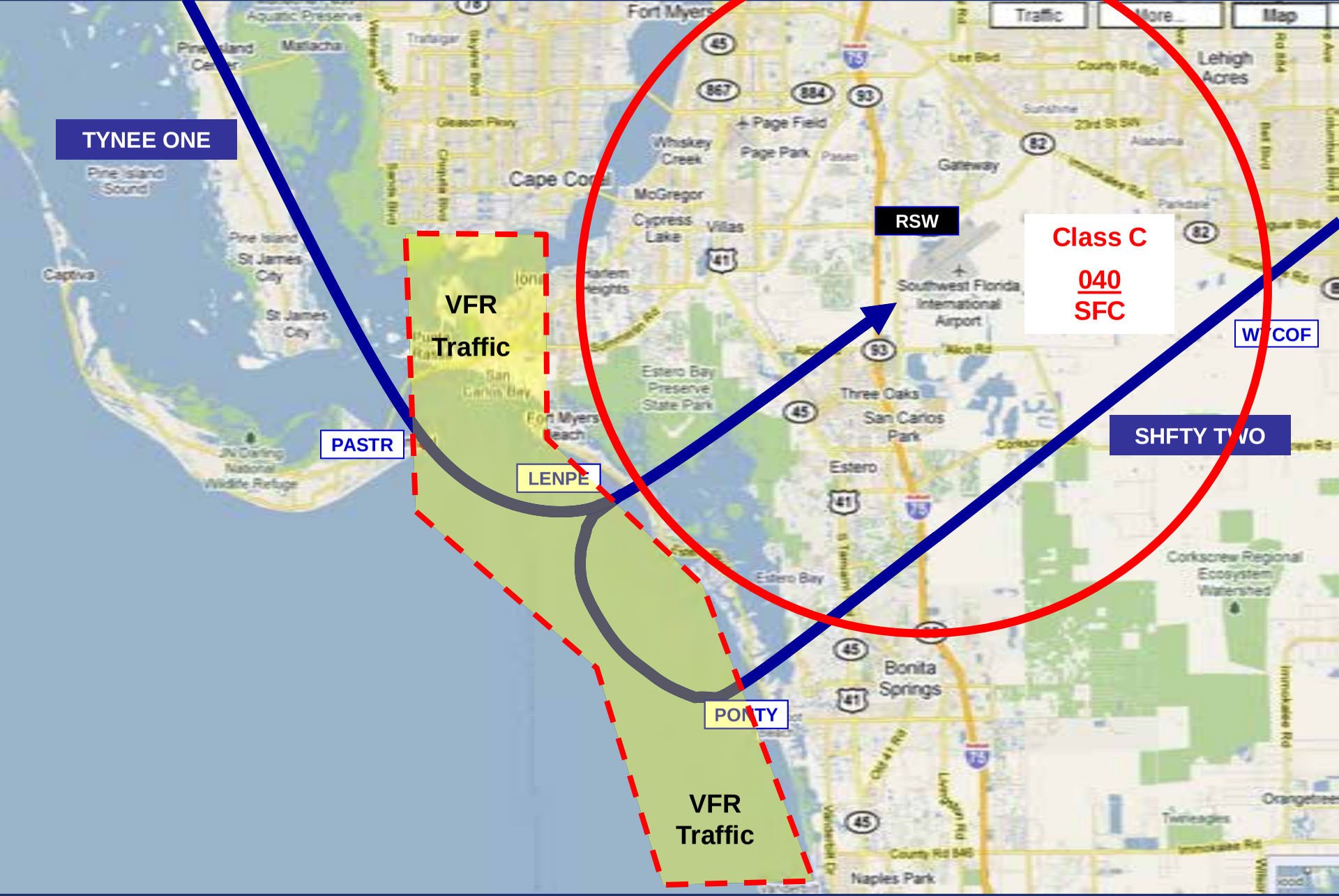
Aircraft on the TYNEE were turned towards a 7-mile final.

Aircraft on the SHFTY were turned towards a 7-mile final.

Agreement to extend downwind to PONTY, effectively moving the sequence point out over the Gulf.

Resulting Tracks




TYNEE ONE
PASTR
LENPE
PONTY
SHFTY TWO
WYCOF
RSW
Class C
040
SFC
VFR
Traffic
VFR
Traffic
Fort Myers
Cape Coral
Lehigh Acres
Page Field
Whiskey Creek
Page Park
Gateway
McGregor
Cypress Lake
Villas
Southwest Florida International Airport
Pine Island Sound
Pine Island
St James City
Captiva
Estero Bay Preserve State Park
Three Oaks
San Carlos Park
Estero
Bonita Springs
Corkscrew Regional Ecosystem Watershed
Naples Park
Traffic
More...
Map

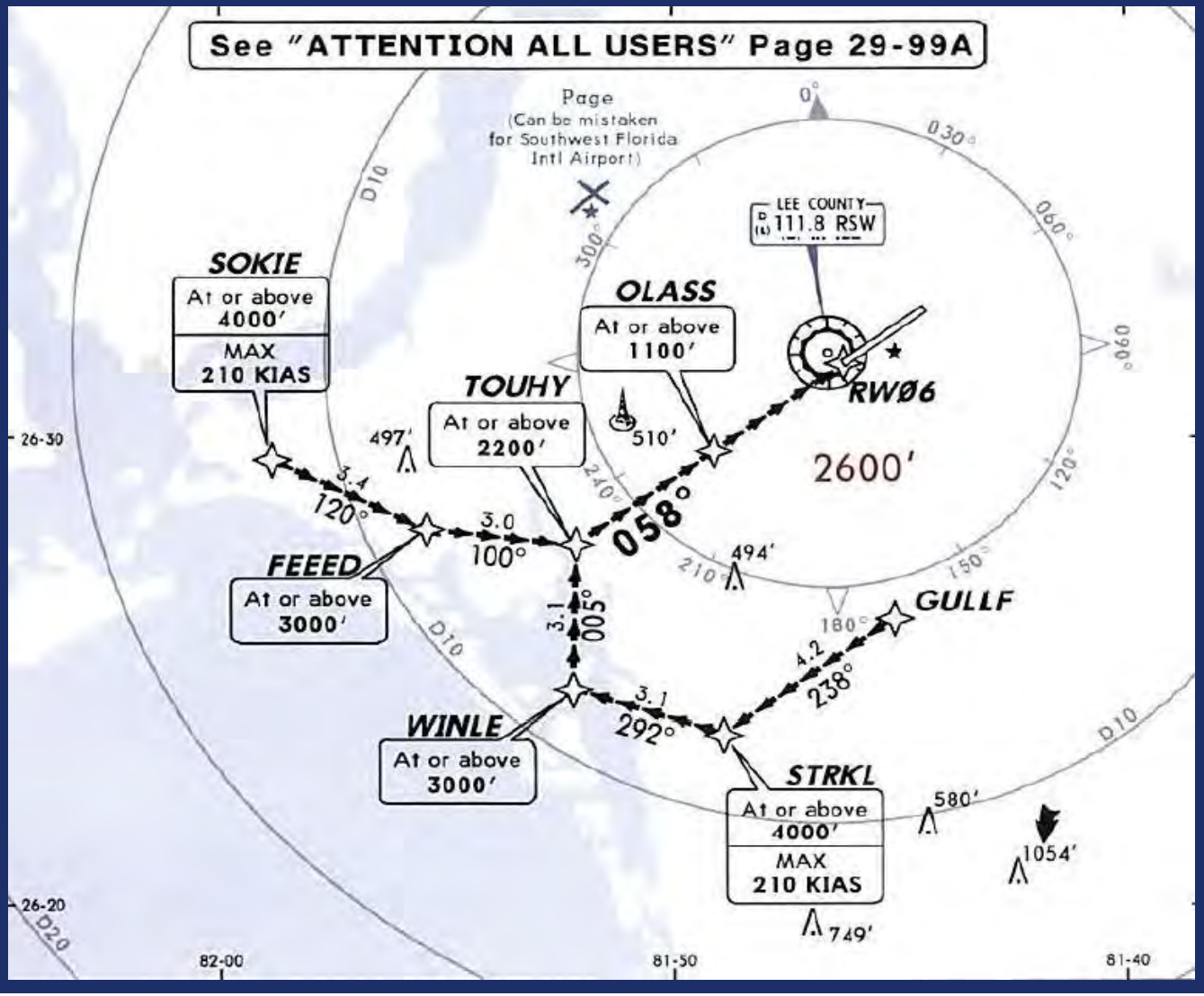
RNAV Visual Rwy 6 Approach

Southwest Airlines in collaboration with FAA Flight Standards, Southwest Florida International ATCT developed the Approach.

Airlines must apply for, and be approved to use the approach. Currently, there are 4 airlines certified to fly the approach:

- ✓ Southwest
- ✓ Jet Blue
- ✓ Delta
- ✓ US Airways

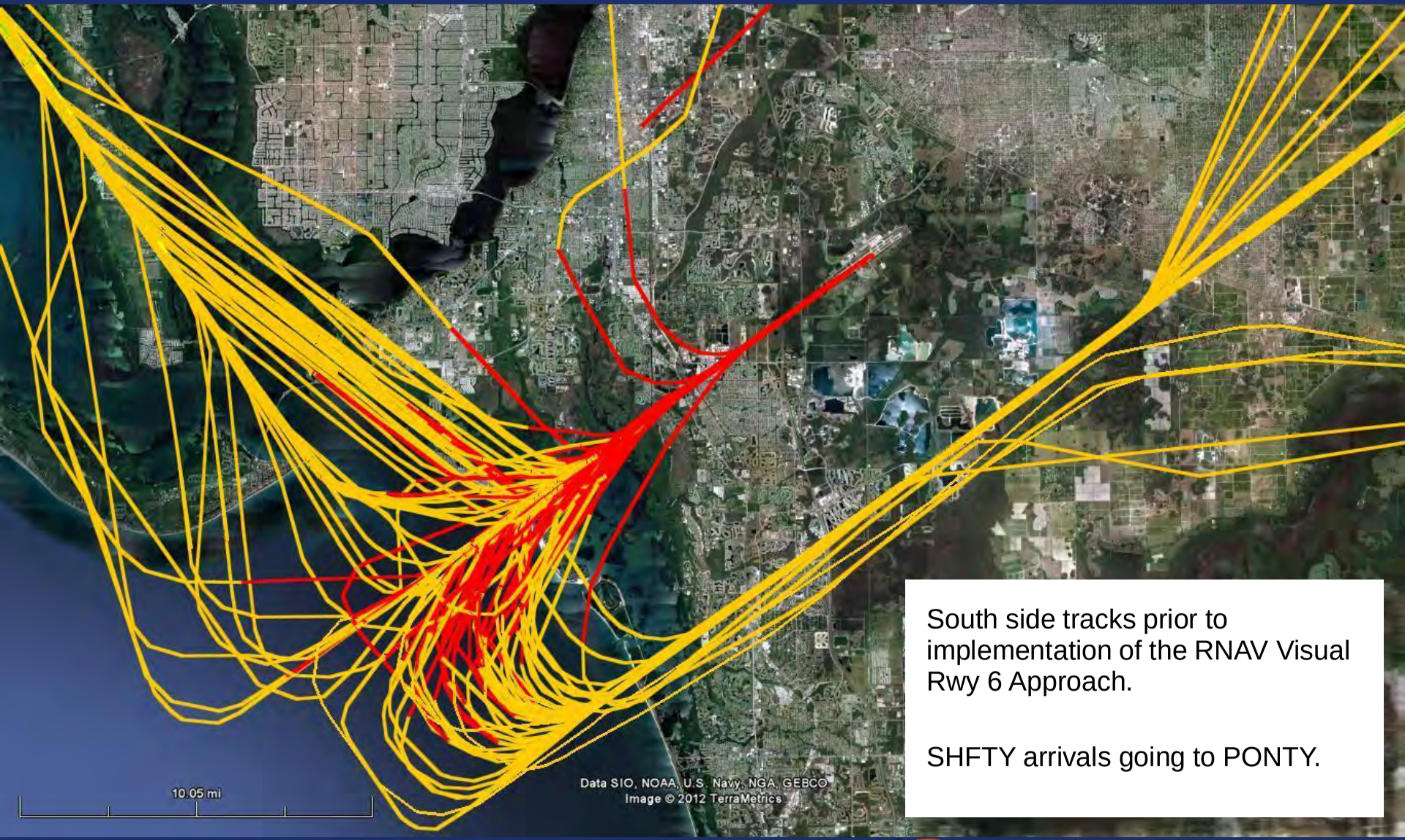
RNAV Visual Rwy 6 Approach




Ft. Myers Beach
Estero Bay
Estero
Miromar Lakes
San Carlos Park
TOUHY
Dog Key
Starvation Key
Horseshoe Keys
Mound Key
Stingaree Key
Black Key
Charlie Key
WINLE
Davis Key
Lovers Key
Estero Bay
Long Key
Estero
STRKL
Gulf
Google
26°26'29.27" N 81°49'44.66" W
Apr 2, 2010
Eye alt 11.67 mi

Actual Track Data

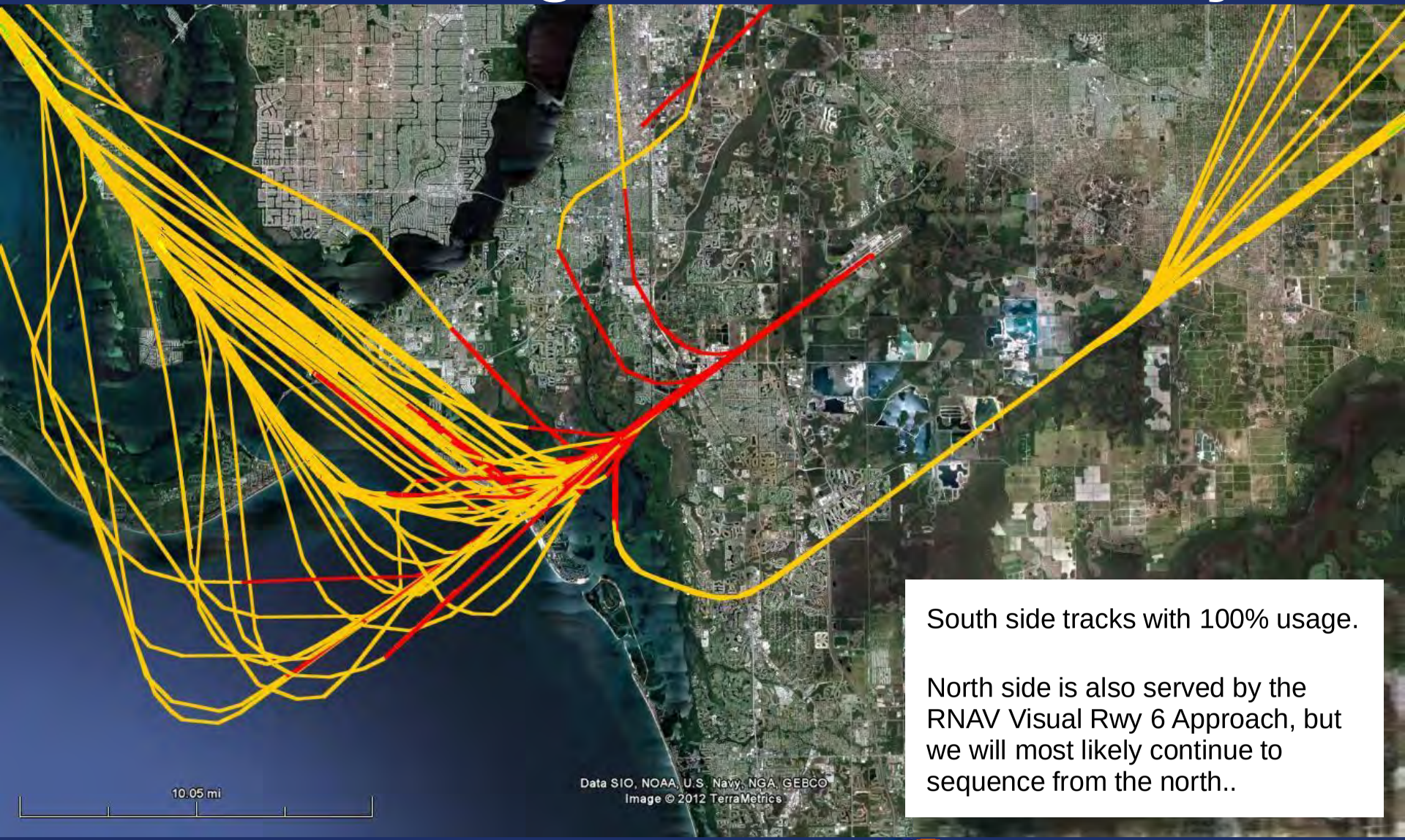
Track Data



South side tracks prior to implementation of the RNAV Visual Rwy 6 Approach.

SHFTY arrivals going to PONTY.

Tracks Using RNAV Visual Rwy 6



South side tracks with 100% usage.

North side is also served by the RNAV Visual Rwy 6 Approach, but we will most likely continue to sequence from the north..

RNAV Visual Rwy 6 Approach

Increased utilization:

1. Encourage approved operators to request it.

    - Increased awareness
    - Working with FSDO
    - Placement of availability on ATIS?

2. Approve additional airlines for use.

3. Begin assigning it (without request)?

Charted Visual Approach

Sample Charted Visual Procedure

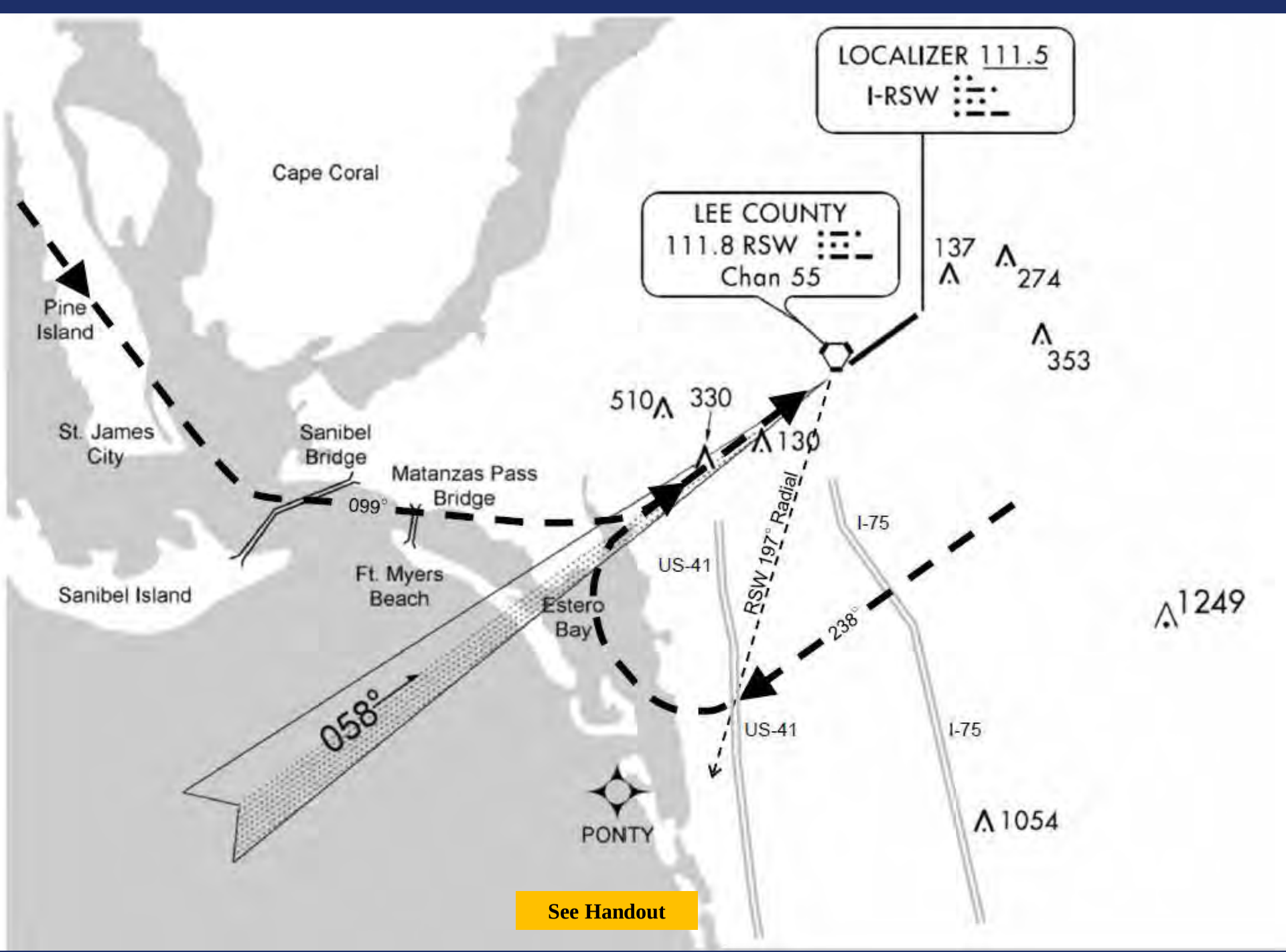
Pros

- Limits aircraft over noise sensitive areas
- Can be flown by aircraft that may not be able to fly other approaches
- Both vertical and horizontal navigation criteria can be published (i.e. 3,000' until passing FMB)

Cons

- Can only be used during visual flight conditions

Recommended

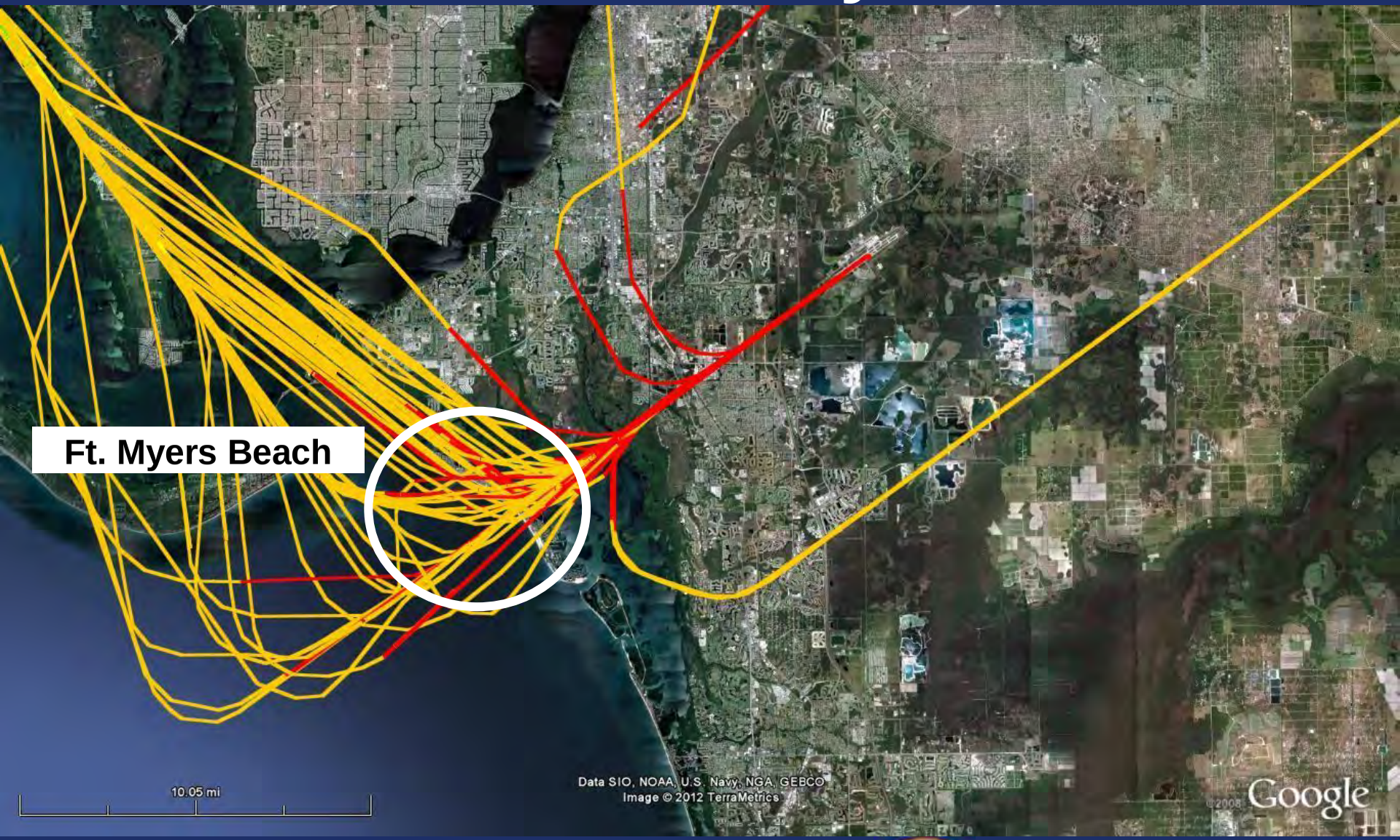

LOCALIZER 111.5
I-RSW
LEE COUNTY
111.8 RSW
Chan 55
Cape Coral
Pine Island
St. James City
Sanibel Bridge
Matanzas Pass Bridge
099°
Sanibel Island
Ft. Myers Beach
Estero Bay
058°
510
330
130
137
274
353
1249
1054
RSW 197° Radial
238°
I-75
US-41
PONTY

See Handout

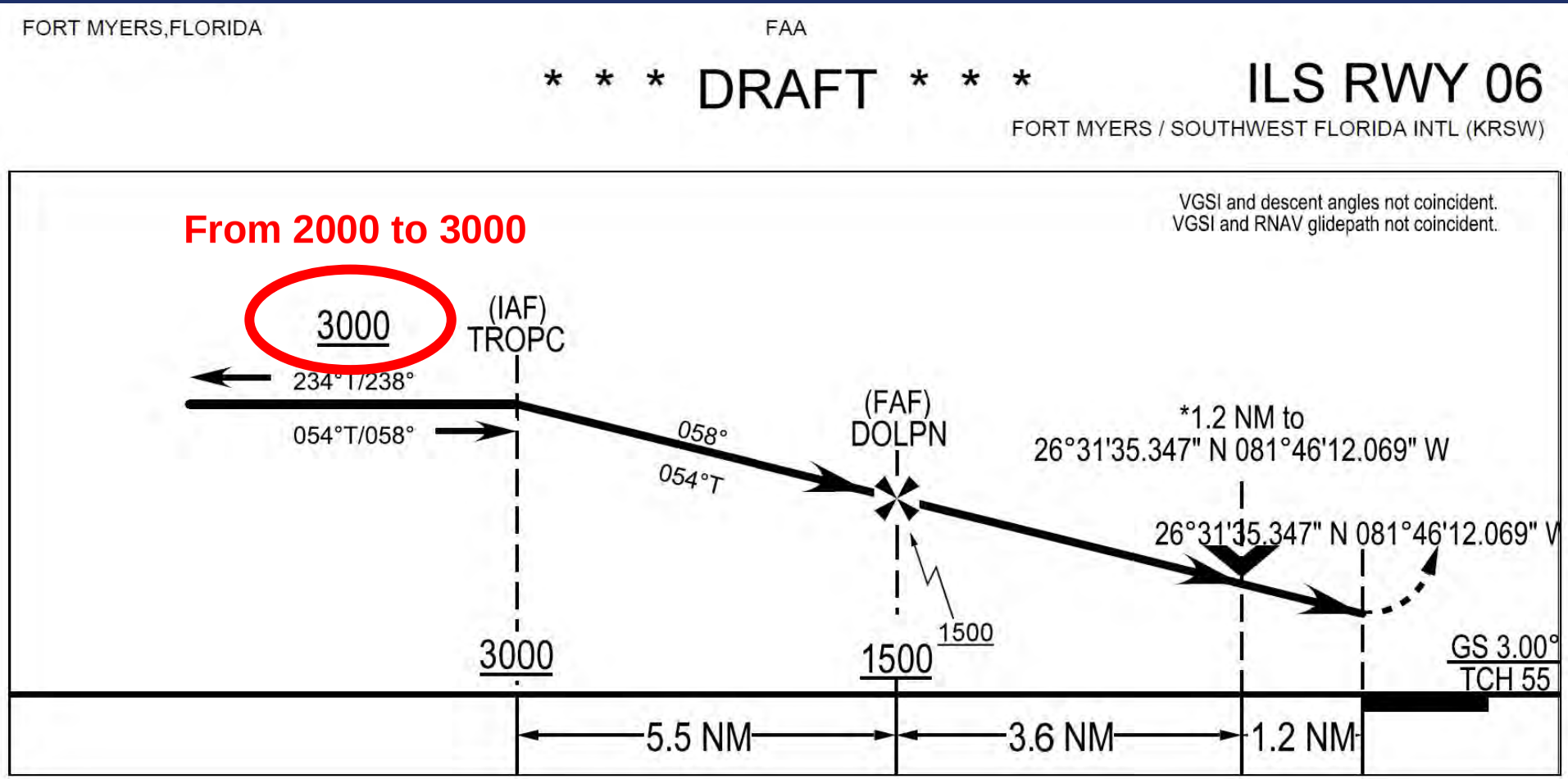
Bay Visual


FT MYERS
See NOTAMs/Directory for Class D eff hrs
CAPE CORAL
PAGE (FMY)
CT - 119.0
ATIS 123.725
17 L 64
246 UC
US-41
SOUTHWEST FLORIDA INT'L (RSW)
CT - 128.75
ATIS 123.65
BUCKINGHAM
Lehigh Acres
MATLACHA PASS NATIONAL WILDLIFE REFUGE
Pine Island Sound
St James City
Punta Rassa
FORT MYERS RCO
MIAMI
VPCLE
Sanibel
Ft Myers Beach
Estero
Sanibel Island
Big Carlos Pass
Big Hickory Pass
CORFU
See NOTAMs/Directory for Class C eff hrs
VORTAC
LEE COUNTY
111.8 Ch 55 RSW
MIAMI
CTC FORT MYERS
20 NM ON 119.

3,000 ft. Over Ft. Myers Beach

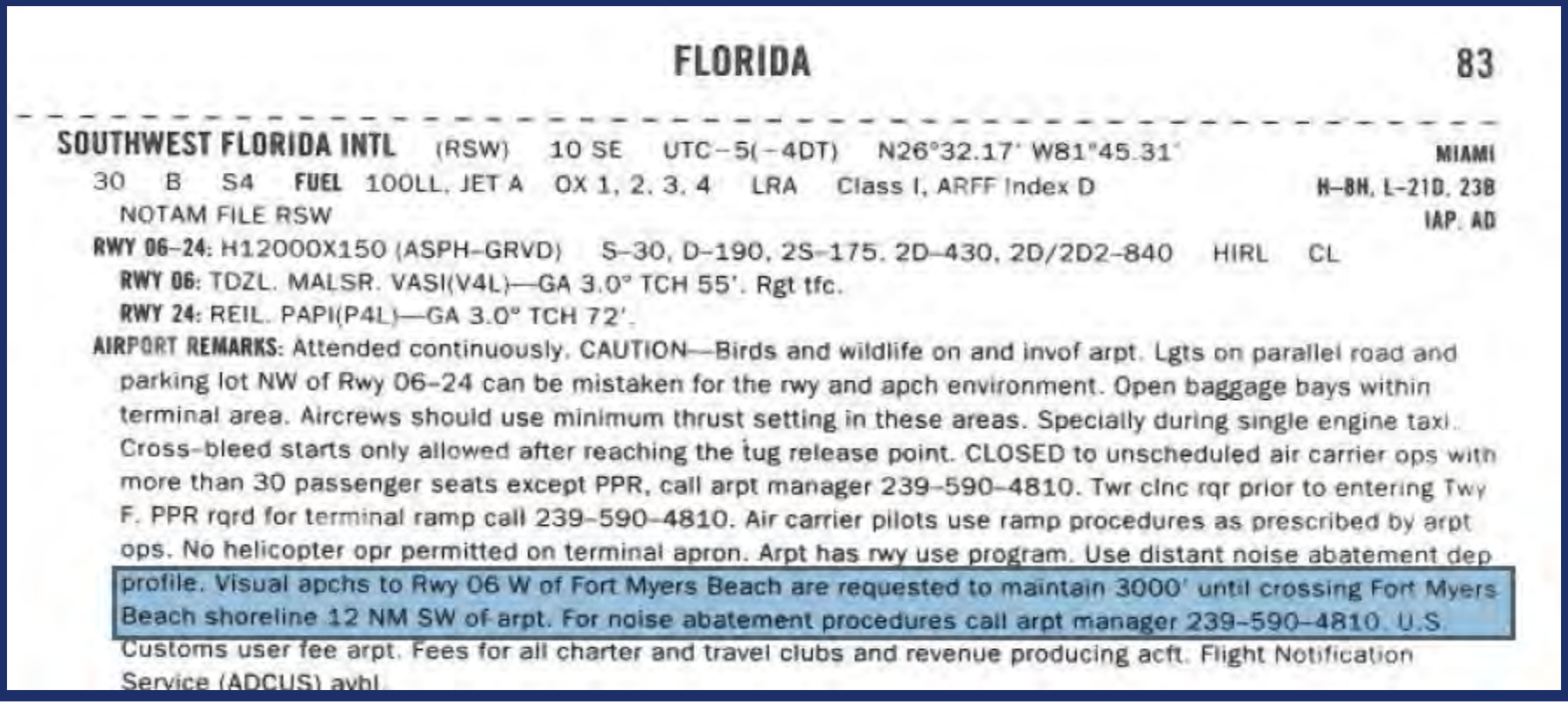


ILS Rwy 6 Approach IAF Raised



3,000’ Over Ft Myers Beach

Currently, only a message in the airport directory asks flight crews to maintain 3,000’ until cross Ft. Myers Beach when on a Visual Approach.



FLORIDA 83

SOUTHWEST FLORIDA INTL (RSW) 10 SE UTC−5(−4DT) N26°32.17' W81°45.31' MIAMI
30 B S4 **FUEL** 100LL, JET A OX 1, 2, 3, 4 LRA Class I, ARFF Index D H–8H, L–21D, 23B
NOTAM FILE RSW IAP, AD
RWY 06–24: H12000X150 (ASPH–GRVD) S–30, D–190, 2S–175, 2D–430, 2D/2D2–840 HIRL CL
RWY 06: TDZL. MALSR. VASI(V4L)—GA 3.0° TCH 55'. Rgt tfc.
RWY 24: REIL. PAPI(P4L)—GA 3.0° TCH 72'.
AIRPORT REMARKS: Attended continuously. CAUTION—Birds and wildlife on and invof arpt. Lgts on parallel road and parking lot NW of Rwy 06–24 can be mistaken for the rwy and apch environment. Open baggage bays within terminal area. Aircrews should use minimum thrust setting in these areas. Specially during single engine taxi. Cross-bleed starts only allowed after reaching the tug release point. CLOSED to unscheduled air carrier ops with more than 30 passenger seats except PPR, call arpt manager 239–590–4810. Twr clnc rqr prior to entering Twy F. PPR rqrd for terminal ramp call 239–590–4810. Air carrier pilots use ramp procedures as prescribed by arpt ops. No helicopter opr permitted on terminal apron. Arpt has rwy use program. Use distant noise abatement dep profile. Visual apchs to Rwy 06 W of Fort Myers Beach are requested to maintain 3000' until crossing Fort Myers Beach shoreline 12 NM SW of arpt. For noise abatement procedures call arpt manager 239–590–4810. U.S. Customs user fee arpt. Fees for all charter and travel clubs and revenue producing acft. Flight Notification Service (ADCUS) avbl.

3,000’ Over Ft Myers Beach

We are considering Issuing a restriction as part of Approach clearance. This is being done at other airports.

Example: *“Sunflight Two-Thirty-Two, cleared Visual Approach Runway 6, maintain three-thousand until crossing Ft. Myers Beach shoreline”*

or: *“Sunflight Two-Thirty-Two, cleared Visual Approach Runway 6, maintain three-thousand until 10 DME”*

Review of User Input

1. RNAV Visual Rwy 6 Approach.
    - Message on ATIS?
    - Remove “Caution, Birds and Wildlife…”?
    - Other?
2. Charted Visual Approach (“Bay Visual”).
    - Suitable visual landmarks?
    - Stabilized Approach?
    - Other?
3. 3,000’ Over Ft. Myers Beach?
    - Restricting as part of Visual Approach Clearance?
    - Other?

Local Runway Safety Action Team (RSAT) and
Pilot-Controller Meeting 8-20-2012 (Wright Brothers Conference Room)

Meeting began at 1:00 P.M.

RSA Team began the meeting with Tom Nichols discussing the Irregular Operations Contingency Plan

- Ethan Croop spoke about wildlife hazard management
    - Use of dog, pyrotechnics and grass height
- James Hess reviewed policy for operating equipment within the Runway Safety Area (RSA)
- Tom Nichols discussed issues with Taxiway F5 and F6
    - Pilots are using Taxiway F5 when they should be using F6
    - Signage is confusing
    - ATCT would like to see F5 closed
    - Port Authority is looking at another solution to the issue so that the Taxiway can remain open
- Eddie Howell provided update on ARFF
- Joe Glowacki provided a construction update
    - Discussed the Apron and Associated Taxiway project
- James Hess wrapped up with discussion on training initiatives such as driver training

Pilot –Controller Meeting

Jim Dickinson began the meeting with a brief history of the Terminal Flight Procedures

- Prior to FLOWCAR most arrivals were fed from over the Gulf coast
- FLOWCAR added a feed from the center of the state and made a downwind south of the airport
    - Aircraft arriving from the North (TYNEE) and from the South (SHFTY) were turned towards a 7 mile final
    - The early turn on the SHFTY downwind caused overflights over many Estero communities
    - An agreement was made to send aircraft on the SHFTY arrival to the PONTY waypoint which essentially moved the sequence point out over the Gulf for both the North and South arrival
    - FLOWCAR caused a lot of beach overflights
- RNAV procedures were added to de-conflict departures and arrivals

RNAV Visual Runway 6 Approach

- Southwest Airlines in collaboration with FAA Flight Standards and RSW ATCT developed the Approach
- Airlines must apply and be approved to use the approach
- Current approved airlines are:
    - Southwest, Jet Blue, Delta and US Airways
- North side is also served by the RNAV Visual Runway 6 Approach, however ATC will most likely continue to sequence from the north (vector).

- ATC wants to encourage operators to request the approach by:
    - Increasing awareness
    - Working with FSDO
    - Placement of availability on ATIS
        - There was discussion about taking the notification about "Birds in the area" off the ATIS and put a remark about requesting the RNAV visual in its place.
        - Jim Dickinson said that he wants to keep the ATIS 30 seconds or less because pilots will lose interest
        - The operators mentioned that they lose interest when they hear anything about birds. They are aware that there will be birds on short final.
        - Tom Nichols stated that he would like the bird remarks to stay on the ATIS.
        - Pilot from US Airways said that if ATC had a digital ATIS it could be as long as they wanted it to be because the pilots just print the ATIS and can review it instead of having to listen and write it down in flight.
        - Frank from ATC seemed interested in getting a digital ATIS
    - Airport Facility Directory (AFD) remarks "Birds and wildlife on and in the vicinity of the airport."

Charted Visual

- Part 150 recommendation
- Would be an overlay of the RNAV visual
- Assist with sequencing bye allowing aircraft that are unable to fly the RNAV visual to make the early turn
- Chad Rosenstein mentioned that there would need to be a noise reduction benefit with the procedure.
    - Jim Dickinson said that the procedure will be designed so that the aircraft power will have to be pulled back in order to make the turn (speed restriction).

Increase Altitude over the Beach to 3,000 Feet

- MUFFY (LOM) is currently scheduled to be removed
    - FAF intercept altitude is 1,600' 4.3 NM from the runway
- New ILS procedure increases intercept altitude over the beach at TROPC (IAF) to 3,000' but reduces the FAF (DOLPN) to 1,500' which is 4.8 NM from the runway
- ATCT is trying to think of the best language to convey to the pilots when clearing them for the approach
    - "Maintain 3,000 feet until crossing Fort Myers Beach
    - "Maintain 3,000 feet until 10 DME
        - If the DME is going to be off of the Localizer (should be installed in the next few months) then the language would need to 12.5

DME to consider that the Localizer is at the other end of they runway.

- The operators mentioned that crossing the beach at 3,000 feet (10 miles out) would require them to reduce airspeed to approximately 170 knots in order to descend properly.
    - This could cause aircraft being lined up further out which can generate increased congestion.

APPENDIX S

January 14, 2013 Public Hearing

MEMO TO: Shirley Carney
General Services

and

Chad Rosenstein
Project Coordinator - Noise/Air Space

LEE COUNTY PORT AUTHORITY

FROM: Gregory S. Hagen
Chief Assistant Port Authority Attorney

DATE: January 16, 2013

SUBJECT: January 14, 2013 Public Hearing - RSW 14 CFR Part 150
Airport Noise Study Update
PAA-044.001(4)

Attached for inclusion in the Clerk of Courts' Minutes for the above meeting and the public hearing record submitted to the FAA find a copy of the Affidavit of Publication of the Public Hearing Notice. Also, attached are copies of the following Resolutions of the Town of Fort Myers Beach:

Resolution No. 13-01
Resolution No. 12-02
Resolution No. 09-03

as submitted by Town Council Member Jo List at the public hearing and specifically identified for inclusion in the record to the FAA by the amended motion of the Board of Port Commissioners. If you have not already done so, please submit these items for inclusion in the record as noted, with copies to the consultant, ESA Airports. If you have any questions, please let me know.

GSH/cdd

Attachment

xc: Mark Fisher, Development
Emily Underhill, Development
Josh Philpott, Development
Elizabeth Walker, General Services

THE NEWS-PRESS
Published every morning
Daily and Sunday
Fort Myers, Florida
Affidavit of Publication

STATE OF FLORIDA
COUNTY OF LEE

Before the undersigned authority, personally appeared **Jessica Hanft** who on oath says that he/she is the **Legal Assistant** of the News-Press, a daily newspaper, published at Fort Myers, in Lee County, Florida; that the attached copy of advertisement, being a

Notice of Public Hearing

In the matter of: **Hearing on January 14, 2013**

In the court was published in said newspaper in the issues of

December 14, 2012

Affiant further says that the said News-Press is a paper of general circulation daily in Lee, Charlotte, Collier, Glades and Hendry Counties and published at Fort Myers, in said Lee County, Florida and that said newspaper has heretofore been continuously published in said Lee County, Florida, each day, and has been entered as a second class mail matter at the post office in Fort Myers in said Lee County, Florida, for a period of one year next preceding the first publication of the attached copy of the advertisement; and affiant further says that he/she has neither paid nor promised any person, firm or corporation any discount, rebate, commission or refund for the purpose of securing this advertisement for publication in the said newspaper.

Jessica Hanft

Sworn to and subscribed before me this 14th day of January, 2013

by **Jessica Hanft**
personally known to me or who has produced

---

as identification, and who did or did not take an oath.

Notary Public Deanna Crews

Print Name: **Deanna Crews**
My commission Expires: **March 21, 2016**

Notice of Public Hearing 1765

NOTICE OF PUBLIC HEARING AND DRAFT DOCUMENT AVAILABILITY SOUTHWEST FLORIDA INTERNATIONAL AIRPORT 14 CFR PART 150 AIRPORT NOISE COMPATIBILITY PLANNING STUDY

Notice is hereby given that the Board of Port Commissioners of the Lee County Port Authority will hold a public hearing to review the recently completed draft 14 Code of Federal Regulations (CFR) Part 150 Airport Noise Compatibility Planning Study for the Southwest Florida International Airport (RSW). The study identifies existing and future noise exposure areas around RSW and identifies various noise mitigation measures.

The Public is invited to attend a public hearing at which their views, data, and comments will be accepted regarding the study recommendations.

Public Hearing Location:
Lee County Port Authority Training and Conference Center
Southwest Florida International Airport
16994 Air Cargo Lane
Fort Myers, FL 33913

Date: January 14, 2013

Time: 5:30 A.M., or as soon thereafter as can be heard.

The draft study is available for public review during normal business hours Monday through Friday in the Lee County Port Authority offices at the Southwest Florida International Airport located at 11000 Terminal Access Road, Fort Myers, Florida and online at www.flylcpa.com beginning December 14, 2012. Requests to view the document and any questions regarding the study should be directed to Chad Resenstein, Project Coordinator at 239.590.4624.

American with Disabilities Act Notice: Any person needing special accommodations should contact Shirley Cerney at 239.590.4526 at least five (5) days before the scheduled hearing. Directions to the public hearing site can be found on the Lee County Port Authority website at www.flylcpa.com.

Dec. 14 No.1465580

Southwest Florida International Airport

Federal Aviation Regulations (FAR) Part 150 Noise Compatibility Program

Public Hearing

January 14, 2013

ESA Airports
National Noise Study Experience

Overview of FAR Part 150

- Airport noise studies are ***voluntary***
- Must follow FAR Part 150 process to be considered and accepted by FAA
- Why conduct a noise study?
  - Determine existing noise conditions at an airport
  - Educate communities on the Federal process – what can and cannot be done
  - Provide opportunity for public input
  - Serves as a "comprehensive exam" for southwest Florida to the FAA – not just one community
  - Reduce or eliminate existing and future non-compatible land uses
  - Encourage noise abatement alternatives that don't sacrifice one neighborhood for another
  - Try to recognize both airport economic benefits & community overflight concerns
  - Develop recommendations for consideration by the FAA
  - Comply with Lee County Comprehensive Plan requirements

Roles and Responsibilities

- **Three core organizations involved in aircraft operations at RSW**
  - Lee County Port Authority (LCPA)
    - Landlord of the airport – Contracts and property managers
    - No control over where aircraft fly
  - Federal Aviation Administration (FAA)
    - Directs the safe movement of aircraft in the air and on the ground
  - Airlines and Pilots
    - Pilot in command has ultimate responsibility for the safe operation of his/her aircraft

How Airport Noise is Measured

- Single Aircraft Overflight (Single Event)
  - Measured decibels at ground level for one aircraft overflight
- Annualized Cumulative Measurement (**FAA Required**)
  - Day-Night Average Sound Level (**DNL**)
  - Computer generates an annualized average day noise contour
  - Data input to computer model
    - Aircraft types and frequency
    - Flight corridor location and runway use
    - Time of day
  - Nighttime penalty weighing (1 nighttime flight = 10 daytime flights)
  - Used to evaluate compatibility and noise exposure significance

Why is 65 DNL Important?

- **65 DNL and higher** = FAA and the US Department of Housing and Urban Development (HUD) consider to be incompatible with residential, schools, hospitals and other noise-sensitive uses near airports
- **Less that 65 DNL Contour** = federal government considers all uses compatible with airport noise
- *There is no FAA impact threshold for noise significance associated with a single aircraft overflight.*

RSW 2006 FAA Approved DNL Noise Contours

FAA Challenges – RSW vs Other Airports

AIRPORT	ANNUAL OPERATIONS	POPULATION INSIDE 65 DNL
Southwest Fla.	93,316	0
Key West	77,442	1,029
White Plains, NY	186,318	1,390
Teterboro	173,589	2,355
Chicago Midway	307,520	4,700
LaGuardia	399,089	7,342
Cleveland	235,599	8,029
Minn.-St. Paul	446,880	9,734
St. Louis	268,267	15,204
O'Hare	881,068	16,700
San Diego	229,167	51,802
Miami	272,570	52,727
Seattle-Tacoma	343,029	64,002
Los Angeles	615,533	69,014

2006 FAA Approved Voluntary Noise Mitigation Measures

- Use RW 6 during calm wind conditions
- Keep aircraft higher on downwind approach
- Keep departing aircraft in Alico Road industrial corridor
- Limit aircraft engine run-ups during late night hours
- Extend RW 6 departure turns to the north
- Other measures to reduce and track aircraft overflights near residential areas

FAR Part 150 – 2 Part Process

- Part 1 – Develop Noise Exposure Maps (NEMs)*
- Part 2 – Develop Noise Compatibility Plan (NCP)*

*Must submit to FAA for approval

Pre-2006 Historic Arrival Flows

- Arrivals from/at west coast of Florida
- Traffic streams merge along the coast between Fort Myers and Tampa

Pre-2006 Historic Arrival Flows - Conflicts

- Airspace capacity issues in Ocala area with flights to central and southeast Florida
- Merging arrival streams in southwest Florida begins to approach arrival capacity of RSW's runway during peak periods

2008 Florida West Coast Airspace Redesign (FLOWCAR)

- Part of National Airspace Redesign
- Splits activity into two arrival streams
- Aircraft transiting center of state are routed south of the airport when operating on Runway 08
- Concurrent implementation of TYNEE and BHTFY RNAV procedures concentrates traffic flows

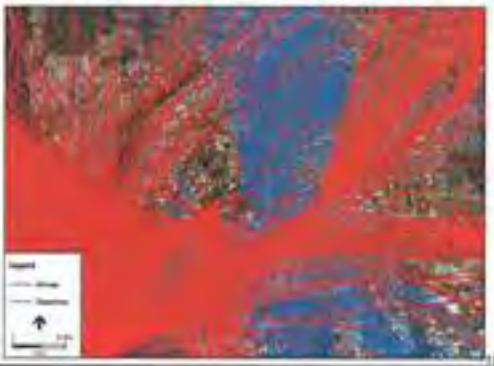
Pre FLOWCAR Overflight Comments

Post FLOWCAR Overflight Comments

Flight Procedures vs. Public Comments

FAA Integrated Noise Model (INM) Live Field Measurements

FAA Intergated Noise Model (INM) FAA Radar Tracks – Northeast Flow



FAA Integrated Noise Model (INM)
FAA Radar Tracks – Southwest Flow

19

FAA Integrated Noise Model (INM)
Northeast Flow Modeled Flight Tracks

20

FAA Integrated Noise Model (INM)
Southwest Flow Modeled Flight Tracks

21

FAA Integrated Noise Model (INM)
2011 Existing Baseline Noise Contours

22

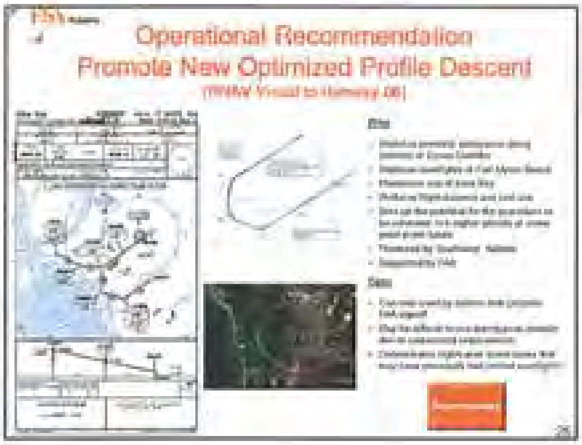
FAA Integrated Noise Model (INM)
2017 Future Baseline Noise Contours

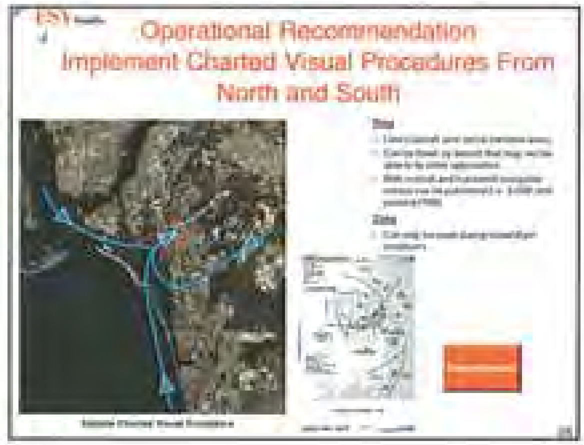
23

Summary of Community Input

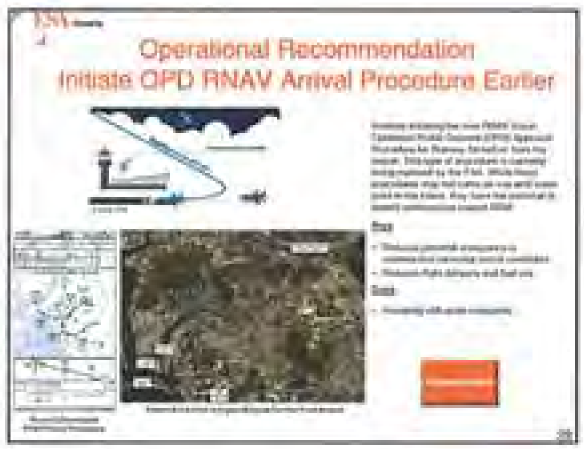
- 11 public workshops held with 326 total attendees
- 130 public comments and recommendations submitted
- 8 individual community meetings held

24


Operational Recommendation
Promote New Optimized Profile Descent


Operational Recommendation
Implement Charted Visual Procedures From North and South


Operational Recommendation
Raise Altitude to 3,000 over Beaches

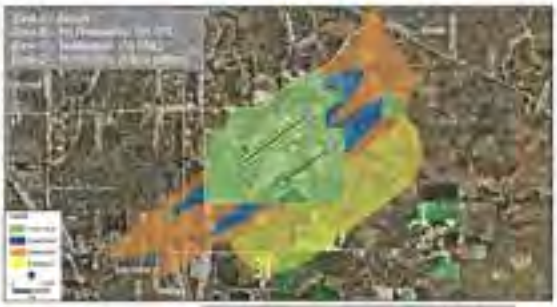

Operational Recommendation
Initiate OPD RNAV Arrival Procedure Earlier


Operational Recommendation
Change RW 24 to Preferred Runway after 10pm


Operational Recommendation
Modify CSHEL FOUR Departure

Future Land Use Evaluation
2030 Projected Noise Contours

Future Land Use Evaluation
Existing Overlay Zones



Future Land Use Recommendation
Revised Overlay Zones

Future Land Use Recommendation
Overlay Zoning Revisions

Summary of Recommendations

- Extensively evaluated each and every public comment and suggestion
- Developed recommendations that are feasible to implement and do not merely move overflights from one community to another
- Final recommendations should:
  - Not simply move noise from one community over another
  - Reduce the number of flights over Ft. Myers Beach & Estero & The Forest
  - Increase the altitude of flights over Ft. Myers Beach & Estero & the Forest
  - Continue the 2006 approved measures which reduced flights over San Carlos Park, Fiddlesticks, Gateway and Lehigh Acres
  - Avoid conflicts with the FAA's FLOWCAR safety and efficiency initiatives
  - Safeguard RSW from encroachment of incompatible land uses
  - Notify residents of future airport expansion

Next Steps

- Board approval of Study and transmittal to FAA
- FAA review of Study recommendations (180 Days)
- FAA issues approval/denial determinations
- Implementation of Study recommendations approved by FAA

Comments

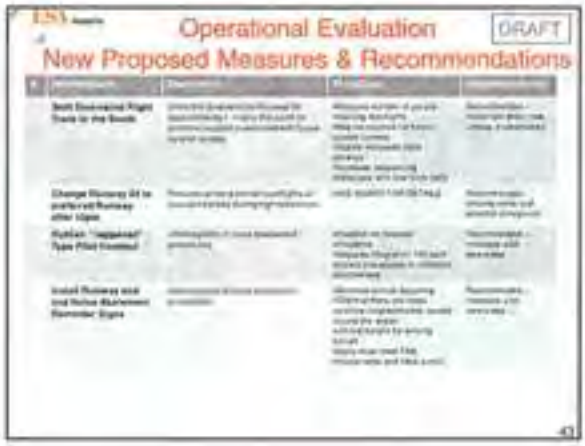
Operational Evaluation
SHFTY to TYNEE Transition
(Eskero Plan)

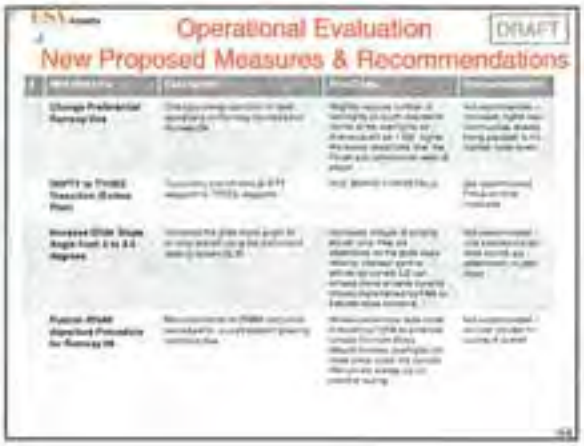
Operational Evaluation
Existing Measures & Recommendations
DRAFT

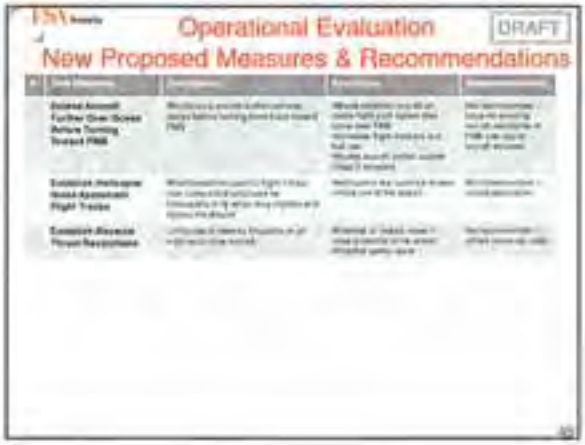
Operational Evaluation
Existing Measures & Recommendations
DRAFT

Operational Evaluation
New Proposed Measures & Recommendations
DRAFT

Operational Evaluation
New Proposed Measures & Recommendations
DRAFT


Operational Evaluation
DRAFT
New Proposed Measures & Recommendations


Operational Evaluation
DRAFT
New Proposed Measures & Recommendations


Operational Evaluation
DRAFT
New Proposed Measures & Recommendations

LEE COUNTY PORT AUTHORITY

BOARD OF PORT COMMISSIONERS

AND

AIRPORTS SPECIAL MANAGEMENT COMMITTEE

JANUARY 14, 2012

P R O C E E D I N G S

COMMISSIONER PENDERGRASS: Let's move on to the administrative agenda.

COMMISSIONER MANNING: I move A4.

COMMISSIONER HALL: Second.

COMMISSIONER PENDERGRASS: Item 4A is moved by Commissioner Manning. Commissioner Hall seconds. Any discussion by the board? That would be none. Motion carries five to zero.

COMMISSIONER MANNING: Move Item B.

COMMISSIONER PENDERGRASS: Commissioner Manning moves Item 4B. Any second?

COMMISSIONER HALL: I will second for discussion because I think this is where we want the public to comment, right, this public hearing?

COMMISSIONER PENDERGRASS: We have a second from Commissioner Hall. At this time we can take the public comment; is that correct?

ATTORNEY HAGEN: It's a bit odd on the agenda, but this is the actual public hearing at this point. You may not want to take a vote until you have had the presentation and the public comment. So you've got a motion and a

second. I would move right into the presentation.

COMMISSIONER PENDERGRASS: Okay. Staff.

MR. FISHER: Sure. Mark Fisher, Airport Development. Back in 2011 the Board contracted with ESA Consulting to update the Airport Noise Study for the Southwest Florida International Airport in accordance with the Code of Federal Regulations 14, Part 150.

Over the last 18 plus months, ESA has gathered technical data, held numerous public workshops and community meetings to gather public input, had technical meeting with the Federal Aviation Administration, Airports Division, Air Traffic Organization, to discuss the feasibility of aircraft operational changes and based on a lot of analyses, coordination and work, ESA has prepared a draft update to the RSW Noise Study with recommendations related to aircraft operational procedures and land use changes.

They are ready to transmit this study to the FAA. As we all know, RSW is one of the biggest economic engines in the region and our staff continues to work constantly to attract

new air service to make air travel shorter, easier and more direct for the public. But with over 100 individual communities within a 10-mile radius of RSW, there is little vacant land to fly over anymore. So even though the ESA recommendations that you will hear in just a minute can't eliminate overflights altogether, and don't merely move aircrafts flights from over one community to over another, with FAA's approval the recommendations you will hear today should reduce the number and increase the altitude of flights over noise sensitive areas like Fort Myers Beach, Estero and The Forest without compromising air traffic safety.

So what I would like to do now is introduce Mike Arnold, he's the project manager with ESA. He will give you a short presentation summarizing the study.

MR. ARNOLD: Thanks, Mark. It will take just a second for the presentation to come up here. But, again, the public hearing for the Part 150, the Part 150 is a federal -- is governed by a federal process. Part 150 is the one public hearing that's required during the

study. The advertisement for the Part 150 went out on December 14th. Both the advertisement for today's meeting and a notice of availability of the Part 150 document itself.

The document was readvertised availability this past Monday a week ago in a supplemental advertisement. So today I'm going to basically -- while the Part 150 is on the report itself, today I'm going to give kind of an overview of some of the different -- some of the background related to the study and some of the highlights of we're recommending as part of the study.

Just to give a little background on ESA Airports itself, Mark talked about the fact that we're doing to study. We have done noise studies throughout the United States, experienced at more than 150 airports. We have done more than 15 Part 150's in the State of Florida alone and more than 100 airport noise related studies.

The Part 150 study is a voluntary process. It must be followed. It's set out by the Code of Federal Regulations. That process must be followed for the recommendations that

come out of it to be approvable by the FAA.

Why do you conduct the study? It basically allows you to determine what the existing noise conditions are at the airport. It allows you to work with the public in understanding what can and can't be done in addressing noise concerns around a community. And really it's the airport's only opportunity to proactively address noise concerns around an airport because the rules and responsibilities lay out that the airport itself is the landlord of the airport, it has no control over where aircraft fly. It's really the Part 150 process that is the process of working with the FAA in trying to identify opportunities for improving compatibility and addressing noise concerns around an airport.

The other player in the -- of the three that kind of factor in as the key stakeholders in addressing noise concerns are the airlines and pilots. Ultimately the pilots make the final decision when they're operating the aircraft for the safe operation.

How is noise measured? There's two different ways you look at it. One is the

single overflight. We can go out and we can measure that on a single basis, but that's not actually how federal agencies look at noise. They look at cumulative exposure when addressing whether an area is receiving a significant impact from noise. So they look at the aircraft types and frequencies, the overall noise exposure that occurs on an annual average day basis and that's essentially how we address noise, HUD, the EPA, FAA.

Nighttime activity gives a greater potential for increased annoyance. It's given a 10 decibel penalty. That means every nighttime operation is counted as ten daytime operations.

Again, I mentioned the fact that federal agencies use the DNL contour or the cumulative measure and we often hear of 65 DNL referred to. The 65 DNL cumulative measure or contour is what the agencies use in determining significance of noise exposure. Less than the 65, FAA and federal agencies consider everything compatible with airport operations. One of the key points is there is no FAA impact threshold for noise significance associated

with a single aircraft overflight. So a single overflight, while it may generate a complaint or be annoying by itself, there is no noise level beyond which, you know, it's considered significant.

To give you a little background, these were the contours that were developed in 2006 for the airport. The 65 DNL contour just barely goes off airport property. Again, that's the level within which FAA and federal agencies considers significant.

How does that compare to some of the other airports throughout the country? Population within the 65, one of the challenges, while we have noise concerns from communities around the airport, we don't actually have anyone that falls within the 65 DNL contour. There are airports that have fairly significant numbers of people that do fall within those areas though.

One of the things we also looked at were the measures that were identified in the previous study. There's over a dozen measures that were approved in the 2006 study that as we evaluated them as part of this study are being

carried forward. So the measures I'm going to be talking from here on are the new measures, but there are over a dozen that are remaining in place from the previous study.

The study itself was a two-part process. The first part was developing the noise exposure maps. Basically determining what the baseline noise conditions are on a cumulative basis. And then the other part was evaluating -- or developing and evaluating a noise compatibility plan. That was looking at measures to reduce the noise around the community.

One of the things that it's important to note are the changes that have taken place in the operation of the airport since the last study was completed. Prior to 2008 aircraft typically transitioned down two streams along the coast and through the center of Florida, converging just south of Tampa and those aircraft came in in a single line into the airport. Because of congestion that occurred up in the Ocala area and the sequencing that was having to take place, you know, well north of the airport in trying to get the aircraft

spaced out correctly that far away and get them coming in, especially during the peak periods, you know, where we have significant seasonal peaking here at the airport, it created a number of capacity and operational challenges.

So as part of a national airspace redesign, when FAA was looking at how the airspace was working nationally, one of the things they looked at was Florida and the west coast of Florida and how it interacted with aircraft coming to the east coast of Florida and modified how those aircraft transition into the state.

So now they have basically drawn a line from Lakeland to Cincinnati. Anything that comes from an origin to the west comes down the coast of Florida and anything that comes along from originations from the east comes down the center of the state and they don't get sequenced in until they are right in the airport location itself. And what that has created is a lot of aircraft flights, about 55 percent of the flights coming into RSW, now transition south of the airport.

The primary flow for the airport is a

flow to the northeast, so those aircraft are now coming over communities that never used to experience those overflights. Also, because that sequencing is occurring right at the airport itself and not well upstream, some of those aircraft are getting pushed much further out over communities like Fort Myers Beach, so it really increases the overflights that they have had as well.

We took a look at the overflight comments and the noise complaints that occurred prior to the implementation of this west coast airspace redesign and just to orient you a little bit, this is the airport here, this is Fiddlesticks, Gateway. This is The Forest community. This is the Estero corridor down here. This is Fort Myers Beach. You can see very few comments in these two areas.

As we move forward in what's occurred since the implementation of that airspace redesign, you can see a considerably greater number of comments from these two communities in particular.

We overlaid the published operational procedures to try and determine is it something

that the aircraft are following that's published or is it something that they are being routed by air traffic or some other reason during visual flight rules and we found largely it's actually the published procedures that are creating the issues and concerns.

At the same time the airspace redesign was implemented, new technology was implemented that keeps aircraft much closer along their flight corridor. So while those aircraft used to spread out historically, now those aircraft are flying on a much narrower track. So people that might have been experiencing some overflights before, if they're right under that track, are experiencing them all now.

We did do a number of live field measurements throughout the communities. We did three different sites along the Estero corridor, one right off the center line of Fort Myers Beach. We did some in The Forest community as well as Fiddlesticks and then up in Lehigh Acres.

Just to try and get a better sense of what we were seeing and what was really going

on, the noise levels that we were anticipating was really what was occurring and also to determine what the other noise -- what the noise characteristics, ambient levels and things like that in the communities were.

We also collected a lot of data from the FAA that shows the radar tracks when the airport is in a northeast flow. Again, these aircraft are coming in, getting routed to the south of the airport on in. These are coming down the coast, getting routed in. The reds are the arrivals, the blues are the departures.

This is the opposite flow, this is a southwest flow, so aircraft coming down the coast are now getting routed from south of the airport, from the -- to the southwest. We modeled that. So we laid out flight tracks to basically overlay those radar tracks to the extent that we could and applied use percentages and assigned aircraft to the specific tracks to do our best to replicate exactly what was occurring and be able to develop the noise exposure footprint for the airport.

The airport, I mentioned, does

operate in a northeast flow predominantly. It's about 70 percent of the time in a northeast flow, about 30 percent of the time in the opposite flow. Essentially we came up with the 2011 baseline noise contours. Again, the 65 DNL contour here is all within the airport property boundary. We also showed the 55 DNL contour. This is an area that's exposed to 10 percent of the cumulative noise exposure that the federal agencies consider significant.

The reason why we showed the 55 is because we had some notifications and things like that from a land use standpoint that we're recommending.

This is the 2017 baseline noise contours. Again, very similar operational characteristics, but different increase in fleet projected associated with the forecast for the airport. The 65 DNL contour just barely gets off airport property.

We did have a number of community meetings throughout the study. We had 11 public workshops that were held in a variety of communities around the airport. Again Lehigh Acres, Gateway, the Greater Fort Myers area and

Fort Myers Beach in the Estero area.

We did have 130 public comments that were submitted as part of that, a number of recommendations that the public requested that we look at as part of the study. We did include all of those and what we evaluated. I think there were about 20 different measures that were specifically identified by the public that they wanted to see looked at.

We also had five individual community meetings. We had two meetings each with the Estero communities, Fort Myers Beech and The Forest. So these were the areas that tended to have the greatest noise concerns, especially because of the changes that came in place from the previous -- the previous study.

So I'm going to highlight a couple of the measures that are being recommended as part of this study. I think they're pretty exciting because they do go significant lengths to address some of the concerns that the public has raised.

This one is called an optimized profile descent procedure. It does two things. It creates a situation when aircraft are

arriving to the airport that they are pulling their engines back earlier and flying into the airport almost like a glider. The other thing it does is it turns the aircraft much earlier instead of like they currently are operating or previously operating, those aircraft extending all the way out over Fort Myers Beach and coming back into the airport. Those aircraft are now turning -- are able to turn much earlier and not fly over Fort Myers Beach at all.

So we had kind of a couple of goals. Decrease the amount of flights over the populated communities. And when we couldn't decrease them, see if we could get them higher or quieter. So this does things. It avoids overflying some of those communities and it gets them quieter along the Estero corridor because those aircraft are pulling back the engine settings before they transition all the way out over the ocean.

This measure has been implemented. It is something that Southwest Airlines did co-sponsor which accelerated the implementation. There are some additional

airlines that have signed on to use the procedure. Right now it's a special procedure, the individual airlines have to get special FAA approval to fly the procedure. And because it's a special procedure they were able to implement it about a year quicker than it would otherwise be required -- the process it would be required to go through.

The challenge is not all airlines can still fly it and there's still sequencing issues when you have the aircraft, again 45 percent of the aircraft coming down from the north and 55 coming from the south. There are times when they just have to sequence those aircraft out to be able to fit the proper spacing for those aircraft.

We do have another measure that should help enhance and increase the percent that this procedure can be used. What we're going to see is probably during the peak period that we have coming up in March there will be times where they are just not able to use the procedure because there are some many more aircraft in the airspace during those times. But ideally, with the implementation of the

next measure, we will be able to see more and more consistent implementation of that procedure.

This measure basically establishes a published visual procedure into the airport. It mirrors the previous procedure that requires the instruments and the equipment and everything else. What it does is it allows the aircraft, instead of one aircraft being able to follow the previous procedure and transition on in and the next aircraft having to go all the way out and back around and creating all the challenges because the next aircraft may want to take the short path again, it creates all kinds of issues. By allowing these aircraft to get into the airport quicker and kind of mirror that path, we are hoping that it really improves utilization of that other procedure.

One of the other things that we're looking at, I mentioned trying to get the aircraft higher when they are flying over communities. So when those aircraft do have to fly over in particular Fort Myers Beach, right now those aircraft are dropping down to 1,600 feet, or prior to the study they were dropping

down to 1,600 feet.

We took a look at all of the airports in the State of Florida, all of the commercial airports with similar airspace in the State of Florida. We found 1,600 feet was the lowest transition altitude of any airport in the State of Florida. So we, in working with the FAA air traffic control tower, said, How do we fix this, how do we get those aircraft higher further out. And right now the FAA is in the process, they have got a draft out of a procedure that would publish this where this transition altitude would occur at 3,000 feet. So it essentially doubles the altitude that those aircraft would be flying in over Fort Myers Beach. It creates them on a stable glide path earlier and faster and it actually provides some noise benefit to these communities as well because they are stabilized on that procedure much further out.

So, again the 3,000 feet is equal to the highest of any commercial airport in the State of Florida with Class C airspace. So I think it's a significant opportunity. The air traffic control tower has been willing to

work with us once we showed them what the issues were and has developed that draft.

The other opportunities that exist for the airport, some of them are still in the evolution process. I showed you the one where the aircraft are turning earlier here and they pull back essentially at 4,000 feet and start acts as a glider. Well, what we would like to see, there's currently test cases in the United States that are going on that have those aircraft pulling back at a much higher altitude much further from the airport. There's a significant fuel efficiency benefit as a result. Airlines are really pushing for this. It's kind of a win-win for everyone. It benefits the airlines and it benefits the communities because, again, those aircraft are coming in and they're no longer flying a straight and level flight where they're having to maintain throttle just to be able to maintain their altitude.

Then finally we took a look at what's occurring during the times when people are most sensitive to noise, after 10 p.m. We discovered that the majority of the aircraft

that arrive to the aircraft after 10 p.m. are coming down the middle of the state. Right now many of those aircraft are getting routed to the south of the airport. They're, again, dropping altitude as they're combing through this area and they're not only flying through the Estero community, they're coming over Fort Myers Beach into the airport.

So right now Runway 6 is the preferred runway. Again, the flow is 70 favor Runway 6, 70 percent of the time. But at nighttime we have a lot of calm conditions that allow you to be a little bit more flexible in the operations.

So what we're recommending is that after night we change to a runway 24 operation. It would allow these aircraft that are coming down the middle of the state to transition directly into the airport and the aircraft that are still coming down the coast that do fly along the corridor, they're still much higher as they're coming through the more populated areas. So it would result in a reduction in noise, again, during those time periods when there's the greatest potential for annoyance.

Then finally we looked at The Forest community. I highlighted both pre and post the implementation of -- the previous study and this study, The Forest had quite a few noise concerns associated with it. There's what we call the Alico corridor here and this is a fairly industrialized corridor. There's a procedure that takes aircraft down through this corridor and tries to keep them in that corridor as long as possible to allow them to climb as high as possible before they turn north and have to pass over the public.

Right now the community that gets the highest noise levels or experiences the highest noise levels, although it's not significant from FAA's definition, it is this community. So while we looked a lot at the Estero corridor and Fort Myers Beach, The Forest actually experiences the highest noise on a per aircraft basis when those aircraft are coming over. They also experience a pretty significant fluctuation in the amount of operations that come over the community.

In the off periods because of the way that the wind conditions are in Florida and in

the region, they can experience as low as 500 flights in a month or as high as 4,500 flights in a peak month. So what they are experiencing on a month-to-month basis varies significantly and when they are experiencing those flights they are much louder.

We are recommending a procedure that would release these aircraft earlier and encourage them to even climb quicker to be able to be released to a location further north, so not every single aircraft is flying right directly over that community.

We also looked at the 2030 noise contour. We looked at 20 years into the future, we have got a new parallel runway we're anticipating by that time and what would happen with the noise footprint at the airport then. Well, largely that foot print, again, the 65 is the red lines that stays largely on the airport property. Again, some of it is that the aircraft are quieter that are entering the fleet. The other is that you're now splitting those aircraft between two runways.

So we looked at this from a land use standpoint recognizing that from a long-term

standpoint we want to make sure that the land use is protected to accommodate that future parallel.

We did look at the noise zones from the old study. We have a number of noise zones that were recommended as part of the old study. Zone A, the green area, is the area defined as the airport property. Zone B is a no residential area. It's defined as a 60 DNL contour. So as a result of the previous study, we decided let's go a step further. Well, the FAA says no residential within the 65, because we have the opportunity let's limit it within the 60. But let's provide notification at least for those areas that go out to the 55 and for future potential pattern area so that anyone building in those areas is aware that they be exposed to some level of aircraft overflight at some point in the future.

This was what was recommended in the previous study. This is basically if we applied the same criteria in the new study and this is the areas of difference. So the areas of increase, where we would be increasing, the specific zones are shown in a black hatch and

the areas of decrease in those zones is shown in a green hatch. So it shows how that would contrast.

Now, the new zones, again, were based on 2030 activity levels, the old zones were based on 2020 activity levels. So we have a different projection of fleet further out and different activity level projection. About a 50 percent increase in activity from what we're experiencing today in the long term.

Now, just as a summary, we did go through 32 total measures that we evaluated. Some of the measures are required to be evaluated as part of Part 150. Many of those measures were identified in consultation with the public. We did develop ten recommended operational procedures, five recommended administrative procedures and one recommended land use procedure as a result of the study.

The key things, I think again to emphasize in what kind of guided us through the process, was we were looking for measures that didn't just simply move the noise from one community to the other. We looked for opportunities that reduced the noise impact for

the communities that the aircraft were flying over. Ideally in reducing the number of flights, but then when we couldn't reduce the number of flights, we looked at opportunities to increase the altitude of flights.

We are recommending continuing the 12 plus measures that were approved in the 2006 study. We don't want to undue any of the benefits that were achieved then. Those benefits were mainly for San Carlos Park, Fiddlesticks, Gateway and Lehigh Acres. We wanted to make sure after going through a pretty extensive process in working with the FAA to see how we could tweak the FLOWCAR, Florida West Coast Airspace Redesign, that they had implemented, discovered that really there's not a whole lot we can do. Their focus was really safety and efficiency as part of that. And so it's trying to make sure whatever we implemented wasn't in conflict with that, recognizing it had a much higher potential of moving forward if that was the case.

Then finally, establishing safeguards from future noncompatible land uses and making sure that the public was aware, you know, if

they were looking in areas that had potential exposure to aircraft overflights, that they were aware of that.

The next steps in the process are essentially transmittal of the study to the FAA. Any public comments or comments that you have today are all going to be part of the record, public record, that does go to the FAA, a part of the formal public transcript. FAA will issue an approval or denial on each one of the recommendations. One of the challenges we have is because all of the measures that were recommending benefit areas outside the 65 DNL contour, which again remains on airport property, the measures that are approved would only be able to be approved as voluntary type measures.

So while you may be concerned that that may soften those measures, because we are already working with the air traffic control tower in designing and implementing those measures we think the success of getting those measures in place and in fact maybe much more quickly than the actual approval process would take through the formalized Part 150 process.

We think there's a great opportunity for success there.

Then finally we will open it up for comments.

COMMISSIONER PENDERGRASS: Thank you for the presentation. Now we'll take comments from the public. Tom, please.

MR. BABCOCK: Good morning. My name is Tom Babcock and I'm here to read a statement from AIR. AIR stands for Aircraft Intrusion Relief and we represent property owners and the many visitors that come to enjoy our paradise on Fort Myers Beach.

AIR would like to thank the Port Authority staff and their consultants ESA who listened to our concerns when in 2008 the airspace redesign negatively impacted Fort Myers Beach. Properties have been sold, tourists have chosen not to return to Estero Island because of the aircraft issues.

If the FAA implements the recommendations of this Part 150 noise study, including the requests of the Town of Fort Myers Beach Resolution 13-01 that will be introduced by Councilwoman Jo LIST, There will

be benefits to noise, safety and air quality.

Key improvements recommended by the Part 150 study are higher aircraft, quieter arrival procedures and a decrease in the number of aircraft flying directly over Estero Island.

It is the implementation of the noise study that we want to address today. The previous 2006 Part 150 study made several recommendations that still have not been fully implemented. As a result, aircraft noise became significantly worse for Fort Myers Beach when a new arrival route was established.

There has been no relief in the four and a half years since the airspace design. Despite significant efforts and the recommendations of this study, they have yet to be fully implemented.

I'm going to start by saying we need a flight tracking system, and this is not the first time I have been here to make that statement. It was recommended in 2006 and promised over a year ago. It is important to measure whether the progress is actually being made. Are aircraft really 3,000 feet over Estero Island? Are shorter arrival routes

actually occurring? And are disruptive night flights decreasing? I can tell you they were not last night.

For aircraft to be above 3,000 feet over all Estero Island as recommended in the study, a glide slope as high as 3.2 degrees rather than the standard 3.0 may be required. This Part 150 study only looked at increasing the glide slope to 3.5 degrees and did not recommend it. It did not look at other glide slope opportunities.

Literature states that a glide slope of 3.2 can lead to a significant noise and fuel reduction and can be implemented without safety problems or modifications of approach procedures. This is an implementation issue.

Recommended shorter arrival routes and the use of the optimum descent and approach are dependent on airlines investing in RNAV equipment. Training and support of air traffic controllers is also necessary. The advantages for noise, cost and efficiency will not be fully recognized, as Mike mentioned, until all aircraft have the RNAV equipment. This is another implementation issue.

According to the Part 150 study, utilization of RSW is projected to increase 20 percent by 2017. The report says the second runway originally planned for 2012 will not be in place until after 2017. So the load will not be spread from over Fort Myers Beach. Fort Myers Beach will become a busier railroad track. By 2030, there's a projected 77 percent increase in traffic at RSW. These are good news, I understand, we want more people to come, trust me, we want them to come to Fort Myers Beach; however many of these, not just the box carriers, if you will, arriving after 10 p.m. and before 7 a.m. in the morning.

Although the second runway will be in place, projections in this study indicate that the runway will be underutilized. For example, and I think Mike mentioned this, the numbers in the report say that 57 percent of the aircraft flying over Fort Myers Beach are expected to arrive on the new southern route, but only 31 percent are projected to land on the preferred new south runway. This leaves 69 percent of the aircraft landing on the existing runway. Fort Myers Beach is concerned that it will see

no relief from its railroad track and in fact in 2030 the projections are that there will be more aircraft flying over the center of Fort Myers Beach to the existing runway than will be in 2017 without the parallel runway.

The Part 150 report explains underutilization of the new runway is due to the longer taxi distance to the terminal. These issues must be addressed in advance of making the new runway operational. This, again, is an implementation issue.

Fort Myers Beach is asking to be involved in the Part 150 recommendations and implementation. We request the Board of Port Commissioners sponsor an RSW community advisory board. Representation from communities surrounding the airport, air traffic controllers, pilots, airline station managers, the FAA of course and led by the Port Authority could comprise this board.

The objectives of the board would be to monitor regular progress on Part 150 recommendations and proactively address new issues. We are looking forward to your response to this suggestion.

Fort Myers Beach truly wants to believe that the recommendations of the Part 150 study will make things better, but the proof will be in the implementation.

Thank you for helping us, projecting that things will be better and we are hopeful that will happen. Thank you and I hope you will consider our requests.

COMMISSIONER PENDERGRASS: Thank you for your comments, Tom. Next is Jo LIST.

COUNCILWOMAN LIST: Good morning. The Town Of Fort Myers Beach has -- Jo LIST for the record. The Town of Fort Myers Beach has been actively participating in workshops concerning the issues associated with low flying aircraft that are on approach to Southwest Florida International Airport. Resolution 13-01 expresses the Town's support for the recommendations contained in the Part 150 noise study and respectfully request that the Lee County Board of Port Commissioners approve the report with certain suggested modifications in sections three and four in the Town's resolution, including:

One, a request by the Town of Fort Myers

Beach that the ILS runway 6 approach, Page 19 of Appendix R to the report, be modified so that aircraft will be required to maintain a minimum altitude of 3,300 feet at the Tropic waypoint west of Estero Island and maintain a sufficient altitude at any future waypoints so that aircraft maintain an altitude of least 3,000 feet at any future waypoints all over Estero Island; and a request that resolution 09-03 and 12-02 previously adopted by the Town of Fort Myers Beach Town Council be included in the record.

The Town of Fort Myers Beach urges the Lee County Board of Port Commissioners to approve resolution 13-01 with the suggested modifications in sections three and four included therein prior to forwarding the Part 150 noise study update to the FAA.

I thank you for your time.

COMMISSIONER PENDERGRASS: Thank you, Joe. Next is Daniel Hughes. Daniel, thank you also for you service as past mayor of the beach.

MR. HUGHES: I'm sorry, I didn't hear you.

COMMISSIONER PENDERGRASS: I said thank you also for your service. You were the past mayor of the beach, correct? Thank you.

MR. HUGHES: Good morning, gentlemen. I'm a little intimidated by a turn before this august group, particularly in the presence of Commissioner Kiker who incidentally is the second best mayor the Town of Fort Myers Beach ever had. I just want to commend ESA Airports for what I consider to be a very professional and thorough report. And I would simply concur with what's been said from the technical standpoint by Tom Babcock and our committee which has spent an awful lot of time on this matter and support what council member Jo LIST has requested and that you support the resolution adopted by the town.

And lastly I would just simply hope and request that the County Board, the Port Authority and the staff and development people that might be involved in this will maintain a continuing concern regarding the issues in the report and promote the implementation thereof by the FAA. Thank you.

COMMISSIONER PENDERGRASS: Thank you,

sir. Next is Alan Mandel.

MR. MANDEL: Good morning. Alan Mandel and vice mayor of the Town of Fort Myers Beach. I just want to express thanks to the Port Authority for the research the consultant did in doing this issue that's very important to our town.

In addition, I would like to say that as you read in probably this morning's paper, this topic has been around for a number of years and you heard that again this morning. I also want to thank our former mayor, who is now I guess the vice chair of this committee, for helping discuss this with the Port Authority and help to bring this to where we are now.

Also on your staff, Mr. Fisher who in conversations indicated that the items that the Town of Fort Myers Beach wanted to be considered would be presented to the consultant.

So all that said, tourism obviously is our industry on the beach. The airport and the beach need to be a functioning body together for the ultimate success of that and appreciate your consideration and again thank

you for all the input and studies that have led to this point. Thank you.

COMMISSIONER PENDERGRASS: Thank you, sir. I have no other cards. Are there any other comments regarding this public hearing item?

COMMISSIONER MANNING: There's a lady with her hand up.

COMMISSIONER PENDERGRASS: Yes, ma'am. Please come forward and state your name for the record. Thank you.

MS. BABCOCK: Good morning. I'm Annie Babcock and I debated myself whether I should fill out a card or not, but I wanted to have some testimony in the hearing from a private resident and I'm speaking as a resident from Fort Myers Beach. We all love airplanes and I'm here as a resident. Location, location, location. I live on the beach, how lucky I am. I'm a reasonable person who is deserving of help and airplanes are an asset to our community and we are going full speed ahead to have them be an active part and economic engine. This study can be a visionary.

I don't want to waste your time, but

I wanted you to hear from a private resident. I'm so glad that you are here today. The study shows that the Fort Myers Beach residents have been heard. Words say, Potential, In the future, Does appear fine. These words are for the future. I am looking for something sooner and you can help by whenever you meet or talk with the FAA or people who can speed things up, senators, anybody you talk to, people who can help Fort Myers Beach. It has taken four and a half years of my time and someone needs to take ownership and help and I'm asking for your help. I'm an affected Fort Myers Beach resident.

If I were a CEO of a company, it is in the details of my company and the details of my program which make it a good company and I see and have read the details of the study and how that it affects Fort Myers Beach. My underlining goals of my efforts is to make Fort Myers Beach a better place in some specific way. I'm little David and you are Goliath the powerful foal. I have struggled to let the Port Authority and Josh and Chad know how people on Fort Myers Beach feel about noise

because I have chatted with them several times.

To hear you will keep aircraft 3,000 feet over the beach is a step. Keeping it over all of the island is extremely important. Suggestions were promised and made in 2006 for Fort Myers Beach in this study and I'm very sad if this is going to be the same suggestions and promises not implemented.

Fort Myers Beach received lip service for 15 years, try to stay above 3,000 feet, it didn't happen. I can't and we can't wait until 2017 without affecting me personally. It's hard to be confident that this will happen and it was stated in the last study and it did not happen.

The recommendation using the words such as awareness to keep aircraft higher is not a definite action or statement. There is an increase of overflying at night which you hear. Last night they were at 1:00 in the morning. There's a 5:00 frontier flight, 5:30 it comes in in the morning.

Until the RNAV equipment is in place by all the aircraft, I still will be under this railroad track. So they are only words to me.

I have heard that the RNAV will take a long time to equip all of the airplanes.

In the study why did we only look at 3.5 glide and not something in between. That's been mentioned before. People who don't live under the path don't have a clue of how loud, how disruptive, how dirty, how lack of sleep or how it affects my life. Today is Fort Myers Beach's last chance to have a quality of life.

Even though there were workshops held, people could talk to individuals, however, there was no opportunity for me to let other people know and the affected residents to hear or listen to the comments. That's why I'm talking to you today.

3,000 feet -- excuse me, 3,000 feet altitude at Limpy or the Tropic, which is the new name west of Fort Myers Beach, does not accomplish 3,000 feet over Fort Myers Island because it's coming down. It is inconsistent with the recommendation. It means that when it gets to the island it will be lower.

The status of the flight monitor is very important. That's been mentioned before. It has been printed on the timeline schedule

that it was to be live on-line July 2012. I'm asking for your help to get it to the residents so we can see the altitudes of the aircraft arriving and departing.

I would like to show you something. It's very, very, very crude. Here is the beach according to the study in 2030. 57 percent of the planes are going to be coming in to the south on the new runway. 43 percent are going to be coming to the north on our old runway. However, they are going to be arriving, but only 31 percent are going to be landing on this new south runway. Arriving and landing are two different items.

In 2030, 69 percent are going to be landing on the old north runway over my house. According to the study, and this is just an average, between the winter and summer overflights, 2011, we now have 238 aircraft arriving. This is the north runway. This is what affects me now.

In 2017, that is this one plus 20 percent, this is what the study says, it's now going to have in 2017 285 aircraft coming over the new -- my runway because the new runway is

not open. Please excuse the crudeness of this map, of this item.

But in 2030 we are going to have 77 percent more increase, which is wonderful for more aircraft coming in, I can't change that, but I can change what happens because with the new aircraft coming in I'm now over -- the old north air runway will get 290 aircraft. 2017 has no second runway. But there is an increase of aircraft for runway 6, the one that's over my house, with no relief. 20 percent of the aircraft and that's me. But in 2030 more will be coming from the south, more will be landing on the north. It doesn't seem equal to me. It looks like the new runway being built is being underutilized.

This report doesn't address other issues except the noise and that's its purpose, but I wish that someone would address other issues; more soot, more breathing in of small particles, the loudness affecting our hearing, laser beams, real estate values, bird strikes. Perhaps someone will present research of how all of this affects the health, but that's a topic for another time, however very, very

important, especially for people who live under the aircraft.

You can see whatever you want -- I'm sorry, pardon me. You can say whatever you want, but the implementation and following through is what is important.

Location, location, location. Visitors come to our paradise, please follow through. Implement sooner than later. Encourage the FAA and the Port Authority how lucky we are to be in Lee County; however, how lucky we will be to have this study implemented sooner than later.

Please do what you can as a private person or as a board to help sooner than later and thank you so much for listening to me. I really appreciate it from a resident of Fort Myers Beach who has experienced all of these things in the last few years. Thank you.

COMMISSIONER PENDERGRASS: Thank you for your comments. Now we will go back to the board for discussion. We had a second by Commissioner Hall. Any discussion from the Board?

COMMISSIONER MANNING: Mr. Chairman, if I

may, as the maker of the motion I don't have any problem whatsoever including the package of the two resolutions that were passed by the Town of Fort Myers Beach. I have asked our legal consultant here if that was okay and he indicated yes. So I will amend my motion to include the two resolutions that were passed by the Town of Fort Myers Beach.

COMMISSIONER HALL: The seconder agrees.

COMMISSIONER PENDERGRASS: Commissioner Hall seconds the new motion. Any other discussion from the Board?

COMMISSIONER MANN: Yes, Mr. Chairman. Thank you, Commissioner Manning, because I was going to ask what the consultant's view -- whether you had already studied that, so that was helpful. Could I ask you one other question just to -- I guess technically you have to go back up there. It just has to do with the flights arriving after 10 p.m. and shifting to runway 24. Was that your recommendation?

MR. ARNOLD: Yes.

COMMISSIONER MANN: I have flown a few hours myself, minimal compared to my friend

Scott Cameron down here, but normally the pilot wants to take off and land into the wind. What factor here, how do you just arbitrarily say okay or do you just ignore the wind? Can these big planes just ignore the wind up to some point or what?

MR. ARNOLD: They can. Our goal was not to ignore the wind, but to recognize that the calm conditions generally kick in later in the evening. So normally the calm conditions kick in in the evening and it remains fairly calm until the morning and then the winds start kicking up as the sun comes up.

COMMISSIONER MANN: So if there was significant turbulence or wind then you would go back to runway 6 or whatever?

MR. ARNOLD: Exactly. You would maintain the normal runway operation. The intent was to try and take advantage when the advantage could be taken of shifting those aircraft.

COMMISSIONER MANN: Thank you.

COMMISSIONER PENDERGRASS: Any other discussion from the board members?

COMMISSIONER KIKER: I have one question.

COMMISSIONER PENDERGRASS: Commissioner

Kiker.

COMMISSIONER KIKER: If I may, the tracking and monitoring equipment that I think was promised three years ago or what have you, what's the status on that?

MR. FISHER: For the record, Mark Fisher. The flight tracking system, we have secured a grant, the board approved a contract for that implementation. We are very frustrated because some FAA policy changes have resulted in -- for all airports in the country that have a flight tracking system or are trying to implement one, the release of FAA radar data to support these systems is the issue. The Office of Inspector General recently over the summer came out with some potential security risks on the way the FAA was releasing that data. So they are revising how that data is released.

We're dealing with our peer airports and the Airports Council International with the FAA and we are dealing with the FAA and our consultant directly. We do have a flight tracking system, it is up and running right now, the problem is that FAA feed, if we release it to the public, may be up and down,

up and down, up and down, which would be very frustrating.

So we're trying to get some assurance from the FAA and our consultant that once we release that flight tracking system, that it's available to the public, that it will stay on.

COMMISSIONER KIKER: If I may, you know, one of the things that -- it's a very complicated issue that we're talking about. I liken it to trying to put a rubic's cube together because it's not just a matter of coming from the north or from the south, it's also some of them are higher and some of them are lower. I would suggest to you that the solutions that we have are very much the same way.

My hat is off to Mr. Ball and his team. I have dealt with these folks for the last three or four years on behalf of the Town of Fort Myers Beach and I found them to be very consistent and reasonable. I guess that probably the thing that -- you know, I don't think there's ever going to be an end to this and I think it is an effort that needs to continue. But for the time being, I think

instead of a short-term and a long-term strategy, if you will, I think we need to be looking at this in the way of a first step and a next step. I think this is a great first step that we're taking in terms of resolving these issues.

Three years ago, just the fact of raising the flight level from 1,600 to 3,000 was going to be a great thing for all of us. I think that we are always going to want more. I have even heard some things today that I wasn't aware of, like the preferred flight at nighttime. That was something new to me. So I think the steps are being taken and I appreciate that. And I too have a house underneath the flight pattern so I understand from the Babcocks and Mr. Hughes what they're referring to.

I think this is a great first step and I would applaud finding out what the next step is after this. I know dealing with the FAA, we have to get through this piece of it. I intend to support the motion. Thank you.

COMMISSIONER PENDERGRASS: Any more discussion? Any objection to the motion of 4B?

No objection. The motion carries five to zero.

COMMISSIONER MANNING: I will move 7A, Mr. Chairman. I'm sorry. We need to convene as the board, I'm sorry, Board of County Commissioners first.

COMMISSIONER HALL: Second. We are now commissioners.

COMMISSIONER PENDERGRASS: We are now convening as the Board of County Commissioner. Commissioner Manning would like to make a motion -- made the motion.

COMMISSIONER HALL: I second.

COMMISSIONER PENDERGRASS: Commissioner Hall made a second on 7A. Any discussion from the Board? No discussion. Any objection? No objection. The motion carries.

We now reconvene as the Port Authority Commissioners. Item 7. Do we have a motion?

COMMISSIONER MANNING: I thought we just did that.

ATTORNEY HAGEN: You just did that.

COMMISSIONER PENDERGRASS: We just did that?

ATTORNEY HAGEN: Yes, sir. You would be

moving on the commissioner items now.

COMMISSIONER PENDERGRASS: Okay. Commissioner items.

(End of requested excerpts from meeting.)

REPORTER'S CERTIFICATE

STATE OF FLORIDA)
COUNTY OF PINELLAS)

I, SHEILA M. CURRIE, Registered Professional Reporter and Notary Public, do hereby certify that I was authorized to and did transcribe from digital media the above-described proceedings; that my shorthand notes were thereafter reduced to typewriting by means of computer-aided transcription by me; and the transcript is a true and complete record of the requested transcription.

I FURTHER CERTIFY I am neither an attorney or counsel of any of the parties in said event, nor a relative or employee of any attorney or counsel employed by the parties hereto, nor financially interested in the event of said cause.

Dated this 20th day of February, 2013.

_____

SHEILA M. CURRIE, RPR
Notary Public, State
of Florida at Large

U

RESOLUTION OF THE TOWN COUNCIL OF
THE TOWN OF FORT MYERS BEACH, FLORIDA
RESOLUTION NUMBER 13-01

A RESOLUTION OF THE TOWN COUNCIL OF THE TOWN OF FORT MYERS BEACH, FLORIDA SUPPORTING THE RECOMMENDATIONS CONTAINED IN THE DOCUMENT TITLED "2011-2012 RSW 14 CFR PART 150 STUDY UPDATE" WITH RECOMMENDED MODIFICATIONS; PROVIDING AN EFFECTIVE DATE.

WHEREAS, Southwest Florida International Airport (SWFIA) has completed a Federal Aviation Regulations (FAR) Part 150 Noise Study, and

WHEREAS, the Part 150 Noise Study solicited input from local governments, and

WHEREAS, the study also included conducting 11 public workshops where there were a total of 326 attendees, 130 public comments and 5 individual community meetings, and

WHEREAS, the Town Council previously approved Resolutions No. 09-03 and 12-02 relating to aircraft issues that impact residents and visitors of Fort Myers Beach; and

WHEREAS, the Board of Port Commissioners will be considering a resolution concerning the Part 150 Study at their January 14, 2013 meeting; and

WHEREAS, the Town Council is generally in support of the Study, but requests that the Board of Port Commissioners consider certain modifications to the Study prior to its adoption.

NOW, THEREFORE, IT IS HEREBY RESOLVED BY THE TOWN COUNCIL OF THE TOWN OF FORT MYERS BEACH, FLORIDA AS FOLLOWS:

Section 1. The recitals as set forth in the "Whereas" clauses above are hereby adopted and incorporated into the body of this Resolution.

Section 2. The Town of Fort Myers Beach, Florida expresses its support for the recommendations contained in the 2011-2012 RSW 14 CFR Part 150 Study Update with the modifications set forth below.

Section 3. The Town of Fort Myers Beach requests that the recommendation concerning the ILS Runway 6 Approach (page 19 of Appendix R to the 14 CFR Part 150 Study Update) be modified so that aircraft will be required to maintain a minimum altitude of 3,300 feet at the TROPC waypoint west of Estero Island, and maintain a sufficient altitude at any future waypoints, so that aircraft maintain an altitude of at least 3,000 feet over Estero Island.

Section 4. The Town of Fort Myers Beach requests that Resolutions 09-03 and 12-02, previously adopted by the Town Council and which are attached hereto, be included in the record of the Lee County Board of Port Commissioners Public Hearing currently scheduled for January 14, 2013.

Section 5. The Town of Fort Myers Beach, Florida urges the Lee County Board of County Commissioners to approve the recommendations, with the suggested modifications in Sections 3 and 4 above, prior to forwarding the Study Update to the FAA and FDOT.

Section 6. This resolution shall take effect immediately upon its adoption by the Town Council of the Town of Fort Myers Beach.

The foregoing Resolution was adopted by the Town Council upon a motion by Council Member List and seconded by Vice Mayor Mandel and, upon being put to a vote, the result was as follows:

Bob Raymond, Mayor	aye	Alan Mandel, Vice Mayor	aye
Joe Kosinski, Council Member	aye	Jo List, Council Member	aye
Dan Andre, Council Member	aye		

DULY PASSED AND ADOPTED this 7th day of January, 2013.

By: _____
Bob Raymond, Mayor

By: _____
Alan Mandel, Vice Mayor

By: _____
Joe Kosinski, Council Member

By: _____
Jo List, Council Member

By: _____
Dan Andre, Council Member

ATTEST:

By: _____
Michelle D. Mayher, Town Clerk

Approved as to form by:

By: _____
Fowler White Boggs
Town Attorney

RESOLUTION OF THE TOWN COUNCIL OF
THE TOWN OF FORT MYERS BEACH, FLORIDA
RESOLUTION NUMBER 12-02

A RESOLUTION OF THE TOWN COUNCIL OF THE TOWN OF FORT MYERS BEACH, FLORIDA SUPPORTING EFFORTS TO DECREASE THE NUMBER OF AIRCRAFT FLIGHTS OVER THE TOWN, INCREASE THE ALTITUDE OF AIRCRAFT AND IMPLEMENT NOISE ABATEMENT PROCEDURES WHEN ARRIVING OVER THE TOWN OF FORT MYERS BEACH; PROVIDING AN EFFECTIVE DATE.

WHEREAS, Southwest Florida International Airport (SWFIA) is currently conducting a Federal Aviation Regulation (FAR) Part 150 Noise Study, and

WHEREAS, the Part 150 Noise Study is soliciting input from local governments, and

WHEREAS, additional information and issues impacting residents and visitors of the Town of Fort Myers Beach have arisen since Resolution No. 09-03 was approved by Town Council on March 16, 2009, and

WHEREAS, low flying aircraft continue to fly over densely populated Fort Myers Beach and its environmentally sensitive areas in increasing numbers, and

WHEREAS, island residents and visitors continue to be subjected to aircraft noise that begins before 7 AM and lasts past 10 PM, and

WHEREAS, there have been air quality concerns raised from the smell of burned aircraft fuel and residue buildup on surfaces below aircraft arrival routes, and

WHEREAS, there has been safety concerns raised due to birds striking aircraft at low altitudes and laser beams being aimed at aircraft, and

WHEREAS, airlines have adopted policies and procedures to improve fuel efficiency and reduce greenhouse gas emissions by optimizing flight planning to incorporate the most efficient routes and altitudes while also minimizing inefficient, low-altitude maneuvering, and

WHEREAS, other communities surrounding SWFIA are recommending alternative arrival routes to reduce the number of their over-flights and redirecting them over the Town of Fort Myers Beach, despite the fact that one of the goals of the Noise Study is to not sacrifice one neighborhood for the sake of another, and

WHEREAS, while the FAA has increased the altitude of aircraft arriving on the SHFTY arrival route over the Estero community by 1,000 ft, no increase in altitude has been implemented over the Town of Fort Myers Beach despite there being no apparent reason for failing to do so, and

WHEREAS, aircraft arrival procedures documented on pilot approach plates have not changed since the FAA modified the arrival airspace for SWFIA in October 2008 and the FAA continues to permit aircraft using an ILS or LOC navigation system to fly as low as 1,600 feet, and as low

as 2,000 feet if using an RNAV navigation system when flying over the Town of Fort Myers Beach on the approach to Runway 6, and

WHEREAS, the Town of Fort Myers Beach is approximately 10 nautical miles (nm) or about 11.5 statute miles from Runway 6, and

WHEREAS, arrival procedures documented on pilot approach plates for Tampa International, Orlando International, Palm Beach International, Miami International and Sarasota/Bradenton International Airports require aircraft to maintain a minimum altitude of 3,000 feet when they are approximately ten (10) nautical miles from the runway; and

WHEREAS, noise measurements made in August 2011 at one location on Fort Myers Beach confirm that some aircraft exceed desirable noise levels, and

WHEREAS, the number of aircraft landing to the northeast on Runway 6 and arriving over the Town of Fort Myers Beach is between 67% and 80% of all arriving flights, depending on weather conditions.

NOW, THEREFORE, IT IS HEREBY RESOLVED BY THE TOWN COUNCIL OF THE TOWN OF FORT MYERS BEACH, FLORIDA AS FOLLOWS:

Section 1. The recitals as set forth in the "Whereas" clauses above are hereby adopted and incorporated into the body of this Resolution.

Section 2. The Town of Fort Myers Beach, Florida does hereby request that recommendations previously made in Resolution 09-03, which is attached hereto and incorporated herein as Exhibit "A," continue to be considered. In particular, it is requested that arrival procedures for SHFTY STAR be modified to allow air traffic controllers to release aircraft prior to the PONTY waypoint for a visual approach flying over uninhabited Estero Bay. This modification would decrease the number of over-flights in densely populated Town of Fort Myers Beach.

Section 3. The Town of Fort Myers Beach, Florida requests that threshold conditions be evaluated to determine if controllers can route more aircraft to land to the southwest on Runway 24 rather than Runway 6 in order to more fairly distribute the impact of over-flights among all communities surrounding SWFIA.

Section 4. The Town of Fort Myers Beach, Florida requests that arrival procedures for SWFIA Runway 6 be modified to clearly state that pilots must maintain minimum altitude above 4,000 feet until they are east of Estero Island as depicted in Exhibit "B" which is attached hereto and incorporated herein by reference.

Section 5. The Town of Fort Myers Beach, Florida requests that Optimized Descent or Constant Descent Approach procedures be used for aircraft arriving SWFIA Runway 6 in order to reduce noise and fuel consumption.

Section 6. The Town of Fort Myers Beach, Florida requests that aircraft arriving between midnight and 6 AM be redirected so they do not fly over Estero Island.

Section 7. The Town of Fort Myers Beach, Florida requests that the installation of the flight tracking system for SWFIA be installed so that data can be included in the on-going Part 150 Noise Study.

Section 8. The Town of Fort Myers Beach, Florida requests that Port Authority representatives meet with the Mayor or his designee not less than quarterly.

Section 9. The Town of Fort Myers Beach, Florida requests that the Lee County Port Authority form a Community Advisory Board (CAB) composed of representatives from all communities surrounding the airport and appropriate FAA personnel. The goal of the CAB should be to deal with airport issues in a proactive, fair and equitable way.

Section 10. This resolution shall take effect immediately upon its adoption by the Town Council of the Town of Fort Myers Beach.

The foregoing Resolution was adopted by the Town Council upon a motion by Council Member Mandel and seconded by Council Member Kosinski and, upon being put to a vote, the result was as follows:

Larry Kiker, Mayor - aye
Bob Raymond, Vice Mayor – aye
Joe Kosinski, Council member - aye
Jo List, Council member – aye
Alan Mandel, Council member – aye

DULY PASSED AND ADOPTED this 3rd day of January, 2012.

ATTEST:

By: _____
Larry Kiker, Mayor

By: _____
Bob Raymond, Vice Mayor

By: _____
Joe Kosinski, Council Member

By: _____
Jo List, Council Member

By: _____
Alan Mandel, Council Member

By: _____
Michelle D. Mayher, Town Clerk

Approved as to form by:

_____
Fowler, White, Boggs – Town Attorney

EXHIBIT (A)

RESOLUTION OF THE TOWN COUNCIL OF
THE TOWN OF FORT MYERS BEACH, FLORIDA
RESOLUTION NUMBER 09-03

A RESOLUTION OF THE TOWN OF FORT MYERS BEACH, FLORIDA SUPPORTING EFFORTS TO DECREASE THE NUMBER OF AIRCRAFT FLIGHTS OVER THE TOWN, INCREASE THE ALTITUDE OF AIRCRAFT AND HAVE AIRCRAFT ABIDE BY NOISE ABATEMENT ARRIVAL PROCEDURES WHEN ON VISUAL APPROACH OVER FORT MYERS BEACH; REQUESTING NOTIFICATION; PROVIDING FOR EFFECTIVE DATE.

WHEREAS, the Federal Aviation Administration (FAA) has redesigned the airspace impacting arrivals and departures for the Southwest Florida International Airport (RSW) in Fort Myers, Florida, and

WHEREAS, the new arrival route, SHIFTY ONE STAR, to RSW Runway 6 was implemented on September 30, 2008, and

WHEREAS, for the first time aircraft are arriving at RSW over the southern half of the Town of Fort Myers Beach, and

WHEREAS, the FAA airspace redesign for RSW was implemented without a public hearing, and

WHEREAS, the RSW Final Federal Aviation Regulations Part 150 Noise and Land Use Compatibility Study (RSW P150 Study) was adopted by the Board of Port Commissioners (BOPC) on May 9, 2005, and

WHEREAS, the RSW P150 Study "Keep 'em High" voluntary noise mitigation program encourages aircraft to keep as high as possible, and

WHEREAS, the RSW Part 150 Study voluntary noise mitigation procedures recommend that aircraft arriving under visual flight rule (VFR) conditions to Runway 6 and intercepting the extended centerline over the Gulf of Mexico west of Fort Myers Beach should remain above 3,000 ft when transiting over Fort Myers Beach, and

WHEREAS, aircraft routinely transit over the Town of Fort Myers Beach at lower than 3,000 ft under VFR conditions, and

WHEREAS, the RSW Part 150 Study recommends that the Lee County Port Authority (LCPA) acquire a form of passive radar system that has the plotting of flight tracks capability because it allows for better monitoring and tracking of actual operational characteristics, and

WHEREAS, a flight tracking system will provide better feedback to the community regarding specific events and provide a means of fine tuning, identifying and/or assessing future noise abatement, and

WHEREAS, no flight tracking system has been installed at RSW since the recommendation was approved by the BOPC on May 9, 2005, and

WHEREAS, in a letter dated June 26, 2008 from Mr. Robert M. Ball, Executive Director, LCPA, to Mr. Larry Kiker, Mayor, Town of Fort Myers Beach, it was stated that as a result of the RSW P150 Study, the FAA and airline pilots are encouraged to implement noise abatement procedures as recommended by the LCPA, approved by the BOPC and the FAA, and

WHEREAS, in the June 26, 2008 letter from Mr. Ball it is stated that currently at RSW, the FAA air traffic controllers encourage airline pilots to utilize arrival and departure procedures to reduce the level of over flights to any *one* community, and

WHEREAS, at a Town of Fort Myers Beach Council meeting of April 20, 1998, LCPA and FAA representatives stated that their goal is to spread the noise impact and they cannot establish a "railroad track" over any one area, and

WHEREAS, implementation of the new SHIFTY ONE STAR arrival route has resulted in an increase in the percentage of over flights for the Town of Fort Myers Beach when aircraft are under VFR conditions, and

WHEREAS, an area within about one mile of the PONTY Waypoint, which is 11 nautical miles from the end of the runway and directly over the Town of Fort Myers Beach, has become a "railroad track" for arriving aircraft, and

WHEREAS, aircraft are not required to be aligned with the runway until reaching MUFFE Waypoint (five-mile marker), but usually are directed to the seven-mile marker, and

WHEREAS, the Town of Fort Myers Beach has more over flights arriving at altitudes below 3,000 ft than any community in Lee County that is outside the five-mile or seven-mile markers, and

WHEREAS, a new RSW Part 150 Study will be initiated in the fall of 2009, and

WHEREAS, the number of noise and pollution complaints made to the RSW Noise Coordinator by Town of Fort Myers Beach property owners, residents and visitors has increased significantly since implementation of the FAA Airspace Redesign.

IT IS HEREBY RESOLVED BY THE TOWN OF FORT MYERS BEACH, FLORIDA AS FOLLOWS:

Section 1. The above recitals as set forth in the various "Whereas" clauses are hereby adopted and incorporated into the body of this Resolution.

Section 2. The Town of Fort Myers Beach, Florida does hereby request that controllers of aircraft arriving at RSW via SHIFTY ONE STAR be allowed to release aircraft two miles prior to the PONTY waypoint for a visual approach flying over the uninhabited Back Bay joining the seven-mile marker. (See attached map) Dependent factors include weather and traffic conditions with safety being the foremost consideration of controllers. No residential communities would be negatively impacted by this procedural change. This request is similar to the TYNEE ONE STAR approach from the north that directs aircraft to fly over the Back Bay and well away from the Town of Fort Myers Beach.

Section 3. The Town of Fort Myers Beach, Florida does hereby request that the "Keep 'em High" voluntary noise abatement recommendations from the RWS Part 150 Study for aircraft using visual flight rules while transiting the Town of Fort Myers Beach be better implemented and instituted by:

A. Allowing flight controllers to use verbal commands to remind aircraft to stay above 3,000 ft until crossing the shoreline, and
B. Having the pilot's approach plates changed to provide a clear reminder to stay above 3,000 ft until crossing the shoreline.

Section 4. The Town of Fort Myers Beach, Florida does hereby request that the Lee County Port Authority acquire a passive radar system that has the plotting of flight track capability, as recommended by the RSW Part 150 Study, in order to provide better monitoring and tracking of actual operational characteristics and provide better feedback to the community regarding noise abatement programs.

Section 5. The Town of Fort Myers Beach, Florida does hereby request that it be a participant in the Fall 2009 RSW Federal Aviation Regulations Part 150 Noise Study and, as such, receive advance notice of any FAA or RSW activities, documents or meetings which pertain to the subject matter of this resolution.

Section 6. This resolution shall take effect immediately upon its adoption by the Town Council of the Town of Fort Myers Beach.

The foregoing Resolution was adopted by the Town Council upon a motion by Council Member Tom Babcock and seconded by Council Member Jo List and, upon being put to a vote, the result was as follows:

Larry Kiker, Mayor - aye
Herb Acken, Vice Mayor – aye
Tom Babcock, Councilmember - aye
Jo List, Councilmember – aye
Bob Raymond, Councilmember – aye

DULY PASSED AND ADOPTED this 16th day of March, 2009

ATTEST:

By: _____
Larry Kiker, Mayor

By: _____
Herb Acken, Vice Mayor

By: _____
Tom Babcock, Councilmember

By: _____
Jo List, Councilmember

By: _____
Bob Raymond, Councilmember

By: _____
Michelle D. Mayher, Town Clerk

Approved as to form by:

_____
Anne Dalton, Town Attorney


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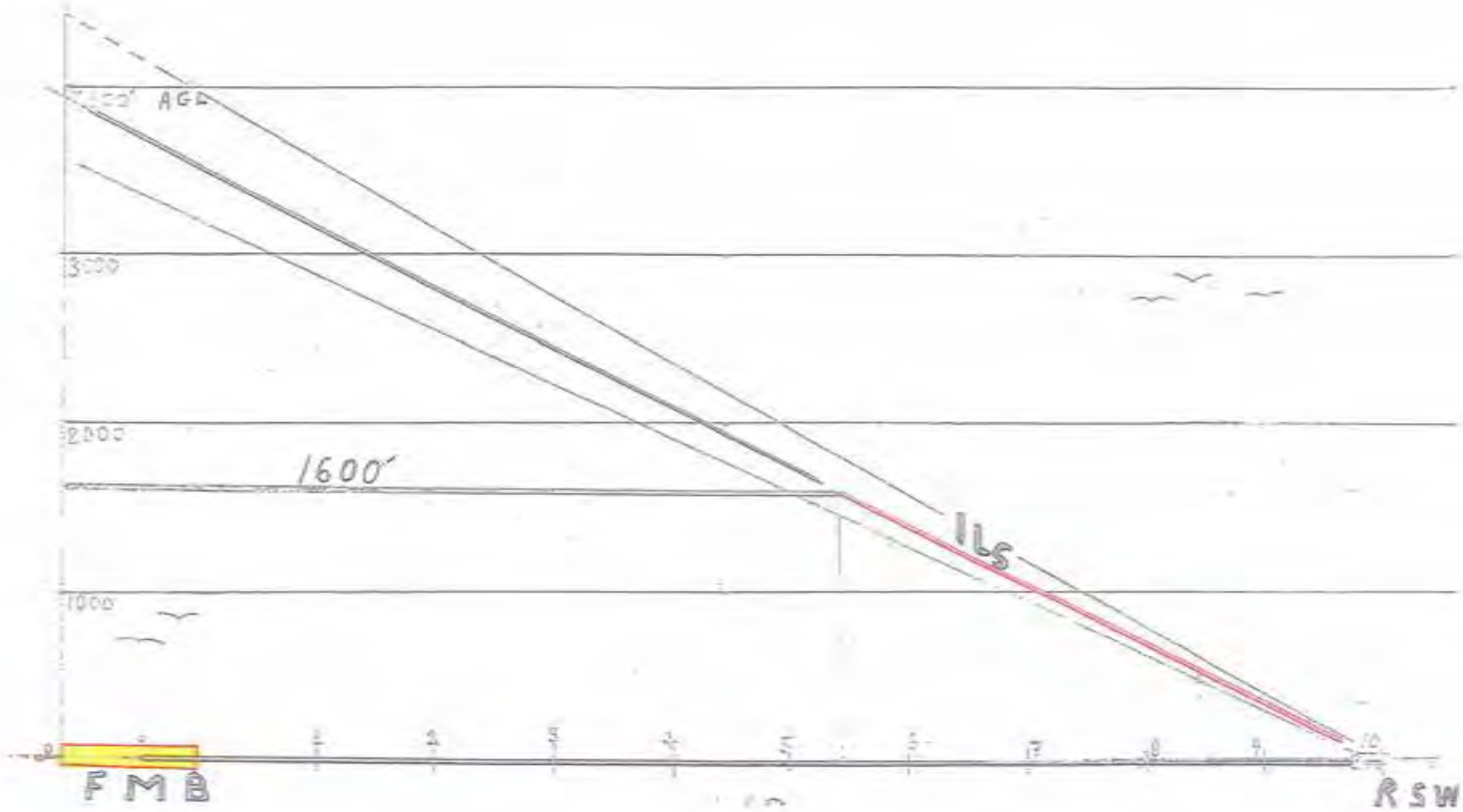
EXHIBIT B



RESOLUTION OF THE TOWN COUNCIL OF
THE TOWN OF FORT MYERS BEACH, FLORIDA
RESOLUTION NUMBER 09-03

A RESOLUTION OF THE TOWN OF FORT MYERS BEACH, FLORIDA SUPPORTING EFFORTS TO DECREASE THE NUMBER OF AIRCRAFT FLIGHTS OVER THE TOWN, INCREASE THE ALTITUDE OF AIRCRAFT AND HAVE AIRCRAFT ABIDE BY NOISE ABATEMENT ARRIVAL PROCEDURES WHEN ON VISUAL APPROACH OVER FORT MYERS BEACH; REQUESTING NOTIFICATION; PROVIDING FOR EFFECTIVE DATE.

WHEREAS, the Federal Aviation Administration (FAA) has redesigned the airspace impacting arrivals and departures for the Southwest Florida International Airport (RSW) in Fort Myers, Florida, and

WHEREAS, the new arrival route, SHIFTY ONE STAR, to RSW Runway 6 was implemented on September 30, 2008, and

WHEREAS, for the first time aircraft are arriving at RSW over the southern half of the Town of Fort Myers Beach, and

WHEREAS, the FAA airspace redesign for RSW was implemented without a public hearing, and

WHEREAS, the RSW Final Federal Aviation Regulations Part 150 Noise and Land Use Compatibility Study (RSW P150 Study) was adopted by the Board of Port Commissioners (BOPC) on May 9, 2005, and

WHEREAS, the RSW P150 Study "Keep 'em High" voluntary noise mitigation program encourages aircraft to keep as high as possible, and

WHEREAS, the RSW Part 150 Study voluntary noise mitigation procedures recommend that aircraft arriving under visual flight rule (VFR) conditions to Runway 6 and intercepting the extended centerline over the Gulf of Mexico west of Fort Myers Beach should remain above 3,000 ft when transiting over Fort Myers Beach, and

WHEREAS, aircraft routinely transit over the Town of Fort Myers Beach at lower than 3,000 ft under VFR conditions, and

WHEREAS, the RSW Part 150 Study recommends that the Lee County Port Authority (LCPA) acquire a form of passive radar system that has the plotting of flight tracks capability because it allows for better monitoring and tracking of actual operational characteristics, and

WHEREAS, a flight tracking system will provide better feedback to the community regarding specific events and provide a means of fine tuning, identifying and/or assessing future noise abatement, and

WHEREAS, no flight tracking system has been installed at RSW since the recommendation was approved by the BOPC on May 9, 2005, and

WHEREAS, in a letter dated June 26, 2008 from Mr. Robert M. Ball, Executive Director, LCPA, to Mr. Larry Kiker, Mayor, Town of Fort Myers Beach, it was stated that as a result of the RSW P150 Study, the FAA and airline pilots are encouraged to implement noise abatement procedures as recommended by the LCPA, approved by the BOPC and the FAA, and

WHEREAS, in the June 26, 2008 letter from Mr. Ball it is stated that currently at RSW, the FAA air traffic controllers encourage airline pilots to utilize arrival and departure procedures to reduce the level of over flights to any *one* community, and

WHEREAS, at a Town of Fort Myers Beach Council meeting of April 20, 1998, LCPA and FAA representatives stated that their goal is to spread the noise impact and they cannot establish a "railroad track" over any one area, and

WHEREAS, implementation of the new SHIFTY ONE STAR arrival route has resulted in an increase in the percentage of over flights for the Town of Fort Myers Beach when aircraft are under VFR conditions, and

WHEREAS, an area within about one mile of the PONTY Waypoint, which is 11 nautical miles from the end of the runway and directly over the Town of Fort Myers Beach, has become a "railroad track" for arriving aircraft, and

WHEREAS, aircraft are not required to be aligned with the runway until reaching MUFFE Waypoint (five-mile marker), but usually are directed to the seven-mile marker, and

WHEREAS, the Town of Fort Myers Beach has more over flights arriving at altitudes below 3,000 ft than any community in Lee County that is outside the five-mile or seven-mile markers, and

WHEREAS, a new RSW Part 150 Study will be initiated in the fall of 2009, and

WHEREAS, the number of noise and pollution complaints made to the RSW Noise Coordinator by Town of Fort Myers Beach property owners, residents and visitors has increased significantly since implementation of the FAA Airspace Redesign.

IT IS HEREBY RESOLVED BY THE TOWN OF FORT MYERS BEACH, FLORIDA AS FOLLOWS:

Section 1. The above recitals as set forth in the various "Whereas" clauses are hereby adopted and incorporated into the body of this Resolution.

Section 2. The Town of Fort Myers Beach, Florida does hereby request that controllers of aircraft arriving at RSW via SHIFTY ONE STAR be allowed to release aircraft two miles prior to the PONTY waypoint for a visual approach flying over the uninhabited Back Bay joining the seven-mile marker. (See attached map) Dependent factors include weather and traffic conditions with safety being the foremost consideration of controllers. No residential communities would be negatively impacted by this procedural change. This request is similar to the TYNEE ONE STAR approach from the north that directs aircraft to fly over the Back Bay and well away from the Town of Fort Myers Beach.

Section 3. The Town of Fort Myers Beach, Florida does hereby request that the "Keep 'em High" voluntary noise abatement recommendations from the RWS Part 150 Study for aircraft using visual flight rules while transiting the Town of Fort Myers Beach be better implemented and instituted by:

A. Allowing flight controllers to use verbal commands to remind aircraft to stay above 3,000 ft until crossing the shoreline, and
B. Having the pilot's approach plates changed to provide a clear reminder to stay above 3,000 ft until crossing the shoreline.

Section 4. The Town of Fort Myers Beach, Florida does hereby request that the Lee County Port Authority acquire a passive radar system that has the plotting of flight track capability, as recommended by the RSW Part 150 Study, in order to provide better monitoring and tracking of actual operational characteristics and provide better feedback to the community regarding noise abatement programs.

Section 5. The Town of Fort Myers Beach, Florida does hereby request that it be a participant in the Fall 2009 RSW Federal Aviation Regulations Part 150 Noise Study and, as such, receive advance notice of any FAA or RSW activities, documents or meetings which pertain to the subject matter of this resolution.

Section 6. This resolution shall take effect immediately upon its adoption by the Town Council of the Town of Fort Myers Beach.

The foregoing Resolution was adopted by the Town Council upon a motion by Council Member Tom Babcock and seconded by Council Member Jo List.and, upon being put to a vote, the result was as follows:

Larry Kiker, Mayor - aye
Tom Babcock, Councilmember - aye
Bob Raymond, Councilmember – aye
Herb Acken, Vice Mayor – aye
Jo List, Councilmember – aye

DULY PASSED AND ADOPTED this 16th day of March, 2009

ATTEST:

By: _____
Larry Kiker, Mayor

By: _____
Herb Acken, Vice Mayor

By: _____
Tom Babcock, Councilmember

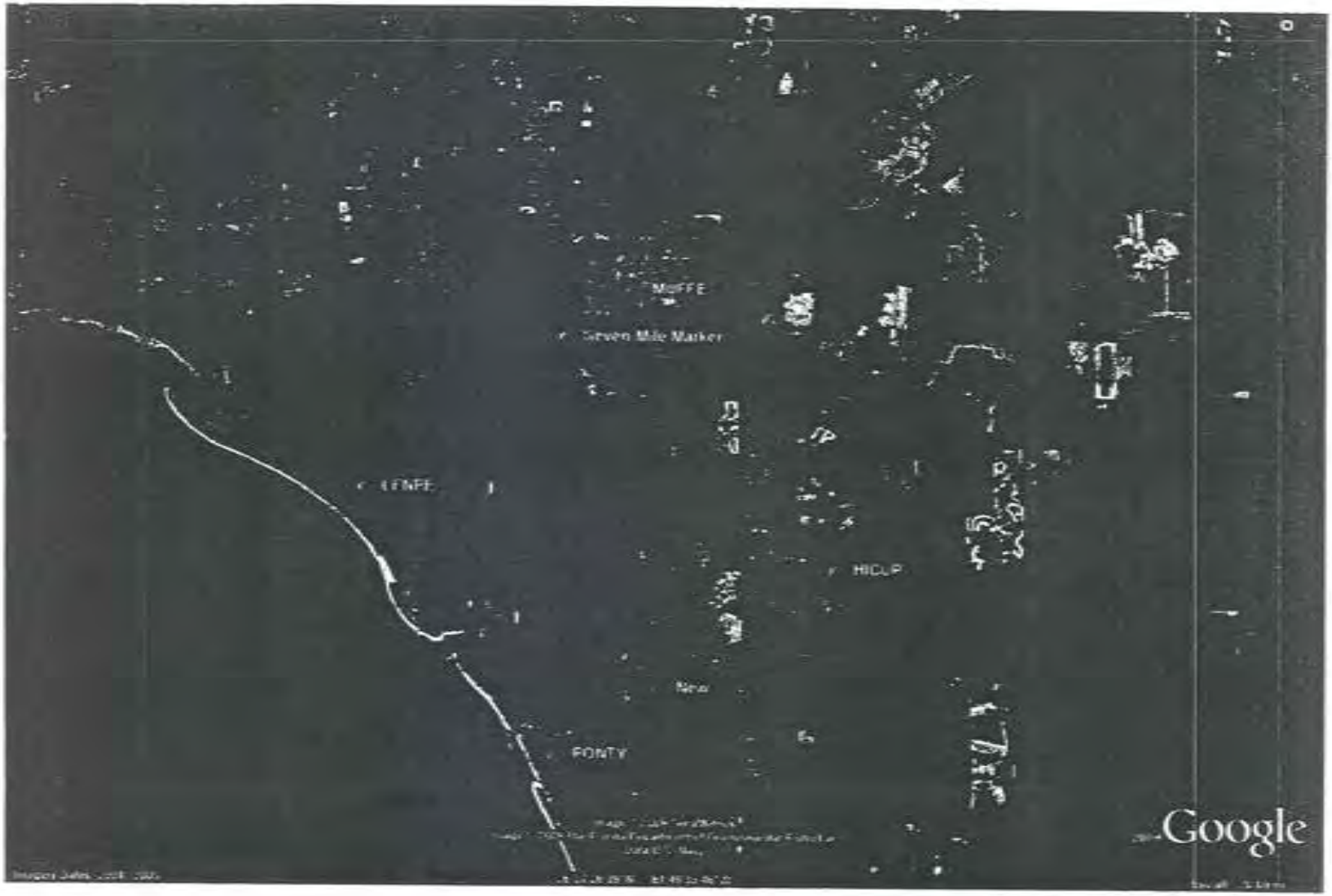
By: _____
Jo List, Councilmember

By: _____
Bob Raymond, Councilmember

By: _____
Michelle D. Mayher, Town Clerk

Approved as to form by:

_____
Anne Dalton, Town Attorney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APPENDIX T

Noise Compatibility Plan Checklist

PART 150 NCP CHECKLIST – PART I

PROGRAM REQUIREMENT	YES	NO	SUPPORTING PAGES/REVIEW COMMENTS
I. Submitting And Identifying The NCP:			
A. Submission is properly identified:			
1. 14 C.F.R. Part 150 NCP?	X		Letter of Transmittal
2. NEM and NCP together?	X		The NEM has already been accepted. For ease of review, a combined document is being submitted as noted in the Letter of Transmittal
3. Program revision? (To what extent has it been revised?)	X		Letter of Transmittal
B. Airport and Airport sponsor's name are identified?	X		Letter of Transmittal
C. NCP is transmitted by airport sponsor's cover letter?	X		Letter of Transmittal
II. Consultation (including public participation): [150.23]			
A. Documentation includes narrative of public participation and consultation process?	X		Chapters 4, Vol 2
B. Identification of consulted parties:			
1. All parties in 150.23(c) consulted? -FAA ARP ADO & Region -FAA ATO & others -State officials -Public & Planning agencies within 65* -Other Federal officials w/local respons for land uses w/in 65 -Air Carries (if applicable) -Other airport users to extent practicable	X		See Chapter 4 - ORL-ADO; ASO-ARP - ASO-RA, Miami Center, RSW ATCT & TRACON, ESA ATC-OSG - State= FL Dept of Env Protection, DOT, Governor's Energy Office, & FL Fish & Wildlife Conservation Committee - Public Planning Agencies are listed as Lee Co. MPO members include elected officials from: City of Bonita Springs, City of Cape Coral, City of Fort Myers, City of Sanibel, FL DOT (non-voting), Lee Co. Board of Commissioner, & Town of Fort Myers; MPO Technical Advisory Committee (TAC) includes: Lee Co. Dept of Community Dev., DOT, Port Authority, Lee Tran, School Board; City of Cape Coral Dept of Community Dev., Public Works, & Mini Bus Servic; City of Fort Myers Planning & Engineering Dept's; Town of Fort Myers Beach; City of Sanibel Dept's of Planning & Public Works; City of Bonita Springs Public Works; Collier Co., MPO; SW Fl Regional Planning Council; Charlotte Co. Punta Gorda MPO; & 25 member Citizen Advisory Committee (CAC) representing citizen form each of the 5 Lee Co. commission districts, the City of Cape Coral, Bonita Springs, Ft. Myers Beach, Sanibel & 3 members at large (The 60 DNL contour is completely within & under the jurisdiction of Lee Co.) - Other Aircraft Operators (Appendix R)
2. Public and planning agencies identified?	X		The 60 DNL contour is completely within & under the jurisdiction of Lee County

3. Agencies in 2, above, correspond to those affected by the NEM noise contours?	X		The 60 DNL contour is completely within & under the jurisdiction of Lee County
C. Satisfies 150.23(d) requirements by:			
1. Documentation shows active and direct participation of parties in B., above?	X		Chapter 4, Appendix D-H, J-K, Q-S, Volume 2
2. Active and direct participation of general public and opportunity to submit their views, data, and comments on the formulation and adequacy of the NCP?	X		Chapter 4, Appendix D-H, J-K, Q-S, Volume 2
3. Participation was prior to and during development of NCP and prior to submittal to FAA?	X		Chapter 4, Appendix D-H, J-K, Volume 2
4. Indicates adequate opportunity afforded to all consulted parties to submit views, data, etc.?	X		Chapter 4, Appendix D-H, J-K, Volume 2
D. Evidence is included there was notice and opportunity for a public hearing on the final NCP?	X		Transmittal letter, Chapter 4, Appendix D-H, J-K, Q-S, Volume 2
E. Documentation of comments:			
1. Includes summary of public hearing comments, if hearing was held?	X		Sec 4.6, Appendix S
2. Includes copy of all written material submitted to operator?	X		Appendix S, Volume 2.
3. Includes operator's responses/disposition of written and verbal comments?	X		While Appendix S & Volume 2
F. Is there written evidence from the appropriate office within the FAA that the sponsor received informal agreement to carry out proposed flight procedures?	X		Chapter 4 and Appendix R. It should be noted that a number of measures have already been implemented either formally or informally by ATO
III. NOISE EXPOSURE MAPS: [150.23, B150.3; 150.35(f)] (*This section of the checklist is not a substitute for the Noise Exposure Map checklist. It deals with maps in the context of the Noise Compatibility Program submission.*)			
A. Inclusion of NEMs and supporting documentation:	X		NEM submitted with NCP

PROGRAM REQUIREMENT	**YES**	**NO**	**SUPPORTING PAGES/REVIEW COMMENTS**
III. NOISE EXPOSURE MAPS: [150.23, B150.3; 150.35(f)] ***[CONTINUED]***			
1. Map documentation either included or incorporated by reference?	X		NEM submitted with NCP
2. Maps previously found in compliance by FAA?	X		See Appendix L for NEM determination accepted 01/30/13

3. FAA's compliance determination still valid?			Letter of Transmittal, Chapter 9
(a) Existing condition NEM represents conditions at the airport at the time of submittal of the NCP for FAA approval?	X		(a) Yes- Comparison of Modeled Ops w/ TAF Ops & analysis thereof indicate that in fact, they more closely represent submission-yr (2013) ops (only 5.1% diff) than they did Base-yr Ops (2012) (9.4% diff). Forecasts are consistent with TAF if there is less than a 10% diff in base-yr & less than 15% in future-yr
(b) Forecast condition NEM represents conditions at the airport at least 5 years into the future from the date of submittal of the NCP to the FAA for approval?	X		(b) Yes- 12.3% difference between modeled. Forecasts are consistent with TAF if there is less than a 10% diff in base-yr & less than 15% in future-yr
(c) Sponsor letter confirming elements (a) and (b), above, if date of submission is either different than the year of submittal of the previously approved NEMs or over 12 months from the date shown on the face of the NEM?	X		(c) Yes
(d) If (a) through (c) cannot be validated, the NEMs must be redone and resubmitted as per 150.21.	X		(d) Not Applicable
4. Does 180-day period have to wait for map compliance finding?		X	NEMs Accepted as complying with 14 CFR Part 150 requirement on 01/30/13.
B. Revised NEMs submitted with program: (Review using NEM checklist if map revisions included in NCP submittal. Report the applicable findings in the spaces below after a full review using the NEM checklist and narrative.)		X	NEMs with NCP are same one's accepted as complying with 14 CFR Part 150 on 01/30/13
1. Revised NEMs included with program?		X	NEMs accepted 01/30/13
2. Has airport sponsor requested in writing that FAA make a determination on the NEM(s), showing NCP measures in place, when NCP approval is made?		X	
C. If program analysis uses noise modeling:			
1. INM, HNM, or FAA-approved equivalent?	X		INM Version 7.0b
2. Monitoring in accordance with A150.5?	X		Chapter 4 and Appendix I
D. One existing condition and one forecast-year map clearly identified as the official NEMs?	X		Year 2012 and 2017 NEMs, Chapter 9 and Appendix L
IV. CONSIDERATION OF ALTERNATIVES: [B150.7, 150.23(e)(2)]			
A. At a minimum, were the alternatives below considered, or if they were rejected was the reason for rejection reasonable and based on accurate technical information and local circumstances?	X		Section 11.4
1. Land acquisition and interests therein, including air rights, easements, and development rights?	X		Sections 11.4.1, 12.3, and 12.4
2. Barriers, acoustical shielding, public building soundproofing	X		Section 11.4.2
3. Preferential runway system	X		Sections 11.3.9, 11.3.11, and 11.4.3
4. Voluntary flight procedures	X		Sections 10.1, 11.4.4, and 14.2

PART 150 NCP CHECKLIST – PART I

PROGRAM REQUIREMENT	YES	NO	SUPPORTING PAGES/REVIEW COMMENTS
IV. CONSIDERATION OF ALTERNATIVES: [B150.7, 150.23(e)(2)]			
5. Restrictions described in B150.7 (taking into account Part 161 requirements)	X		11.4.5
6. Other actions with beneficial impact not listed in the regulation	X		11.4.6
7. Other FAA recommendations (see D, below)	X		A number of measures were developed/refined in concert with the FAA Regional ATC representatives and local ATCT. See Chapter 11
B. Responsible implementing authority identified for each considered alternative?	X		Chapter 14, Table 14-1
C. Analysis of alternative measures:			
1. Measures clearly described? 2. Measures adequately analyzed? 3. Adequate reasoning for rejecting alternatives?	X X X		Measures are discussed in Chapter 11-13, and implementation is discussed in Chapter 14
D. Other actions recommended by the FAA: As the FAA staff person familiar with the local airport circumstances, determine whether other actions should be added? (*List separately, or on back, actions and describe discussions with airport sponsor to have them included prior to the start of the 180-day cycle. New measures recommended by the airport sponsor must meet applicable public participation and consultation with officials before they can be submitted to the FAA for action. See E., below.*)	N/A		For new measures recommended by the airport sponsor, all parties participated, or had the opportunity through public workshops and meetings as discussed in Chapter 4, Appendix S, and Volume 2
V. ALTERNATIVES RECOMMENDED FOR IMPLEMENTATION: [150.23(e), B150.7(c); 150.35(b), B150.5]			
A. Document clearly indicates:			
1. Alternatives that are recommended for implementation?	X		Chapters 11-14, Sections 14.2 and 14.3
2. Final recommendations are airport sponsor's, not those of consultant or third party?	X		Letter of Transmittal
B. Do all program recommendations:			
1. Relate directly or indirectly to reduction of noise and noncompatible land uses? (*Note: All program recommendations, regardless of whether previously approved by the FAA in an earlier Part 150 study, must demonstrate a noise benefit if the airport sponsor wants FAA to consider the measure for approval in a program update. See E., below.*)	X		The measures would reduce noise as discussed in Chapters 11, 12, 13, and 14; Section 14.4; however, there are no incompatible properties in either the 2012 Baseline or 2017 Future NEMs.
2. Contain description of each measure's relative contribution to overall effectiveness of program?	X		Chapters 11, 12, and 13 (see comment above)
3. Noise/land use benefits quantified to extent possible to be quantified? *(Note: some program management measures cannot be readily quantified and should be described in other terms to show their implementation contributes to overall effectiveness of the program.)*	X		The measures would reduce noise as discussed in Chapters 11, 12, 13, and 14; Section 14.4; however, there are no incompatible properties in either the 2012 Baseline or 2017 Future NEMs.

PART 150 NCP CHECKLIST – PART I

PROGRAM REQUIREMENT	YES	NO	SUPPORTING PAGES/REVIEW COMMENTS
V. ALTERNATIVES RECOMMENDED FOR IMPLEMENTATION: [150.23(e), B150.7(c); 150.35(b), B150.5]			
4. Does each alternative include actual/anticipated effect on reducing noise exposure within noncompatible area shown on NEM?		X	The measures would reduce noise as discussed in Chapters 11, 12, 13, and 14; Section 14.4; however, there are no incompatible properties in either the 2012 Baseline or 2017 Future NEMs.
5. Effects based on relevant and reasonable expressed assumptions?	X		Chapters 11, 12, 13, and 14; Sections 14.2 and 14.3
6. Does the document have adequate supporting data that the measure contributes to noise/land use compatibility?	X		Chapters 11, 12, 13, and 14; Section 14.2 and 14.3; however it should be noted that there are no incompatible land uses within the 60 DNL contour
C. Analysis appears to support program standards set forth in 150.35(b) and B150.5?		X	Chapters 11, 12, 13, and 14; Section 14.2 and 14.3; however it should be noted that there are no incompatible land uses within the 60 DNL contour
D. When use restrictions are recommended for approval by the FAA:			
1. Does (or could) the restriction affect Stage 2 or Stage 3 aircraft operations (regardless of whether they presently operate at the airport)? (If the restriction affects Stage 2 helicopters, Part 161 also applies.)	N/A		No Use Restrictions Recommended
2. If the answer to D.1 is yes, has the airport sponsor completed the Part 161 process and received FAA Part 161 approval for a restriction affecting Stage 3 aircraft? Is the FAA's approval documented? For restrictions affecting only Stage 2 aircraft, has the airport sponsor successfully completed the Stage 2 analysis and consultation process required by Part 161 and met the regulatory requirements, and is there evidenced by letter from FAA stating this fact?	N/A		No Use Restrictions Recommended
3. Are non-restrictive alternatives with potentially significant noise/compatible land use benefits thoroughly analyzed so that appropriate comparisons and conclusions among all alternatives can be made?	N/A		No Use Restrictions Recommended
4. Did the FAA regional or ADO reviewer coordinate the use restriction with APP-400 prior to making determination on start of 180-days?	N/A		No Use Restrictions Recommended
E. Do the following also meet Part 150 analytical standards?			
1. Recommendations that continue existing practices and that are submitted for FAA re-approval? *(Note: An airport sponsor does not have to request FAA re-approval if noise compatibility measures are in place from previously approved Part 150 studies. If the airport has implemented the measures as approved in the previous NCP, the measures may be reported and modeled as baseline conditions at the airport.)*	X		Existing measures from previous NCP were modeled as baseline condition; Chapter 10 and 14, Section 14.2
2. New recommendations or changes proposed at the end of the Part 150 process?	X		Section 14.3, recommendations were modified based on comments proffered during the Public Hearing. Section 11.3.6

F. Documentation indicates how recommendations may change previously adopted noise compatibility plans, programs, or measures?	X		Chapter 14
G. Documentation also:			
1. Identifies agencies that are responsible for implementing each recommendation?	X		Chapter 14 Section 14.5
PROGRAM REQUIREMENT	**YES**	**NO**	**SUPPORTING PAGES/REVIEW COMMENTS**
2. Indicates whether those agencies have agreed to implement?	X		Section 14.5, many of the measures are already in the implementation process either formally or informally
V. ALTERNATIVES RECOMMENDED FOR IMPLEMENTATION: [150.23(e), B150.7(c); 150.35(b), B150.5] ***[CONTINUED]***			
3. Indicates essential government actions necessary to implement recommendations?	X		Table 14.1 outlines key elements related to implementation
H. Timeframe:			
1. Includes agreed-upon schedule to implement alternatives?	X		Table 14.2 outlines key elements and schedule related to implementation
2. Indicates period covered by the program?	X		Chapter 14
I. Funding/Costs:			
1. Includes costs to implement alternatives?	X		Chapter 14, Section 14.5
2. Includes anticipated funding sources?	X		Chapter 14, Section 14.5
VI. PROGRAM REVISION: [150.23(e)(9)] Supporting documentation includes provision for revision? *(Note: Revision should occur when it is likely a change has taken place at the airport that will cause a significant increase or decrease in the DNL noise contour of 1.5 dB or greater over noncompatible land uses. See §150.21(d))*	X		Chapter 14, Section 14.6