Airport Advisory Board Workshop Meeting
Tuesday, December 8, 2020 at 2:00 PM

City Hall Commission Chamber, 210 Sams Avenue, New Smyrna Beach Fl 32168
Please use the south entrance from the Julia Street side of City Hall.
Discussion for Runway 07/25 Alternatives and Runway 11/29 Extensions

1. CALL TO ORDER

Roll Call

2. PUBLIC PARTICIPATION

3. WORKSHOP

3.a AAB Special Workshop on Runway 7/25 Alternatives

4. ADVISORY BOARD COMMENTS

5. ADJOURNMENT

Pursuant to Florida Statutes 286.0105, if an individual decides to appeal any decision made by the board, agency or commission of the City of New Smyrna Beach with respect to any matter considered at this meeting, a record of the proceedings will be required and the individual will need to ensure that a verbatim transcript of the proceedings is made, which record includes the testimony and evidence upon which the appeal is based. Such person must provide a method for recording the proceedings.

In accordance with the Americans with Disabilities Act, persons needing assistance to participate in any of these proceedings should contact the City Clerk's office in person or by mail at 210 Sams Avenue, New Smyrna Beach, Florida 32168, (386) 410-2630, prior to the meeting.

THE CITY OF NEW SMYRNA BEACH - AIRPORT

AAB SPECIAL WORKSHOP ON RUNWAY 7/25 ALTERNATIVES

December 8, 2020

Background:

Attached for your review is information pertaining to previous discussions held on the current deficiencies for Runway 07/25. Included is the report prepared by AVCON Consulting Company for the Runway 07/25 Alternatives which was submitted to the FAA requesting that a time extension be granted until the alternatives could be thoroughly reviewed and an option was chosen other than publishing declared distance on the runway.

Information pertaining to the proposed Runway 11/29 extension can be found in the Airport Master Plan Update (MPU). Due to technical difficulties, we are unable to attached the link to the agenda. The link for the MPU will be sent out VIA email with the Agenda packet to the AAB Members.

Fiscal Analysis:
N/A

Strategic Plan Item:
No

Staff Report Created By: Tammy Hall

Attachments:

EVB Runway 7-25 Alternatives Final Report.pdf
Airport Master Plan.pdf
Airport Master Plan 2019.pdf
FAA Decision Assistance Request Waltz - City of New Smyrna Beach.pdf
rwy alt correspondence.pdf
TAC MINUTES 9-20-18.pdf

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NEW SMYRNA BEACH MUNICIPAL AIRPORT

Runway 7/25 Runway Safety Area Alternatives

City of New Smyrna Beach

Prepared By:

AVCON

August 2019

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NEW SMYRNA BEACH MUNICIPAL AIRPORT
RUNWAY 7/25 ALTERNATIVES

1. Introduction

The New Smyrna Beach Municipal Airport (EVB or Airport) recently completed the Airport Master Plan Update and the resulting Airport Layout Plan (ALP) has been approved by the Federal Aviation Administration (FAA). The Master Plan identifies certain issues associated with the airfield infrastructure, including instances where the Runway Safety Areas (RSA), the Runway Object Free Areas (ROFA), and the FAR Part 77 clearances over roadways are not in compliance with FAA standards, as defined in FAA Advisory Circular 150/5300-13A, *Airport Design*. Airfield deficiencies were also identified in a Florida Department of Transportation (FDOT) Inspection Report dated November 29, 2016. Both the Master Plan and the FDOT Inspection Report cite several deficiencies and a C&S Companies report and the Master Plan Update propose alternatives for those deficiencies.

The alternatives proposed for Runway 7/25, the longest runway on the Airport, have been opposed by the Airport tenants that currently use this runway, as the proposed alternatives, including the publishing of displaced thresholds, would decrease the effective length of the runway sufficiently, as to make it unusable for their respective businesses. The City and Airport staff requested AVCON prepare a report to review the options proposed by the Master Plan for Runway 7/25, determine if any other alternatives are available, and if so, what the viability of any other alternatives might be. Currently:

- Runway 7/25 is one of three runways at the New Smyrna Beach Municipal Airport. It is 5,000 feet long and 75 feet wide. It has recently been designated as the primary runway.

- Runway 7/25 has the markings for a displaced threshold of 335 feet on the Runway 7 end and the markings for a displaced threshold of 300 feet on the Runway 25 end.

- The RSAs on each end of the Runway must extend at least 300 feet beyond the threshold of each end for an A/B-II runway.
    - The available RSA for Runway 7 is 63.5 feet. It is constrained by the Airport fence and Sunset Drive
    - The available RSA for Runway 25 is 153.5 feet. It is constrained by the Airport fence and U.S. Highway 1 (U.S. 1).

- Both Runway 7 and Runway 25 require an unobstructed approach surface with a slope of 34:1 beginning 200 feet from the end of the Runway. Due to the proximity of the Airport fence, the approach surface does not currently meet this requirement.

- The Airport fence penetrates the Chapter 14-60.007(2)(b)1.e., Florida Administrative Code (FAC) primary surface obligation for both Runway 7 and Runway 25.

- The ROFA on both runway ends is in non-compliance as they extend off Airport property and have roads within them.

The Airport Master Plan proposes to address the above issues through a combination of obstruction lights on the Airport fence and displacements of each runway end threshold even further than currently marked on the Runway. These are legitimate alternatives but would restrict the Landing Distance Available and the Accelerated Stop Distance Available to less than 5,000 feet.

2. Typical Aeronautical Insurance Policies

The Airport tenants that use the Runway state that the reduction of the useable length of the Runway will trigger clauses in their insurance policies that indicate that the aircraft would not be covered if a runway of less than 5,000 feet is used. No documentation for this statement has been provided. The tenants further state that the effective shortening of the Runway would negatively impact their businesses as they would have to take penalties either by reducing the amount of fuel on board their aircraft or reduce the amount of payload, or both.

Mr. Joe Zitzka with Airgate Aviation has stated that the insurance policy for Airgate Aviation will not allow the company's aircraft to use a runway of less than 5,000 feet. The writers of this report do not have access to this specific insurance policy. However, attempts were made to determine if this is a standard in the aviation insurance business.

Five individuals with three separate aviation insurance companies were contacted. The insurance companies were:

- Alexander Aviation Associates
- Avion Insurance Agency
- Marsh USA

Each person was asked whether it is standard practice to state a minimum acceptable runway length for operations for a Part 135 Air Taxi/Charter operations in their policies. Only one response was received. That response stated:

> "minimum runway length is not typically (or even atypically) specified in the policies. From time to time you'll have an underwriter decline to write a risk if it's primary based at an airport with an abnormally short field length for the equipment in question, such as KHWO or KLNA."

The runway at KHWO, North Perry Airport, has 3,350 feet. The runway at KLAN, Palm Beach County Park Airport, has length of 3,489 feet.

3. Florida Department of Transportation Airport Inspection Report

On September 20, 2016, the Florida Department of Transportation (FDOT) annual airport inspection resulted in 10 deficiencies. Of these, six pertained to Runway 7/25:

(4) Runway 7 safety area extends only 124 feet before the end of the runway due to fence. Florida statutes state that paved runways shall have a length that extends the length of the runway plus 240 feet beyond each end of the runway.

(5) Runway 7 approach surface ratio is 0:1 due to a fence 6 feet tall, 56 feet before the approach end of the runway, 250 feet right of centerline. Florida statutes state that runways used by aircraft weighing greater than 12,500 pounds, and that have a non-precision instrument approach with visibility greater than ¾ mile must have approach surface ratio of 34:1.

(6) Fence is 6 feet tall, 56 feet before the approach end of the runway, 250 feet right of centerline, penetrates the primary surface of Runway 7. Florida statutes state that runways used by aircraft that weigh greater than 12,500 pounds, and that have a non-precision instrument approach with visibility greater than ¾ mile, the primary surface must extend the length of the runway plus 200 feet beyond each end of the runway.

(8) Runway 25 safety area extends only 173 feet before the end of the runway due to a fence. Florida statute states that for a runway that is paved, the runway safety area shall have a length that extends the length of the runway plus 240 feet beyond each end of the runway.

(9) Runway 25 approach surface ratio is 0:1 due to fence 6 feet tall, 161 feet before the approach end of the runway, 250 feet right of the centerline. Florida statutes state that runways used by aircraft weighing greater than 12,500 pounds, and that have a non-precision instrument approach with visibility greater than ¾ mile must have approach surface ratio of 34:1.

(10) There is a fence 6 feet tall, 161 feet before the approach end of the runway, 250 feet right of the centerline, penetrates the primary surface of Runway 25. A road with a clearance 15 tall, 190 feet before the approach end of the runway, 250 feet right of centerline, penetrates the primary surface of Runway 25. Florida statutes state that for paved runways used by aircraft that weigh greater than 12,500 pounds and that have a non-precision instrument approach with visibility greater than ¾ mile, the primary surface extends the length of the runway plus 200 feet beyond each end of the runway.

4. C&S Companies Report

The Airport selected C&S Companies (C&S) to research potential solutions to all 10 deficiencies cited in the FDOT report. C&S submitted their report on November 29, 2016. In that report, they presented the following options.

(4) Move Runway 7 threshold 116 feet to allow for the 240-foot required Runway Safety Area (RSA) and either provide all new markings and lighting or apply for a modification to standards for only partial replacement of the lights and non-uniform spacing of the lights.

(5) Move the Runway 7 threshold 92 feet in order to clear the 15-foot clearance for the road and either provide all new markings and lighting or apply for a modification to standards for only partial replacement of the lights and non-uniform spacing of the lights.

(6) Install two solar powered LED obstruction lights on obstruction poles.

(8) Runway 25 threshold would be moved 67 feet to allow for the 240-foot RSA and either provide all new markings and lighting or apply for a modification to standards for only partial replacement of the lights and non-uniform spacing of the lights.

(9) Move the Runway 25 threshold 20 feet and either provide all new markings and lighting or apply for a modification to standards for only partial replacement of the lights and non-uniform spacing of the lights.

(10) Install two solar powered LED obstruction lights on obstruction poles.

As a result of the C&S report, the threshold for Runway 7 was proposed to be displaced by 335 feet and the threshold for Runway 25 was proposed to be displaced by 300 feet. This resulted in the following declared distances.

Table 1
EXISITING UNPUBLISHED DECLARED DISTANCES

Runway	TORA	TODA	ASDA	LDA
7	5,000	5,000	5,000	4,665
25	5,000	5,000	5,000	4,700

Note: TORA=Takeoff Run Available, TODA=Takeoff Distance Available, ASD=Accelerate-Stop Distance Available, LDA=Landing Distance Available

These distances are currently marked on Runway 7/25 with displaced threshold located 335 feet from the end of the runway on Runway 7 and another displaced threshold placed 300 feet from the Runway 25 end.

The TORA, TODA, ASDA and the LDA are further defined as follows:

- Take-off Run Available (TORA): The runway length declared available and suitable for the ground run of an aircraft taking off. This would not include any part of the runway length declared to be unavailable or unsuitable for take-off run computations.
- Take-off Distance Available (TODA): the TORA plus the length of any remaining runway or clearway beyond the end of the TORA; the full length of the TODA may need to be reduced because of obstacles in the departure area.
- Accelerated -Stop Distance Available (ASDA): the runway plus the stopway length declared available and suitable for the acceleration and deceleration of an aircraft aborting a takeoff.
- Landing Distance Available (LDA): The runway length declared available and suitable for landing an Aircraft.

The declared distances at the Airport are not official, even though the thresholds have been painted onto the Runway. These distances have also been published in the FAA Chart Supplemental, previously known as the Airport/Facility Directory, and on the FAA Form 5010, *Master Record*, for the Airport. These declared distances are not considered official by the FAA or the FDOT until the TORA, TODA, ASDA, and LDA have been published on lines 60 through 63 of FAA Form 5010. None of these distances have been published for New Smyrna Beach Municipal Airport.

5. 2018 Airport Master Plan Update

Michael Baker International was working concurrently on the Airport Master Plan Update. The Master Plan Update has since been completed and the Airport Layout Plan has been approved. As a part of that study, the following information was determined.

No one of the three runways meet FAA recommended wind coverage of 95 percent on their own in all-weather conditions for 10.5 or 13 knot winds. All three runways are needed to meet the 95 percent in 10.5 knot winds in all-weather conditions.

Runway 7/25 is designated as the Airport's primary runway. It is heavily used as it is the longest runway on the Airport.

The existing and future critical aircraft were determined to be a medium sized corporate jet with a Runway Design Code (RDC) of B-II. A Cessna Citation 560XL meets the criteria and was selected within the Master Plan as the critical aircraft for Runway 11/29. The Master Plan was written when the primary runway was designated as Runway 11/29. The critical aircraft for Runway 7/25 was determined to be the Beechcraft King Air 350i. Again, this occurred when Runway 7/25 was designated as a secondary runway.

The Cessna website, https://cessna.txtav.com/en/citation/xls, publishes the takeoff field length of a Cessna Citation 560XL+ at 3,560 feet. The Beechcraft website, https://beechcraft.txtav.com/en/ing-air350i, publishes the takeoff field length for a King Air 350i at 3,300 feet.

Section 4.6 of the Airport Master Plan Update states:

> "Runway 7-25 is technically considered an additional primary runway for local training activity, at least how it applies to the methodologies in the Runway Length AC (FAA AC 150/5325-4, *Runway Length Requirements for Airport Design*). The runway length requirement for Runway 7-25 was thus evaluated "for less demanding airplane design group or individual design airplane," which was determined to be a turboprop weighing more than 12,500 pounds such as the Beechcraft King Air 350i. Those types of aircraft also frequently operate at EVB, are consistent with the critical aircraft that was identified in the previous master plan and are representative of the design characteristics of Runway 7-25. Those aircraft also represent a less demanding airplane in order to comply with the methodologies in the Runway Length AC for determining the length requirements for additional primary runways. The same chart that was utilized for determining the length recommendation for Runway 11-29 was used for this evaluation, but the landing requirement was not adjusted for wet conditions to comply with the Runway Length AC. This results in a recommended runway length of 4,700 feet for Runway 7-25. Although this is shorter than the current 5,000-foot length of Runway 7-25, both ends of the runway have been displaced thresholds that reduce the available runway length for landings."

The Airport Master Plan Update and the approved ALP recommend that the declared distances be modified as shown in Table 2:

Table 2
DECLARED DISTANCES PROPOSED ON THE FAA APPROVED AIRPORT LAYOUT PLAN

	Runway 7		Runway 25	
Distances	**Existing**	**Future**	**Existing**	**Future**
TORA	5,000'	5,000'	5,000'	5,000'
TODA	5,000'	5,000'	5,000'	5,000'
ASDA	5,000'	4,853.5'	5,000'	4,763.5'
LDA	4,665'	4,518.5'	4,700'	4,763.5'

Note: TORA=Takeoff Run Available, TODA=Takeoff Distance Available, ASD=Accelerate-Stop Distance Available, LDA=Landing Distance Available

This would indicate that the threshold on Runway 7 had been displaced 335 feet and the threshold for Runway 25 had been displaced 300 feet. Runway 7/25 is currently marked with the threshold displacements labeled as "Existing" in Table 2.

The Airport Master Plan Update states that several alternatives were developed to resolve the non-standard RSAs on Runways 7 and 25 in accordance with FAA Order 5200.8, *Runway Safety Area Program*. The text states that the selected alternative was selected based on the following criteria:

- No road relocations and/or property acquisitions were considered appropriate to provide a compliant RSA
- It is desirable to maintain as much runway length as possible.
- EMAS (Engineered Material Arresting System) are not applicable corrective measure for EVB

Based on the alternatives developed to resolve the non-standard RSAs and ROFAs on Runway 7/25, the Airport Master Plan Update recommends that the thresholds on Runway 7/25 be relocated to provide the "Future" declared distances shown in Table 2.

The Airport Master Plan Update states that this would allow the RSAs and the ROFAs to meet FAA standards and Florida statutes and would meet the 4,700-foot required runway length as determined using the FAA Advisory Circular 150/5325-4B, *Runway Length Requirements for Airport Design*.

The FAA has not yet published the ALP recommended declared distances as they have agreed to wait until this report is received and reviewed.

6. FAA versus FDOT Safety Area Requirements

Both the FAA and the FDOT have Safety Area Requirements. While there are many similarities between the FAA Runway Safety area requirements and those of the FDOT runway safety area requirements, there are some dissimilarities that may make a difference to this issue. It must be remembered that both have jurisdiction over the New Smyrna Beach Municipal Airport. Both provide funding to the Airport, and the FDOT also licenses the Airport. These differences and similarities are shown in Table 3.

Table 3
DIFFERENCES BETWEEN FAA AND FDOT SAFETY AREAS

Safety Area	FAA Requirement (feet)	FDOT Requirement (feet)
RSA Width	150	120
RSA Length Past End of Runway		240
RSA Length Past the Threshold	300	
Primary Surface Width	500	500
Primary Surface Length Past the End of the Runway		200
Primary Surface Past the Threshold	200	

It was the FDOT inspection to which C&S responded that triggered much of the discussions on displaced thresholds.

Mr. David P. Smith of the FDOT airport inspectors confirmed on 18 June 2019 that while the FAA will measure the RSA and ROFA from the displaced threshold, the FDOT measures the RSA and the Primary Surface from the physical end of the runway. If there is a declared distance published in the FAA Supplement Chart, formerly called the Airport/Facility Directory, then the FDOT inspector will include the displaced threshold as a mitigating factor for an approach surface and an approach RSA.

7. Departure Surfaces

Both Runway 7 and Runway 25 have departure surfaces as each has a non-precision instrument approach. According to FAA Advisory Circular (AC) 150/5300-13A, *Airport Design*, Table 3-2, the departure end of all instrument operations must have a departure surface. The departure surface begins at the end of the runway threshold and is 1,000 feet wide. It flares out at a 15-degree angle on both sides of the runway and rises at a 40:1 slope. This equates to 40 feet horizontal to each foot vertical. This is a much shallower slope than the 34:1 slope of the approach surface.

The approach surface begins 200 feet from threshold, so a 34:1 slope clearing a 15-foot clearance would require 710 feet of distance from the threshold. The departure surface begins at the threshold, so the required distance from the threshold to clear a 15-foot obstruction would be 600 feet. The departure surface is, however, much wider than the approach surface.

8. Published Departure and Landing Distances

One tenant of the Airport, Airgate Aviation, is currently a Fixed Base Operator (FBO) at the Airport. They are also a Part 135 Charter Operator that has been in business since 2002. Airgate is also a commuter air carrier with economic authority issued by the U.S. DOT. In accordance with the commuter authority, Airgate is authorized to operate scheduled service as well as on-demand operations.

Airgate has been operating Cessna Chancellor C414A aircraft and have provided the Airport and the FAA with the tail numbers of several aircraft that they are transitioning to use in their operation as well as the tail number of one of their client's aircraft. AVCON researched the aircraft and found, as much as possible and where available, the required balanced field,

landing, and maximum stage length distances for the subject aircraft. The balanced field length is defined as "the distance required to bring the aircraft up to take off speed and slow it to a full stop at an average air density and payload.

Table 4
SAMPLE AIRCRAFT LANDING, BALANCED FIELD, AND STAGE LENGTH DISTANCES

Aircraft	N Numbers	Landing Distance (feet)	Balanced Field (feet)	Maximum Stage Length (nautical miles)
Bombardier Challenger 300	n/a	3,833	4,810	3,340
Bombardier Challenger 350	n/a	2,364	4,835	3,200
Cessna 414A	n/a	4,000	4,835	1,328
Cessna Citation I (C500)	N528WL, N900G, and N28WL	3,583	3,950	900
Cessna Citation I/SP (C501)	N17HA	3,500	3,600	1,020
Cessna Citation II/Bravo (C550)	N524MA	3,583	3,583	1,520
Cessna Citation II/SP (C551)	N228MH	4,500	4,150	1,840
Cessna Citation XLS	n/a	4,738	3,910	1,989
Falcon 2000 EX	n/a	4,333	5,585	4,045
Gulfstream G500	n/a	3,100	5,385	5,000
Hawker 900 XP	n/a	3,805	5,258	2,929
Honda HA-420 Honda Jet	n/a	2,500	3,120	1,301

Sources: Landing, Balanced Field, and Maximum Stage Distances for all aircraft are from www.globalair.com with the exception of the Honda Jet. The Honda Jet information was obtained at www.prijet.com.
Note: n/a = Not Available

For each aircraft above, three of the aircraft had balanced field distances that exceed the 5,000 feet that have been stated as being required. It is true that these distances are generic. Each aircraft comes with an operating manual that will state the required distances for landing and take-off of that specific aircraft under a variety of conditions. Portions of many of these aircraft manuals have been provided by the tenants of the Airport. These pages can be found as **Appendix A** to this report. However, there are many factors that go into calculating the various distances required. Therefore, the writers of this report attempted to get as many of the distances from a single source, which we were able to do except for one aircraft, the Honda Jet.

The runway length analysis performed in the Master Plan Update was independently verified using the FAA AC 150/5325-4B, *Runway Length Requirements for Airport Design*. This analysis verified that the Beechcraft King Air 350i determined in the Master Plan Update to be the critical aircraft for Runway 7/25 and the Cessna Citation XL (C560XL) determined to be the critical aircraft for Runway 11-29 would have similar runway length results. Each would have a preliminary runway length of 4,700 feet for takeoff and 5,405 feet for landing on a primary runway when utilized at a 60 percent useful load, with the 5,405 feet becoming the recommendation for the primary runway length. If either were to land on the secondary runway, the landing requirement would not be adjusted for wet conditions to comply with the Advisory

Circular. This would result in a recommended runway length of 4,700 feet for the crosswind or secondary runway.

9. Typical Airport Leases at the Airport

Ten leases for current tenants at the Airport were reviewed. Some leases, including that of Airgate Aviation have a paragraph that states the following:

> SECTION 11
> USE OF AIRPORT
>
> Lessee shall have the non-exclusive right, in common with others, of the runways, landing areas, aprons, taxiways and navigational aids which now exist or may be hereafter installed, erected or constructed for the use of the general public at the New Smyrna Beach Municipal Airport, except as otherwise provided herein. Lessee understands that from time to time portions of the airport runways, taxiways, et cetera may be closed to allow maintenance on, upgrading of, closure, or portions may be permanent as changes in the airport's posture in National, State or local aviation system plans.

This Section provides within the lease that the Airport may need to permanently close access to part of the Airport's infrastructure in order to be in compliance with FAA and FDOT requirements.

10. Wind Coverage of the Runways

The recently completed Master Plan Update computed the wind coverage of each of the three runways at the Airport. This is important because aircraft takeoff and land into the wind. Too much crosswind on a runway could cause an aircraft, particularly small aircraft, to be unable to safely land or takeoff from that runway. The FAA recommends that 95 percent wind coverage across runways be achieved, which is computed based o at least 10 years of data for an airport or a location sufficiently adjacent. The allowable limits to be achieved per type of aircraft is as described in Table 5.

Table 5
ALLOWABLE CROSSWIND COMPONENT PER RUNWAY DESIGN CODE

Runway Design Code	Allowable Crosswind Component
A-I and B-I (including A-I and B-I small aircraft)	10.5 knots (12 mph)
A-II and B-II	13 knots (15 mph)
A-III, B-III, C-I through D-III, and D-I through D-III	16 knots (18 mph)
A-IV and B-IV, C-IV through C-VI, and D-IV through D-VI	20 knots (23 mph)
E-I through E-VI	20 knots (23 mph)

Source: FAA AC 150/5300-13B, *Airport Design*
Note: mph = Miles per hour

The Runway Design Code is a methodology by which aircraft are categorized by their respective sizes and performances. These are outlined in Table 6.

Table 6
RUNWAY DESIGN CODES

Aircraft Approach Category (AAC)	V_{REF}/Approach Speed	
A	Approach speed less than 91 knots	
B	Approach speed 91 knots or more but less than 121 knots	
C	Approach speed 121 knots or more but less than 141 knots	
D	Approach speed 141 knots or more but less than 166 knots	
E	Approach speed 166 knots or more	
Airplane Design Group (ADG)	**Tail Height (feet)**	**Wingspan (feet)**
I	< 20	< 49
II	20 - < 30	49 - < 79
III	30 - < 45	79 - < 118
IV	45 - < 60	118 - < 171
V	60 - < 66	171 - < 214
VI	66 - 80	214 - < 262
Runway Visual Range (RVR) (feet)[1]	**Instrument Flight Visibility Category (statute miles)**	
5000	Not lower than 1 mile	
4000	Lower than 1 mile but not lower than ¾ mile	
2400	Lower than ¾ mile but not lower than ½ mile	
1600	Lower than ½ mile but not lower than ¼ mile	
1200	Lower than ¼ mile	
Visual	Visual Flight Rules	

Source: FAA AC 150/5300-13B, Airport Design
Note: 1) RVR values are not exact equivalents

The Runway Design Codes and corresponding allowable crosswind components for the Aircraft listed in Table 4 and the critical aircraft for the here runways as defined by the recently completed Master Plan Update can be found in Table 7.

Table 7
SAMPLE AIRCRAFT RUNWAY DESIGN CODES AND ALLOWABLE CROSSWIND COMPONENTS

Aircraft	Runway Design Code	Allowable Crosswind Component
Beechcraft King Air 350i (critical aircraft for Runway 7/25)	B-II	13 knots
Beechcraft King Air C90 (critical Aircraft for Runway 2/20)	B-II	13 knots
Bombardier Challenger 300	C-II	16 knots
Bombardier Challenger 350	C-II	16 knots
Cessna 414A	B-I	10.5 knots
Cessna Citation I (C500)	B-I	10.5 knots
Cessna Citation I/SP (C501)	B-I	10.5 knots
Cessna Citation II/Bravo (C550)	B-II	13 knots
Cessna Citation II/SP (C551)	B-II	13 knots
Cessna Citation XL (560XL) (critical aircraft for Runway 11/29)	B-II	13 knots
Cessna Citation XLS	B-II	13 knots
Dassault Falcon 2000 EX	B-II	13 knots
Gulfstream G500	D-III	16 knots
Hawker 900 XP	B-II	13 knots
Honda HA-420 Honda Jet	n/a-I	n/a

Source: FAA Aircraft Characteristics Database
Note: n/a = Not Available

Table 7 indicates that the critical aircraft identified in the Master Plan Update each would need wind coverage up to and including 13 knots or 15 miles per hour. The wind coverage for all three runways as presented in the Master Plan Update is presented in Table 8.

Table 8
WIND COVERAGE

	All-Weather			Instrument Flight Rules (IFR)			Visual Flight Rules (VFR)		
Runway	10.5 knots	13 knots	16 knots	10.5 knots	13 knots	16 knots	10.5 knots	13 knots	16 knots
2/20	87.93%	93.66%	98.71%	89.95%	94.08%	97.73%	87.81%	93.63%	98.77%
7/25	88.43%	94.12%	98.58%	82.11%	90.11%	96.75%	88.69%	94.29%	98.66%
11/29	88.76%	93.64%	98.15%	80.47%	87.78%	95.78%	89.16%	93.93%	98.27%
Combined	99.45%	99.88%	99.98%	98.85%	99.73%	99.95%	99.47%	99.88%	99.98%
7/25-11/29	94.71%	97.70%	99.30%	87.65%	94.03%	98.21%	95.04%	94.87%	99.35%
Observations	49,933			2,636			47,175		

Source: New Smyrna Beach Municipal Airport Master Plan Update

The wind data indicates that all three runways are necessary to accommodate the smaller aircraft that could be affected by high crosswinds of over 10.5 knots. Neither Runway 7/25 nor Runway 11/29 can singly accommodate aircraft affected by 13 knot winds as neither achieves the 95 percent coverage recommended. The combination of the two runways can accommodate aircraft potentially affected by 13 knot winds. All aircraft affected by 16 knot winds can be accommodated on any of the runways.

The critical aircraft for each of the three runways each have Runway Design Codes of B-II. This indicates that these aircraft need an allowable crosswind component of 13 knots. None of the three runways can singly accommodate these aircraft. However, the combination of Runways 7/25 and 11/29 can accommodate this recommendation.

At the time of the Airport Master Plan Update, Runway 7/25 was considered the Airport's secondary runway as it did not have instrument approaches on either end. This runway was considered by Air Traffic Control to be the most versatile for touch and go activity and is considered to be the training runway. Today, this 5,000-foot-long 75-foot-wide runway has a non-precision instrument approach on both end as well as a four-light Precision Approach Path Indicators (PAPI) on each end and Medium Intensity Runway Edge Lights (MIRL). These and the 5,000-foot length make it the runway of choice when conditions permit. This runway has recently been declared the primary runway at the Airport and Runway 11/29 has been declared the secondary runway.

Runway 11/29 is a 4,319-foot-long 75-foot wide runway that has non-precision instrument approach on the 29 end of the runway. The Runway 11 end is a visual approach runway. It is equipped with four-light PAPI on each end and MIRL. This runway is primarily used by itinerant aircraft arriving from and departing to the west.

Runway 2/20 is a 4,000-foot-long 75-foot-wide runway. It has a non-precision instrument approach on the Runway 2 end of the runway. The Runway 20 end has a visual approach. It does not have either PAPI or runway edge lights. It is used by itinerant traffic arriving from and departing to the east and smaller aircraft when wind conditions are not favorable on the other two runways. Runway 20 is the least utilized runway end at the Airport.

11. Wetlands at the Ends of the Runway

There are wetlands associated with each of the Runway 7/25 ends. The classification and mapping of these wetlands were obtained from the National Wetland Mapper, which is part of the National Wetlands Inventory provided by the United States Fish and Wildlife Service. Figure 1 shows the wetland associated with Runway 7 and Figure 2 shows the wetlands associated with Runway 25. Table 9 is a legend that identifies each specific type of wetland.

In order to extend the RSA, either Sunset Drive and/or U.S. 1 would need to be moved and wetlands would be encountered. Wetlands are protected by various authorities within the State and Federal governments. It is prudent to avoid wetlands as they serve a distinct purpose in our ecosystem. And, when avoidance of wetlands is not possible, mitigating for the loss of those wetlands can increase the cost of a project substantially.

Table 9
WETLAND TYPES LEGEND

Code	Wetland Description
E1UBL	Estuarian and Marine Deepwater - Subtidal
E2EM1N	Estuarian and Marine Wetland – Emergent, Intertidal, Regularly Flooded
E2EM1Pd	Estuarian and Marine Wetland – Emergent Irregularly Flooded, Partially Drained/Ditched
E2SS1Pd	Estuarian and Marine Wetland - Irregularly Flooded
E2SS3P	Estuarian and Marine Wetland – Intertidal, Irregularly Flooded
PEM1Cd	Freshwater Emergent Wetland
PFO1/3Cd	Freshwater Forested/Shrub Wetland, Broad-leaved Deciduous and Evergreen, Seasonally Flooded
PSS1Cd	Freshwater Forested/Shrub Wetland - Broad-leaved Deciduous, Seasonally Flooded
PUBH	Freshwater Pond
PUBHx	Freshwater Pond, excavated
Riverine/Murray Creek	Freshwater, Excavated, Semi-permanent flooding

In addition to the wetlands, there is a mitigation area to the west of Sunset Drive at the end of Runway 7. In 2003, the City of New Smyrna Beach, asked the St. John's Water Management District (SJWMD) for a permit to use the area to compensate for drainage issues associated with the construction of the new stadium at the New Smyrna Beach Sports Complex. This compensation area is shown in Figure 3.



Source: U.S. Fish and Wildlife Service

Figure 1
WETLANDS LOCATED NEAR RUNWAY 7



Source: U.S. Fish and Wildlife Service

Figure 2
WETLANDS LOCATED NEAR RUNWAY 25



Figure 3
100-YEAR COMPENSATING STORAGE AREA

12. Alternatives

The purpose of this report is to provide alternatives to the displaced thresholds recommended in the Master Plan Update. There are a few objectives, as follows:

- Provide alternatives with a runway that is at least 5,000 feet long
- Safety areas established by the FAA and Florida Statute must be achieved unless formally resolved/mitigated.

Several alternatives were considered during this process. The results are presented within this section. Order of Magnitude Costs for each alternative can be found in the Section 13 entitled *Order of Magnitude Cost Estimates*.

Alternative 1: Relocation of Sunset Drive and/or U.S. 1 Due to the Approach Slope

As one of the objectives is to keep the length of Runway 7/25 at 5,000 feet, it was determined to begin at the physical end of Runway 7. The RSA must extend out 300 feet from the physical end of the runway and the ROFA must also extend out 300 feet from the end of the Runway. The Primary Surface must extend 200 feet from the end of the runway. All three of these surfaces are currently reduced because of the fences that separate Sunset Drive and U.S. 1 from the Airport. The controlling factor in each case, however, is the Approach Surface that begins 200 feet from the end of the Runway and then slopes upward at a slope of 34:1, or 34 feet horizontal for every 1 foot vertical. This slope must clear a 15-foot clearance over both Sunset Drive and U.S. 1 to accommodate for vehicles. In order to make this clearance, each road must be 710 feet from the respective end of the runway. This distance equals the 200 feet from the end of the runway to the beginning of the Approach Slope as well as the Approach Slope itself. Each fence must be at least 404 feet from each end of the runway for the entire width of the Primary Surface.

Figure 4 shows Alternative 1A with the end of Runway 7 and the subsequent proposed relocation of Sunset Drive. Figure 5 shows Alternative 1B with the end of Runway 25 and the subsequent proposed relocation of U.S. 1.

Both would allow Runway 7/25 to remain at 5,000 feet in length and would allow the RSA's, ROFA's, the Primary Surface, and the Approach and Departure Surfaces associated with the Runway to be intact. Both the roads and the associated Airport fences would be outside of these required safety areas.

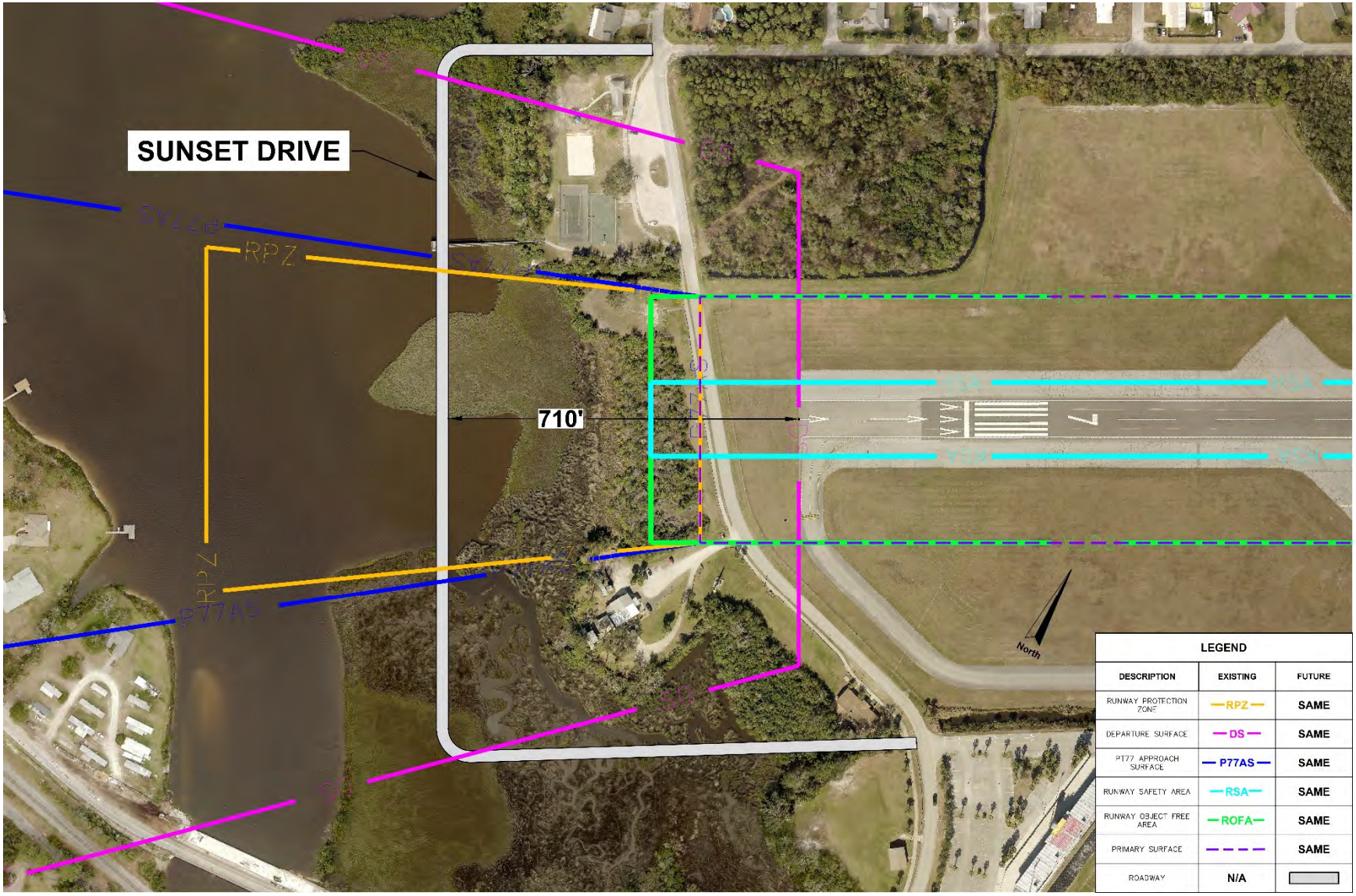


Figure 4
ALTERNATIVE 1A: RELOCATION OF SUNSET DRIVE TO ACCOMMODATE RUNWAY 7 APPROACH SLOPE

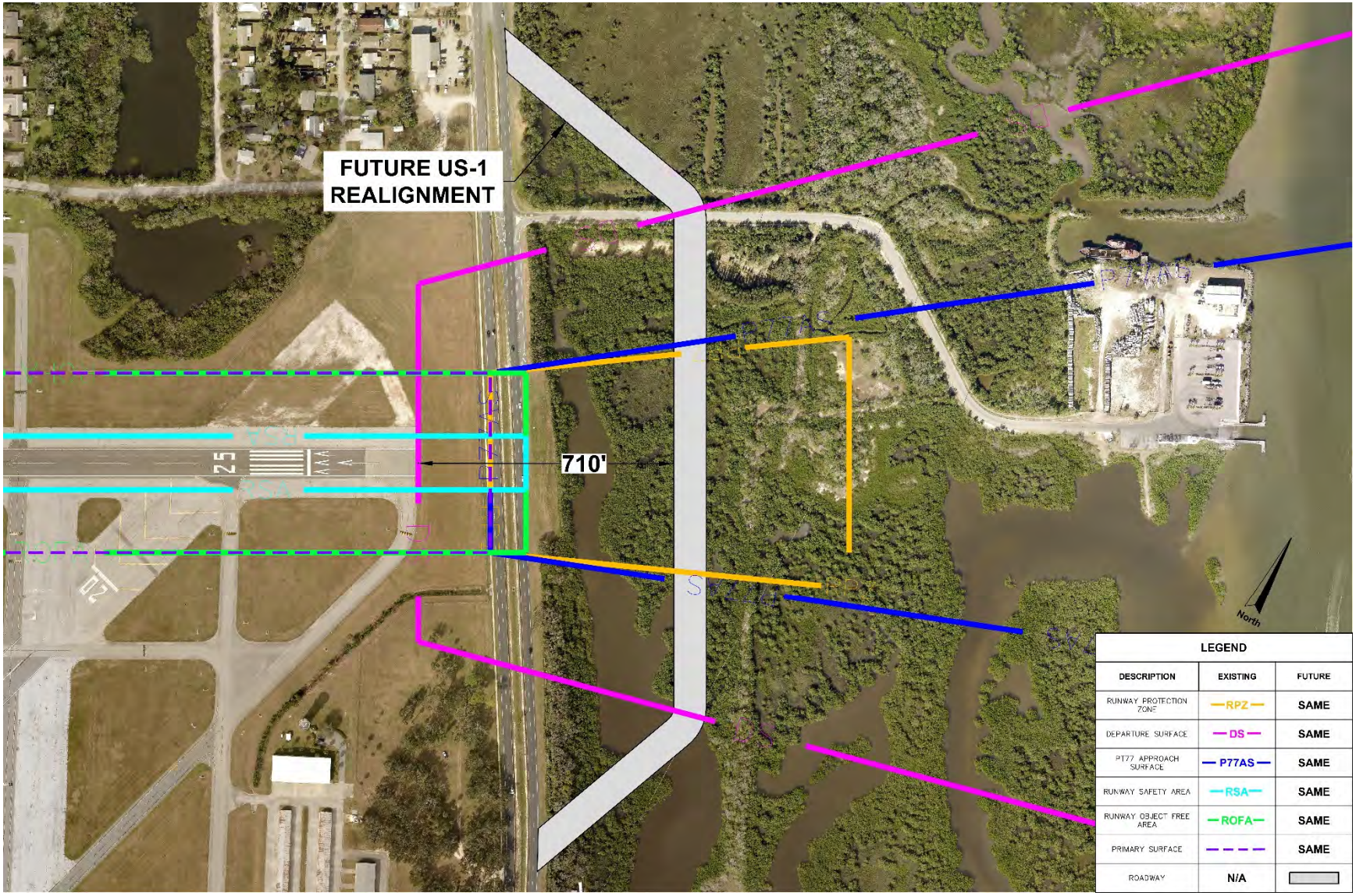


Figure 5
ALTERNATIVE 1B: RELOCATION OF U.S. 1 TO ACCOMMODATE RUNWAY 25 APPROACH SLOPE

However, Figures 4 and 5 do not consider the Runway Protection Zones (RPZ). These are trapezoidal shaped areas located at ground level on each end of the runway that are located "to enhance the safety and protection of people and property on the ground." Public roads are not considered by the FAA to be compatible land uses within an RPZ. A memorandum from the FAA discusses this issue and is titled *Interim Guidance on Land Uses Within a Runway Protection Zone* advises that the FAA Airports District Offices should work with airport sponsors to remove or mitigate the risk of any existing incompatible land uses in an RPZ as practical. Currently, the FAA is only enforcing this memorandum for existing land uses when one of four conditions are planned to occur:

- An extension of a runway
- Changing the size of the RPZ
- Changing of the critical aircraft to a larger aircraft
- A local development proposal within the RPZ (either new or re-configured)

The critical aircraft as identified in the 2005 Master Plan Update is a Beech 1900. The Master Plan Update currently under review by the FAA proposes to change the critical aircraft to a Beechcraft King Air 350i. Both aircraft, as well as those submitted as proposed aircraft for the Airgate Aviation charter operation, are ARC B-II aircraft and would not necessarily trigger the referenced FAA memo.

However, relocating either Sunset Drive or U.S. 1 would require that the FAA Orlando Airports District Office to coordinate with the Airport Planning and Environmental Division of the FAA in Washington D.C. The decision could be made that if a new development proposal such as those shown in Figures 4 and 5 occur that either or both roads currently traveling through either runway end would have to be relocated outside of the Runway's RPZ(s). The potential result for the road currently traveling around the RPZ at the Runway 7 end, Sunset Drive, is shown in Figure 6 as, Alternative 1C. This option shows a bridge spanning Turnbull Bay and connecting with Turnbull Bay Road on the west side of the Bay. This is considered to be a shorter route than traveling around the RPZ to meet back with Sunset Drive. The potential result for the road currently traveling through the RPZ at the Runway 25 end, U.S. 1, is shown in Figure 7, as Alternative 1D.

The moving of each road would require not only the cost of the construction of each road, but also the mitigation of environmental impacts as both would require that the roads be moved into and through large areas of wetlands. Additionally, the moving of a Federal Highway will require that several Federal agencies, not just the FAA, become involved and it is probable that a full Environmental Impact Statement (EIS) would be required prior to proceeding with the proposed project.

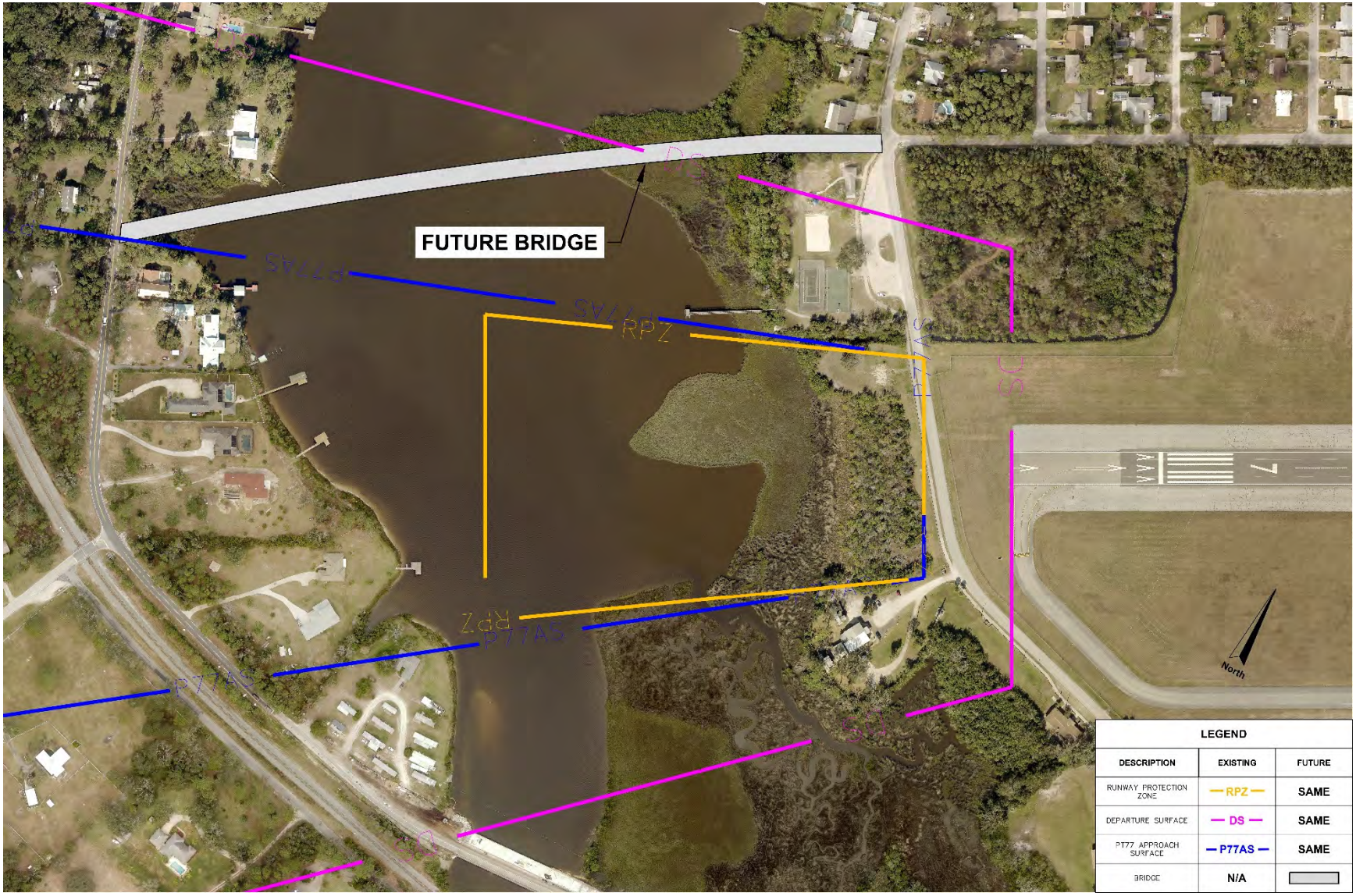


Figure 6
ALTERNATIVE 1C: RELOCATION OF SUNSET DRIVE AROUND RUNWAY 7 RPZ

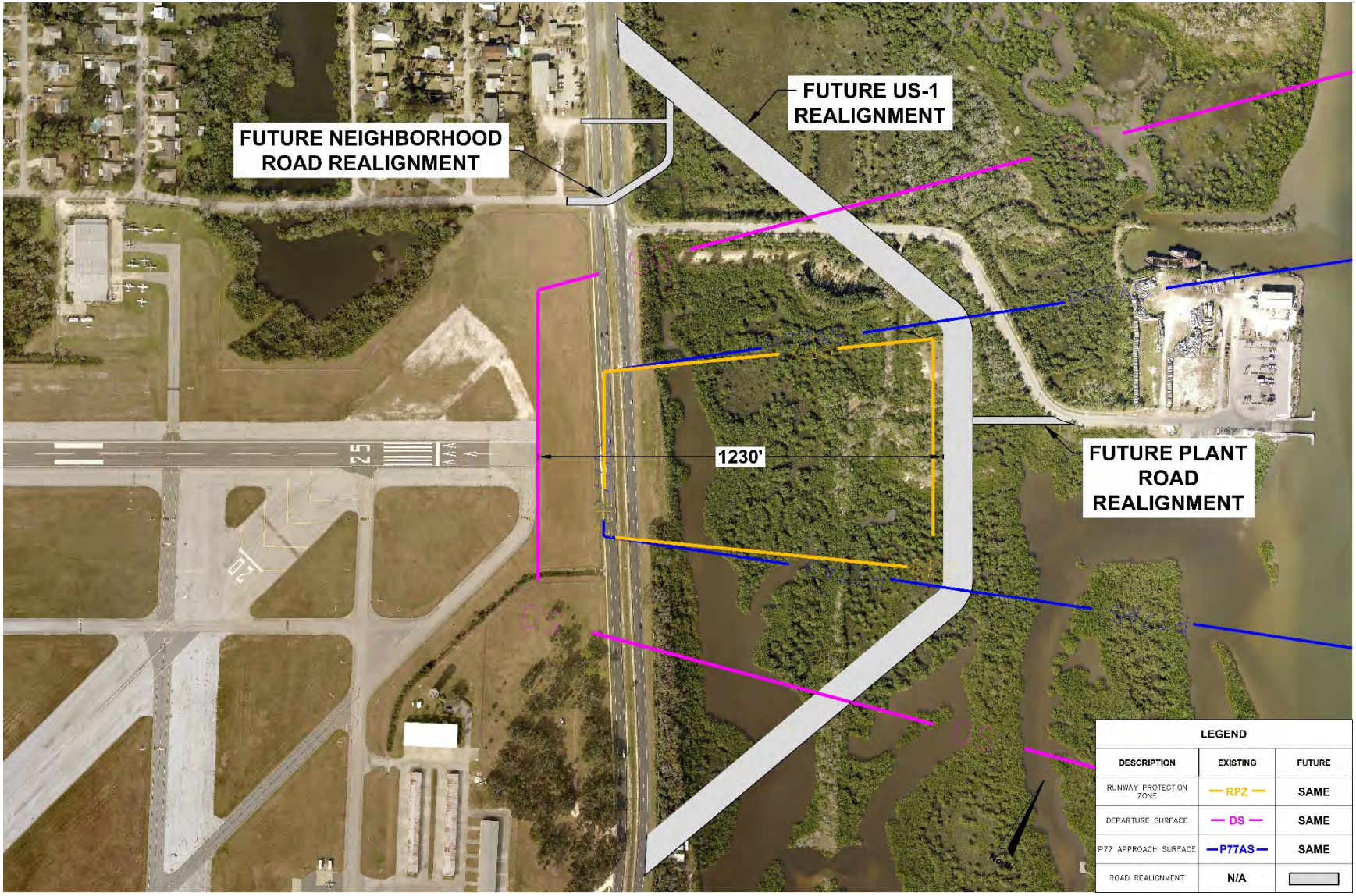


Figure 7
ALTERATIVE 1D: RELOCATION OF U.S. 1 TO AROUND RUNWAY 25 RPZ

Alternative 2: Tunneling Below the Runway Safety Areas

Alternative 2 would involve tunneling both Sunset Drive and U.S. 1 beneath the surface of the runway ends. This would presumably allow both roads to keep the same alignment they currently have except that both would be tunneled below the surface of the runway and all associated safety areas. The proposed tunnel for Sunset Drive is shown in Figure 8, as Alternative 2A, and the tunnel for U.S. 1 is shown in Figure 9, as Alternative 2B. The tunnels are each proposed to be suppressed approximately 21 feet below the surface of each runway end. Fifteen of the feet would provide the required clearance above the surface of the road, and six feet would provide enough structure to support the earth above the tunnel and the occasional over- or under-run by and aircraft missing the runway, as well as emergency support vehicles. The tunnel on Sunset Drive has been preliminarily calculated to be 520 feet long. This calculation is based on the depth of the proposed tunnel and the posted speed limit in the area of 20 miles per hour (mph). The tunnel associated with U.S. 1 is preliminarily calculated to be 1,170 feet in length. The primary difference in the length is due to the 55-mph speed limit posted on U.S. 1. Both tunnels are located to avoid not only the Approach Surface slope, but also the Departure Surface slope. Careful engineering will likely be able to move the location of each tunnel towards the centerline of the Runway somewhat as calculations are made as to where the actual cuts into the ground are made.

This alternative will allow the runway to remain intact and will provide the required safety areas for both ends of the Runway, once the roadways above the tunnels have been demolished and the fences have been relocated. However, the Runway 7 end of the Runway is only 7.5 feet above sea level and the Runway 25 end of the Runway is only 9.8 feet above sea level. As the floors of the tunnels will be below sea level, the tunnels will need to be designed with enough strength to be able to withstand the resulting hydrostatic pressure. Pumps will need to be added in each tunnel to continually keep the tunnels from flooding and generators will need to be added to operate the pumps during power outages.

The Sunset Drive tunnel would also block access to the VFW Post 4250, potentially one of the exits from the New Stadium parking lot, Rocco Park, the New Smyrna Beach Lions Club, up to six houses located on north Sunset Drive, and access to Sunset Drive from South Street.

The U.S. 1 tunnel would block access to U.S. 1 from South Street, at least seven curb cuts to U.S. 1 from the west side of the Highway north of the Airport, the curb cuts to Lost Lagoon Bar and Grill and an unidentified road that accesses the Airgate Aviation Hangar to the south of the Airport, and Boat Ramp Drive on the east side of the highway.



Figure 8
ALTERNATIVE 2A: TUNNEL BENEATH RUNWAY 7

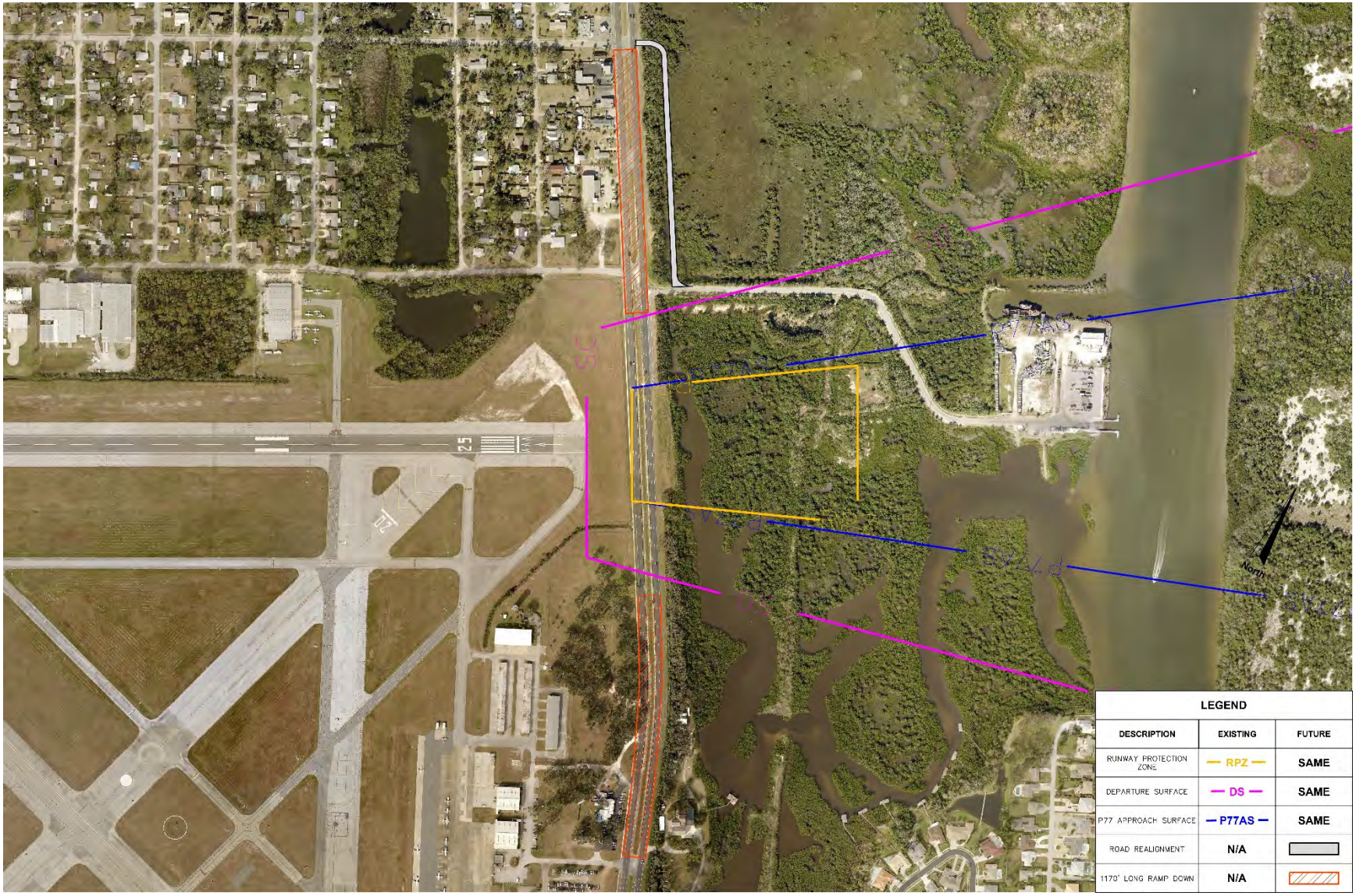


Figure 9
ALTERNATIVE 2B: TUNNEL BENEATH RUNWAY 25

Alternative 3: Closure of Sunset Road

This alternative would close Sunset Road from just north of the Lion's Club building to just south of the southernmost entrance to Rocco Park. It would physically move the Runway 25 end of the Runway along its axis approximately 506 feet west to allow 710 feet between U.S. 1 and the proposed new Runway 25 end of the Runway, this allowing the approach surface to Runway 25 to clear U.S. 1. The Runway 7 end of the Runway would be relocated further west by the same approximately 506 feet. This would move the Runway 7 end through the 100-year compensating storage area developed with the New Stadium, into wetlands. In order to provide for an FAA compliant RSA, an additional 300 feet of fill would be constructed into Turnbull Bay, as shown in Figure 10. This alternative would provide all the requisite safety areas as well as the 5,000-foot long runway.

It is believed that the closing of Sunset Drive would be a hardship on the Islesboro neighborhood located to the north of the Airport. This neighborhood has five access routes. All but Sunset Drive access the neighborhood via U.S. 1. Additionally, this is the only access to Islesboro to/from Turnbull Bay Road that provides access across the Turnbull Bay bridge to the west. While the building of a bridge from the western end of South Street across the Turnbull Bay to Turnbull Bay Boulevard, in a manner similar to that shown in Figure 6, would perhaps mitigate some of the concerns of the neighborhood, it had not been included in the cost estimate for this alternative.

The extension of Runway 7/25 into Turnbull Bay will require wetland mitigation and the 100-year compensating storage for the new Stadium would have to be relocated, potentially with additional compensating storage and wetland mitigation for the Runway extension itself.

The extension of the Runway would require at a minimum, an Environmental Assessment. Because it is likely that the Islesboro neighborhood would likely oppose the closing of Sunset Drive, the FAA could, at its discretion, elect to conduct an Environmental Impact Statement study.

Further, the alternative only addresses the shifting of the runway along its axis to provide the Approach Surface to Runway 25 sufficient clearance over U.S. 1. This alternative could be construed as a runway extension, rather than a runway relocation. Therefore, the FAA could determine that the RPZ for Runway 25 should no longer have U.S. 1 traveling through it. This determination, if it were made, would also require the relocation of U.S. 1 in a manner similar but perhaps not as far from the runway end as that previously shown in Figure 7.

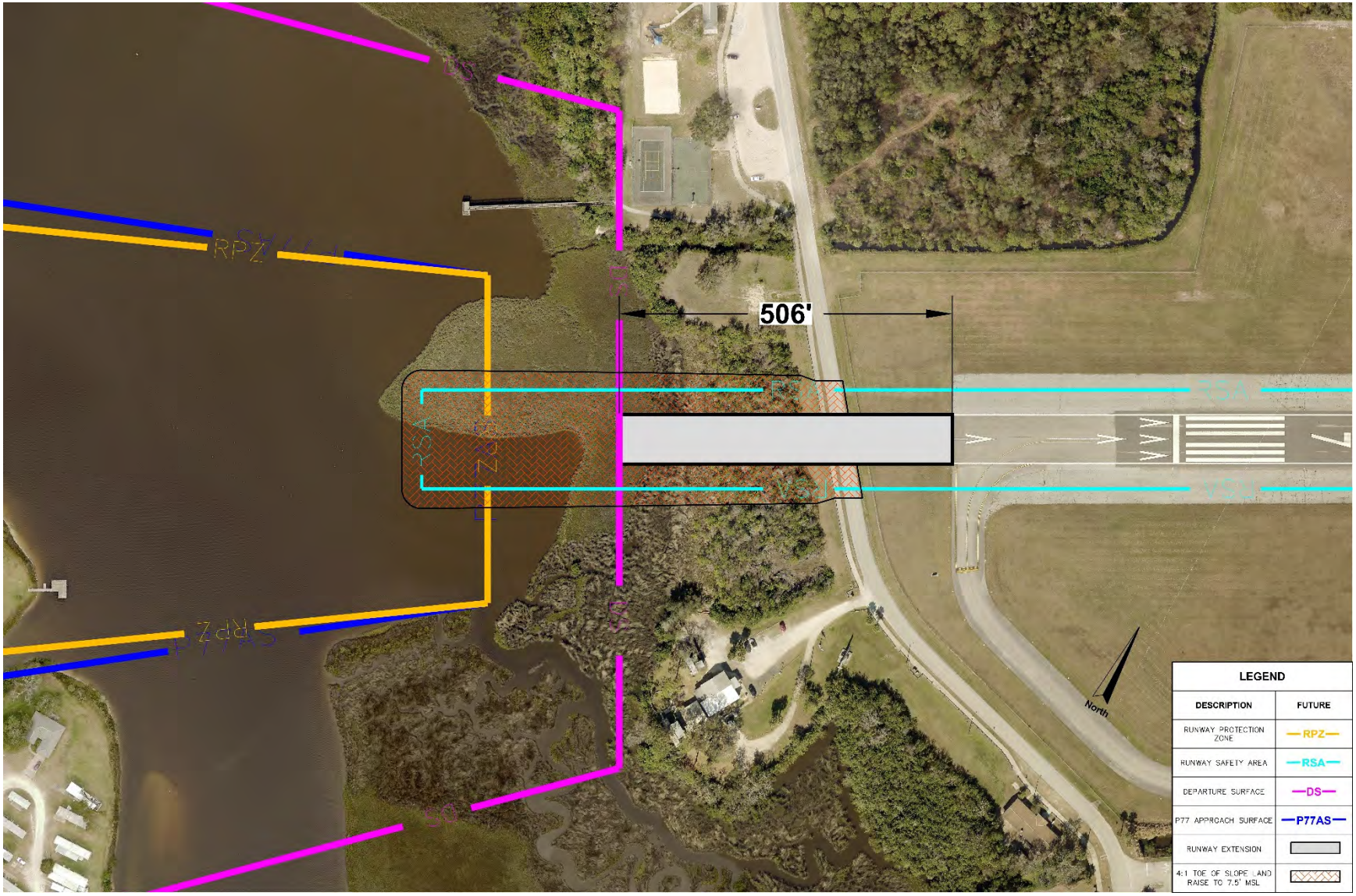


Figure 10
ALTERNATIVE 3: CLOSURE OF SUNSET DRIVE

Alternative 4: Stop Gates on Sunset Drive on Either Side of the Runway

This alternative would place stop gates on Sunset Drive on either side of the Runway 7/25 Primary Surface that upon activation by the pilot would close off Sunset Drive to vehicular traffic until the aircraft had cleared the road. This alternative would still have to relocate the runway along the axis of the runway in a manner similar that of Alternative 3, as shown in Figure 11, for the Approach Surface of Runway 25 to clear U.S. 1. With the shifting of runway 7/25 along its axis to the west, Sunset Road, would then be traveling across the actual runway, rather than "just" through the safety areas. It is highly unlikely that the FDOT or the FAA would allow this to occur. The writers of this report could not find an example anywhere in the United States where such an installation is in place to keep vehicles from crossing a runway.

Alternative 5: Engineering Materials Arresting System

Engineered Materials Arresting Systems (EMAS) are made up of energy absorbing materials that are engineered to reliably and predictably deform under the weight of an aircraft. These systems are designed to be placed in RSA's that do not meet FAA standards. Using FAA AC 150/5220-22B, *Engineering Materials Arresting Systems (EMAS) for Aircraft Operations*, EMAS was planned for both runway ends, as shown in Figure 11, as Alternative 5A, and Figure 12, as Alternative 2B.

An EMAS has two parts; the base and the bed. The base is made up of pavement that can support the occasional weight of the Critical Aircraft as well as any Aircraft Rescue and Fire Fighting (ARFF) vehicles. Full strength runway pavement is not required. The EMAS bed is made up of the special EMAS arresting material, which should be able to support pedestrian traffic but is not required to support vehicular traffic.

Based on the Master Plan proposed Critical Aircraft for Runway 7/25, the Beechcraft King Air 350i, each EMAS base would be 135 feet wide and 455 feet long, centered on the extended centerline of the Runway.

The EMAS bed, located on top of the EMAS base, would be 95 feet wide, centered on the extended runway centerline, and 360 feet in length. The beginning of the EMAS base would be located 75 feet from the end of EMAS base, which would be located at the end of the Runway.

The length of the EMAS base would effectively be the RSA, so the RSA on each end would be 455 feet. This is 155 feet longer than the required RSA, which points out one of the deficiencies in this alternative. To provide enough length for the EMAS, U.S. 1 would have to be relocated in a manner like that shown in Figure 12. Or, the Runway would be relocated along its axis in a manner like that described in Alternative 3 and Runway 7, as shown in Figure 10. As shown in Figure 12, the Runway 25 end has not been shifted. If the Runway 25 end shifts, this will trigger a further and corresponding extension into Turnbull Bay than that currently shown in Figure 11.

Two items should be noted for this alternative. EMAS is typically not used for smaller airports used exclusively by smaller aircraft, as the cost is expensive. Additionally, as the smaller aircraft are so light, including the Critical Aircraft for this runway, they are not captured by the EMAS as effectively as larger aircraft.

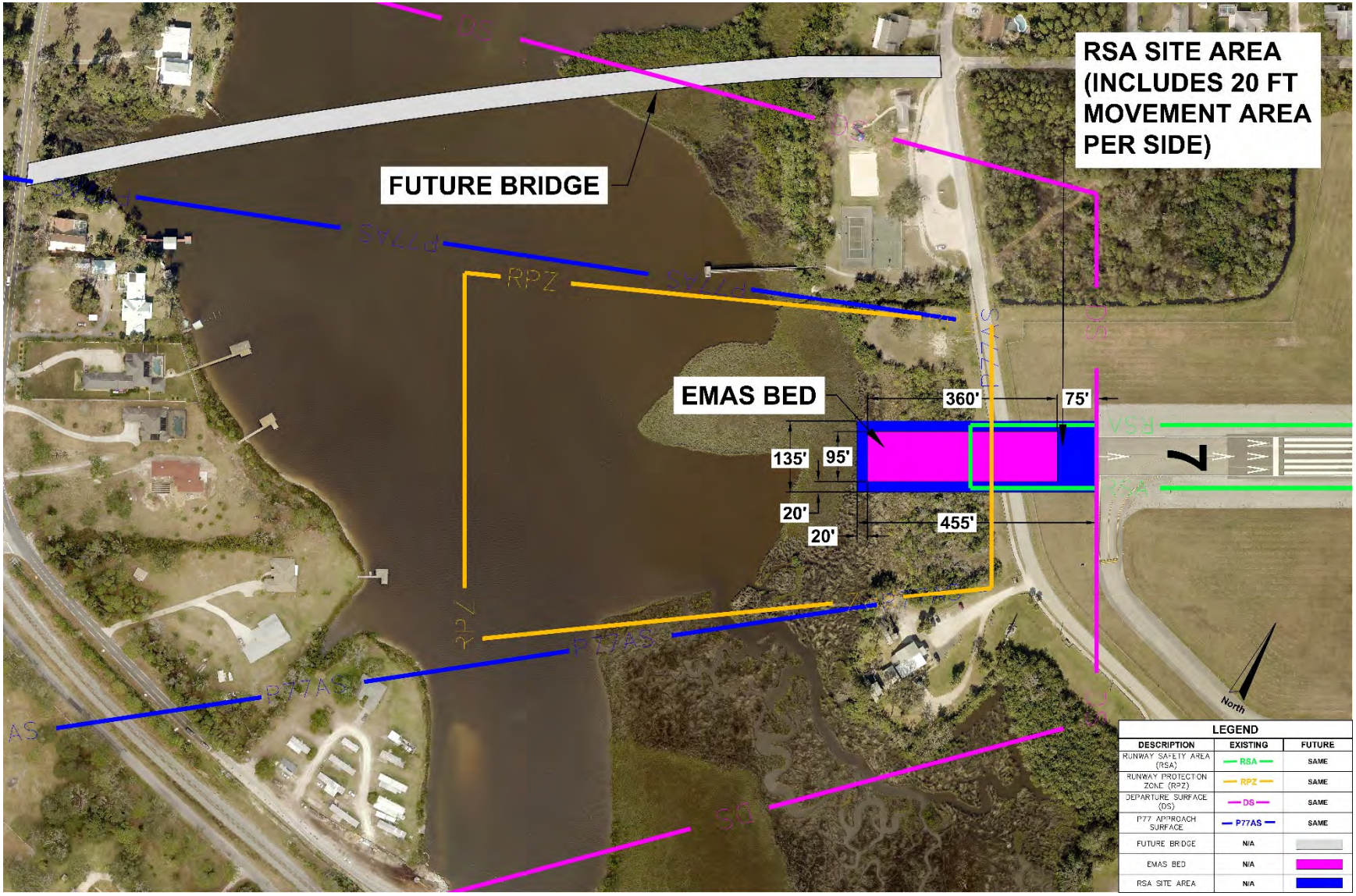


Figure 11
ALTERNATIVE 5A: EMAS ON RUNWAY 7

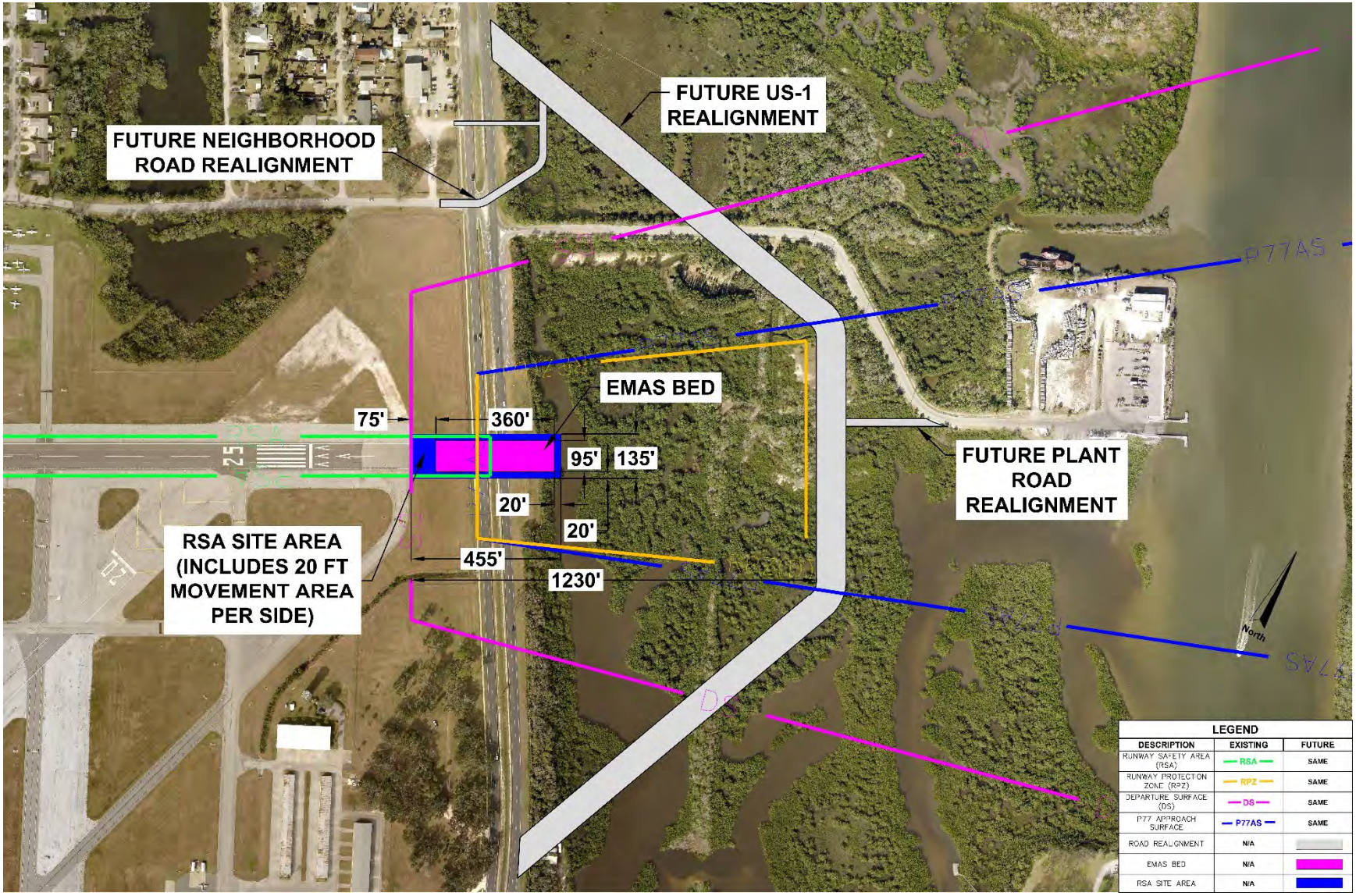


Figure 12
ALTERNATIVE 5B: EMAS ON RUNWAY 25

The second issue is that there are only two manufacturers that have been approved by the FAA to provide EMAS systems. One of these manufacturers previously announced that they will no longer be providing new EMAS systems. The FAA is currently working with that manufacturer to determine if another plan can be made to continue manufacturing EMAS. It has recently been reported that such a plan has been reached with the manufacturer.

The methodology to plan/preliminary design an EMAS as outlined in FAA Order 5200.9, *Financial Feasibility and Equivalency of Runway Safety Area Improvements and Engineered Material Arresting Systems*, can be found in **Appendix B**.

Alternative 6: Shifting or Realigning of Runways

FAA Order 5200.8, Runway Safety Area Program, advises that other RSA alternatives should be considered, including the shifting or re-alignment of the runway. This report has previously looked at relocating the Runway along its axis. This alternative will consider two different options for realigning the runway, while keeping its current length of 5,000 feet. These options are shown in Figure 13 and 14. An alternative whereby Runway 11/29 is realigned and lengthened to 5,000 feet is also considered and is shown in Figure 15.

The option shown in Figure 13, as Alternative 6A, would rotate the Runway 25 end south while keeping the Runway 7 end in relatively the same position. This option would attempt to keep all 5,000 feet of the Runway and safety areas on the existing Airport property. The Approach Surface for Runway 7 (now 12) would clear the clearance over Sunset Drive and South Road and would clear the clearance over U.S. 1 and Industrial Park Avenue.

The three T-hangar buildings located in the southeast corner of the Airport would need to be relocated. Many of the structures associated with the New Smyrna Beach Sports Complex would also have to be moved.

Both RPZs would have roads raveling through them and small portions of these would need to be relocated. They are Sunset Drive, South Road, and Industrial Park Avenue. The RPZ associated with Runway 7 (now 12) would have at least three residences located within it and these would need to be relocated. The RPZ associated with Runway 25 (now 30) would have the three T-hangars buildings located within it as well as the buildings associated with the New Smyrna Beach Public Works buildings located near the intersection of U.S. 1 and Industrial Park Avenue. These facilities would need to be relocated.

The option shown in Figure 14, as Alternative 6B, would rotate the Runway 7 end to the east while keeping the Runway 25 end in relatively the same position. This option would keep the 5,000 feet on the Airport but would also require the demolition of at least 11 buildings within the Airport Industrial Park. The RPZ for the Runway 25 (now 19) end would continue to have U.S. 1 traveling through it and this may disqualify this option. The RPZ for the Runway 7 (now 1) end would have the interior roads of the Airport Industrial Park within it, but as the Airport Industrial Park will be significantly affected simply by having to remove the buildings to accommodate the relocated Runway, this may be a moot point. This RPZ will also have Turnbull Bay Road and Industrial Park Avenue within it and if this option is selected, these roads may have to be relocated.

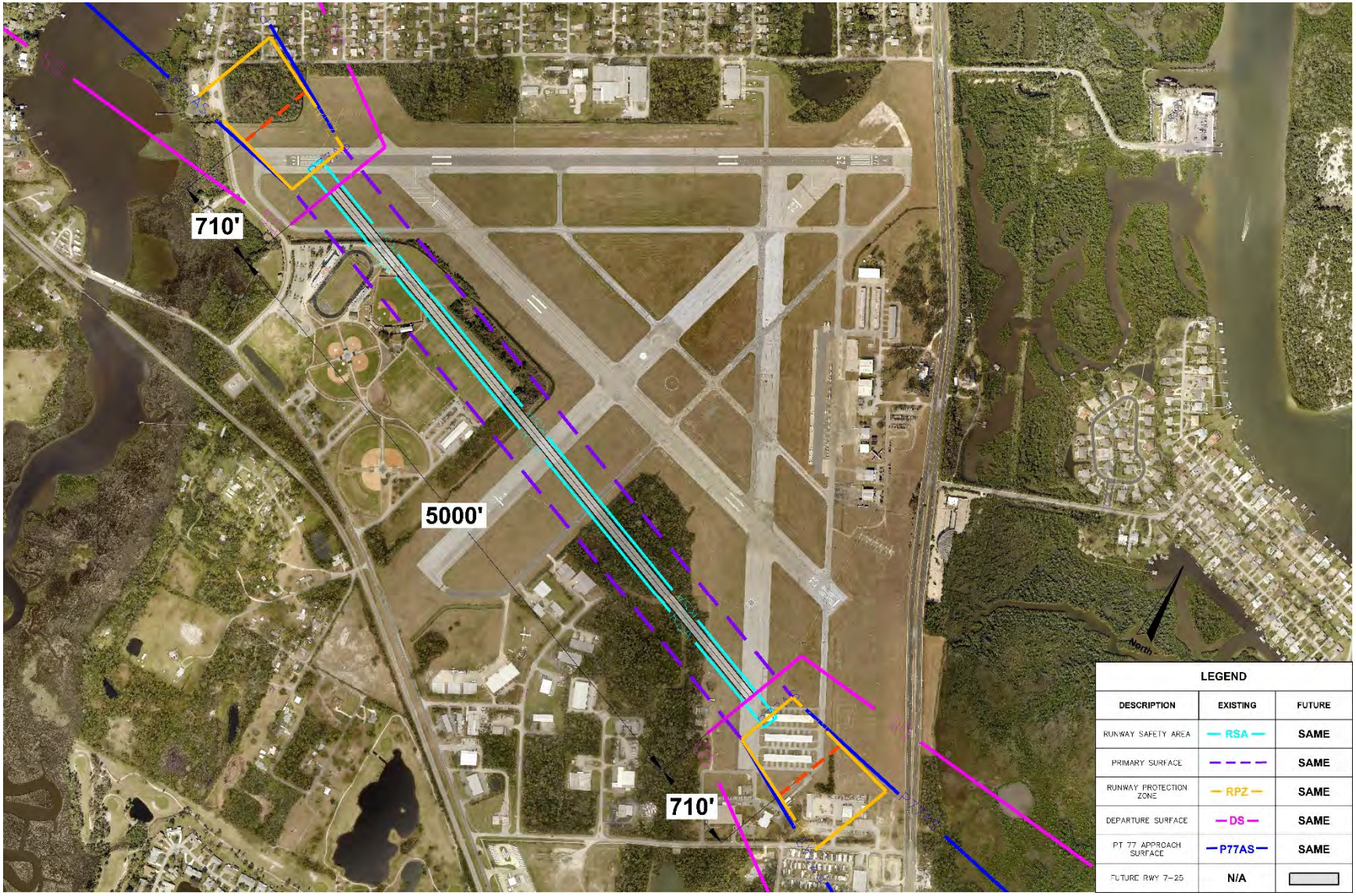


Figure 13
ALTERNATIVE 6A: RUNWAY 7/25 RELOCATION OPTION 1

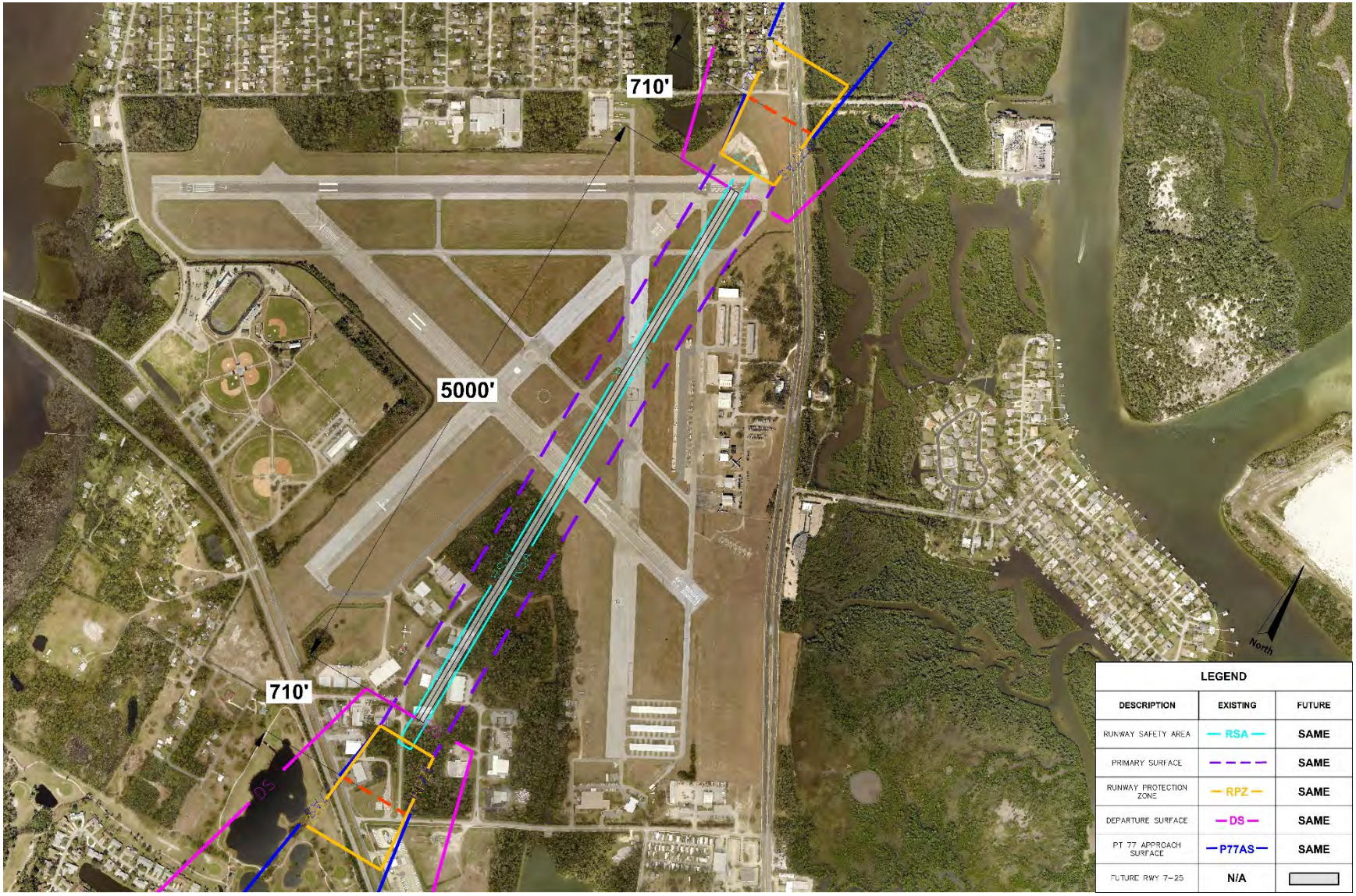


Figure 14
ALTERNATIVE 6B: RUNWAY 7/25 RELOCATION OPTION 2

The option shown in Figure 15, as Alternative 6C, would lengthen Runway 11/29 to 5,000 feet. It would also relocate the runway centerline 240 feet to the southwest, which would allow the new full-length parallel taxiway to be located on the existing Runway 11/29. This alternative would not require the demolition of buildings on the Airport, but the relocation of the RPZ for Runway 11 would require that at least seven residences in the Islesboro neighborhood be purchased and razed. As the Runway Object Free Area (ROFA) infringes on portions of the New Smyrna Beach Sports Complex, considerations will have to be made during the Environmental Assessment process to accommodate the Section 4(f) process found in 49 U.S.C 303 that states that special efforts must be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites. While this may or may not prevent this alternative from being realized, these considerations will likely take considerable time to resolve.

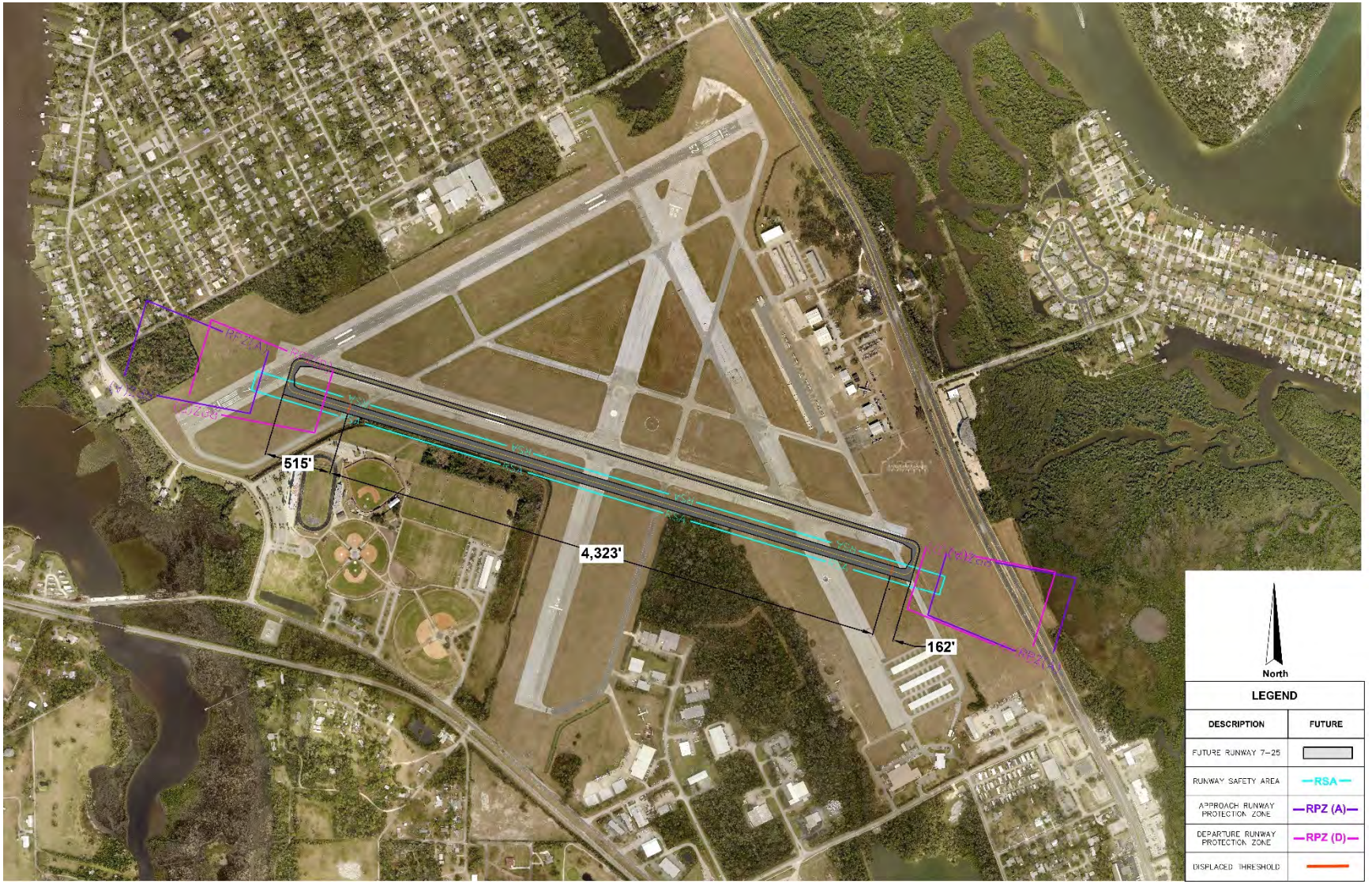


Figure 15
ALTERNATIVE 6C: RUNWAY 11/29 RELOCATION

Alternatives 6A and 6B would replace Runway 7/25 with a runway that would closely track one of the two remaining runways on the Airport. The option that is shown in Figure 13 closely tracks Runway 11/29, without having enough separation between the two runways for simultaneous landings and take-offs. This option would probably be better suited as a replacement option to Runway 11/29 than to Runway 7/25. The option that is shown in Figure 14 somewhat tracks Runway 2/20. Again, this option would be too closely located to Runway 2/20 to be independently effective and would probably be a better replacement option for Runway 2/20 than for Runway 7/25.

Alternative 6C is proposed as a replacement to Runway 11/29, which would also be lengthened to 5,000 feet. This alternative would provide the Airport with a 5,000-foot-long runway but would impact the New Smyrna Beach Sports Complex.

Alternative 7: Accelerating the Planning, Environmental, Design and Construction of an Extension to Runway 11/29

Runway 11/29 is a 4,319-foot-long by 75-foot-wide runway and is currently designated as one of the Airport's two secondary runways. Within the 2018 Airport Master Plan Update Narrative Report, it is recommended that Runway 11/29 be lengthened based on the FAA AC 150/5325-4B*, Runway Length Requirements for Airport Design*. Following the methodology of the AC, it was determined that the identified Critical Aircraft, the Cessna Citation 560XL, would need 5,405 feet and that the additional 1,086 feet should be added within the "initial planning phases." The 2018 Master Plan Update Narrative Report further recommends that this runway be extended to as much as 7,000 feet by the year 2035. The Airport Layout Plan (ALP), which has been approved by the FAA, shows a 914-foot extension of the Runway 11 end across Runway 7/25 and a 165-foot runway extension of the Runway 29 end for a total length for Runway 11/29 of 5,398 feet. The ALP also shows a displaced threshold on Runway 11 of 749 feet and a displaced threshold on runway 29 of 165 feet. The declared distances for Runway 11/29 that have been approved on the ALP are shown in Table 10.

Table 10
APPROVED EXISTING AND FUTURE DECLARED DISTANCES FOR RUNWAY 11/29

	Runway 11		Runway 29	
Distances	**Existing (feet)**	**Future (feet)**	**Existing (feet)**	**Future (feet)**
TORA	4,319	5,233	4,319	4,484
TODA	4,319	5,398	4,319	5,398
ASDA	4,319	5,398	4,319	5,398
LDA	4,319	4,484	4,319	5,233

Note: TORA=Takeoff Run Available, TODA=Takeoff Distance Available, ASD=Accelerate-Stop Distance Available, LDA=Landing Distance Available

While the Runway extension is proposed to remain on Airport property, the RPZ would affect several residences in the Islesboro neighborhood to the northwest of the Airport and a small portion of the relocated RPZ for the Runway 11 end would have South Road traveling through it. The RPZ for the Runway 29 end currently has U.S. 1 traveling through it and the proposed lengthening of Runway 11/29 would not change this.

The 2018 Master Plan Update's Implementation Plan indicates that the "Runway 11 Extension & Parallel Taxiway" project is proposed to begin in 2024. The Joint Automated Capital

Improvement Program (JACIP) is a joint tool of the FAA and the FDOT for airport grant funding and planning had the extension of Runway 11/29 beginning in 2020. The FAA informed the Airport that it must rehabilitate existing Airport pavements before they would fund the extension of Runway 11/29.

This alternative would accelerate the planning, environmental, design and construction of this project. The grant application season to the FAA and FDOT is past for grants that would be awarded in the Fall of 2019. Therefore, if all indices were favorable, the first grant for the environmental portion of the project would not be received prior to the Fall of 2020. If the environmental process for this project is to be an Environmental Assessment (EA) (the FAA, at its discretion, could determine that this might have to be an Environmental Impact Statement (EIS)). The period to accomplish the EA could be from six months to as much as four years. For the purposes of this discussion, it is assumed that the submittal of the EA to the FAA would take a year or less. It is further assumed that the Airport would apply for the design grant of the project while the EA is still in process with the goal of receiving a design grant in the Fall of 2021. It is assumed that the design of the project could be accelerated to be bid within six to eight months from the Notice to Proceed and that the Airport would be applying for the construction grant while the project is under design with the goal of receiving the construction grant in the Fall of 2022. It is assumed that the construction could be completed in the Spring of 2023, or four years from now, if all indices are favorable.

It is assumed that the FAA will continue to insist that the existing pavement must be rehabilitated first. This could take three or more years to accomplish depending on the amount of pavement to be rehabilitated. However, discussions should begin soonest with the FDOT to see if they would take the lead in the funding of this project.

One of the concerns about accelerating any project that is being funded by the FAA and the FDOT is that they plan and program their funds out at least five years in advance. To push a project forward in the funding process would take considerable effort, as these agencies have already balanced out the amount of money, they believe will be allocated against the many worthwhile projects that are proposed each year. However, as the FDOT has had this project in the system, every effort should be made to ensure that they will continue to fund this project.

A second concern is the justification of the Runway 11/29 future length. A runway length analysis was done in the 2018 Master Plan, but the ALP associated with that Master Plan has not yet been approved by the FAA. It is likely, either before or during the EA process, that the proposed length of Runway 11/29 will be very closely scrutinized and justified. One of the methodologies for assessing the Runway length will be to look at the FAA's Traffic Flow Management System Counts (TFMSC). These counts are collected by the FAA and represent those Instrument Flight Rules (IFR) operations where a flight plan was filed for an operation and the Airport was part of that operation either as an origin or as a destination, or where the operation was caught on radar. While not all operations file a flight plan, larger aircraft are much more likely to. And, while not every operation is captured, these operations can be verified. Further, the TFMSC captures the aircraft model, so it can be determined what aircraft are flying into and out of the Airport.

For this project, a year's worth of TFMSC data was downloaded for the New Smyrna Beach Municipal Airport. The operations that occurred between May 1, 2018 through April 30, 2019 were downloaded. While a significant number of operations were logged by the C414 aircraft

that Airgate Aviation currently operates, there was not enough activity verified for the Cessna 500, the Cessna 501, the Cessna 550, the Cessna 551, or the Bombardier 350 to warrant a runway extension at this time, when these aircraft are considered either singly or together, as shown in Table 10. It is understood that the Airgate Aviation operation is currently transitioning from the Cessna Challenger 414 to the Cessna Citation 550. The justification for the lengthening project will be much stronger once the verified numbers of operations by the Cessna 501, 550, and 551 aircraft either singly or as a group meet or exceed 500 annual operations. With the Airgate Aviation transition from the C414A aircraft to the C500, C550, and C551 aircraft, this is likely to occur within a year.

Table 11
SUMMARY OF TRAFFIC FLOW MANAGEMENT SYSTEM COUNTS

Aircraft	Physical Class	Airplane Approach Category	Airplane Design Group	Naturalized Annual TFMSC
AA5 - American AA-5 Traveler	Piston	A	I	3
AC11 - North American Commander 112	Piston	A	I	2
B36T - Allison 36 Turbine Bonanza	Turbine	A	I	4
BE23 - Beech 23 Sundowner	Piston	A	I	3
BE33 - Beech Bonanza 33	Piston	A	I	95
BE35 - Beech Bonanza 35	Piston	A	I	98
BE36 - Beech Bonanza 36	Piston	A	I	225
BE55 - Beech Baron 55	Piston	A	I	99
C150 - Cessna 150	Piston	A	I	1
C152 - Cessna 152	Piston	A	I	1
C172 - Cessna Skyhawk 172/Cutlass	Piston	A	I	4,247
C177 - Cessna 177 Cardinal	Piston	A	I	14
C182 - Cessna Skylane 182	Piston	A	I	86
C210 - Cessna 210 Centurion	Piston	A	I	19
C310 - Cessna 310	Piston	A	I	73
COL3 - Lancair LC-40 Columbia 400	Piston	A	I	2
COL4 - Lancair LC-41 Columbia 400	Piston	A	I	5
DA40 - Diamond Star DA40	Piston	A	I	3
DA42 - Diamond Twin Star	Piston	A	I	35
EA50 - Eclipse 500	Jet	A	I	6
EVOT - Lancair Evolution Turbine	Turbine	A	I	2
KODI - Quest Kodiak	Turbine	A	I	2
M20P - Mooney M-20C Ranger	Piston	A	I	91
M20T - Turbo Mooney M20K	Piston	A	I	12
MU2 - Mitsubishi Marquise/Solitaire	Turbine	A	I	6
P210 - Riley Super P210	Piston	A	I	5
P28A - Piper Cherokee	Piston	A	I	99
P28B - Piper Turbo Dakota	Piston	A	I	4
P28R - Cherokee Arrow/Turbo	Piston	A	I	27
P32R - Piper 32	Piston	A	I	26
P46T - Piper Malibu Meridian	Turbine	A	I	18
PA24 - Piper PA-24	Piston	A	I	20
PA27 - Piper Aztec	Piston	A	I	9
PA28 - Piper Cherokee	Piston	A	I	1
PA30 - Piper PA-30	Piston	A	I	11
PA31 - Piper Navajo PA-31	Piston	A	I	21

PA32 - Piper Cherokee Six	Piston	A	I	41
PA34 - Piper PA-34 Seneca	Piston	A	I	32
PA44 - Piper Seminole	Piston	A	I	512
PA46 - Piper Malibu	Piston	A	I	39
S22T - Cirrus SR-22 Turbo	Piston	A	I	44
SR20 - Cirrus SR-20	Piston	A	I	27
SR22 - Cirrus SR 22	Piston	A	I	75
T210 - Cessna T210M	Piston	A	I	4
TBM7 - Socata TBM-7	Turbine	A	I	12
TBM8 - Socata TBM-850	Turbine	A	I	28
TBM9 - Socata TBM	Turbine	A	I	12
Sub-total A-I Aircraft TFMSC Operations				**6,201**
PC12 - Pilatus PC-12	Turbine	A	II	40
Sub-total A-II Aircraft TFMSC Operations				**40**
DC3 - Boeing (Douglas) DC 3	Piston	A	III	6
Sub-total A-III Aircraft TFMSC Operations				**6**
AC90 - Gulfstream Commander	Turbine	B	I	22
BE10 - Beech King Air 100 A/B	Turbine	B	I	2
BE40 - Raytheon/Beech Beechjet 400/T-1	Jet	B	I	16
BE58 - Beech 58	Piston	B	I	72
BE60 - Beech 60 Duke	Piston	B	I	2
BE9L - Beech King Air 90	Turbine	B	I	54
C206 - Cessna 206 Stationair	Piston	B	I	5
C25A - Cessna Citation CJ2	Jet	B	I	14
C340 - Cessna 340	Piston	B	I	7
C414 - Cessna Chancellor 414	Piston	B	I	1,443
C425 - Cessna 425 Corsair	Turbine	B	I	8
C500 - Cessna 500/Citation I	Jet	B	I	2
C501 - Cessna I/SP	Jet	B	I	72
C510 - Cessna Citation Mustang	Jet	B	I	8
C525 - Cessna Citation Jet/CJ1	Jet	B	I	36
E50P - Embraer Phenom 100	Jet	B	I	2
HDJT - HONDA HA-420 Honda Jet	Jet	B	I	2
PAY2 - Piper Cheyenne 2	Turbine	B	I	4
PAY4 - Piper Cheyenne 400	Turbine	B	I	2
PRM1 - Raytheon Premier 1/390 Premier 1	Jet	B	I	22
Subtotal B-I Aircraft TFMSC Operations				**1,795**
B350 - Beech Super King Air 350	Turbine	B	II	36
BE20 - Beech 200 Super King	Turbine	B	II	58
BE30 - Raytheon 300 Super King Air	Turbine	B	II	12
BE9T - Beech F90 King Air	Turbine	B	II	2
C208 - Cessna 208 Caravan	Turbine	B	II	2
C25B - Cessna Citation CJ3	Jet	B	II	8
C25C - Cessna Citation CJ4	Jet	B	II	68
C441 - Cessna Conquest	Turbine	B	II	4
C550 - Cessna Citation II/Bravo	Jet	B	II	38
C551 - Cessna Citation II/SP	Jet	B	II	8
C560 - Cessna Citation V/Ultra/Encore	Jet	B	II	58
C56X - Cessna Excel/XLS	Jet	B	II	36
C650 - Cessna III/VI/VII	Jet	B	II	8
C680 - Cessna Citation Sovereign	Jet	B	II	18
C68A - Cessna Citation Latitude	Jet	B	II	6

C750 - Cessna Citation X	Jet	B	II	4
E545 - Embraer EMB-545 Legacy 450	Jet	B	II	8
E55P - Embraer Phenom 300	Jet	B	II	18
F2TH - Dassault Falcon 2000	Jet	B	II	12
Subtotal B-II Aircraft TFMSC Operations				404
H25B - BAe HS 125/700-800/Hawker 800	Jet	C	I	24
LJ31 - Bombardier Learjet 31/A/B	Jet	C	I	8
LJ45 - Bombardier Learjet 45	Jet	C	I	4
LJ60 - Bombardier Learjet 60	Jet	C	I	12
Subtotal C-I Aircraft TFMSC Operations				48
CL30 - Bombardier (Canadair) Challenger	Jet	C	II	14
CL35 - Bombardier Challenger 300	Jet	C	II	94
CL60 - Bombardier Challenger 600/601/604	Jet	C	II	2
G150 - Gulfstream G150	Jet	C	II	8
Subtotal C-II Aircraft TFMSC Operations				118
C130 - Lockheed 130 Hercules	Turbine	C	III	8
Subtotal C-III Aircraft TFMSC Operations				8
LJ35 - Bombardier Learjet 35/36	Jet	D	I	2
Subtotal D-I Aircraft TFMSC Operations				**2**

Table 10 shows the “naturalized” operations whereby the number of operations for turbine and jet operations are modified to show complete flights. So, if only an arrival or landing was recorded, a second operation is added to represent a complete flight with both an arrival and a departure. The operations represented by piston aircraft were not naturalized. Those aircraft or groups of aircraft with more than 500 annual operations are highlighted in blue. Those aircraft that are represented in Table 4 are highlighted in green. The complete TFMSC data downloaded for the Airport can be found as **Appendix D**.

It should be noted that the Advisory Circular by which the Master Plan runway length analysis was performed may soon be superseded by an Advisory Circular that has already been published in draft form. This is FAA AC 150/5325-4C, *Runway Length Recommendations for Airport Design*. Using the draft document, it was determined that a maximum of 4,150 feet in length could be justified for the Beechcraft King Air 350i, the Critical Aircraft identified in the 2018 Master Plan Update. This is less than the current length of Runway 1/29. For Light Jets, such as those to which Airgate Aviation is transitioning, the draft Advisory Circular refers to each aircraft’s airport planning manual. These runway lengths are given in Table 6, where available.

Alternative 8: Explore Obtaining a Modifications to Standards for Runway 7/25

FAA Order 5300.1G, *Modification to Agency Airport Design, Construction, and Equipment Standards*, “establishes the process for the initiation, revision, coordination, and management of Modifications of Standards (MOS) applicable to airport design, construction material, and equipment projects. Any deviation from, or addition to standards, applicable to airport design, material, and construction standards, or equipment projects resulting in an acceptable level of safety, useful life, lower costs, greater efficiency, or the need to accommodate an unusual local condition on a specific project through approval on a case-by-case basis.”

Paragraph 7e (1) of the Order states that an:

> "MOS is not issued for RSA dimensions. Instead, the Regional Airports Division Manager will evaluate RSAs and issue a RSA determination in accordance with FAA Order 5200.8, *Runway Safety Area Program*, and FAA Order 5200.9, *Financial Feasibility and Equivalency of Runway Safety Area Improvements and Engineered Material Arresting Systems*, for each affected runway at federally obligated airports and airports certificated under 14 CFR Part 139 within their geographic purview."

An approved MOS does not constitute an exemption from Title 14, Code of Federal Regulations (CFR), Parts 139. An MOS cannot be used to modify:

- RSA or its dimensions
- ROFZ dimensions
- Approach/Departure Surfaces

While an MOS can be requested and, if acceptable, granted for such projects as the spacing of runway lights or a substitute material during construction, the FAA order specifically states that the modifications to RSA, ROFZ, and Approach/Departure Surfaces are not allowed. Obtaining a Modification to Standards will not be possible in the current situation with Runway 7/25 at New Smyrna Beach Municipal Airport.

Alternative 9: Make Runway 7/25 a Takeoff Runway Only

This alternative explores the possibility of making Runway 7/25 a takeoff runway only by adding pavement to both ends. There is currently 5,244 feet between the fences at each end of Runway 7/25. The fence along Sunset Drive is 90.5 feet from the end of Runway 7 and there is 153.5 feet from the end of Runway 25 and the fence along U.S. 1. Runway 7/25 is currently 5,000 feet long.

By adding 50.5 feet the Runway 7 end of the runway and adding 113.5 feet to the Runway 25 end, the result is a runway that is physically 5,164 feet long and there is 40 feet between each runway end and the closest runway end. If a 300-foot-long RSA is to be achieved at each runway end, the TORA would only be 4,904 feet long. However, if the length of the RSA could be reduced to 204 feet on each end of the runway, the resulting distances would be as shown in Table 12.

Table 12
TAKE-OFF RUNWAY ONLY DECLARED DISTANCES

	Runway 7		Runway 25	
Distances	**Existing**	**Future**	**Existing**	**Future**
TORA	5,000'	5,000'	5,000'	5,000'
TODA	5,000'	5,000'	5,000'	5,000'
ASDA	5,000'	4,904'	5,000'	4,904'
LDA	4,665'	0'	4,700'	0'

If the 204-foot RSA would also allow the 34:1 approach surface to clear the six-foot high fence located at either end of the runway. Each end of such a take-off runway are shown in Figure 15 and Figure 16.

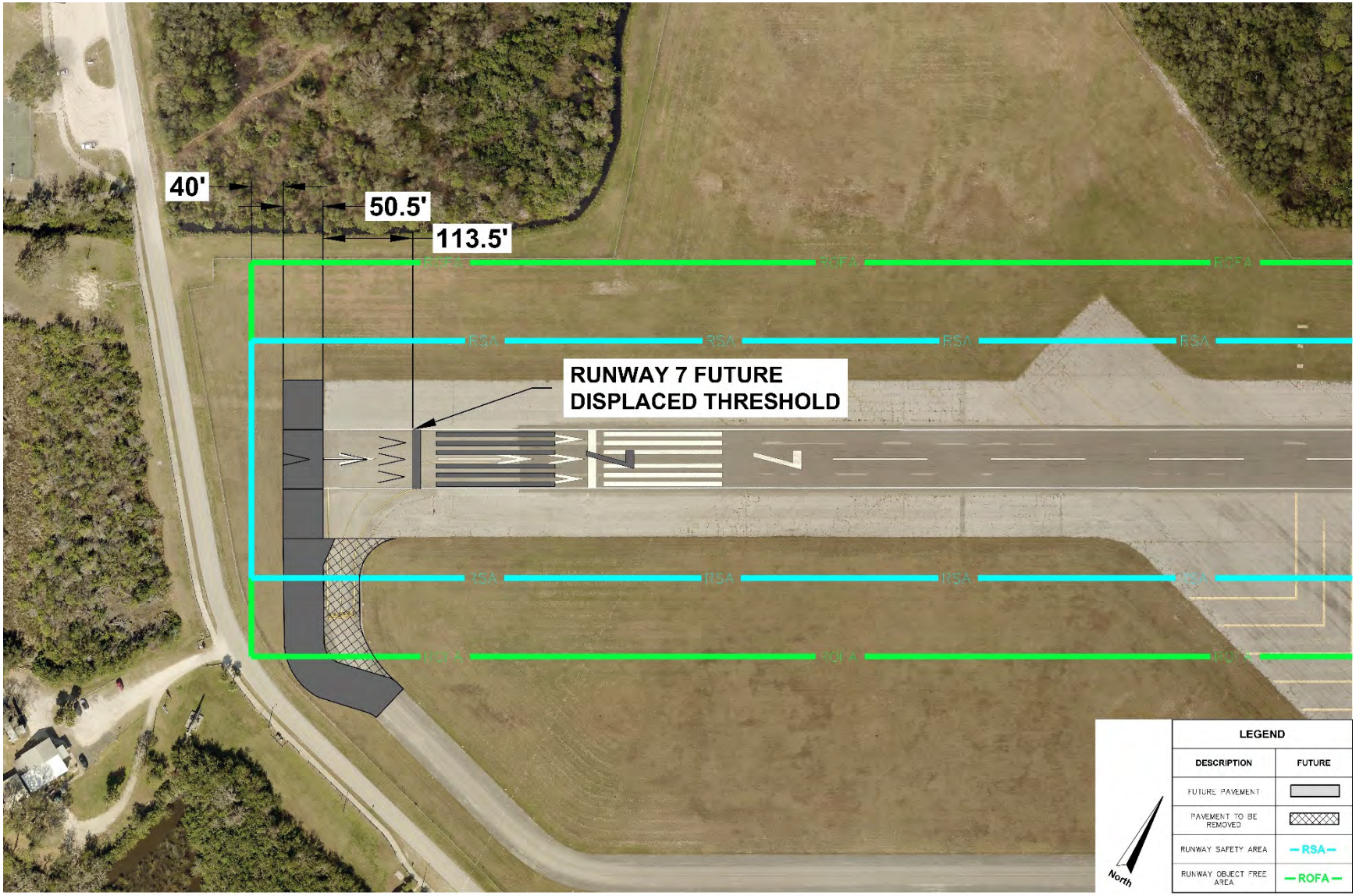


Figure 16
ALTERNATIVE 7: RUNWAY 7 END EXTENSION

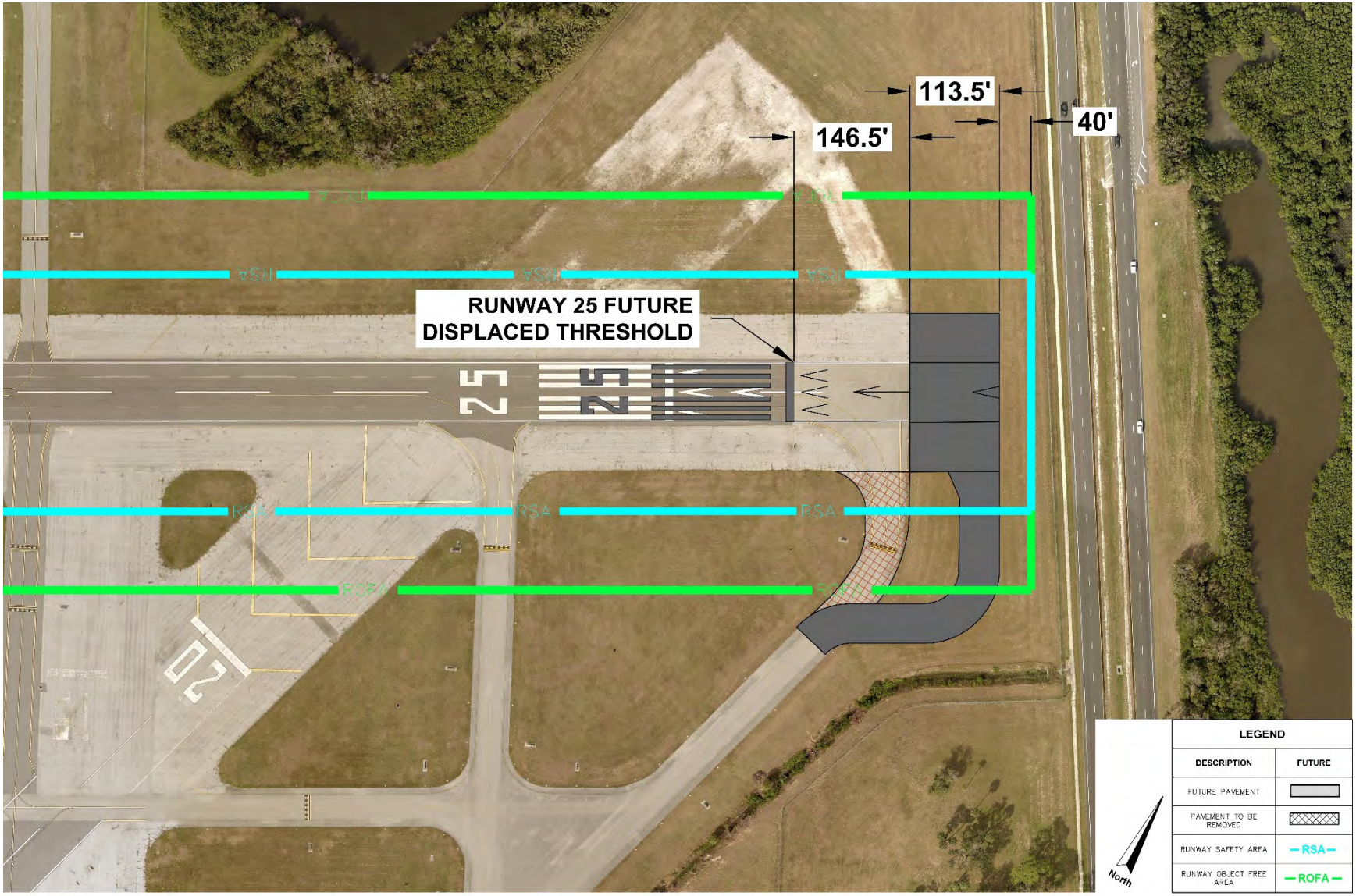


Figure 17
ALTERNATIVE 7: RUNWAY 25 END EXTENSION

13. Order of Magnitude Cost Estimates

Order of magnitude cost estimates were prepared for all but two of the alternatives. It is not intended that the cost estimates shown in this report represent construction costs. Rather, major items of the work have been isolated and generally costed to allow for the determination of the value of one alternative to another. The order of magnitude cost estimate for each alternative is shown in Table 13. Greater detail is shown in **Appendix E.**

Table 13
ORDER OF MAGNITUDE COST ESTIMATES

Alternative No.	Alternative Description	Order of Magnitude Cost Estimate	Paired Alternative Cost Estimate
1A	Relocation of Sunset Drive for Approach Slope	$ 49,170,000	
1B	Relocation of U.S. 1 for Approach Slope	$ 67,600,000	$ 116,770,000
1C	Relocation of Sunset Drive for RPZ	$ 52,200,000	
1D	Relocation of U.S. 1 for RPZ	$ 76,740,000	$ 127,940,000
2A	Tunnel Below Runway 7	$ 398,480,000	
2B	Tunnel Below Runway 25	$ 671,920,000	$1,070,400,000
3	Closure of Sunset Road	$ 28,120,000	*$147,920,000
4	Stop Gates on Sunset Drive	N/A	N/A
5A	EMAS on Runway 7	$ 68,460,000	
5B	EMAS on Runway 25	$ 93,010,000	$ 161,470,000
6A	Shifting or Realigning Runway 7/25 Option 1	$ 396,010,000	$ 396,010,000
6B	Shifting or Realigning Runway 7/25 Option 2	$ 398,020,000	$ 398,020,000
6C	Runway 11/29 Relocation	$ 33,055,000	$33,055,000
7	Extension to Runway 11/29	$ 48,348,000	$ 48,348,000
8	Explore Obtaining a Modification to Standards	N/A	N/A
9	Make Runway 7/29 a Takeoff Runway Only	$ 2,680,000	
C&S	Remarking the Runway and Lighting the Obstructions	**$1,410,000	***$1,410,000

Notes: *Paired with Alternatives 1B and 1C
** Cost estimate from the C&S Report

Cost estimates were not provided for alternatives 4 and 8 for reasons outlined in each alternative description. In some cases, the alternatives are paired and would ultimately cost more than the individual project. While the writers have paired similar alternatives, there are undoubtedly other combinations that could be achieved.

The order of magnitude cost estimates shown in Table 13 show that the most expensive alternative would be Alternative 2, which would tunnel under the safety areas on both the Runway 7 end and the Runway 25 end (Alternatives 2A and 2B). Combined, the total cost would be $1,070,400,00. The options shown in Alternatives 6A and 6B would be the next most expensive at $396,010,000 and $398,020,000 respectively. These alternatives would realign the Runway to provide for a full RSA on both ends of the Runway.

The least expensive alternative would be the remarking of the Runway and Lighting the Obstructions at $1,410,000. However, this alternative would not achieve the 5,000-foot long Landing Distance Available and Accelerated Stop Distance Available for which the City, the Airport, and the tenants of the Airport are seeking.

The second least expensive alternative would be to convert Runway 7/25 into a takeoff runway only. This is estimated to cost $2,680,000.

The City has stated that their preferred alternative would be to extend Runway 11/29 by 914 feet on the Runway 11 end and by 165 feet on the Runway 29 end resulting in a 5,398-foot long runway with declared distances. This alternative is estimated to cost $48,348,000. This amount includes the purchase and demolition of 33 residences in the Islesboro neighborhood. This would be necessary as the extension of Runway 11 would push the RPZ into the neighborhood. Residences and an RPZ are not compatible land uses. This cost estimate does not include a full-length parallel taxiway to Runway 7/25, which would provide access to the newly relocated Runway 11. If such a taxiway were to be included, it would cost an additional $119,728,000.

If the funding were available for this alternative, the Environmental Assessment for this project could begin as early as 2020. It is likely, the environmental assessment will take from 18 to 24 months to complete. Therefore, the design of the project would likely begin in 2022 and the construction would begin and probably completed in 2023. The purchase of 33 homes could take as long as five years or more.

14. Summary

In 2016, an Florida Department of Transportation (FDOT) inspection report alerted the New Smyrna Beach Municipal Airport to the fact that the Runway Safety Areas (RSA), the Runway Object Free Areas (ROFA), and the clearances to adjacent roads for Runway 7/25 at the Airport do not meet Federal Aviation Administration (FAA) or FDOT standards. A report completed by C&S Companies recommended displacing the thresholds, which would move the operational ends of the Runway away from the obstructions and lighting the obstructions. The 2018 Master Plan Update also recommended displacing the thresholds. While painted markings on the Runway would indicate that the displaced thresholds have existed on the Runway as far back as 1995, the distances of the displaced thresholds have not been published on the FAA Form 5010, *Airport Record*, lines 60 through 63, so the displaced thresholds are not considered "published."

Tenants on the Airport have expressed reservations with the reduction of runway length as Runway 7/25 is the longest runway on the Airport at 5,000 feet in length. The tenants, the City, and the Airport are concerned that with the approval by the FAA of the 2018 Master Plan and the associated Airport Layout Plan, that the displaced thresholds would become official. As of August 12, 2019, the declared distances for Runway 7/25 have not been published on the FAA Form 5010. There is concern that the displacement of the thresholds would prevent the operation of aircraft that one tenant is preparing to use for a charter operation and there are others on the Airport that are concerned that their insurance carriers would not allow them to operate on a runway of less than 5,000 feet in length.

This report was commissioned to review alternatives to the displacement of thresholds on Runway 7/25 that would keep the 5,000-foot-long runway as well as the safety areas required by the FAA and the FDOT. This report looks at published and readily available take-off and landing distances for sample aircraft on the Airport, as well as typical aeronautical insurance policies, and several leases from the Airport. The report also looked at several alternatives including:

- Relocation of adjacent roads around the approach surfaces of the Runway ends
- Relocation of adjacent roads around the Runway Protection Zones on each Runway end
- Tunneling the roads beneath the safety areas of the Runway ends
- Using Engineered Material Arresting Systems (EMAS) on each Runway end
- Options for Shifting and Relocating the Runway 7/25 and Runway 11/29
- Extension of Runway 11/29 to at least 5,000 feet

The City has stated that their preferred alternative would be to extend Runway 11/29 by 914 feet on the Runway 11 end and by 165 feet on the Runway 29 end resulting in a 5,398-foot long runway with declared distances. If this alterative were to be implemented, the FAA would ask the City of New Smyrna Beach to hold a public meeting or presentation of the preferred alternative and invite public comment, prior to commencing any environmental study.

It should be noted that the FAA has the ability to determine that it is not practicable for a standard RSA to be achieved on a runway, if sufficient justification is presented.

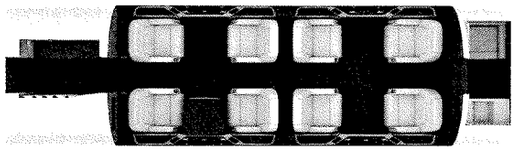
Order of magnitude cost estimates were performed for the viable alternatives. The cost estimates ranged from over $1Billon for the tunneling of the roads beneath the Runway safety areas to $1,410,000 for the displaced thresholds with marking and lighting. The cost estimate for the City preferred alternative of accelerating the extension of Runway 11/29 is estimated to cost $48,348,000 due largely to the purchase of 33 residences in the Islesboro neighborhood.

APPENDIX A
AIRCRAFT TAKE-OFF AND LANDING CHARACTERISTICS


Challenger 350
BOMBARDIER



Challenger 350



Smooth ride
An optimally balanced aircraft design provides a smooth ride from takeoff to touchdown.

Full seats, full fuel, full range
3,200 nm - numbers you can count on. No other super midsize jet goes full range with full fuel and at full seat capacity.

Flat out best cabin
The widest purposefully designed super midsize aircraft with both a flat floor and safe access to baggage.

NextGen ready
The best equipped cockpit and leading connectivity in its class ensure you are always ahead of what's next.

Lowest direct operating costs
Class-leading economics make the Challenger 350 aircraft a wise investment.

#1 in deliveries
Most successful business jet platform of the last decade.

For more information, please visit
businessaircraft.bombardier.com

CAPACITY

Passengers: Up to 10

ENGINES

Honeywell HTF7350 turbofans
Thrust: 7,323 lbf (33 kN)
Flat rated to ISA + 15°C

AVIONICS

- Rockwell Collins Advanced avionics suite with four large displays
- Dual Flight Management System with LPV and RNP approach capabilities
- Synthetic Vision System (SVS)
- MultiScan weather radar
- Dual Inertial Reference System (IRS)
- Dual SBAS/WAAS GPS

RANGE		
Maximum range[1]	3,200 nm	5,926 km

SPEED	MACH
Top speed	0.83
High speed cruise	0.82
Typical cruise speed	0.80

AIRFIELD PERFORMANCE		
Takeoff distance (SL, ISA, MTOW)	4,835 ft	1,474 m
Landing distance (SL, ISA, typical)	2,364 ft	721 m

OPERATING ALTITUDE		
Maximum operating altitude	45,000 ft	13,716 m
Initial cruise altitude (MTOW)	43,000 ft	13,106 m

INTERIOR		
Cabin height	6 ft 0 in	1.83 m
Cabin width	7 ft 2 in	2.19 m
Cabin length[2]	25 ft 2 in	7.68 m

EXTERIOR		
Length	68 ft 8 in	20.9 m
Wingspan	69 ft 0 in	21.0 m
Wing area	523 ft²	48.5 m²
Height	20 ft 0 in	6.1 m

WEIGHTS		
Maximum ramp weight	40,750 lb	18,484 kg
Maximum takeoff weight	40,600 lb	18,416 kg
Maximum landing weight	34,150 lb	15,490 kg
Maximum zero-fuel weight	28,200 lb	12,791 kg
Basic operating weight	24,800 lb	11,249 kg
Maximum fuel weight	14,150 lb	6,418 kg
Maximum payload	3,400 lb	1,542 kg

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BOMBARDIER

CHALLENGER 350

TAKEOFF SPEEDS/FIELD LENGTH – FLAPS 20

FLAPS 20°

ENGINE BLEED ON

DRY RUNWAY TAKEOFF DATA

ALTITUDE SEA LEVEL

TAKEOFF SPEEDS (KIAS) AND FIELD LENGTH (FT)

WT (LB) / V2 (KIAS)	DATA	TEMPERATURE °C													
		–40	–30	–20	–10	0	10	15	20	25	30	35	40	45	50
[illegible] / 135	V_1	119	119	119	119	119	119	119	119	119	119	118	118	117	117
	V_R	119	119	119	119	119	119	119	119	119	119	118	118	117	117
	V_2	130	130	130	129	129	129	129	128	128	128	127	126	125	123
	TOFL	2970	3080	3180	3300	3410	3520	3580	3630	3690	3750	3870	4040	4230	4440
[illegible] / 140	V_1	119	119	119	119	118	118	118	118	118	118	118	117	117	117
	V_R	119	119	119	119	118	118	118	118	118	118	118	117	117	117
	V_2	129	128	128	128	128	127	127	127	127	127	126	125	124	122
	TOFL	3040	3150	3260	3380	3500	3610	3670	3730	3780	3850	3980	4160	4360	4590
[illegible] / 144	V_1	118	118	118	118	118	118	118	118	118	118	118	117	117	117
	V_R	118	118	118	118	118	118	118	118	118	118	118	117	117	117
	V_2	127	127	127	127	126	126	126	126	126	126	125	124	123	121
	TOFL	3120	3230	3340	3460	3580	3700	3760	3820	3880	3950	4090	4290	4500	4750
34000 / 149	V_1	118	118	118	118	118	118	118	118	118	118	117	117	117	117
	V_R	118	118	118	118	118	118	118	118	118	118	117	117	117	118
	V_2	126	126	126	125	125	125	125	125	125	124	124	123	122	122
	TOFL	3190	3310	3420	3550	3670	3800	3860	3920	3980	4050	4200	4410	4650	4950
[illegible] / 153	V_1	118	118	118	118	118	118	118	118	118	117	117	118	120	122
	V_R	119	119	119	119	119	119	119	119	119	119	120	120	121	122
	V_2	125	125	125	125	125	125	125	125	125	125	125	125	125	125
	TOFL	3270	3390	3510	3630	3760	3890	3950	4010	4080	4150	4310	4650	5060	5580
[illegible] / 157	V_1	122	121	121	121	121	121	121	121	121	121	122	123	125	126
	V_R	123	123	123	123	123	123	123	123	124	124	124	124	125	126
	V_2	129	129	129	129	129	129	129	129	129	129	129	129	129	129
	TOFL	3560	3690	3800	3950	4090	4240	4300	4360	4430	4520	4770	5180	5680	6380
[illegible] / 163	V_1	127	127	126	126	126	126	126	126	126	126	127	128	130	130
	V_R	128	128	128	128	128	128	128	128	128	128	128	129	130	130
	V_2	133	133	133	133	133	133	133	133	133	133	133	133	133	133
	TOFL	4010	4150	4280	4450	4610	4770	4840	4920	4990	5090	5410	5910	6560	7470

[illegible]_OFF_TO_F20_0FT_DRY_ECS_01MAY14

NOTES:

1. Applicable for ZERO Runway Gradient and ZERO Wind Conditions ONLY.
2. For Runway Gradient and Wind corrections, see corrections page.
3. Add 100 feet to the takeoff field length when using the rolling takeoff procedure. See AFM for procedure.

MAX T.O. WT
40,600 @ 30°C
5090

TAKEOFF SPEEDS/FIELD LENGTH – FLAPS 20

FLAPS 20° **WET RUNWAY TAKEOFF DATA**

ENGINE BLEED ON **ALTITUDE SEA LEVEL**

TAKEOFF SPEEDS (KIAS) AND FIELD LENGTH (FT)															
WT (LB) V_{FTO} (KIAS)	DATA	TEMPERATURE °C													
		-40	-30	-20	-10	0	10	15	20	25	30	35	40	45	50
28000 V_{FTO}=135	V_1	119	119	119	119	119	119	119	119	119	119	118	118	117	117
	V_R	119	119	119	119	119	119	119	119	119	119	118	118	117	117
	V_2	130	130	130	129	129	129	129	128	128	128	127	126	125	123
	TOFL	3400	3530	3660	3800	3930	4080	4140	4210	4280	4360	4500	4680	4890	5110
30000 V_{FTO}=140	V_1	119	119	119	119	118	118	118	118	118	118	118	117	117	117
	V_R	119	119	119	119	118	118	118	118	118	118	118	117	117	117
	V_2	129	128	128	128	128	127	127	127	127	127	126	125	124	122
	TOFL	3490	3630	3760	3910	4050	4200	4270	4340	4410	4490	4640	4840	5060	5310
32000 V_{FTO}=144	V_1	118	118	118	118	118	118	118	118	118	118	118	117	117	117
	V_R	118	118	118	118	118	118	118	118	118	118	118	117	117	117
	V_2	127	127	127	127	126	126	126	126	126	126	125	124	123	121
	TOFL	3590	3730	3870	4020	4170	4320	4390	4470	4540	4620	4780	5000	5240	5500
34000 V_{FTO}=149	V_1	118	118	118	118	118	118	118	118	118	118	117	117	117	116
	V_R	118	118	118	118	118	118	118	118	118	118	117	117	117	118
	V_2	126	126	126	125	125	125	125	125	125	124	124	123	122	122
	TOFL	3680	3820	3970	4130	4280	4440	4510	4590	4670	4760	4930	5160	5410	5690
36000 V_{FTO}=153	V_1	118	118	118	118	118	118	118	118	118	117	117	117	117	116
	V_R	119	119	119	119	119	119	119	119	119	119	120	120	121	122
	V_2	125	125	125	125	125	125	125	125	125	125	125	125	125	125
	TOFL	3780	3920	4070	4240	4400	4560	4640	4710	4790	4890	5070	5310	5580	5890
38000 V_{FTO}=157	V_1	118	118	118	118	117	117	117	117	117	117	117	117	117	120
	V_R	123	123	123	123	123	123	123	123	124	124	124	124	125	126
	V_2	129	129	129	129	129	129	129	129	129	129	129	129	129	129
	TOFL	3870	4020	4180	4340	4510	4680	4760	4840	4920	5020	5210	5470	5850	6490
40600 V_{FTO}=163	V_1	119	119	119	119	119	119	119	119	118	118	119	121	123	126
	V_R	128	128	128	128	128	128	128	128	128	128	128	129	130	130
	V_2	133	133	133	133	133	133	133	133	133	133	133	133	133	133
	TOFL	4120	4270	4420	4600	4780	4960	5040	5120	5200	5300	5610	6090	6730	7470

C350_QRH_IMP_TO_F20_0FT_WET_ECS_01MAY14

NOTES:

1. Applicable for ZERO Runway Gradient and ZERO Wind Conditions ONLY.
2. Appliable for Two Operable Thrust-Reversers
3. For Runway Gradient and Wind corrections, see corrections page.
4. Add 100 feet to the takeoff field length when using the rolling takeoff preocedure. See AFM for procedure.

Wet Runway
30° limited to 36,020 lbs
4890 ft

Airgate Aviation

The runway analyses information being provided for Cessna Citation Jet "CE-550" at New Smyrna Beach (KEVB) airport, is obtained from this aircraft's Flight Manual. The comparisons provided for the other Jet aircrafts takeoff and landing distances visiting New Smyrna Beach Airport, is information obtained from the manufactures internet pages and doesn't reflect any allowances for weight, temperature or runway adverse conditions

New Smyrna Beach Airport (KEVB) Runway 25-07. Length 5,000 x 75.

Conditions;
Average passenger weights and cargo loads are being used for these computations;

Parameters;

Temp 20c-30C at Sea Level. Takeoff weight 13,300. Zero wind.

	– Dry Runway	- Wet -	water Covered 0.4 inches.
Flaps 0	3440	4950	7150
Flaps 15	3400	4950	6800

Landing Weight 13,300 – Zero wind.

	- Dry Runway	- Wet –	Water Covered 0.5 inches.
Vref	2530	4100	5000
Vref + 10	2530	5700	6550

Bombardier Challenger 300

Variant	Challenger 300[9]	Challenger 350[12]
Crew	two	
Capacity	eight to nine	nine (standard)
Length	68.63 ft / 20.92 m	
Span	63.84 ft / 19.46 m	69 ft 0 in / 21.0 m
Height	20.33 ft / 6.20 m	20 ft 0 in / 6.1 m
Wing Area	523 ft² / 48.5 m²	
Aspect ratio	7.81	9.09
MTOW	38,850 lb / 17,622 kg	40,600 lb / 18,416 kg
OEW	23,500 lb / 10,659 kg	24,800 lb / 11,249 kg
Fuel capacity	14,150 lb / 6,418 kg	
Maximum payload	3,500 lb / 1,588 kg	3,400 lb / 1,542 kg
Wing loading	74.3 lb/ft²/ 363.3 kg/m²	77.6 lb/ft² / 379.7 kg/m²
Turbofans (2×)	Honeywell HTF7000	Honeywell HTF7350
Thrust[a]	6,826 lb / 30.4 kN	7,323 lbf / 33 kN

Maximum speed	Mach 0.82 / 470 kn / 870 km/h	Mach 0.83 / 477 kn / 882 km/h
Cruise speed	Mach 0.80 / 459 kn / 850 km/h	
Range[b]	3,100 nmi / 5,741 km	3,200 nmi / 5,926 km
Ceiling	45,000 ft / 13,716 m	
Takeoff[c]	4,810 ft / 1,466 m	4,835 ft / 1,474 m
Landing[d]	2,600 ft / 792 m	2,710 ft / 826 m

GULFSTREAM G500

back to top SPECIFICATIONS

PERFORMANCE

Maximum Range * (Mach 0.85, 8 passengers, 3 crew and NBAA IFR reserves)	5,200 nm
High-Speed Cruise	Mach 0.90
Long-Range Cruise	Mach 0.85
MMO (maximum operating Mach number)	Mach 0.925
Takeoff Distance (SL, ISA, MTOW)	5,300 ft
Landing Distance (SL, ISA, MLW)	3,100 ft
Initial Cruise Altitude	43,000 ft
Maximum Cruise Altitude	51,000 ft

* NBAA IFR theoretical range. Actual range will be affected by ATC routing, operating speed, weather, outfitting options and other factors. All performance is based on preliminary data and subject to change.

Citation XLS Performance

Takeoff at Sea Level, feet	3,560
Takeoff at 5000' 25°C, feet	5,490
Landing Distance, feet	2,739
Certified Ceilings, feet	45,000
Fuel Consumption, gallons per hour	210
Total Variable Cost	$1,391
High Speed Cruise, knots	431
Ranges, Four Pax, Nautical Miles (NM)	1,722
600 NM Mission, Fight Time	1+29
1000 NM Mission, Flight Time	2+26

Honda HA-420 HondaJet

Performance

Maximum Cruise Speed @ FL300
422 KTAS
Maximum Cruise Altitude

Rate of Climb
3990 ft / min
NBAA IFR Range (4 occupants)
1223 nm
Takeoff distance
<4000 ft
Landing distance
<3050 ft

Hawker 900 XP Performance

Takeoff at Sea Level, feet	5,032
Takeoff at 5000' 25°C, feet	7,795
Landing Distance, feet	2,295
Certified Ceilings, feet	41,000
Fuel Consumption, gallons per hour	257
Total Variable Cost	$1,499
High Speed Cruise, knots	448
Ranges, Four Pax, Nautical Miles (NM)	2,818
600 NM Mission, Fight Time	1+26
1000 NM Mission, Flight Time	2+19

Falcon 2000EX Performance

Takeoff at Sea Level, feet	5,585
Takeoff at 5000′ 25°C, feet	8,120
Landing Distance, feet	2,640
Certified Ceilings, feet	47,000
Fuel Consumption, gallons per hour	257
Total Variable Cost	$1,733
High Speed Cruise, knots	482
Ranges, Four Pax, Nautical Miles (NM)	3,912
600 NM Mission, Fight Time	1+27
1000 NM Mission, Flight Time	2+21

TAKEOFF FIELD LENGTH - FEET

FLAPS - 0°
SEA LEVEL

CONDITIONS: Runway Gradient - ZERO
Landing Gear - DOWN
Anti-Ice Systems - OFF
Speed Brakes - RETRACT
Inoperative Engine - WINDMILLING AFTER V_1
Operative Engine - TAKEOFF THRUST

WEIGHT = 13300 LBS VENR = 152 KIAS

TEMP DEG C	TAILWIND -10 KTS V1 KIAS	DIST FT	0 KTS V1 KIAS	DIST FT	HEADWINDS 10 KTS V1 KIAS	DIST FT	20 KTS V1 KIAS	DIST FT	30 KTS V1 KIAS	DIST FT	VR KIAS	V2 KIAS
-25	111	3530	110	2680	110	2450	109	2230	108	2030	111	119
-20	111	3580	110	2730	110	2500	109	2280	108	2070	111	119
-15	111	3640	110	2780	109	2540	109	2320	108	2110	111	119
-10	111	3690	110	2830	109	2590	109	2370	108	2150	111	119
-5	111	3740	110	2880	109	2640	109	2410	108	2200	111	119
0	111	3800	110	2930	109	2690	109	2460	108	2240	111	119
5	110	3910	110	2980	109	2740	109	2510	108	2290	111	119
10	109	4110	110	3080	110	2830	109	2590	108	2370	111	119
15	108	4320	111	3180	110	2920	109	2680	109	2450	111	119
20	107	4790	111	3440	111	3120	110	2860	110	2610	111	119
25	106	5060	111	3760	111	3410	111	3070	111	2800	111	119
30	105	6030	111	4130	111	3740	111	3370	111	3020	111	119
35	104	6870	112	4570	112	4140	112	3730	112	3340	112	119
40	103	7800	112	5060	112	4580	112	4120	112	3680	112	119
45	102	8860	112	5620	112	5070	112	4560	112	4070	112	119
50	102	10180	112	6310	112	5680	112	5090	112	4540	112	119
54	101	11710	112	7080	112	6380	112	5700	112	5060	112	119

WEIGHT = 13000 LBS VENR = 151 KIAS

TEMP DEG C	TAILWIND -10 KTS V1 KIAS	DIST FT	0 KTS V1 KIAS	DIST FT	HEADWINDS 10 KTS V1 KIAS	DIST FT	20 KTS V1 KIAS	DIST FT	30 KTS V1 KIAS	DIST FT	VR KIAS	V2 KIAS
-25	110	3360	108	2570	108	2350	107	2140	107	1940	110	118
-20	110	3410	108	2610	108	2390	107	2180	106	1980	110	118
-15	110	3460	108	2660	108	2440	107	2220	106	2020	110	118
-10	110	3510	108	2710	108	2480	107	2260	106	2060	110	118
-5	110	3560	108	2750	108	2520	107	2310	106	2100	110	118
0	110	3610	108	2800	108	2570	107	2350	106	2140	110	118
5	110	3680	108	2860	108	2620	107	2400	106	2190	110	118
10	110	3810	109	2950	108	2710	107	2480	107	2260	110	118
15	109	3950	109	3040	109	2790	108	2560	107	2340	110	118
20	108	4360	110	3270	109	2980	109	2730	108	2490	110	118
25	107	4880	110	3560	110	3230	110	2930	109	2670	110	118
30	107	5440	110	3910	110	3540	110	3190	110	2870	110	118
35	106	6170	110	4320	110	3910	110	3520	110	3150	110	118
40	105	7000	110	4770	110	4320	110	3880	110	3470	110	118
45	104	7980	110	5280	110	4770	110	4280	110	3820	110	118
50	103	9100	110	5910	110	5320	110	4770	110	4250	110	118
54	102	10420	111	6610	111	5950	111	5320	111	4730	111	118

129F

WEIGHT = 12500 LBS VENR = 148 KIAS

TEMP DEG C	TAILWIND -10 KTS V1 KIAS	DIST FT	0 KTS V1 KIAS	DIST FT	HEADWINDS 10 KTS V1 KIAS	DIST FT	20 KTS V1 KIAS	DIST FT	30 KTS V1 KIAS	DIST FT	VR KIAS	V2 KIAS
-25	107	3090	105	2380	105	2180	104	1980	104	1790	107	116
-20	107	3140	105	2430	105	2220	104	2020	104	1830	107	116
-15	107	3180	105	2470	105	2260	104	2060	104	1870	107	116
-10	107	3230	105	2510	105	2300	104	2100	103	1910	107	116
-5	107	3280	105	2560	105	2350	104	2140	103	1940	107	116
0	107	3320	105	2600	105	2380	104	2180	103	1980	107	116
5	107	3390	105	2650	105	2430	104	2230	103	2030	107	116
10	107	3500	106	2730	105	2510	104	2300	104	2090	107	116
15	107	3620	106	2820	105	2590	105	2370	104	2160	107	116
20	108	3920	107	3010	106	2760	106	2530	105	2300	108	116
25	108	4270	108	3250	108	2950	107	2700	106	2460	108	116
30	108	4680	108	3560	108	3220	108	2900	107	2650	108	116
35	108	5170	108	3930	108	3550	108	3200	108	2860	108	116
40	107	5800	108	4320	108	3910	108	3510	108	3140	108	116
45	106	6520	108	4760	108	4300	108	3860	108	3450	108	116
50	105	7430	108	5290	108	4770	108	4280	108	3820	108	116
54	105	8470	108	5890	108	5300	108	4740	108	4220	108	116

WEIGHT = 12000 LBS VENR = 145 KIAS

TEMP DEG C	TAILWIND -10 KTS V1 KIAS	DIST FT	0 KTS V1 KIAS	DIST FT	HEADWINDS 10 KTS V1 KIAS	DIST FT	20 KTS V1 KIAS	DIST FT	30 KTS V1 KIAS	DIST FT	VR KIAS	V2 KIAS
-25	104	2860	102	2210	102	2020	101	1830	101	1650	105	114
-20	104	2900	102	2250	102	2050	101	1870	101	1690	105	114
-15	104	2950	102	2290	102	2090	101	1900	100	1720	105	114
-10	104	2990	102	2330	102	2130	101	1940	100	1760	105	114
-5	104	3040	102	2370	101	2160	101	1970	100	1790	105	114
0	104	3080	102	2410	101	2200	101	2010	100	1830	105	114
5	104	3140	102	2460	102	2250	101	2050	100	1870	105	114
10	104	3230	103	2540	102	2320	101	2120	101	1930	105	114
15	105	3320	103	2610	102	2400	102	2180	101	1990	105	114
20	105	3590	104	2780	103	2550	103	2330	102	2120	105	114
25	105	3900	105	2970	104	2720	104	2490	103	2270	105	114
30	106	4260	106	3240	106	2930	105	2670	104	2430	106	114
35	106	4700	106	3560	106	3220	106	2900	105	2620	106	114
40	106	5160	106	3910	106	3530	106	3180	106	2840	106	114
45	106	5670	106	4290	106	3870	106	3480	106	3100	106	114
50	106	6290	106	4760	106	4280	106	3840	106	3420	106	114
54	106	6980	106	5250	106	4730	106	4230	106	3770	106	114

Figure 4-14 (Sheet 1 of 30)

TAKEOFF FIELD LENGTH - FEET

FLAPS - 15°

SEA LEVEL

CONDITIONS: Runway Gradient - ZERO
Landing Gear - DOWN
Anti-Ice Systems - OFF

Speed Brakes - RETRACT
Inoperative Engine - WINDMILLING AFTER V_1
Operative Engine - TAKEOFF THRUST

WEIGHT = 13300 LBS VENR = 152 KIAS

TEMP DEG C	TAILWIND -10 KTS V1 KIAS	TAILWIND -10 KTS V1 DIST	TAILWIND -10 KTS FT	HEADWINDS 0 KTS V1 KIAS	HEADWINDS 0 KTS V1 DIST	HEADWINDS 0 KTS FT	HEADWINDS 10 KTS V1 KIAS	HEADWINDS 10 KTS V1 DIST	HEADWINDS 10 KTS FT	HEADWINDS 20 KTS V1 KIAS	HEADWINDS 20 KTS V1 DIST	HEADWINDS 20 KTS FT	HEADWINDS 30 KTS V1 KIAS	HEADWINDS 30 KTS V1 DIST	HEADWINDS 30 KTS FT	VR KIAS	V2 KIAS
-25	108	3320	108	2530	108	2300	103	2090	103	1900	103	1730	103	1580	103	114	114
-20	108	3370	105	2570	104	2350	103	2130	103	1930	103	1760	103	1610	102	114	114
-15	108	3420	105	2620	104	2390	103	2180	103	1970	103	1800	102	1640	102	114	114
-10	108	3470	105	2660	104	2430	103	2220	103	2010	103	1840	102	1670	102	114	114
-5	106	3520	104	2710	104	2480	103	2260	103	2050	103	1870	102	1710	102	114	114
0	106	3570	104	2750	104	2520	103	2300	103	2090	103	1910	102	1740	102	114	114
5	106	3640	104	2810	104	2570	103	2350	103	2140	103	1960	102	1780	102	114	114
10	106	3760	104	2900	104	2660	103	2430	103	2210	103	2020	102	1840	102	114	114
15	106	3960	103	2990	104	2740	104	2500	103	2280	103	2080	102	1900	102	114	114
20	106	4230	106	3210	106	2930	105	4020	105	2680	104	2430	103	2210	102	114	114
25	106	4640	108	3500	106	3170	106	2870	105	2610	106	2380	104	2170	103	114	114
30	105	5220	108	3850	106	3480	106	3120	108	2810	106	2560	106	2330	105	114	114
35	104	6020	108	4280	108	3860	108	3460	108	3090	106	2810	106	2560	105	114	114
40	103	6780	107	4750	107	4280	107	3830	107	3410	107	3100	106	2820	105	114	114
45	102	7980	107	5280	107	4750	107	4250	107	3770	107	3420	106	3110	105	114	114
50	102	8800	107	5940	107	5330	107	4760	107	4220	107	3820	106	3470	105	114	114
53	101	9830	107	6450	107	5780	107	5150	107	4550	107	4120	106	3740	106	114	114

WEIGHT = 12500 LBS VENR = 148 KIAS

TEMP DEG C	TAILWIND -10 KTS V1 KIAS	TAILWIND -10 KTS V1 DIST	TAILWIND -10 KTS FT	HEADWINDS 0 KTS V1 KIAS	HEADWINDS 0 KTS V1 DIST	HEADWINDS 0 KTS FT	HEADWINDS 10 KTS V1 KIAS	HEADWINDS 10 KTS V1 DIST	HEADWINDS 10 KTS FT	HEADWINDS 20 KTS V1 KIAS	HEADWINDS 20 KTS V1 DIST	HEADWINDS 20 KTS FT	HEADWINDS 30 KTS V1 KIAS	HEADWINDS 30 KTS V1 DIST	HEADWINDS 30 KTS FT	VR KIAS	V2 KIAS
-25	102	2920	100	2250	99	2050	99	1860	98	1670	102	111					
-20	102	2970	100	2290	99	2090	99	1890	98	1710	102	111					
-15	102	3010	100	2330	99	2130	99	1930	98	1740	102	111					
-10	102	3080	100	2370	99	2160	99	1960	98	1760	102	111					
-5	102	3100	100	2410	99	2200	99	2000	98	1810	102	111					
0	102	3150	100	2450	99	2240	99	2040	98	1850	102	111					
5	102	3200	100	2500	99	2290	99	2080	98	1890	102	111					
10	102	3300	100	2570	100	2360	99	2150	98	1950	102	111					
15	103	3400	100	2650	100	2430	99	2210	99	2010	103	111					
20	103	3690	102	2830	101	2590	100	2360	100	2150	103	111					
25	103	4010	103	3030	102	2770	101	2530	101	2300	103	111					
30	103	4400	103	3320	103	3000	103	2710	102	2470	103	111					
35	103	4870	103	3670	103	3310	103	2980	103	2680	103	111					
40	103	5380	103	4040	103	3640	103	3260	103	2900	103	111					
45	103	5980	103	4460	103	4010	103	3590	103	3190	103	111					
50	103	6690	103	4970	103	4460	103	3980	103	3540	103	111					
54	103	7440	103	5530	103	4960	103	4420	103	3920	103	111					

WEIGHT = 13000 LBS VENR = 151 KIAS

TEMP DEG C	TAILWIND -10 KTS V1 KIAS	TAILWIND -10 KTS V1 DIST	TAILWIND -10 KTS FT	HEADWINDS 0 KTS V1 KIAS	HEADWINDS 0 KTS V1 DIST	HEADWINDS 0 KTS FT	HEADWINDS 10 KTS V1 KIAS	HEADWINDS 10 KTS V1 DIST	HEADWINDS 10 KTS FT	HEADWINDS 20 KTS V1 KIAS	HEADWINDS 20 KTS V1 DIST	HEADWINDS 20 KTS FT	HEADWINDS 30 KTS V1 KIAS	HEADWINDS 30 KTS V1 DIST	HEADWINDS 30 KTS FT	VR KIAS	V2 KIAS
-25	105	3160	103	2420	102	2200	102	2000	101	1810	105	113					
-20	105	3210	103	2460	102	2250	102	2040	101	1850	105	113					
-15	105	3260	103	2510	102	2290	102	2080	101	1890	105	113					
-10	105	3300	103	2550	102	2330	102	2120	101	1920	105	113					
-5	105	3350	103	2590	102	2370	102	2160	101	1960	105	113					
0	105	3400	103	2640	102	2410	101	2200	101	2000	105	113					
5	105	3460	103	2690	102	2460	102	2250	101	2040	105	113					
10	105	3580	103	2770	102	2540	102	2320	101	2110	105	113					
15	105	3700	103	2860	103	2620	102	2390	102	2180	105	113					
20	105	4020	105	2680	104	2430	103	2550	102	2320	105	113					
25	105	4390	105	3320	105	3000	104	2740	103	2490	105	113					
30	105	4800	108	3650	105	3290	105	2950	105	2680	105	113					
35	105	5300	108	4040	105	3640	105	3270	105	2910	105	113					
40	105	6020	105	4470	108	4030	105	3610	105	3210	105	113					
45	104	6830	105	4950	108	4460	105	3990	105	3540	105	113					
50	103	7830	105	5580	108	4990	105	4450	105	3950	105	113					
54	102	9050	108	8240	108	8590	106	4980	106	4400	108	113					

WEIGHT = 12000 LBS VENR = 145 KIAS

TEMP DEG C	TAILWIND -10 KTS V1 KIAS	TAILWIND -10 KTS V1 DIST	TAILWIND -10 KTS FT	HEADWINDS 0 KTS V1 KIAS	HEADWINDS 0 KTS V1 DIST	HEADWINDS 0 KTS FT	HEADWINDS 10 KTS V1 KIAS	HEADWINDS 10 KTS V1 DIST	HEADWINDS 10 KTS FT	HEADWINDS 20 KTS V1 KIAS	HEADWINDS 20 KTS V1 DIST	HEADWINDS 20 KTS FT	HEADWINDS 30 KTS V1 KIAS	HEADWINDS 30 KTS V1 DIST	HEADWINDS 30 KTS FT	VR KIAS	V2 KIAS
-25	99	2710	97	2080	96	1890	96	1710	95	1540	100	109					
-20	99	2750	97	2120	96	1930	96	1750	95	1570	100	109					
-15	98	2800	97	2160	96	1960	96	1760	95	1610	100	109					
-10	99	2840	97	2190	98	2000	96	1810	95	1640	100	109					
-5	99	2880	97	2230	98	2030	96	1850	95	1670	100	109					
0	98	2920	97	2270	96	2070	96	1880	95	1700	100	109					
5	99	2970	97	2310	96	2110	96	1920	95	1740	100	109					
10	99	3060	97	2390	97	2180	96	1980	95	1800	100	109					
15	99	3150	97	2460	97	2240	96	2050	96	1850	100	109					
20	100	3370	98	2620	98	2390	97	2180	97	1980	100	109					
25	101	3680	100	2790	99	2550	98	2330	98	2120	101	109					
30	101	4010	101	3020	100	2740	100	2500	99	2270	101	109					
35	101	4420	101	3320	101	3000	101	2690	100	2440	101	109					
40	101	4870	101	3850	101	3290	101	2940	101	2620	101	109					
45	101	5350	101	4010	101	3610	101	3230	101	2870	101	109					
50	101	5940	101	4440	101	3990	101	3570	101	3170	101	109					
54	101	6600	101	4920	101	4410	101	3940	101	3480	101	109					

Figure 4-15 (Sheet 1 of 18)

TAKEOFF FIELD LENGTH - FEET

FLAPS - UP

DRY RUNWAY WITHOUT THRUST REVERSERS	ADVERSE RUNWAY CONDITIONS (NO THRUST REVERSERS, 15 FT SCREEN HEIGHT, ANTI-ICE OFF)												
	WET RUNWAY	WATER COVERED RUNWAY - INCHES *				SLUSH COVERED RUNWAY - INCHES *				SNOW INCHES *		COMPACT SNOW	WET ICE
		0.125	0.2	0.3	0.4	0.125	0.2	0.3	0.4	1.0	2.0		
1000	1650	2450	2350	2200	2100	2500	2350	2250	2100	2400	2200	1950	5050
1200	1950	2950	2750	2550	2450	2900	2750	2600	2450	2800	2550	2300	6000
1400	2250	3500	3200	3000	2800	3350	3150	2950	2800	3150	2850	2650	7000
1600	2550	4150	3800	3450	3200	3850	3600	3350	3150	3500	3200	3000	7950
1800	2900	4750	4350	3950	3650	4450	4100	3800	3550	3900	3500	3350	8950
2000	3150	5250	4800	4350	4050	4950	4600	4250	4000	4200	3800	3650	9550
2200	3400	5750	5300	4800	4500	5450	5050	4650	4400	4550	4150	3950	10150
2400	3650	6250	5750	5250	4950	5900	5500	5100	4800	4850	4500	4250	10700
2600	3900	6750	6250	5750	5400	6350	5950	5550	5200	5200	4800	4500	11250
2800	4150	7200	6750	6200	5850	6850	6400	5950	5600	5500	5150	4800	11800
3000	4400	7700	7250	6700	6350	7300	6850	6400	6050	5850	5500	5100	12300
3200	4700	8200	7700	7150	6750	7750	7250	6800	6450	6250	5900	5350	12800
3400	4950	8600	8050	7500	7150	8150	7650	7150	6800	6650	6300	5600	13300
3600	5250	9000	8450	7850	7500	8550	8000	7500	7150	7000	6700	5800	13700
3800	5550	9350	8800	8250	7850	8900	8350	7850	7500	7400	7100	6000	14000
4000	5850	9750	9150	8600	8200	9250	8700	8200	7850	7850	7450	6150	14300
4200	6150	10100	9550	8950	8550	9600	9050	8550	8200	8300	7850	6300	14600
4400	6400	10450	9900	9300	8900	9950	9400	8850	8500	8950	8200	6450	14900
4600	6650	10800	10200	9650	9250	10300	9750	9150	8800	9550	8600	6600	15200
4800	6900	11150	10550	9950	9550	10650	10050	9450	9100	10200	9000	6750	
5000	7100	11400	10800	10200	9800	10950	10300	9750	9400	11000	9350	6900	
5200	7250	11650	11050	10450	10000	11250	10550	10050	9700	11800	9750	7050	
5400	7400	11900	11300	10700	10200	11550	10800	10350	10000	12650	10150	7200	
5600	7550	12100	11500	10950	10400	11750	11000	10650	10300	13500	10550	7350	
5800	7700	12300	11700	11150	10600	11950	11200	10950	10600	14300	10950	7500	
6000	7850	12450	11850	11350	10800	12150	11400	11250	10900	15100	11350	7650	
6200	8000	12600	12000	11550	11000	12350	11600	11550	11200		11750	7800	
6400	8150	12750	12150	11750	11200	12500	11800	11800	11500		12100	7950	
6600	8300	12850	12300	11950	11400	12650	12000	12050	11800		12500	8100	
6800	8450	12950	12450	12150	11600	12800	12200	12300	12100		12900	8250	
7000	8600	13050	12600	12350	11800	12900	12400	12600	12400		13300	8400	
7500	8900	13300	12950	12850	12300	13150	12850	13300	13150		14300	8750	
8000	9200	13500	13250	13300	12750	13400	13300	14050	13900		15250	9100	
8500	9500	13700	13600	13800	13200	13650	13800	14800	14600			9500	
9000	9800	13900	13900	14300	13700	13900	14300	15550	15300			9950	
9500	10150	14100	14200	14850	14150	14150	14800					10350	
10000	10500	14300	14550	15500	14600	14400	15350					10750	
11000	11250	14650	15200		15650	14900						11550	
12000	12100	15000				15400						12400	
13000	13000											13200	
14000	14000											14100	
15000	15000											15000	

* Takeoffs should not be attempted in any precipitation depth greater than the highest depth presented or if any of the following limits are exceeded. If no limit is presented, use the dry runway limit.

Contaminate	Altitude	Temperature	Gross Weight	Wind
0.4 Inches Water	Greater than 10,000 ft	Greater than ISA+20° C	—	—
0.3 Inches Slush	Greater than 11,000 ft	Greater than ISA+15° C	—	—
0.4 Inches Slush	Greater than 8000 ft	Greater than ISA+5° C	—	—
1.0 Inch Snow	Greater than 6000 ft	Greater than ISA	Greater than 12,500 lbs	—
2.0 Inches Snow	Greater than 6000 ft	Greater than ISA	Greater than 12,500 lbs	Any Tailwind

Figure 7-1

TAKEOFF FIELD LENGTH - FEET

FLAPS - 15°

DRY RUNWAY WITHOUT THRUST REVERSERS	ADVERSE RUNWAY CONDITIONS (NO THRUST REVERSERS, 15 FT SCREEN HEIGHT, ANTI-ICE OFF)												
	WET RUNWAY	WATER COVERED RUNWAY - INCHES *				SLUSH COVERED RUNWAY - INCHES *				SNOW INCHES *		COMPACT SNOW	WET ICE
		0.125	0.2	0.3	0.4	0.125	0.2	0.3	0.4	1.0	2.0		
1000	1700	2450	2300	2150	2000	2500	2350	2200	2100	2400	2200	1950	4950
1200	2000	2900	2700	2500	2350	2900	2750	2550	2450	2800	2500	2350	5950
1400	2300	3400	3200	2900	2700	3300	3100	2900	2750	3150	2850	2700	6900
1600	2650	4050	3750	3350	3100	3750	3500	3250	3100	3500	3150	3050	7900
1800	2950	4550	4150	3750	3500	4250	3900	3600	3400	3850	3450	3400	8700
2000	3200	5000	4600	4200	3900	4800	4400	4050	3800	4150	3750	3650	9250
2200	3450	5500	5050	4600	4300	5250	4850	4450	4250	4450	4100	3950	9800
2400	3700	6000	5500	5050	4750	5700	5300	4900	4650	4800	4400	4250	10300
2600	3950	6450	5950	5450	5150	6150	5700	5300	5050	5100	4750	4500	10850
2800	4200	6900	6400	5950	5600	6600	6150	5700	5450	5450	5050	4800	11350
3000	4450	7400	6900	6400	6050	7050	6550	6100	5850	5750	5400	5050	11900
3200	4700	7850	7300	6800	6450	7450	7000	6500	6250	6100	5800	5350	12400
3400	4950	8250	7700	7200	6800	7800	7350	6850	6550	6450	6150	5600	12850
3600	5250	8600	8050	7550	7150	8200	7700	7200	6900	6800	6500	5800	13200
3800	5550	8950	8400	7900	7500	8550	8050	7550	7200	7150	6850	6000	13500
4000	5850	9350	8750	8250	7850	8900	8400	7900	7550	7500	7200	6150	13800
4200	6100	9700	9100	8550	8150	9250	8700	8200	7850	7800	7550	6300	14100
4400	6400	10050	9450	8850	8450	9600	9050	8500	8200	8100	7850	6450	14350
4600	6650	10350	9750	9150	8750	9950	9300	8800	8500	8400	8200	6600	14600
4800	6850	10600	10000	9450	9050	10200	9600	9100	8750	8700	8550	6750	14850
5000	7050	10850	10250	9700	9300	10450	9850	9400	9000	9000	8900	6850	15100
5200	7200	11050	10450	9900	9500	10650	10000	9700	9250	9300	9250	6950	
5400	7350	11250	10650	10100	9700	10800	10150	10000	9450	9600	9600	7050	
5600	7500	11400	10800	10300	9900	10950	10300	10300	9650	9900	9950	7150	
5800	7600	11550	11000	10450	10050	11100	10450	10600	9850	10200	10350	7250	
6000	7700	11700	11150	10600	10200	11200	10600	10900	10050	10500	10700	7350	
6200	7800	11850	11300	10750	10350	11300	10700	11200	10350	10800	11050	7450	
6400	7900	11950	11400	10900	10500	11400	10800	11500	10700	11100	11400	7600	
6600	8000	12050	11500	11050	10650	11500	10900	11800	11150	11400	11750	7750	
6800	8100	12150	11600	11200	10800	11600	11000	12100	11700	11700	12100	7900	
7000	8200	12250	11700	11300	10950	11700	11100	12400	12300	12000	12450	8100	
7500	8500	12450	11900	11550	11300	11850	11250	13100	13600	12750	13350	8600	
8000	8800	12650	12100	11800	11700	12000	11400	13850	15050	13500	14200	9100	
8500	9100	12850	12250	12050	12150	12150	11600	14600		14250	15100	9600	
9000	9400	13050	12400	12350	12700	12300	11800	15350		15000		10100	
9500	9750	13300	12600	12700	13250	12550	12100					10600	
10000	10150	13500	12850	13200	13950	12950	12550					11100	
11000	11050	13950	13500	14400	15400	14150	13900					12100	
12000	12000	14500	14300	15650		15600	15350					13100	
13000	13000	15400	15200				16800					14100	
14000	14000											15100	
15000	15000												

* Takeoffs should not be attempted in any precipitation depth greater than the highest depth presented or if any of the following limits are exceeded. If no limit is presented, use the dry runway limit.

Contaminate	Altitude	Temperature	Gross Weight	Wind
0.4 Inches Water	Greater than 6000 ft	Greater than ISA+20°C	—	—
0.3 Inches Slush	—	Greater than ISA+20°C	—	—
0.4 Inches Slush	—	Greater than ISA+5°C	—	—
1.0 Inch Snow	Greater than 5000 ft	Greater than ISA	Greater than 13,000 lbs	—
2.0 Inches Snow	Greater than 5000 ft	Greater than ISA	—	Any Tailwind

Figure 7-2

LANDING DISTANCE - FEET ACTUAL DISTANCE SEA LEVEL

CONDITIONS: Landing Gear - DOWN
Wing Flaps - LAND
Speed Brakes - EXTEND AFTER TOUCHDOWN
Anti-Ice Systems - ON or OFF
Thrust - IDLE
Airspeed - V_{REF} at 50 FEET

Some conditions may be brake energy limited. Refer to Figures 4-27 and 4-28 for allowable landing weights.

WEIGHT = 13300 LBS *
VREF = 111 KIAS VAPP = 118 KIAS

TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	HEADWINDS 10 KTS	20 KTS	30 KTS
-25	2780	2160	2030	1910	1790
-20	2840	2180	2050	1930	1810
-15	2900	2200	2070	1950	1830
-10	2970	2220	2090	1970	1850
-5	3040	2240	2110	1990	1870
0	3110	2270	2140	2010	1890
5	3180	2300	2160	2030	1910
10	3260	2340	2180	2050	1930
15	3340	2390	2200	2080	1950
20	3430	2430	2220	2100	1980
25	3520	2480	2250	2120	2000
30	3620	2530	2290	2140	2020
35	3720	2580	2330	2160	2040
40	3820	2630	2380	2180	2060
45	3930	2690	2420	2200	2080
50	4030	2740	2460	2230	2090
54	4100	2770	2490	2260	2100

WEIGHT = 12700 LBS
VREF = 108 KIAS VAPP = 116 KIAS

TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	HEADWINDS 10 KTS	20 KTS	30 KTS
-25	2580	2110	1980	1860	1740
-20	2630	2130	2000	1880	1760
-15	2680	2150	2020	1900	1780
-10	2730	2170	2040	1920	1800
-5	2790	2190	2060	1940	1820
0	2840	2210	2080	1960	1840
5	2900	2230	2100	1980	1860
10	2960	2250	2120	2000	1880
15	3020	2270	2140	2020	1900
20	3080	2290	2160	2040	1920
25	3150	2320	2180	2060	1940
30	3220	2340	2210	2080	1960
35	3290	2380	2230	2100	1980
40	3360	2420	2250	2120	2000
45	3440	2470	2270	2140	2020
50	3510	2510	2280	2160	2030
54	3550	2530	2300	2160	2040

WEIGHT = 12500 LBS
VREF = 108 KIAS VAPP = 115 KIAS

TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	HEADWINDS 10 KTS	20 KTS	30 KTS
-25	2530	2090	1960	1840	1730
-20	2570	2110	1980	1860	1750
-15	2620	2130	2000	1880	1770
-10	2670	2150	2020	1900	1790
-5	2710	2170	2040	1920	1810
0	2760	2190	2060	1940	1820
5	2820	2210	2080	1960	1840
10	2870	2230	2100	1980	1860
15	2930	2250	2130	2000	1880
20	2990	2280	2150	2020	1900
25	3050	2300	2170	2040	1920
30	3110	2320	2190	2060	1940
35	3170	2340	2210	2080	1960
40	3240	2360	2230	2100	1980
45	3310	2400	2250	2120	2000
50	3370	2440	2260	2140	2010
54	3410	2460	2270	2140	2020

WEIGHT = 12000 LBS
VREF = 106 KIAS VAPP = 113 KIAS

TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	HEADWINDS 10 KTS	20 KTS	30 KTS
-25	2470	2050	1920	1800	1690
-20	2490	2070	1940	1820	1710
-15	2510	2090	1960	1840	1730
-10	2530	2110	1980	1860	1750
-5	2560	2130	2000	1880	1760
0	2600	2150	2020	1900	1780
5	2640	2170	2040	1920	1800
10	2690	2190	2060	1940	1820
15	2730	2210	2080	1960	1840
20	2780	2230	2100	1970	1860
25	2830	2250	2120	1990	1880
30	2880	2270	2140	2010	1890
35	2930	2280	2160	2030	1910
40	2980	2300	2170	2050	1930
45	3040	2320	2190	2070	1950
50	3080	2340	2210	2080	1960
54	3110	2340	2210	2090	1970

To obtain landing distance with a runway gradient, refer to factors on page 4-180.

* For use in an emergency which requires a landing at a weight in excess of maximum design landing weight of 12,700 pounds.

Figure 4-29 (Sheet 1 of 30)

LANDING DISTANCE - FEET

FLAPS - FULL

AIRSPEED - V_{REF}

DRY RUNWAY WITHOUT THRUST REVERSERS	ADVERSE RUNWAY CONDITIONS (NO THRUST REVERSERS, V_{REF}, WITHOUT TAILWINDS, 50 FT SCREEN HEIGHT)														
	WET RUNWAY	WATER COVERED RUNWAY - INCHES					SLUSH COVERED RUNWAY - INCHES					SNOW INCHES		COMPACT SNOW	WET ICE
		0.125	0.2	0.3	0.4	0.5	0.125	0.2	0.3	0.4	0.5	1.0	2.0		
1200	1700	2300	2250	2050	1950	1900	2300	2200	2150	2100	2100	2400	2150	1900	6300
1400	2000	2700	2600	2450	2450	2400	2750	2650	2500	2500	2500	2850	2600	2300	7900
1600	2400	3300	3100	2950	2950	2800	3300	3150	3000	2900	2900	3300	3000	2700	9500
1800	2700	3950	3750	3500	3400	3250	3800	3700	3500	3350	3300	3700	3400	3100	10900
2000	3000	4700	4450	4000	3900	3700	4400	4200	4000	3800	3650	4150	3800	3450	12400
2200	3400	5400	5000	4700	4400	4100	5100	4850	4550	4200	4050	4550	4150	3850	13900
2400	3700	5850	5600	5100	4900	4600	5700	5300	5000	4600	4400	5000	4450	4250	
2600	4100	6500	6100	5600	5300	5000	6300	5800	5500	5100	4800	5400	4750	4600	
2800	4400	7500	6750	6200	5700	5450	7100	6300	5900	5450	5200	5800	5050	5000	
3000	4700	8100	7450	6750	6150	5900	7600	7000	6300	5800	5600	6200	5400	5400	
3200	5100	8650	8000	7200	6600	6300	8150	7500	6800	6350	6000	6600	5700	5650	
3400	5400	9150	8400	7650	6900	6650	8600	7900	7200	6700	6400	7000	6050	5950	
3600	5700	9550	8800	8050	7300	7000	9100	8500	7600	7000	6700	7400	6350	6200	
3800	6100	9950	9200	8450	7700	7300	9550	8850	8000	7400	6950	7800	6650	6400	
4000	6400	10300	9600	8800	8150	7700	10050	9250	8400	7800	7300	8200	6950	6650	
4200	6700	10700	10000	9150	8500	7900	10400	9600	8800	8100	7550	8600	7250	6850	
4400	7100	11000	10300	9450	8700	8200	10800	10000	9100	8400	7800	9000	7550	7000	
4600	7400	11400	10550	9700	9000	8400	11150	10350	9450	8700	8100	9400	7800	7150	
4800	7800	11800	10900	10000	9300	8700	11550	10700	9750	9000	8400	9800	8150	7300	
5000	8100	12100	11200	10300	9500	8900	11900	11000	10050	9300	8650	10100	8400	7450	
5200	8400	12350	11500	10600	9800	9200	12200	11300	10300	9500	8900	10400	8650	7600	
5400	8700	12700	11800	10850	10000	9400	12500	11600	10550	9700	9100	10700	8850	7750	
5600	9000	12900	12050	11050	10250	9600	12800	11900	10800	10000	9300	11000	9100	7900	
5800	9350	13200	12300	11300	10450	9800	13100	12100	11100	10300	9550	11300	9350	8100	
6000	9650	13500	12500	11500	10650	10000	13450	12400	11350	10500	9800	11600	9550	8250	
6200	10000	13800	12800	11700	10800	10100	13700	12700	11600	10700	10000	11900	9800	8400	
6400	10250	14000	13050	11900	11000	10300	14050	13000	11800	10900	10200	12200	10000	8550	
6600	10600	14300	13300	12200	11200	10500	14350	13300	12100	11150	10400	12500	10200	8700	
6800	10900	14550	13550	12400	11400	10700	14650	13500	12300	11350	10600	12850	10450	8850	
7000	11200	14800	13800	12600	11600	10850	14950	13800	12500	11600	10750	13100	10650	9000	
7200	11500		14050	12800	11800	11000		14100	12700	11800	10950	13400	10850	9150	
7400	11850		14300	13000	12000	11200		14400	13000	12000	11150	13750	11050	9300	
7600	12200		14550	13250	12200	11400		14700	13250	12200	11350	14050	11250	9450	
7800	12500		14800	13500	12400	11600		14950	13500	12400	11550	14350	11450	9650	
8000	12800			13700	12600	11750			13750	12600	11750	14650	11650	9800	
8400	13400			14100	13000	12100			14200	13050	12150		12000	10100	
8800	14000			14550	13400	12500			14700	13500	12500		12400	10400	
9200	14700			15000	13800	12850				13900	12900		12800	10750	
9600					14200	13200				14300	13300		13150	11050	
10000					14600	13600				14750	13700		13550	11350	
10400					15000	13900					14100		13900	11650	
10800						14300					14500		14250	12000	
11200						14650					14850		14650	12300	
11600						15000							15000	12600	
12000														12900	
12400														12250	
12800														12550	

NOTE

The published limiting maximum tailwind component for this airplane is 10 knots: however, Cessna does not recommend landings on precipitation-covered runways with any tailwind component. If a tailwind landing cannot be avoided, multiply the above data by the following factor:

	WET RUNWAY	WATER COVERED RUNWAY - INCHES					SLUSH COVERED RUNWAY - INCHES					SNOW INCHES		COMPACT SNOW	WET ICE
		0.125	0.2	0.3	0.4	0.5	0.125	0.2	0.3	0.4	0.5	1.0	2.0		
TAILWIND FACTOR	1.07	1.13	1.12	1.12	1.12	1.11	1.12	1.12	1.12	1.12	1.11	1.11	1.11	1.05	*

* Landings with any tailwind should not be attempted on wet ice.

Figure 7-3

LANDING DISTANCE - FEET

FLAPS - FULL

AIRSPEED - V_{REF} + 10 KNOTS

DRY RUNWAY WITHOUT THRUST REVERSERS	ADVERSE RUNWAY CONDITIONS (NO THRUST REVERSERS, V_{REF}+10, WITHOUT TAILWINDS, 50 FT SCREEN HEIGHT)														
	WET RUNWAY	WATER COVERED RUNWAY - INCHES					SLUSH COVERED RUNWAY - INCHES					SNOW INCHES		COMPACT SNOW	WET ICE
		0.125	0.2	0.3	0.4	0.5	0.125	0.2	0.3	0.4	0.5	1.0	2.0		
1400	2400	3350	3000	2900	2650	2500	3200	3000	2900	2700	2600	3100	2800	2800	9000
1600	2800	4050	3650	3450	3250	3050	3800	3600	3400	3200	3100	3600	3300	3300	11200
1800	3200	4800	4400	4100	3900	3650	4500	4200	4000	3700	3600	4100	3700	3800	12400
2000	3800	5800	5300	4900	4600	4350	5300	5000	4800	4400	4200	4750	4300	4250	13500
2200	4600	6900	6400	5900	5550	5300	6600	6200	5700	5300	5100	5700	5000	4650	14600
2400	5125	7800	7250	6700	6300	5900	7400	7000	6400	6000	5700	6400	5450	5150	
2600	5700	8850	8100	7400	7000	6550	8200	7700	7100	6650	6250	7050	6000	5550	
2800	6300	9500	8850	8050	7600	7150	9050	8450	7800	7250	6800	7750	6550	6000	
3000	7000	10350	9650	8750	8200	7750	9800	9200	8450	7900	7400	8400	7050	6400	
3200	7700	11200	10500	9450	8750	8300	10650	10000	9150	8550	7900	9050	7700	6750	
3400	8500	12000	11300	10150	9300	8800	11500	10700	9800	9200	8500	9850	8350	7000	
3600	9300	12850	12050	10750	9900	9300	12400	11450	10500	9800	9000	10700	9000	7250	
3800	10200	13700	12850	11550	10500	9800	13450	12450	11200	10400	9700	11500	9650	7450	
4000	11100	14600	13700	12350	11200	10600	14450	13500	12200	11400	10500	12400	10400	7650	
4200	12100		14500	13150	11950	11600		14500	13100	12500	11250	13800	11100	7800	
4400	13100			13950	12850	12600			14100	13650	12050	15000	12100	7950	
4600	14200			14750	13900	13500			15000	14800	13200		13500	8100	
4800						14450					14900			8250	
5000														8450	
5400														8750	
5800														9100	
6200														9450	
6600														9750	
7000														10100	
7400														10450	
7800														10750	
8200														11100	
8600														11450	
9000														11800	
9400														12100	
9800														12450	
10200														12800	
10600														13100	
11000														13500	
11400														13800	
11800														14150	
12200														14500	

NOTE

The published limiting maximum tailwind component for this airplane is 10 knots: however, Cessna does not recommend landings on precipitation-covered runways with any tailwind component. If a tailwind landing cannot be avoided, multiply the above data by the following factor:

	WET RUNWAY	WATER COVERED RUNWAY - INCHES					SLUSH COVERED RUNWAY - INCHES					SNOW INCHES		COMPACT SNOW	WET ICE
		0.125	0.2	0.3	0.4	0.5	0.125	0.2	0.3	0.4	0.5	1.0	2.0		
TAILWIND FACTOR	1.00	1.01	1.00	1.00	1.00	1.00	1.01	1.00	1.00	1.00	1.00	1.03	1.03	1.03	*

* Landings with any tailwind should not be attempted on wet ice.

Figure 7-4

APPENDIX B
ENGINEERED MATERIAL ARRESTING SYSTEMS
(EMAS)
METHODOLOGY

New Smyrna Beach Municipal Airport Runway Safety Area Improvement Criteria: EMAS

The methodology to plan/preliminarily design an Engineered Material Arresting System (EMAS) as outlined in FAA Order 5200.9 includes the evaluation of the 5 criteria specified below.

1. **What is the EMAS design aircraft**
   At EVB the critical aircraft is the Cessna Citation V with a Maximum Takeoff Weight (MTOW) of 15,900 lbs.

2. **What length does the EMAS bed need to be to safely stop the design aircraft?**
   According to the EMAS Length Requirements Figure 3 in the FAA's 5200.9 Order, the EMAS length requirement for a Cessna Citation V is approximately 360ft.* The width is determined by the minimum required blast pad width which is 95' for ARC B-II aircraft.
   *This is an estimated length; actual EMAS design length must be confirmed with the manufacturer.

   The RSA site preparation area can be determined by adding the setback area to the EMAS bed area plus an emergency vehicle movement area. For EVB the setback area is 75' plus the EMAS bed of 360' and a 20' movement area. The RSA Site area length is 75'+360'+20'= 455'. The width is the width of the EMAS bed plus the movement lane per side. The RSA site area width is 95'+20'+20'= 135'.

3. **What is the maximum feasible expenditure for improving the RSA?**
   Table 1 below and FAA Order 5200.9 Figure 4: Maximum Feasible Cost for RSA Improvement determined that approximately $11,668,136 should be the maximum expenditure for RSA improvements at EVB.

Table 1
EMAS Cost Estimates in 2018 Dollars

Factor	Formula	Cost
Adjusted Site Preparation Unit (2018 Dollars)	$14 x (1+.04)5	$17.03 SF
Adjusted EMAS Bed Installation Unit Cost (per BGA RSA project cost)	as per BGA Project	$140 SF
RSA Site Preparation Area	455ft x 135 ft	61,425 SF
EMAS Bed Area	360ft x 95ft	34,200 SF
Estimated Site Preparation Cost	61,425 SF x $17.03	$1,046,068
Estimated EMAS Bed Installation	34,200 SF x $140	$4,788,000
Total Estimated EMAS Cost	$1,046,068+ $4,788,000	$5,834,068
Maximum Feasible Cost for Improving the RSA*	$5,834,068X2	**$11,668,136**
*Subject to change based on available funding and program goals.		

4. **What are the life cycle costs of EMAS and non-EMAS alternatives for improving the RSA?**
   Table 2 below shows a life cycle cost of $8,507,176 for EVB.

Table 2 Life Cycle EMAS Cost Estimates in 2018 Dollars		
Factor	Formula	Cost
Estimated EMAS Installation	$1,046,068+ $4,788,000	$5,834,068
Estimated EMAS Replacement Cost	34,200 SF x $140	$4,788,000
Annual Inspection and Maintenance	$20,000 x $(1+.04)^5$	$24,333
Time Value of Money Discount Rate*		7%
EMAS Replacement Cost- Year 10	$4,788,000/$((1+.07)^{10})$	$2,433,977
EMAS Maintenance Cost- Years 1-9	$24,333 x $((1+.07)^9-1)/(.07(1+.07)^9)$	$158,538
EMAS Maintenance Cost- Years 11-19	$158,538/$((1+.07)^{10})$	$80,593
EMAS Estimated Life Cycle Cost – 20 years	$5,834,068+$2,433,977+$158,538+$80,593	**$8,507,176**
*Discount rate for all airport projects funded with Federal grant funds		

5. **What is the best financially feasible alternative for improving the RSA considering life cycle costs and other factors?**

   - The least expensive alternative would be the remarking of the Runway and Lighting the Obstructions. However, this alternative would not achieve the 5,000-foot long Landing Distance Available and Accelerated Stop Distance Available for which the City, the Airport, and the tenants of the Airport are asking. The least expensive alternative that would meet the criteria of the City, Airport, and tenants, would be the acceleration of the Extension of Runway 11/29. The 2018 Master Plan Update estimated that this project would cost approximately $2,780,000.

APPENDIX C
FAA Order 5200.8

Runway Safety Area Program
Appendix 1
Runway Safety Area Data Base

Locid: EVB Airport: New Smyrna Beach Municipal Airport Region: ASO

City/State: New Smyrna Beach FL ADO: Orlando

Runway: 7/25 Runway Ends: 7 | 25

Length: 5,000
Width: 75
Part 139: ☐

	7	25
Actual RSA Length:	124	173
Actual RSA Width:	150	150
RSA Grade (+/- 5%):	☐	☐
Dimensional Uniformity:	☐	☐

CRITICAL AIRCRAFT:
Approach Category: B
Design Group: II

Visibility Minimums: 1 mile

PUBLISHED RUNWAY SAFETY AREA STANDARDS:
Length: 240
Width: 120

RSA Determination

	7	25
Currently Meets Standards	○	○
Practicable to Meet Standards	○	○
Can be Improved But Will Not Meet Standards	○	○
Not Practicable to Improve	○	○

Date of Determination (month/year):

Planned Improvements

RSA to Design Standards Obtainable:	☐	☐
Runway Realignment or Relocation:	☐	☐
Shift Runway From Present Alignment:	☐	☐
Use Declared Distances:	☐	☐
Use EMAS:	☐	☐
Other:	☐	☐

Scheduled Completion (year):
Remaining Costs:

Uniformity Comments:

Improvement Comments:

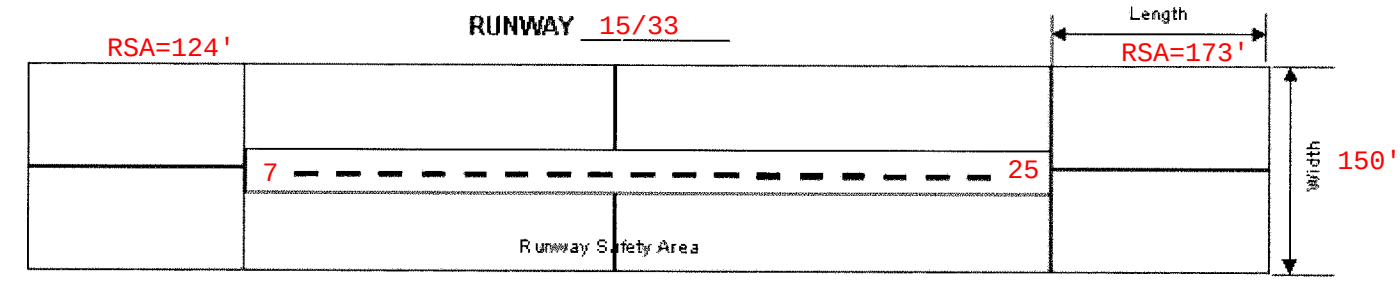
Object Form

Runway Safety Area Data Sheet

Locid: EVB Airport: New Smyrna Beach Municipal Airport Region: ASO

City/State: New Smyrna Beach FL ADO: Orlando

RUNWAY 15/33



Object Identification			Object Location				Object Status						
No.	Type	Name	Rwy End	Rwy End Dist	L/R	L/R Dist	Fixed By Function	Can Be Relocated	Frangible	Frangible to 3 inches	High Mass	Owner	Connecting Object

There are no known obstructions in the vicinity of the Airport

Locid: EVB Airport: New Smyrna Beach Municipal Airport Region: ASO

City/State: New Smyrna Beach FL ADO: Orlando

Runway:	7/25	
Runway Ends:	7	25
Length:	5,000	
Width:	75	
Part 139:	☐	
Actual RSA Length:	124	173
Actual RSA Width:	150	150
RSA Grade (+/- 5%):	☐	☐
Dimensional Uniformity:	☐	☐

CRITICAL AIRCRAFT:

Approach Category:	B
Design Group:	II
Visibility Minimums:	1 mile

PUBLISHED RUNWAY SAFETY AREA STANDARDS:

Length:	300
Width:	150

RSA Determination

Currently Meets Standards	○	○
Practicable to Meet Standards	○	○
Can be Improved But Will Not Meet Standards	○	○
Not Practicable to Improve	○	○

Date of Determination (month/year):

Planned Improvements

RSA to Design Standards Obtainable:	☐	☐
Runway Realignment or Relocation:	☐	☐
Shift Runway From Present Alignment:	☐	☐
Use Declared Distances:	☐	☐
Use EMAS:	☐	☐
Other:	☐	☐

Scheduled Completion (year):

Remaining Costs:

Uniformity Comments:

Improvement Comments:

APPENDIX D
TRAFFIC FLOW MANAGEMENT SYSTEM COUNTS
NEW SMYRNA BEACH MUNICIPAL AIRPORT
MAY 1, 2018 THROUGH APRIL 30, 2019

TFMSC Report (Airport)

From 05/2018 To 05/2019 | Airport=EVB

#	Date	Airport	Physical Class	Aircraft	Airplane Approach Category	Airplane Design Group	Departures	Arrivals	Total Operations	Departure Seats	Average Departure Seats	Arrival Seats	Average Arrival Seats
1	May-18	EVB - New Smyrna Beach	-	-1 - unknown	No Data	No Data	1	0	1	0	0	0	0
2	May-18	EVB - New Smyrna Beach	Jet	C25C - Cessna Citation CJ4	B	II	3	3	6	0	0	0	0
3	May-18	EVB - New Smyrna Beach	Jet	C560 - Cessna Citation V/Ultra/Encore	B	II	1	1	2	8	8	8	8
4	May-18	EVB - New Smyrna Beach	Jet	C680 - Cessna Citation Sovereign	B	II	1	1	2	12	12	12	12
5	May-18	EVB - New Smyrna Beach	Jet	CL35 - Bombardier Challenger 300	C	II	4	3	7	0	0	0	0
6	May-18	EVB - New Smyrna Beach	Jet	E55P - Embraer Phenom 300	B	II	0	1	1	0	0	8	8
7	May-18	EVB - New Smyrna Beach	Jet	EA50 - Eclipse 500	A	I	1	1	2	6	6	6	6
8	May-18	EVB - New Smyrna Beach	Jet	H25B - BAe HS 125/700-800/Hawker 800	C	I	1	1	2	12	12	12	12
9	May-18	EVB - New Smyrna Beach	Piston	-1 - unknown	No Data	No Data	3	2	5	0	0	0	0
10	May-18	EVB - New Smyrna Beach	Piston	BE33 - Beech Bonanza 33	A	I	3	4	7	15	5	20	5
11	May-18	EVB - New Smyrna Beach	Piston	BE35 - Beech Bonanza 35	A	I	1	4	5	4	4	16	4
12	May-18	EVB - New Smyrna Beach	Piston	BE36 - Beech Bonanza 36	A	I	11	10	21	44	4	40	4
13	May-18	EVB - New Smyrna Beach	Piston	BE55 - Beech Baron 55	A	I	3	4	7	18	6	24	6
14	May-18	EVB - New Smyrna Beach	Piston	C172 - Cessna Skyhawk 172/Cutlass	A	I	144	133	277	576	4	532	4
15	May-18	EVB - New Smyrna Beach	Piston	C182 - Cessna Skylane 182	A	I	5	2	7	20	4	8	4
16	May-18	EVB - New Smyrna Beach	Piston	C310 - Cessna 310	A	I	2	2	4	12	6	12	6
17	May-18	EVB - New Smyrna Beach	Piston	C414 - Cessna Chancellor 414	B	I	81	79	160	486	6	474	6
18	May-18	EVB - New Smyrna Beach	Piston	DA42 - Diamond Twin Star	A	I	2	2	4	0	0	0	0
19	May-18	EVB - New Smyrna Beach	Piston	M20P - Mooney M-20C Ranger	A	I	5	4	9	20	4	16	4
20	May-18	EVB - New Smyrna Beach	Piston	P28A - Piper Cherokee	A	I	2	3	5	8	4	12	4
21	May-18	EVB - New Smyrna Beach	Piston	P28R - Cherokee Arrow/Turbo	A	I	1	1	2	4	4	4	4
22	May-18	EVB - New Smyrna Beach	Piston	P32R - Piper 32	A	I	1	1	2	4	4	4	4
23	May-18	EVB - New Smyrna Beach	Piston	PA24 - Piper PA-24	A	I	1	0	1	5	5	0	0
24	May-18	EVB - New Smyrna Beach	Piston	PA27 - Piper Aztec	A	I	1	1	2	4	4	4	4
25	May-18	EVB - New Smyrna Beach	Piston	PA32 - Piper Cherokee Six	A	I	3	2	5	18	6	12	6
26	May-18	EVB - New Smyrna Beach	Piston	PA34 - Piper PA-34 Seneca	A	I	1	1	2	6	6	6	6
27	May-18	EVB - New Smyrna Beach	Piston	PA44 - Piper Seminole	A	I	19	16	35	76	4	64	4
28	May-18	EVB - New Smyrna Beach	Piston	PA46 - Piper Malibu	A	I	0	1	1	0	0	6	6
29	May-18	EVB - New Smyrna Beach	Piston	S22T - Cirrus SR-22 Turbo	A	I	1	1	2	0	0	0	0
30	May-18	EVB - New Smyrna Beach	Piston	SR22 - Cirrus SR 22	A	I	5	3	8	20	4	12	4
31	May-18	EVB - New Smyrna Beach	Piston	T34P - Beech T-34B Mentor	No Data	No Data	1	0	1	2	2	0	0
32	May-18	EVB - New Smyrna Beach	Piston	TB20 - Taylorcraft Seabird	No Data	No Data	1	1	2	4	4	4	4
33	May-18	EVB - New Smyrna Beach	Turbine	AC90 - Gulfstream Commander	B	I	1	2	3	4	4	8	4
34	May-18	EVB - New Smyrna Beach	Turbine	B350 - Beech Super King Air 350	B	II	2	2	4	12	6	12	6
35	May-18	EVB - New Smyrna Beach	Turbine	BE20 - Beech 200 Super King	B	II	4	4	8	20	5	20	5
36	May-18	EVB - New Smyrna Beach	Turbine	BE9L - Beech King Air 90	B	I	4	3	7	24	6	18	6
37	May-18	EVB - New Smyrna Beach	Turbine	C441 - Cessna Conquest	B	II	1	1	2	6	6	6	6
38	May-18	EVB - New Smyrna Beach	Turbine	P46T - Piper Malibu Meridian	A	I	1	1	2	6	6	6	6
39	May-18	EVB - New Smyrna Beach	Turbine	PC12 - Pilatus PC-12	A	II	1	1	2	9	9	9	9
40	Jun-18	EVB - New Smyrna Beach	-	-1 - unknown	No Data	No Data	1	1	2	0	0	0	0
41	Jun-18	EVB - New Smyrna Beach	-	C127 - unknown	No Data	No Data	1	0	1	0	0	0	0
42	Jun-18	EVB - New Smyrna Beach	-	EC35 - Eurocopter EC-135	No Data	No Data	2	0	2	14	7	0	0
43	Jun-18	EVB - New Smyrna Beach	Jet	C25C - Cessna Citation CJ4	B	II	2	2	4	0	0	0	0
44	Jun-18	EVB - New Smyrna Beach	Jet	C501 - Cessna I/SP	B	I	0	1	1	0	0	6	6
45	Jun-18	EVB - New Smyrna Beach	Jet	C510 - Cessna Citation Mustang	B	I	1	1	2	6	6	6	6
46	Jun-18	EVB - New Smyrna Beach	Jet	C560 - Cessna Citation V/Ultra/Encore	B	II	3	3	6	24	8	24	8
47	Jun-18	EVB - New Smyrna Beach	Jet	C56X - Cessna Excel/XLS	B	II	5	5	10	75	15	75	15
48	Jun-18	EVB - New Smyrna Beach	Jet	C680 - Cessna Citation Sovereign	B	II	1	1	2	12	12	12	12
49	Jun-18	EVB - New Smyrna Beach	Jet	CL35 - Bombardier Challenger 300	C	II	3	4	7	0	0	0	0
50	Jun-18	EVB - New Smyrna Beach	Jet	LJ31 - Bombardier Learjet 31/A/B	C	I	1	1	2	8	8	8	8
51	Jun-18	EVB - New Smyrna Beach	Jet	LJ35 - Bombardier Learjet 35/36	D	I	1	1	2	8	8	8	8
52	Jun-18	EVB - New Smyrna Beach	Jet	PRM1 - Raytheon Premier 1/390 Premier 1	B	I	1	1	2	6	6	6	6
53	Jun-18	EVB - New Smyrna Beach	Piston	-1 - unknown	No Data	No Data	3	1	4	0	0	0	0
54	Jun-18	EVB - New Smyrna Beach	Piston	BE33 - Beech Bonanza 33	A	I	7	5	12	35	5	25	5
55	Jun-18	EVB - New Smyrna Beach	Piston	BE35 - Beech Bonanza 35	A	I	2	4	6	8	4	16	4
56	Jun-18	EVB - New Smyrna Beach	Piston	BE36 - Beech Bonanza 36	A	I	8	7	15	32	4	28	4
57	Jun-18	EVB - New Smyrna Beach	Piston	BE55 - Beech Baron 55	A	I	2	0	2	12	6	0	0
58	Jun-18	EVB - New Smyrna Beach	Piston	BE58 - Beech 58	B	I	3	3	6	12	4	12	4
59	Jun-18	EVB - New Smyrna Beach	Piston	BE95 - Beech 95 Travel Air	No Data	No Data	1	1	2	4	4	4	4
60	Jun-18	EVB - New Smyrna Beach	Piston	C172 - Cessna Skyhawk 172/Cutlass	A	I	153	142	295	612	4	568	4
61	Jun-18	EVB - New Smyrna Beach	Piston	C177 - Cessna 177 Cardinal	A	I	1	1	2	4	4	4	4
62	Jun-18	EVB - New Smyrna Beach	Piston	C182 - Cessna Skylane 182	A	I	3	4	7	12	4	16	4
63	Jun-18	EVB - New Smyrna Beach	Piston	C210 - Cessna 210 Centurion	A	I	1	1	2	6	6	6	6
64	Jun-18	EVB - New Smyrna Beach	Piston	C310 - Cessna 310	A	I	2	2	4	12	6	12	6
65	Jun-18	EVB - New Smyrna Beach	Piston	C414 - Cessna Chancellor 414	B	I	115	103	218	690	6	618	6

TFMSC Report (Airport)

From 05/2018 To 05/2019 | Airport=EVB

#	Date	Airport	Physical Class	Aircraft	Airplane Approach Category	Airplane Design Group	Departures	Arrivals	Total Operations	Departure Seats	Average Departure Seats	Arrival Seats	Average Arrival Seats
66	Jun-18	EVB - New Smyrna Beach	Piston	COL3 - Lancair LC-40 Columbia 400	A	I	1	1	2	4	4	4	4
67	Jun-18	EVB - New Smyrna Beach	Piston	DA42 - Diamond Twin Star	A	I	1	1	2	0	0	0	0
68	Jun-18	EVB - New Smyrna Beach	Piston	M20P - Mooney M-20C Ranger	A	I	5	3	8	20	4	12	4
69	Jun-18	EVB - New Smyrna Beach	Piston	NAVI - C335	No Data	No Data	1	1	2	4	4	4	4
70	Jun-18	EVB - New Smyrna Beach	Piston	P28A - Piper Cherokee	A	I	10	11	21	40	4	44	4
71	Jun-18	EVB - New Smyrna Beach	Piston	P28R - Cherokee Arrow/Turbo	A	I	1	0	1	4	4	0	0
72	Jun-18	EVB - New Smyrna Beach	Piston	P32R - Piper 32	A	I	1	1	2	4	4	4	4
73	Jun-18	EVB - New Smyrna Beach	Piston	PA24 - Piper PA-24	A	I	1	2	3	5	5	10	5
74	Jun-18	EVB - New Smyrna Beach	Piston	PA32 - Piper Cherokee Six	A	I	3	2	5	18	6	12	6
75	Jun-18	EVB - New Smyrna Beach	Piston	PA34 - Piper PA-34 Seneca	A	I	5	2	7	30	6	12	6
76	Jun-18	EVB - New Smyrna Beach	Piston	PA44 - Piper Seminole	A	I	20	22	42	80	4	88	4
77	Jun-18	EVB - New Smyrna Beach	Piston	PA46 - Piper Malibu	A	I	1	1	2	6	6	6	6
78	Jun-18	EVB - New Smyrna Beach	Piston	RV10 - Experimental	No Data	No Data	2	2	4	0	0	0	0
79	Jun-18	EVB - New Smyrna Beach	Piston	S22T - Cirrus SR-22 Turbo	A	I	1	1	2	0	0	0	0
80	Jun-18	EVB - New Smyrna Beach	Piston	SR22 - Cirrus SR 22	A	I	7	3	10	28	4	12	4
81	Jun-18	EVB - New Smyrna Beach	Turbine	AC90 - Gulfstream Commander	B	I	1	0	1	4	4	0	0
82	Jun-18	EVB - New Smyrna Beach	Turbine	BE20 - Beech 200 Super King	B	II	3	3	6	15	5	15	5
83	Jun-18	EVB - New Smyrna Beach	Turbine	BE9L - Beech King Air 90	B	I	2	4	6	12	6	24	6
84	Jun-18	EVB - New Smyrna Beach	Turbine	BE9T - Beech F90 King Air	B	II	1	1	2	4	4	4	4
85	Jun-18	EVB - New Smyrna Beach	Turbine	P46T - Piper Malibu Meridian	A	I	1	1	2	6	6	6	6
86	Jun-18	EVB - New Smyrna Beach	Turbine	PAY2 - Piper Cheyenne 2	B	I	1	1	2	6	6	6	6
87	Jun-18	EVB - New Smyrna Beach	Turbine	PC12 - Pilatus PC-12	A	II	5	5	10	45	9	45	9
88	Jun-18	EVB - New Smyrna Beach	Turbine	TBM8 - Socata TBM-850	A	I	1	1	2	0	0	0	0
89	Jul-18	EVB - New Smyrna Beach	-	-1 - unknown	No Data	No Data	1	1	2	0	0	0	0
90	Jul-18	EVB - New Smyrna Beach	Jet	C25A - Cessna Citation CJ2	B	I	1	1	2	8	8	8	8
91	Jul-18	EVB - New Smyrna Beach	Jet	C25C - Cessna Citation CJ4	B	II	14	14	28	84	6	84	6
92	Jul-18	EVB - New Smyrna Beach	Jet	C501 - Cessna I/SP	B	I	1	1	2	6	6	6	6
93	Jul-18	EVB - New Smyrna Beach	Jet	C510 - Cessna Citation Mustang	B	I	1	1	2	6	6	6	6
94	Jul-18	EVB - New Smyrna Beach	Jet	C550 - Cessna Citation II/Bravo	B	II	3	4	7	30	10	40	10
95	Jul-18	EVB - New Smyrna Beach	Jet	C560 - Cessna Citation V/Ultra/Encore	B	II	2	2	4	16	8	16	8
96	Jul-18	EVB - New Smyrna Beach	Jet	C56X - Cessna Excel/XLS	B	II	1	1	2	15	15	15	15
97	Jul-18	EVB - New Smyrna Beach	Jet	CL35 - Bombardier Challenger 300	C	II	3	2	5	24	8	16	8
98	Jul-18	EVB - New Smyrna Beach	Jet	CL60 - Bombardier Challenger 600/601/604	C	II	1	1	2	15	15	15	15
99	Jul-18	EVB - New Smyrna Beach	Jet	E50P - Embraer Phenom 100	B	I	0	1	1	0	0	6	6
100	Jul-18	EVB - New Smyrna Beach	Jet	E55P - Embraer Phenom 300	B	II	2	2	4	16	8	16	8
101	Jul-18	EVB - New Smyrna Beach	Jet	EA50 - Eclipse 500	A	I	1	1	2	6	6	6	6
102	Jul-18	EVB - New Smyrna Beach	Jet	G150 - Gulfstream G150	C	II	1	1	2	4	4	4	4
103	Jul-18	EVB - New Smyrna Beach	Piston	-1 - unknown	No Data	No Data	6	3	9	0	0	0	0
104	Jul-18	EVB - New Smyrna Beach	Piston	BE33 - Beech Bonanza 33	A	I	1	1	2	5	5	5	5
105	Jul-18	EVB - New Smyrna Beach	Piston	BE35 - Beech Bonanza 35	A	I	9	7	16	36	4	28	4
106	Jul-18	EVB - New Smyrna Beach	Piston	BE36 - Beech Bonanza 36	A	I	7	5	12	28	4	20	4
107	Jul-18	EVB - New Smyrna Beach	Piston	BE55 - Beech Baron 55	A	I	3	4	7	18	6	24	6
108	Jul-18	EVB - New Smyrna Beach	Piston	BE58 - Beech 58	B	I	1	1	2	4	4	4	4
109	Jul-18	EVB - New Smyrna Beach	Piston	C150 - Cessna 150	A	I	0	1	1	0	0	2	2
110	Jul-18	EVB - New Smyrna Beach	Piston	C172 - Cessna Skyhawk 172/Cutlass	A	I	141	136	277	564	4	544	4
111	Jul-18	EVB - New Smyrna Beach	Piston	C177 - Cessna 177 Cardinal	A	I	1	1	2	4	4	4	4
112	Jul-18	EVB - New Smyrna Beach	Piston	C182 - Cessna Skylane 182	A	I	5	7	12	20	4	28	4
113	Jul-18	EVB - New Smyrna Beach	Piston	C195 - Cessna 195	No Data	No Data	1	0	1	4	4	0	0
114	Jul-18	EVB - New Smyrna Beach	Piston	C310 - Cessna 310	A	I	3	3	6	18	6	18	6
115	Jul-18	EVB - New Smyrna Beach	Piston	C414 - Cessna Chancellor 414	B	I	97	92	189	582	6	552	6
116	Jul-18	EVB - New Smyrna Beach	Piston	DA42 - Diamond Twin Star	A	I	3	4	7	12	4	16	4
117	Jul-18	EVB - New Smyrna Beach	Piston	M20P - Mooney M-20C Ranger	A	I	1	1	2	4	4	4	4
118	Jul-18	EVB - New Smyrna Beach	Piston	M20T - Turbo Mooney M20K	A	I	1	1	2	4	4	4	4
119	Jul-18	EVB - New Smyrna Beach	Piston	P28A - Piper Cherokee	A	I	4	3	7	16	4	12	4
120	Jul-18	EVB - New Smyrna Beach	Piston	P28R - Cherokee Arrow/Turbo	A	I	0	1	1	0	0	4	4
121	Jul-18	EVB - New Smyrna Beach	Piston	P32R - Piper 32	A	I	1	1	2	4	4	4	4
122	Jul-18	EVB - New Smyrna Beach	Piston	P32T - Embraer Lance 2	No Data	No Data	1	1	2	6	6	6	6
123	Jul-18	EVB - New Smyrna Beach	Piston	PA24 - Piper PA-24	A	I	2	1	3	10	5	5	5
124	Jul-18	EVB - New Smyrna Beach	Piston	PA34 - Piper PA-34 Seneca	A	I	2	1	3	12	6	6	6
125	Jul-18	EVB - New Smyrna Beach	Piston	PA44 - Piper Seminole	A	I	17	14	31	68	4	56	4
126	Jul-18	EVB - New Smyrna Beach	Piston	PA46 - Piper Malibu	A	I	2	1	3	12	6	6	6
127	Jul-18	EVB - New Smyrna Beach	Piston	SR20 - Cirrus SR-20	A	I	1	1	2	4	4	4	4
128	Jul-18	EVB - New Smyrna Beach	Piston	SR22 - Cirrus SR 22	A	I	1	2	3	4	4	8	4
129	Jul-18	EVB - New Smyrna Beach	Turbine	AC90 - Gulfstream Commander	B	I	1	0	1	4	4	0	0
130	Jul-18	EVB - New Smyrna Beach	Turbine	B350 - Beech Super King Air 350	B	II	2	2	4	12	6	12	6

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From 05/2018 To 05/2019 | Airport=EVB

#	Date	Airport	Physical Class	Aircraft	Airplane Approach Category	Airplane Design Group	Departures	Arrivals	Total Operations	Departure Seats	Average Departure Seats	Arrival Seats	Average Arrival Seats
131	Jul-18	EVB - New Smyrna Beach	Turbine	B36T - Allison 36 Turbine Bonanza	A	I	1	1	2	6	6	6	6
132	Jul-18	EVB - New Smyrna Beach	Turbine	BE20 - Beech 200 Super King	B	II	1	2	3	5	5	10	5
133	Jul-18	EVB - New Smyrna Beach	Turbine	BE9L - Beech King Air 90	B	I	2	3	5	12	6	18	6
134	Jul-18	EVB - New Smyrna Beach	Turbine	C130 - Lockheed 130 Hercules	C	IV	1	0	1	0	0	0	0
135	Jul-18	EVB - New Smyrna Beach	Turbine	C425 - Cessna 425 Corsair	B	I	1	1	2	4	4	4	4
136	Aug-18	EVB - New Smyrna Beach	-	-1 - unknown	No Data	No Data	2	2	4	0	0	0	0
137	Aug-18	EVB - New Smyrna Beach	-	H60 - Sikorsky SH-60 Seahawk	No Data	No Data	0	2	2	0	0	8	4
138	Aug-18	EVB - New Smyrna Beach	Jet	C25A - Cessna Citation CJ2	B	I	1	1	2	8	8	8	8
139	Aug-18	EVB - New Smyrna Beach	Jet	C25C - Cessna Citation CJ4	B	II	1	1	2	6	6	6	6
140	Aug-18	EVB - New Smyrna Beach	Jet	C501 - Cessna I/SP	B	I	8	5	13	48	6	30	6
141	Aug-18	EVB - New Smyrna Beach	Jet	C550 - Cessna Citation II/Bravo	B	II	3	2	5	30	10	20	10
142	Aug-18	EVB - New Smyrna Beach	Jet	C560 - Cessna Citation V/Ultra/Encore	B	II	2	2	4	16	8	16	8
143	Aug-18	EVB - New Smyrna Beach	Jet	C56X - Cessna Excel/XLS	B	II	1	1	2	15	15	15	15
144	Aug-18	EVB - New Smyrna Beach	Jet	C650 - Cessna III/VI/VII	B	II	2	1	3	12	6	6	6
145	Aug-18	EVB - New Smyrna Beach	Jet	C750 - Cessna Citation X	B	II	1	1	2	14	14	14	14
146	Aug-18	EVB - New Smyrna Beach	Jet	CL35 - Bombardier Challenger 300	C	II	5	4	9	40	8	32	8
147	Aug-18	EVB - New Smyrna Beach	Jet	F2TH - Dassault Falcon 2000	B	II	1	1	2	12	12	12	12
148	Aug-18	EVB - New Smyrna Beach	Jet	H25B - BAe HS 125/700-800/Hawker 800	C	I	3	4	7	36	12	48	12
149	Aug-18	EVB - New Smyrna Beach	Jet	HS25 - BAe HS 125; British Aerospace	No Data	No Data	1	0	1	12	12	0	0
150	Aug-18	EVB - New Smyrna Beach	Piston	-1 - unknown	No Data	No Data	9	4	13	0	0	0	0
151	Aug-18	EVB - New Smyrna Beach	Piston	BE23 - Beech 23 Sundowner	A	I	1	1	2	4	4	4	4
152	Aug-18	EVB - New Smyrna Beach	Piston	BE33 - Beech Bonanza 33	A	I	2	4	6	10	5	20	5
153	Aug-18	EVB - New Smyrna Beach	Piston	BE35 - Beech Bonanza 35	A	I	2	4	6	8	4	16	4
154	Aug-18	EVB - New Smyrna Beach	Piston	BE36 - Beech Bonanza 36	A	I	7	12	19	28	4	48	4
155	Aug-18	EVB - New Smyrna Beach	Piston	BE55 - Beech Baron 55	A	I	5	4	9	30	6	24	6
156	Aug-18	EVB - New Smyrna Beach	Piston	BE58 - Beech 58	B	I	3	4	7	12	4	16	4
157	Aug-18	EVB - New Smyrna Beach	Piston	BE95 - Beech 95 Travel Air	No Data	No Data	1	0	1	4	4	0	0
158	Aug-18	EVB - New Smyrna Beach	Piston	C172 - Cessna Skyhawk 172/Cutlass	A	I	143	129	272	572	4	516	4
159	Aug-18	EVB - New Smyrna Beach	Piston	C182 - Cessna Skylane 182	A	I	7	5	12	28	4	20	4
160	Aug-18	EVB - New Smyrna Beach	Piston	C206 - Cessna 206 Stationair	B	I	1	1	2	4	4	4	4
161	Aug-18	EVB - New Smyrna Beach	Piston	C310 - Cessna 310	A	I	4	4	8	24	6	24	6
162	Aug-18	EVB - New Smyrna Beach	Piston	C414 - Cessna Chancellor 414	B	I	44	43	87	264	6	258	6
163	Aug-18	EVB - New Smyrna Beach	Piston	M20P - Mooney M-20C Ranger	A	I	2	1	3	8	4	4	4
164	Aug-18	EVB - New Smyrna Beach	Piston	P210 - Riley Super P210	A	I	2	2	4	12	6	12	6
165	Aug-18	EVB - New Smyrna Beach	Piston	P28A - Piper Cherokee	A	I	5	5	10	20	4	20	4
166	Aug-18	EVB - New Smyrna Beach	Piston	P28R - Cherokee Arrow/Turbo	A	I	0	2	2	0	0	8	4
167	Aug-18	EVB - New Smyrna Beach	Piston	P32T - Embraer Lance 2	No Data	No Data	1	1	2	6	6	6	6
168	Aug-18	EVB - New Smyrna Beach	Piston	P337 - Cessna T337G Pressurized Skymaster	No Data	No Data	2	2	4	12	6	12	6
169	Aug-18	EVB - New Smyrna Beach	Piston	PA24 - Piper PA-24	A	I	1	1	2	5	5	5	5
170	Aug-18	EVB - New Smyrna Beach	Piston	PA30 - Piper PA-30	A	I	1	0	1	6	6	0	0
171	Aug-18	EVB - New Smyrna Beach	Piston	PA32 - Piper Cherokee Six	A	I	3	3	6	18	6	18	6
172	Aug-18	EVB - New Smyrna Beach	Piston	PA44 - Piper Seminole	A	I	18	19	37	72	4	76	4
173	Aug-18	EVB - New Smyrna Beach	Piston	RV10 - Experimental	No Data	No Data	1	1	2	2	2	2	2
174	Aug-18	EVB - New Smyrna Beach	Piston	RV8 - RV-4/6/7/8; VANS	No Data	No Data	1	1	2	2	2	2	2
175	Aug-18	EVB - New Smyrna Beach	Piston	S22T - Cirrus SR-22 Turbo	A	I	1	1	2	4	4	4	4
176	Aug-18	EVB - New Smyrna Beach	Piston	SR20 - Cirrus SR-20	A	I	1	0	1	4	4	0	0
177	Aug-18	EVB - New Smyrna Beach	Piston	SR22 - Cirrus SR 22	A	I	1	2	3	4	4	8	4
178	Aug-18	EVB - New Smyrna Beach	Piston	T34P - Beech T-34B Mentor	No Data	No Data	1	1	2	2	2	2	2
179	Aug-18	EVB - New Smyrna Beach	Turbine	AC90 - Gulfstream Commander	B	I	1	1	2	4	4	4	4
180	Aug-18	EVB - New Smyrna Beach	Turbine	B350 - Beech Super King Air 350	B	II	1	1	2	6	6	6	6
181	Aug-18	EVB - New Smyrna Beach	Turbine	BE20 - Beech 200 Super King	B	II	3	2	5	15	5	10	5
182	Aug-18	EVB - New Smyrna Beach	Turbine	BE9L - Beech King Air 90	B	I	1	4	5	6	6	24	6
183	Aug-18	EVB - New Smyrna Beach	Turbine	C130 - Lockheed 130 Hercules	C	IV	2	1	3	0	0	0	0
184	Aug-18	EVB - New Smyrna Beach	Turbine	TBM7 - Socata TBM-7	A	I	1	1	2	4	4	4	4
185	Aug-18	EVB - New Smyrna Beach	Turbine	TBM8 - Socata TBM-850	A	I	1	1	2	7	7	7	7
186	Sep-18	EVB - New Smyrna Beach	-	H60 - Sikorsky SH-60 Seahawk	No Data	No Data	1	1	2	4	4	4	4
187	Sep-18	EVB - New Smyrna Beach	Jet	BE40 - Raytheon/Beech Beechjet 400/T-1	B	I	1	1	2	5	5	5	5
188	Sep-18	EVB - New Smyrna Beach	Jet	C25B - Cessna Citation CJ3	B	II	2	2	4	10	5	10	5
189	Sep-18	EVB - New Smyrna Beach	Jet	C25C - Cessna Citation CJ4	B	II	1	1	2	6	6	6	6
190	Sep-18	EVB - New Smyrna Beach	Jet	C501 - Cessna I/SP	B	I	1	1	2	6	6	6	6
191	Sep-18	EVB - New Smyrna Beach	Jet	C525 - Cessna CitationJet/CJ1	B	I	1	1	2	5	5	5	5
192	Sep-18	EVB - New Smyrna Beach	Jet	C550 - Cessna Citation II/Bravo	B	II	3	4	7	30	10	40	10
193	Sep-18	EVB - New Smyrna Beach	Jet	C560 - Cessna Citation V/Ultra/Encore	B	II	2	2	4	16	8	16	8
194	Sep-18	EVB - New Smyrna Beach	Jet	C56X - Cessna Excel/XLS	B	II	2	2	4	30	15	30	15
195	Sep-18	EVB - New Smyrna Beach	Jet	C750 - Cessna Citation X	B	II	1	1	2	14	14	14	14

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#	Date	Airport	Physical Class	Aircraft	Airplane Approach Category	Airplane Design Group	Departures	Arrivals	Total Operations	Departure Seats	Average Departure Seats	Arrival Seats	Average Arrival Seats
196	Sep-18	EVB - New Smyrna Beach	Jet	CL35 - Bombardier Challenger 300	C	II	5	6	11	40	8	48	8
197	Sep-18	EVB - New Smyrna Beach	Piston	-1 - unknown	No Data	No Data	6	4	10	0	0	0	0
198	Sep-18	EVB - New Smyrna Beach	Piston	BE33 - Beech Bonanza 33	A	I	2	2	4	10	5	10	5
199	Sep-18	EVB - New Smyrna Beach	Piston	BE35 - Beech Bonanza 35	A	I	6	6	12	24	4	24	4
200	Sep-18	EVB - New Smyrna Beach	Piston	BE36 - Beech Bonanza 36	A	I	10	6	16	40	4	24	4
201	Sep-18	EVB - New Smyrna Beach	Piston	BE55 - Beech Baron 55	A	I	2	2	4	12	6	12	6
202	Sep-18	EVB - New Smyrna Beach	Piston	BE58 - Beech 58	B	I	1	1	2	4	4	4	4
203	Sep-18	EVB - New Smyrna Beach	Piston	C172 - Cessna Skyhawk 172/Cutlass	A	I	166	161	327	664	4	644	4
204	Sep-18	EVB - New Smyrna Beach	Piston	C177 - Cessna 177 Cardinal	A	I	1	1	2	4	4	4	4
205	Sep-18	EVB - New Smyrna Beach	Piston	C182 - Cessna Skylane 182	A	I	1	1	2	4	4	4	4
206	Sep-18	EVB - New Smyrna Beach	Piston	C310 - Cessna 310	A	I	0	2	2	0	0	12	6
207	Sep-18	EVB - New Smyrna Beach	Piston	C414 - Cessna Chancellor 414	B	I	30	28	58	180	6	168	6
208	Sep-18	EVB - New Smyrna Beach	Piston	DA42 - Diamond Twin Star	A	I	1	2	3	4	4	8	4
209	Sep-18	EVB - New Smyrna Beach	Piston	E300 - Extra EA-300	No Data	No Data	0	1	1	0	0	2	2
210	Sep-18	EVB - New Smyrna Beach	Piston	M20P - Mooney M-20C Ranger	A	I	1	4	5	4	4	16	4
211	Sep-18	EVB - New Smyrna Beach	Piston	M20T - Turbo Mooney M20K	A	I	1	0	1	4	4	0	0
212	Sep-18	EVB - New Smyrna Beach	Piston	MO20 - Mooney M-20	No Data	No Data	0	1	1	0	0	4	4
213	Sep-18	EVB - New Smyrna Beach	Piston	P210 - Riley Super P210	A	I	0	1	1	0	0	6	6
214	Sep-18	EVB - New Smyrna Beach	Piston	P28A - Piper Cherokee	A	I	5	5	10	20	4	20	4
215	Sep-18	EVB - New Smyrna Beach	Piston	PA28 - Piper Cherokee	A	I	1	0	1	28	28	0	0
216	Sep-18	EVB - New Smyrna Beach	Piston	PA30 - Piper PA-30	A	I	1	0	1	6	6	0	0
217	Sep-18	EVB - New Smyrna Beach	Piston	PA31 - Piper Navajo PA-31	A	I	1	2	3	8	8	16	8
218	Sep-18	EVB - New Smyrna Beach	Piston	PA32 - Piper Cherokee Six	A	I	3	0	3	18	6	0	0
219	Sep-18	EVB - New Smyrna Beach	Piston	PA34 - Piper PA-34 Seneca	A	I	1	1	2	6	6	6	6
220	Sep-18	EVB - New Smyrna Beach	Piston	PA44 - Piper Seminole	A	I	19	18	37	76	4	72	4
221	Sep-18	EVB - New Smyrna Beach	Piston	PA46 - Piper Malibu	A	I	2	3	5	12	6	18	6
222	Sep-18	EVB - New Smyrna Beach	Piston	RV10 - Experimental	No Data	No Data	1	1	2	2	2	2	2
223	Sep-18	EVB - New Smyrna Beach	Piston	RV6 - AIEP Air Beetle	No Data	No Data	1	1	2	2	2	2	2
224	Sep-18	EVB - New Smyrna Beach	Piston	S22T - Cirrus SR-22 Turbo	A	I	0	1	1	0	0	4	4
225	Sep-18	EVB - New Smyrna Beach	Piston	SR20 - Cirrus SR-20	A	I	2	0	2	8	4	0	0
226	Sep-18	EVB - New Smyrna Beach	Piston	SR22 - Cirrus SR 22	A	I	3	2	5	12	4	8	4
227	Sep-18	EVB - New Smyrna Beach	Turbine	BE20 - Beech 200 Super King	B	II	3	3	6	15	5	15	5
228	Sep-18	EVB - New Smyrna Beach	Turbine	BE30 - Raytheon 300 Super King Air	B	II	1	1	2	8	8	8	8
229	Sep-18	EVB - New Smyrna Beach	Turbine	BE9L - Beech King Air 90	B	I	1	1	2	6	6	6	6
230	Sep-18	EVB - New Smyrna Beach	Turbine	PC12 - Pilatus PC-12	A	II	3	3	6	27	9	27	9
231	Sep-18	EVB - New Smyrna Beach	Turbine	TBM7 - Socata TBM-7	A	I	1	1	2	4	4	4	4
232	Sep-18	EVB - New Smyrna Beach	Turbine	TBM8 - Socata TBM-850	A	I	0	1	1	0	0	7	7
233	Oct-18	EVB - New Smyrna Beach	-	-1 - unknown	No Data	No Data	1	1	2	0	0	0	0
234	Oct-18	EVB - New Smyrna Beach	Jet	BE40 - Raytheon/Beech Beechjet 400/T-1	B	I	1	0	1	5	5	0	0
235	Oct-18	EVB - New Smyrna Beach	Jet	C25A - Cessna Citation CJ2	B	I	1	1	2	8	8	8	8
236	Oct-18	EVB - New Smyrna Beach	Jet	C500 - Cessna 500/Citation I	B	I	0	1	1	0	0	6	6
237	Oct-18	EVB - New Smyrna Beach	Jet	C501 - Cessna I/SP	B	I	6	5	11	36	6	30	6
238	Oct-18	EVB - New Smyrna Beach	Jet	C525 - Cessna CitationJet/CJ1	B	I	2	2	4	10	5	10	5
239	Oct-18	EVB - New Smyrna Beach	Jet	C550 - Cessna Citation II/Bravo	B	II	3	3	6	30	10	30	10
240	Oct-18	EVB - New Smyrna Beach	Jet	C560 - Cessna Citation V/Ultra/Encore	B	II	3	3	6	24	8	24	8
241	Oct-18	EVB - New Smyrna Beach	Jet	C680 - Cessna Citation Sovereign	B	II	2	2	4	24	12	24	12
242	Oct-18	EVB - New Smyrna Beach	Jet	CL30 - Bombardier (Canadair) Challenger 300	C	II	1	1	2	8	8	8	8
243	Oct-18	EVB - New Smyrna Beach	Jet	CL35 - Bombardier Challenger 300	C	II	4	4	8	32	8	32	8
244	Oct-18	EVB - New Smyrna Beach	Jet	F2TH - Dassault Falcon 2000	B	II	1	1	2	12	12	12	12
245	Oct-18	EVB - New Smyrna Beach	Jet	G150 - Gulfstream G150	C	II	2	2	4	8	4	8	4
246	Oct-18	EVB - New Smyrna Beach	Jet	H25B - BAe HS 125/700-800/Hawker 800	C	I	1	1	2	12	12	12	12
247	Oct-18	EVB - New Smyrna Beach	Jet	LJ31 - Bombardier Learjet 31/A/B	C	I	1	1	2	8	8	8	8
248	Oct-18	EVB - New Smyrna Beach	Jet	LJ60 - Bombardier Learjet 60	C	I	2	2	4	16	8	16	8
249	Oct-18	EVB - New Smyrna Beach	Piston	-1 - unknown	No Data	No Data	11	1	12	0	0	0	0
250	Oct-18	EVB - New Smyrna Beach	Piston	BE33 - Beech Bonanza 33	A	I	3	3	6	15	5	15	5
251	Oct-18	EVB - New Smyrna Beach	Piston	BE35 - Beech Bonanza 35	A	I	3	3	6	12	4	12	4
252	Oct-18	EVB - New Smyrna Beach	Piston	BE36 - Beech Bonanza 36	A	I	9	12	21	36	4	48	4
253	Oct-18	EVB - New Smyrna Beach	Piston	BE55 - Beech Baron 55	A	I	3	3	6	18	6	18	6
254	Oct-18	EVB - New Smyrna Beach	Piston	BE58 - Beech 58	B	I	3	6	9	12	4	24	4
255	Oct-18	EVB - New Smyrna Beach	Piston	C152 - Cessna 152	A	I	1	0	1	4	4	0	0
256	Oct-18	EVB - New Smyrna Beach	Piston	C172 - Cessna Skyhawk 172/Cutlass	A	I	191	173	364	764	4	692	4
257	Oct-18	EVB - New Smyrna Beach	Piston	C182 - Cessna Skylane 182	A	I	3	4	7	12	4	16	4
258	Oct-18	EVB - New Smyrna Beach	Piston	C210 - Cessna 210 Centurion	A	I	1	2	3	6	6	12	6
259	Oct-18	EVB - New Smyrna Beach	Piston	C310 - Cessna 310	A	I	1	1	2	6	6	6	6
260	Oct-18	EVB - New Smyrna Beach	Piston	C340 - Cessna 340	B	I	1	1	2	6	6	6	6

TFMSC Report (Airport)

From 05/2018 To 05/2019 | Airport=EVB

#	Date	Airport	Physical Class	Aircraft	Airplane Approach Category	Airplane Design Group	Departures	Arrivals	Total Operations	Departure Seats	Average Departure Seats	Arrival Seats	Average Arrival Seats
261	Oct-18	EVB - New Smyrna Beach	Piston	C414 - Cessna Chancellor 414	B	I	29	29	58	174	6	174	6
262	Oct-18	EVB - New Smyrna Beach	Piston	COL4 - Lancair LC-41 Columbia 400	A	I	0	1	1	0	0	4	4
263	Oct-18	EVB - New Smyrna Beach	Piston	DA42 - Diamond Twin Star	A	I	2	1	3	8	4	4	4
264	Oct-18	EVB - New Smyrna Beach	Piston	DC3 - Boeing (Douglas) DC 3	A	III	1	2	3	22	22	44	22
265	Oct-18	EVB - New Smyrna Beach	Piston	G2T1 - Sport Trainer/2T-1 Great Lakes	No Data	No Data	0	1	1	0	0	2	2
266	Oct-18	EVB - New Smyrna Beach	Piston	M20P - Mooney M-20C Ranger	A	I	3	5	8	12	4	20	4
267	Oct-18	EVB - New Smyrna Beach	Piston	P28A - Piper Cherokee	A	I	5	3	8	20	4	12	4
268	Oct-18	EVB - New Smyrna Beach	Piston	P28R - Cherokee Arrow/Turbo	A	I	3	2	5	12	4	8	4
269	Oct-18	EVB - New Smyrna Beach	Piston	P32T - Embraer Lance 2	No Data	No Data	1	1	2	6	6	6	6
270	Oct-18	EVB - New Smyrna Beach	Piston	PA24 - Piper PA-24	A	I	2	2	4	10	5	10	5
271	Oct-18	EVB - New Smyrna Beach	Piston	PA27 - Piper Aztec	A	I	1	0	1	4	4	0	0
272	Oct-18	EVB - New Smyrna Beach	Piston	PA31 - Piper Navajo PA-31	A	I	1	0	1	8	8	0	0
273	Oct-18	EVB - New Smyrna Beach	Piston	PA32 - Piper Cherokee Six	A	I	4	2	6	24	6	12	6
274	Oct-18	EVB - New Smyrna Beach	Piston	PA34 - Piper PA-34 Seneca	A	I	2	2	4	12	6	12	6
275	Oct-18	EVB - New Smyrna Beach	Piston	PA44 - Piper Seminole	A	I	21	22	43	84	4	88	4
276	Oct-18	EVB - New Smyrna Beach	Piston	S22T - Cirrus SR-22 Turbo	A	I	3	3	6	12	4	12	4
277	Oct-18	EVB - New Smyrna Beach	Piston	SR20 - Cirrus SR-20	A	I	2	5	7	8	4	20	4
278	Oct-18	EVB - New Smyrna Beach	Turbine	AC90 - Gulfstream Commander	B	I	1	1	2	4	4	4	4
279	Oct-18	EVB - New Smyrna Beach	Turbine	BE10 - Beech King Air 100 A/B	B	I	1	1	2	4	4	4	4
280	Oct-18	EVB - New Smyrna Beach	Turbine	BE20 - Beech 200 Super King	B	II	1	1	2	5	5	5	5
281	Oct-18	EVB - New Smyrna Beach	Turbine	BE30 - Raytheon 300 Super King Air	B	II	1	1	2	8	8	8	8
282	Oct-18	EVB - New Smyrna Beach	Turbine	BE9L - Beech King Air 90	B	I	1	1	2	6	6	6	6
283	Oct-18	EVB - New Smyrna Beach	Turbine	P46T - Piper Malibu Meridian	A	I	1	1	2	6	6	6	6
284	Oct-18	EVB - New Smyrna Beach	Turbine	TBM8 - Socata TBM-850	A	I	1	1	2	7	7	7	7
285	Nov-18	EVB - New Smyrna Beach	-	C47 - Boeing CH-47 Chinook	No Data	No Data	0	1	1	0	0	15	15
286	Nov-18	EVB - New Smyrna Beach	-	H60 - Sikorsky SH-60 Seahawk	No Data	No Data	1	0	1	4	4	0	0
287	Nov-18	EVB - New Smyrna Beach	Jet	BE40 - Raytheon/Beech Beechjet 400/T-1	B	I	1	1	2	5	5	5	5
288	Nov-18	EVB - New Smyrna Beach	Jet	C25B - Cessna Citation CJ3	B	II	1	1	2	5	5	5	5
289	Nov-18	EVB - New Smyrna Beach	Jet	C25C - Cessna Citation CJ4	B	II	4	4	8	24	6	24	6
290	Nov-18	EVB - New Smyrna Beach	Jet	C501 - Cessna I/SP	B	I	2	5	7	12	6	30	6
291	Nov-18	EVB - New Smyrna Beach	Jet	C525 - Cessna CitationJet/CJ1	B	I	1	1	2	5	5	5	5
292	Nov-18	EVB - New Smyrna Beach	Jet	C551 - Cessna Citation II/SP	B	II	1	0	1	6	6	0	0
293	Nov-18	EVB - New Smyrna Beach	Jet	C560 - Cessna Citation V/Ultra/Encore	B	II	4	4	8	32	8	32	8
294	Nov-18	EVB - New Smyrna Beach	Jet	CL35 - Bombardier Challenger 300	C	II	3	3	6	24	8	24	8
295	Nov-18	EVB - New Smyrna Beach	Jet	F2TH - Dassault Falcon 2000	B	II	1	1	2	12	12	12	12
296	Nov-18	EVB - New Smyrna Beach	Jet	H25B - BAe HS 125/700-800/Hawker 800	C	I	1	1	2	12	12	12	12
297	Nov-18	EVB - New Smyrna Beach	Jet	LJ60 - Bombardier Learjet 60	C	I	1	1	2	8	8	8	8
298	Nov-18	EVB - New Smyrna Beach	Piston	-1 - unknown	No Data	No Data	3	4	7	0	0	0	0
299	Nov-18	EVB - New Smyrna Beach	Piston	BE33 - Beech Bonanza 33	A	I	5	4	9	25	5	20	5
300	Nov-18	EVB - New Smyrna Beach	Piston	BE35 - Beech Bonanza 35	A	I	4	3	7	16	4	12	4
301	Nov-18	EVB - New Smyrna Beach	Piston	BE36 - Beech Bonanza 36	A	I	3	7	10	12	4	28	4
302	Nov-18	EVB - New Smyrna Beach	Piston	BE55 - Beech Baron 55	A	I	3	7	10	18	6	42	6
303	Nov-18	EVB - New Smyrna Beach	Piston	BE58 - Beech 58	B	I	4	3	7	16	4	12	4
304	Nov-18	EVB - New Smyrna Beach	Piston	C172 - Cessna Skyhawk 172/Cutlass	A	I	174	157	331	696	4	628	4
305	Nov-18	EVB - New Smyrna Beach	Piston	C177 - Cessna 177 Cardinal	A	I	0	1	1	0	0	4	4
306	Nov-18	EVB - New Smyrna Beach	Piston	C182 - Cessna Skylane 182	A	I	2	5	7	8	4	20	4
307	Nov-18	EVB - New Smyrna Beach	Piston	C210 - Cessna 210 Centurion	A	I	1	1	2	6	6	6	6
308	Nov-18	EVB - New Smyrna Beach	Piston	C310 - Cessna 310	A	I	3	3	6	18	6	18	6
309	Nov-18	EVB - New Smyrna Beach	Piston	C340 - Cessna 340	B	I	1	1	2	6	6	6	6
310	Nov-18	EVB - New Smyrna Beach	Piston	C414 - Cessna Chancellor 414	B	I	55	54	109	330	6	324	6
311	Nov-18	EVB - New Smyrna Beach	Piston	DA42 - Diamond Twin Star	A	I	1	2	3	4	4	8	4
312	Nov-18	EVB - New Smyrna Beach	Piston	DV20 - Diamond DV-20	No Data	No Data	0	1	1	0	0	4	4
313	Nov-18	EVB - New Smyrna Beach	Piston	E300 - Extra EA-300	No Data	No Data	0	1	1	0	0	2	2
314	Nov-18	EVB - New Smyrna Beach	Piston	M20P - Mooney M-20C Ranger	A	I	7	7	14	28	4	28	4
315	Nov-18	EVB - New Smyrna Beach	Piston	M20T - Turbo Mooney M20K	A	I	1	1	2	4	4	4	4
316	Nov-18	EVB - New Smyrna Beach	Piston	P28A - Piper Cherokee	A	I	2	5	7	8	4	20	4
317	Nov-18	EVB - New Smyrna Beach	Piston	P32T - Embraer Lance 2	No Data	No Data	2	2	4	12	6	12	6
318	Nov-18	EVB - New Smyrna Beach	Piston	P337 - Cessna T337G Pressurized Skymaster	No Data	No Data	1	1	2	6	6	6	6
319	Nov-18	EVB - New Smyrna Beach	Piston	PA24 - Piper PA-24	A	I	1	0	1	5	5	0	0
320	Nov-18	EVB - New Smyrna Beach	Piston	PA32 - Piper Cherokee Six	A	I	2	2	4	12	6	12	6
321	Nov-18	EVB - New Smyrna Beach	Piston	PA34 - Piper PA-34 Seneca	A	I	2	2	4	12	6	12	6
322	Nov-18	EVB - New Smyrna Beach	Piston	PA44 - Piper Seminole	A	I	36	36	72	144	4	144	4
323	Nov-18	EVB - New Smyrna Beach	Piston	PA46 - Piper Malibu	A	I	1	1	2	6	6	6	6
324	Nov-18	EVB - New Smyrna Beach	Piston	RV10 - Experimental	No Data	No Data	1	2	3	2	2	4	2
325	Nov-18	EVB - New Smyrna Beach	Piston	S22T - Cirrus SR-22 Turbo	A	I	2	2	4	8	4	8	4

TFMSC Report (Airport)

From 05/2018 To 05/2019 | Airport=EVB

#	Date	Airport	Physical Class	Aircraft	Airplane Approach Category	Airplane Design Group	Departures	Arrivals	Total Operations	Departure Seats	Average Departure Seats	Arrival Seats	Average Arrival Seats
326	Nov-18	EVB - New Smyrna Beach	Piston	SR20 - Cirrus SR-20	A	I	2	0	2	8	4	0	0
327	Nov-18	EVB - New Smyrna Beach	Piston	SR22 - Cirrus SR 22	A	I	4	5	9	16	4	20	4
328	Nov-18	EVB - New Smyrna Beach	Turbine	AC90 - Gulfstream Commander	B	I	1	1	2	4	4	4	4
329	Nov-18	EVB - New Smyrna Beach	Turbine	BE20 - Beech 200 Super King	B	II	1	1	2	5	5	5	5
330	Nov-18	EVB - New Smyrna Beach	Turbine	BE9L - Beech King Air 90	B	I	5	5	10	30	6	30	6
331	Nov-18	EVB - New Smyrna Beach	Turbine	C130 - Lockheed 130 Hercules	C	IV	0	1	1	0	0	0	0
332	Nov-18	EVB - New Smyrna Beach	Turbine	PC12 - Pilatus PC-12	A	II	3	3	6	27	9	27	9
333	Dec-18	EVB - New Smyrna Beach	-	-1 - unknown	No Data	No Data	3	1	4	0	0	0	0
334	Dec-18	EVB - New Smyrna Beach	Jet	C25B - Cessna Citation CJ3	B	II	1	1	2	5	5	5	5
335	Dec-18	EVB - New Smyrna Beach	Jet	C501 - Cessna I/SP	B	I	4	3	7	24	6	18	6
336	Dec-18	EVB - New Smyrna Beach	Jet	C525 - Cessna CitationJet/CJ1	B	I	6	5	11	30	5	25	5
337	Dec-18	EVB - New Smyrna Beach	Jet	C550 - Cessna Citation II/Bravo	B	II	1	1	2	10	10	10	10
338	Dec-18	EVB - New Smyrna Beach	Jet	C551 - Cessna Citation II/SP	B	II	0	1	1	0	0	6	6
339	Dec-18	EVB - New Smyrna Beach	Jet	C560 - Cessna Citation V/Ultra/Encore	B	II	2	2	4	16	8	16	8
340	Dec-18	EVB - New Smyrna Beach	Jet	C56X - Cessna Excel/XLS	B	II	2	2	4	30	15	30	15
341	Dec-18	EVB - New Smyrna Beach	Jet	C68A - Cessna Citation Latitude	B	II	1	1	2	9	9	9	9
342	Dec-18	EVB - New Smyrna Beach	Jet	CL30 - Bombardier (Canadair) Challenger 300	C	II	1	1	2	8	8	8	8
343	Dec-18	EVB - New Smyrna Beach	Jet	CL35 - Bombardier Challenger 300	C	II	4	4	8	32	8	32	8
344	Dec-18	EVB - New Smyrna Beach	Jet	E55P - Embraer Phenom 300	B	II	1	1	2	8	8	8	8
345	Dec-18	EVB - New Smyrna Beach	Jet	H25B - BAe HS 125/700-800/Hawker 800	C	I	1	1	2	12	12	12	12
346	Dec-18	EVB - New Smyrna Beach	Jet	LJ45 - Bombardier Learjet 45	C	I	1	1	2	10	10	10	10
347	Dec-18	EVB - New Smyrna Beach	Piston	-1 - unknown	No Data	No Data	8	1	9	0	0	0	0
348	Dec-18	EVB - New Smyrna Beach	Piston	B58T - Beechcraft Baron Turbo	No Data	No Data	1	1	2	4	4	4	4
349	Dec-18	EVB - New Smyrna Beach	Piston	BE33 - Beech Bonanza 33	A	I	4	4	8	20	5	20	5
350	Dec-18	EVB - New Smyrna Beach	Piston	BE35 - Beech Bonanza 35	A	I	2	0	2	8	4	0	0
351	Dec-18	EVB - New Smyrna Beach	Piston	BE36 - Beech Bonanza 36	A	I	12	12	24	48	4	48	4
352	Dec-18	EVB - New Smyrna Beach	Piston	BE45 - Raytheon Hawker 400	No Data	No Data	0	1	1	0	0	6	6
353	Dec-18	EVB - New Smyrna Beach	Piston	BE55 - Beech Baron 55	A	I	7	4	11	42	6	24	6
354	Dec-18	EVB - New Smyrna Beach	Piston	BE58 - Beech 58	B	I	4	3	7	16	4	12	4
355	Dec-18	EVB - New Smyrna Beach	Piston	C172 - Cessna Skyhawk 172/Cutlass	A	I	173	162	335	692	4	648	4
356	Dec-18	EVB - New Smyrna Beach	Piston	C177 - Cessna 177 Cardinal	A	I	1	1	2	4	4	4	4
357	Dec-18	EVB - New Smyrna Beach	Piston	C182 - Cessna Skylane 182	A	I	3	2	5	12	4	8	4
358	Dec-18	EVB - New Smyrna Beach	Piston	C310 - Cessna 310	A	I	5	3	8	30	6	18	6
359	Dec-18	EVB - New Smyrna Beach	Piston	C337 - Cessna Turbo Super Skymaster	No Data	No Data	1	0	1	4	4	0	0
360	Dec-18	EVB - New Smyrna Beach	Piston	C414 - Cessna Chancellor 414	B	I	63	55	118	378	6	330	6
361	Dec-18	EVB - New Smyrna Beach	Piston	COL4 - Lancair LC-41 Columbia 400	A	I	2	1	3	8	4	4	4
362	Dec-18	EVB - New Smyrna Beach	Piston	DA42 - Diamond Twin Star	A	I	1	1	2	4	4	4	4
363	Dec-18	EVB - New Smyrna Beach	Piston	M20P - Mooney M-20C Ranger	A	I	2	3	5	8	4	12	4
364	Dec-18	EVB - New Smyrna Beach	Piston	P28A - Piper Cherokee	A	I	5	4	9	20	4	16	4
365	Dec-18	EVB - New Smyrna Beach	Piston	P28B - Piper Turbo Dakota	A	I	1	1	2	4	4	4	4
366	Dec-18	EVB - New Smyrna Beach	Piston	P28R - Cherokee Arrow/Turbo	A	I	2	4	6	8	4	16	4
367	Dec-18	EVB - New Smyrna Beach	Piston	P32R - Piper 32	A	I	3	2	5	12	4	8	4
368	Dec-18	EVB - New Smyrna Beach	Piston	P337 - Cessna T337G Pressurized Skymaster	No Data	No Data	0	1	1	0	0	6	6
369	Dec-18	EVB - New Smyrna Beach	Piston	PA30 - Piper PA-30	A	I	3	3	6	18	6	18	6
370	Dec-18	EVB - New Smyrna Beach	Piston	PA31 - Piper Navajo PA-31	A	I	1	2	3	8	8	16	8
371	Dec-18	EVB - New Smyrna Beach	Piston	PA34 - Piper PA-34 Seneca	A	I	1	0	1	6	6	0	0
372	Dec-18	EVB - New Smyrna Beach	Piston	PA44 - Piper Seminole	A	I	23	22	45	92	4	88	4
373	Dec-18	EVB - New Smyrna Beach	Piston	PA46 - Piper Malibu	A	I	1	1	2	6	6	6	6
374	Dec-18	EVB - New Smyrna Beach	Piston	S22T - Cirrus SR-22 Turbo	A	I	4	4	8	16	4	16	4
375	Dec-18	EVB - New Smyrna Beach	Piston	SR22 - Cirrus SR 22	A	I	4	4	8	16	4	16	4
376	Dec-18	EVB - New Smyrna Beach	Turbine	AC90 - Gulfstream Commander	B	I	1	1	2	4	4	4	4
377	Dec-18	EVB - New Smyrna Beach	Turbine	BE30 - Raytheon 300 Super King Air	B	II	1	0	1	8	8	0	0
378	Dec-18	EVB - New Smyrna Beach	Turbine	C425 - Cessna 425 Corsair	B	I	2	2	4	8	4	8	4
379	Dec-18	EVB - New Smyrna Beach	Turbine	PC12 - Pilatus PC-12	A	II	2	2	4	18	9	18	9
380	Dec-18	EVB - New Smyrna Beach	Turbine	TBM7 - Socata TBM-7	A	I	1	1	2	4	4	4	4
381	Dec-18	EVB - New Smyrna Beach	Turbine	TBM8 - Socata TBM-850	A	I	1	1	2	7	7	7	7
382	Jan-19	EVB - New Smyrna Beach	-	-1 - unknown	No Data	No Data	4	0	4	0	0	0	0
383	Jan-19	EVB - New Smyrna Beach	Jet	BE40 - Raytheon/Beech Beechjet 400/T-1	B	I	2	2	4	10	5	10	5
384	Jan-19	EVB - New Smyrna Beach	Jet	C25A - Cessna Citation CJ2	B	I	1	1	2	8	8	8	8
385	Jan-19	EVB - New Smyrna Beach	Jet	C25C - Cessna Citation CJ4	B	II	2	2	4	12	6	12	6
386	Jan-19	EVB - New Smyrna Beach	Jet	C501 - Cessna I/SP	B	I	2	2	4	12	6	12	6
387	Jan-19	EVB - New Smyrna Beach	Jet	C510 - Cessna Citation Mustang	B	I	2	2	4	12	6	12	6
388	Jan-19	EVB - New Smyrna Beach	Jet	C525 - Cessna CitationJet/CJ1	B	I	4	4	8	20	5	20	5
389	Jan-19	EVB - New Smyrna Beach	Jet	C56X - Cessna Excel/XLS	B	II	3	3	6	45	15	45	15
390	Jan-19	EVB - New Smyrna Beach	Jet	C650 - Cessna III/VI/VII	B	II	1	1	2	6	6	6	6

TFMSC Report (Airport)

From 05/2018 To 05/2019 | Airport=EVB

#	Date	Airport	Physical Class	Aircraft	Airplane Approach Category	Airplane Design Group	Departures	Arrivals	Total Operations	Departure Seats	Average Departure Seats	Arrival Seats	Average Arrival Seats
391	Jan-19	EVB - New Smyrna Beach	Jet	CL30 - Bombardier (Canadair) Challenger 300	C	II	2	2	4	16	8	16	8
392	Jan-19	EVB - New Smyrna Beach	Jet	CL35 - Bombardier Challenger 300	C	II	2	2	4	16	8	16	8
393	Jan-19	EVB - New Smyrna Beach	Jet	EA50 - Eclipse 500	A	I	0	1	1	0	0	6	6
394	Jan-19	EVB - New Smyrna Beach	Jet	LJ45 - Bombardier Learjet 45	C	I	1	0	1	10	10	0	0
395	Jan-19	EVB - New Smyrna Beach	Jet	PRM1 - Raytheon Premier 1/390 Premier 1	B	I	3	3	6	18	6	18	6
396	Jan-19	EVB - New Smyrna Beach	Piston	-1 - unknown	No Data	No Data	8	1	9	0	0	0	0
397	Jan-19	EVB - New Smyrna Beach	Piston	AA5 - American AA-5 Traveler	A	I	1	0	1	3	3	0	0
398	Jan-19	EVB - New Smyrna Beach	Piston	BE33 - Beech Bonanza 33	A	I	5	6	11	25	5	30	5
399	Jan-19	EVB - New Smyrna Beach	Piston	BE35 - Beech Bonanza 35	A	I	1	2	3	4	4	8	4
400	Jan-19	EVB - New Smyrna Beach	Piston	BE36 - Beech Bonanza 36	A	I	9	8	17	36	4	32	4
401	Jan-19	EVB - New Smyrna Beach	Piston	BE55 - Beech Baron 55	A	I	8	4	12	48	6	24	6
402	Jan-19	EVB - New Smyrna Beach	Piston	BE58 - Beech 58	B	I	3	2	5	12	4	8	4
403	Jan-19	EVB - New Smyrna Beach	Piston	C170 - Cessna 170	No Data	No Data	0	1	1	0	0	4	4
404	Jan-19	EVB - New Smyrna Beach	Piston	C172 - Cessna Skyhawk 172/Cutlass	A	I	190	172	362	760	4	688	4
405	Jan-19	EVB - New Smyrna Beach	Piston	C182 - Cessna Skylane 182	A	I	3	3	6	12	4	12	4
406	Jan-19	EVB - New Smyrna Beach	Piston	C206 - Cessna 206 Stationair	B	I	1	1	2	4	4	4	4
407	Jan-19	EVB - New Smyrna Beach	Piston	C210 - Cessna 210 Centurion	A	I	1	1	2	6	6	6	6
408	Jan-19	EVB - New Smyrna Beach	Piston	C310 - Cessna 310	A	I	5	6	11	30	6	36	6
409	Jan-19	EVB - New Smyrna Beach	Piston	C320 - Cessna Skyknight	No Data	No Data	0	1	1	0	0	5	5
410	Jan-19	EVB - New Smyrna Beach	Piston	C340 - Cessna 340	B	I	0	1	1	0	0	6	6
411	Jan-19	EVB - New Smyrna Beach	Piston	C414 - Cessna Chancellor 414	B	I	49	48	97	294	6	288	6
412	Jan-19	EVB - New Smyrna Beach	Piston	DA42 - Diamond Twin Star	A	I	3	2	5	12	4	8	4
413	Jan-19	EVB - New Smyrna Beach	Piston	KIS4 - unknown	No Data	No Data	0	1	1	0	0	0	0
414	Jan-19	EVB - New Smyrna Beach	Piston	M20P - Mooney M-20C Ranger	A	I	2	5	7	8	4	20	4
415	Jan-19	EVB - New Smyrna Beach	Piston	M20T - Turbo Mooney M20K	A	I	1	1	2	4	4	4	4
416	Jan-19	EVB - New Smyrna Beach	Piston	P28A - Piper Cherokee	A	I	1	3	4	4	4	12	4
417	Jan-19	EVB - New Smyrna Beach	Piston	P28B - Piper Turbo Dakota	A	I	1	1	2	4	4	4	4
418	Jan-19	EVB - New Smyrna Beach	Piston	P28R - Cherokee Arrow/Turbo	A	I	1	2	3	4	4	8	4
419	Jan-19	EVB - New Smyrna Beach	Piston	P32R - Piper 32	A	I	1	0	1	4	4	0	0
420	Jan-19	EVB - New Smyrna Beach	Piston	P337 - Cessna T337G Pressurized Skymaster	No Data	No Data	1	0	1	6	6	0	0
421	Jan-19	EVB - New Smyrna Beach	Piston	PA24 - Piper PA-24	A	I	1	1	2	5	5	5	5
422	Jan-19	EVB - New Smyrna Beach	Piston	PA27 - Piper Aztec	A	I	2	1	3	8	4	4	4
423	Jan-19	EVB - New Smyrna Beach	Piston	PA30 - Piper PA-30	A	I	1	1	2	6	6	6	6
424	Jan-19	EVB - New Smyrna Beach	Piston	PA31 - Piper Navajo PA-31	A	I	4	2	6	32	8	16	8
425	Jan-19	EVB - New Smyrna Beach	Piston	PA32 - Piper Cherokee Six	A	I	1	1	2	6	6	6	6
426	Jan-19	EVB - New Smyrna Beach	Piston	PA34 - Piper PA-34 Seneca	A	I	2	1	3	12	6	6	6
427	Jan-19	EVB - New Smyrna Beach	Piston	PA44 - Piper Seminole	A	I	17	21	38	68	4	84	4
428	Jan-19	EVB - New Smyrna Beach	Piston	PA46 - Piper Malibu	A	I	3	3	6	18	6	18	6
429	Jan-19	EVB - New Smyrna Beach	Piston	RV10 - Experimental	No Data	No Data	1	1	2	2	2	2	2
430	Jan-19	EVB - New Smyrna Beach	Piston	RV9 - Experimental	No Data	No Data	0	1	1	0	0	2	2
431	Jan-19	EVB - New Smyrna Beach	Piston	S22T - Cirrus SR-22 Turbo	A	I	5	5	10	20	4	20	4
432	Jan-19	EVB - New Smyrna Beach	Piston	SR20 - Cirrus SR-20	A	I	2	1	3	8	4	4	4
433	Jan-19	EVB - New Smyrna Beach	Piston	SR22 - Cirrus SR 22	A	I	5	5	10	20	4	20	4
434	Jan-19	EVB - New Smyrna Beach	Turbine	B350 - Beech Super King Air 350	B	II	2	2	4	12	6	12	6
435	Jan-19	EVB - New Smyrna Beach	Turbine	BE30 - Raytheon 300 Super King Air	B	II	1	1	2	8	8	8	8
436	Jan-19	EVB - New Smyrna Beach	Turbine	BE9L - Beech King Air 90	B	I	1	1	2	6	6	6	6
437	Jan-19	EVB - New Smyrna Beach	Turbine	C208 - Cessna 208 Caravan	B	II	1	1	2	14	14	14	14
438	Jan-19	EVB - New Smyrna Beach	Turbine	C425 - Cessna 425 Corsair	B	I	1	1	2	4	4	4	4
439	Jan-19	EVB - New Smyrna Beach	Turbine	LNP4 - Lancair Propjet four-seat	No Data	No Data	1	0	1	4	4	0	0
440	Jan-19	EVB - New Smyrna Beach	Turbine	P46T - Piper Malibu Meridian	A	I	1	1	2	6	6	6	6
441	Jan-19	EVB - New Smyrna Beach	Turbine	PAY4 - Piper Cheyenne 400	B	I	1	1	2	4	4	4	4
442	Jan-19	EVB - New Smyrna Beach	Turbine	PC12 - Pilatus PC-12	A	II	3	3	6	27	9	27	9
443	Jan-19	EVB - New Smyrna Beach	Turbine	TBM8 - Socata TBM-850	A	I	1	1	2	7	7	7	7
444	Jan-19	EVB - New Smyrna Beach	Turbine	TBM9 - Socata TBM	A	I	3	2	5	21	7	14	7
445	Feb-19	EVB - New Smyrna Beach	-	-1 - unknown	No Data	No Data	3	1	4	0	0	0	0
446	Feb-19	EVB - New Smyrna Beach	Jet	BE40 - Raytheon/Beech Beechjet 400/T-1	B	I	1	1	2	5	5	5	5
447	Feb-19	EVB - New Smyrna Beach	Jet	C25C - Cessna Citation CJ4	B	II	2	2	4	12	6	12	6
448	Feb-19	EVB - New Smyrna Beach	Jet	C501 - Cessna I/SP	B	I	3	4	7	18	6	24	6
449	Feb-19	EVB - New Smyrna Beach	Jet	C525 - Cessna CitationJet/CJ1	B	I	2	2	4	10	5	10	5
450	Feb-19	EVB - New Smyrna Beach	Jet	C560 - Cessna Citation V/Ultra/Encore	B	II	2	2	4	16	8	16	8
451	Feb-19	EVB - New Smyrna Beach	Jet	C56X - Cessna Excel/XLS	B	II	1	1	2	15	15	15	15
452	Feb-19	EVB - New Smyrna Beach	Jet	C650 - Cessna III/VI/VII	B	II	1	1	2	6	6	6	6
453	Feb-19	EVB - New Smyrna Beach	Jet	C680 - Cessna Citation Sovereign	B	II	2	2	4	24	12	24	12
454	Feb-19	EVB - New Smyrna Beach	Jet	C68A - Cessna Citation Latitude	B	II	1	1	2	9	9	9	9
455	Feb-19	EVB - New Smyrna Beach	Jet	CL35 - Bombardier Challenger 300	C	II	3	3	6	24	8	24	8

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#	Date	Airport	Physical Class	Aircraft	Airplane Approach Category	Airplane Design Group	Departures	Arrivals	Total Operations	Departure Seats	Average Departure Seats	Arrival Seats	Average Arrival Seats
456	Feb-19	EVB - New Smyrna Beach	Jet	FA50 - Dassault Falcon/Mystère 50	B	II	2	2	4	24	12	24	12
457	Feb-19	EVB - New Smyrna Beach	Jet	G150 - Gulfstream G150	C	II	1	1	2	4	4	4	4
458	Feb-19	EVB - New Smyrna Beach	Jet	LJ60 - Bombardier Learjet 60	C	I	2	2	4	16	8	16	8
459	Feb-19	EVB - New Smyrna Beach	Jet	PRM1 - Raytheon Premier 1/390 Premier 1	B	I	1	2	3	6	6	12	6
460	Feb-19	EVB - New Smyrna Beach	Piston	-1 - unknown	No Data	No Data	6	3	9	0	0	0	0
461	Feb-19	EVB - New Smyrna Beach	Piston	AA5 - American AA-5 Traveler	A	I	1	1	2	3	3	3	3
462	Feb-19	EVB - New Smyrna Beach	Piston	AC11 - North American Commander 112	A	I	1	1	2	4	4	4	4
463	Feb-19	EVB - New Smyrna Beach	Piston	BE33 - Beech Bonanza 33	A	I	3	3	6	15	5	15	5
464	Feb-19	EVB - New Smyrna Beach	Piston	BE35 - Beech Bonanza 35	A	I	5	5	10	20	4	20	4
465	Feb-19	EVB - New Smyrna Beach	Piston	BE36 - Beech Bonanza 36	A	I	8	6	14	32	4	24	4
466	Feb-19	EVB - New Smyrna Beach	Piston	BE55 - Beech Baron 55	A	I	5	4	9	30	6	24	6
467	Feb-19	EVB - New Smyrna Beach	Piston	BE58 - Beech 58	B	I	4	4	8	16	4	16	4
468	Feb-19	EVB - New Smyrna Beach	Piston	BE60 - Beech 60 Duke	B	I	1	1	2	6	6	6	6
469	Feb-19	EVB - New Smyrna Beach	Piston	C170 - Cessna 170	No Data	No Data	3	1	4	12	4	4	4
470	Feb-19	EVB - New Smyrna Beach	Piston	C172 - Cessna Skyhawk 172/Cutlass	A	I	227	211	438	908	4	844	4
471	Feb-19	EVB - New Smyrna Beach	Piston	C177 - Cessna 177 Cardinal	A	I	1	1	2	4	4	4	4
472	Feb-19	EVB - New Smyrna Beach	Piston	C182 - Cessna Skylane 182	A	I	4	3	7	16	4	12	4
473	Feb-19	EVB - New Smyrna Beach	Piston	C210 - Cessna 210 Centurion	A	I	4	2	6	24	6	12	6
474	Feb-19	EVB - New Smyrna Beach	Piston	C310 - Cessna 310	A	I	5	5	10	30	6	30	6
475	Feb-19	EVB - New Smyrna Beach	Piston	C340 - Cessna 340	B	I	1	1	2	6	6	6	6
476	Feb-19	EVB - New Smyrna Beach	Piston	C414 - Cessna Chancellor 414	B	I	42	40	82	252	6	240	6
477	Feb-19	EVB - New Smyrna Beach	Piston	M20P - Mooney M-20C Ranger	A	I	7	6	13	28	4	24	4
478	Feb-19	EVB - New Smyrna Beach	Piston	P28A - Piper Cherokee	A	I	6	2	8	24	4	8	4
479	Feb-19	EVB - New Smyrna Beach	Piston	P28R - Cherokee Arrow/Turbo	A	I	1	2	3	4	4	8	4
480	Feb-19	EVB - New Smyrna Beach	Piston	P28U - unknown	No Data	No Data	1	1	2	28	28	28	28
481	Feb-19	EVB - New Smyrna Beach	Piston	P32R - Piper 32	A	I	5	4	9	20	4	16	4
482	Feb-19	EVB - New Smyrna Beach	Piston	P32T - Embraer Lance 2	No Data	No Data	1	1	2	6	6	6	6
483	Feb-19	EVB - New Smyrna Beach	Piston	P337 - Cessna T337G Pressurized Skymaster	No Data	No Data	2	2	4	12	6	12	6
484	Feb-19	EVB - New Smyrna Beach	Piston	PA27 - Piper Aztec	A	I	1	1	2	4	4	4	4
485	Feb-19	EVB - New Smyrna Beach	Piston	PA30 - Piper PA-30	A	I	1	0	1	6	6	0	0
486	Feb-19	EVB - New Smyrna Beach	Piston	PA31 - Piper Navajo PA-31	A	I	3	3	6	24	8	24	8
487	Feb-19	EVB - New Smyrna Beach	Piston	PA34 - Piper PA-34 Seneca	A	I	1	0	1	6	6	0	0
488	Feb-19	EVB - New Smyrna Beach	Piston	PA44 - Piper Seminole	A	I	30	31	61	120	4	124	4
489	Feb-19	EVB - New Smyrna Beach	Piston	PA46 - Piper Malibu	A	I	1	3	4	6	6	18	6
490	Feb-19	EVB - New Smyrna Beach	Piston	RV10 - Experimental	No Data	No Data	1	2	3	2	2	4	2
491	Feb-19	EVB - New Smyrna Beach	Piston	SR20 - Cirrus SR-20	A	I	1	0	1	4	4	0	0
492	Feb-19	EVB - New Smyrna Beach	Piston	SR22 - Cirrus SR 22	A	I	1	1	2	4	4	4	4
493	Feb-19	EVB - New Smyrna Beach	Turbine	B350 - Beech Super King Air 350	B	II	1	1	2	6	6	6	6
494	Feb-19	EVB - New Smyrna Beach	Turbine	B60T - Beechcraft 60 Royal Turbine Duke	No Data	No Data	1	1	2	5	5	5	5
495	Feb-19	EVB - New Smyrna Beach	Turbine	BE20 - Beech 200 Super King	B	II	3	2	5	15	5	10	5
496	Feb-19	EVB - New Smyrna Beach	Turbine	BE9L - Beech King Air 90	B	I	2	2	4	12	6	12	6
497	Feb-19	EVB - New Smyrna Beach	Turbine	C27J - Alenia C-27J Spartan	No Data	No Data	1	0	1	15	15	0	0
498	Feb-19	EVB - New Smyrna Beach	Turbine	KODI - Quest Kodiak	A	I	0	1	1	0	0	4	4
499	Feb-19	EVB - New Smyrna Beach	Turbine	MU2 - Mitsubishi Marquise/Solitaire	A	I	2	2	4	12	6	12	6
500	Feb-19	EVB - New Smyrna Beach	Turbine	P46T - Piper Malibu Meridian	A	I	1	1	2	6	6	6	6
501	Feb-19	EVB - New Smyrna Beach	Turbine	PAY2 - Piper Cheyenne 2	B	I	1	1	2	6	6	6	6
502	Feb-19	EVB - New Smyrna Beach	Turbine	PC12 - Pilatus PC-12	A	II	1	0	1	9	9	0	0
503	Feb-19	EVB - New Smyrna Beach	Turbine	TBM7 - Socata TBM-7	A	I	0	1	1	0	0	4	4
504	Feb-19	EVB - New Smyrna Beach	Turbine	TBM8 - Socata TBM-850	A	I	4	4	8	28	7	28	7
505	Feb-19	EVB - New Smyrna Beach	Turbine	TBM9 - Socata TBM	A	I	1	0	1	7	7	0	0
506	Mar-19	EVB - New Smyrna Beach	-	-1 - unknown	No Data	No Data	1	0	1	0	0	0	0
507	Mar-19	EVB - New Smyrna Beach	Jet	BE40 - Raytheon/Beech Beechjet 400/T-1	B	I	1	1	2	5	5	5	5
508	Mar-19	EVB - New Smyrna Beach	Jet	C25A - Cessna Citation CJ2	B	I	1	1	2	8	8	8	8
509	Mar-19	EVB - New Smyrna Beach	Jet	C25C - Cessna Citation CJ4	B	II	4	4	8	24	6	24	6
510	Mar-19	EVB - New Smyrna Beach	Jet	C501 - Cessna I/SP	B	I	3	3	6	18	6	18	6
511	Mar-19	EVB - New Smyrna Beach	Jet	C525 - Cessna CitationJet/CJ1	B	I	2	2	4	10	5	10	5
512	Mar-19	EVB - New Smyrna Beach	Jet	C550 - Cessna Citation II/Bravo	B	II	3	2	5	30	10	20	10
513	Mar-19	EVB - New Smyrna Beach	Jet	C551 - Cessna Citation II/SP	B	II	0	1	1	0	0	6	6
514	Mar-19	EVB - New Smyrna Beach	Jet	C560 - Cessna Citation V/Ultra/Encore	B	II	7	6	13	56	8	48	8
515	Mar-19	EVB - New Smyrna Beach	Jet	C56X - Cessna Excel/XLS	B	II	2	2	4	30	15	30	15
516	Mar-19	EVB - New Smyrna Beach	Jet	C680 - Cessna Citation Sovereign	B	II	1	1	2	12	12	12	12
517	Mar-19	EVB - New Smyrna Beach	Jet	C68A - Cessna Citation Latitude	B	II	1	1	2	9	9	9	9
518	Mar-19	EVB - New Smyrna Beach	Jet	CL35 - Bombardier Challenger 300	C	II	3	3	6	24	8	24	8
519	Mar-19	EVB - New Smyrna Beach	Jet	E545 - Embraer EMB-545 Legacy 450	B	II	1	1	2	8	8	8	8
520	Mar-19	EVB - New Smyrna Beach	Jet	F2TH - Dassault Falcon 2000	B	II	1	1	2	12	12	12	12

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521	Mar-19	EVB - New Smyrna Beach	Jet	H25B - BAe HS 125/700-800/Hawker 800	C	I	3	3	6	36	12	36	12
522	Mar-19	EVB - New Smyrna Beach	Jet	LJ31 - Bombardier Learjet 31/A/B	C	I	2	2	4	16	8	16	8
523	Mar-19	EVB - New Smyrna Beach	Jet	LJ60 - Bombardier Learjet 60	C	I	1	1	2	8	8	8	8
524	Mar-19	EVB - New Smyrna Beach	Jet	PRM1 - Raytheon Premier 1/390 Premier 1	B	I	3	2	5	18	6	12	6
525	Mar-19	EVB - New Smyrna Beach	Jet	SF50 - Cirrus Vision SF50	No Data	No Data	1	1	2	7	7	7	7
526	Mar-19	EVB - New Smyrna Beach	Piston	-1 - unknown	No Data	No Data	9	1	10	0	0	0	0
527	Mar-19	EVB - New Smyrna Beach	Piston	BE23 - Beech 23 Sundowner	A	I	0	1	1	0	0	4	4
528	Mar-19	EVB - New Smyrna Beach	Piston	BE33 - Beech Bonanza 33	A	I	4	7	11	20	5	35	5
529	Mar-19	EVB - New Smyrna Beach	Piston	BE35 - Beech Bonanza 35	A	I	6	10	16	24	4	40	4
530	Mar-19	EVB - New Smyrna Beach	Piston	BE36 - Beech Bonanza 36	A	I	17	18	35	68	4	72	4
531	Mar-19	EVB - New Smyrna Beach	Piston	BE55 - Beech Baron 55	A	I	4	7	11	24	6	42	6
532	Mar-19	EVB - New Smyrna Beach	Piston	BE58 - Beech 58	B	I	7	7	14	28	4	28	4
533	Mar-19	EVB - New Smyrna Beach	Piston	BT36 - Beechcraft Bonanza	No Data	No Data	1	1	2	5	5	5	5
534	Mar-19	EVB - New Smyrna Beach	Piston	C172 - Cessna Skyhawk 172/Cutlass	A	I	290	274	564	1,160	4	1,096	4
535	Mar-19	EVB - New Smyrna Beach	Piston	C177 - Cessna 177 Cardinal	A	I	1	2	3	4	4	8	4
536	Mar-19	EVB - New Smyrna Beach	Piston	C182 - Cessna Skylane 182	A	I	3	5	8	12	4	20	4
537	Mar-19	EVB - New Smyrna Beach	Piston	C210 - Cessna 210 Centurion	A	I	1	1	2	6	6	6	6
538	Mar-19	EVB - New Smyrna Beach	Piston	C310 - Cessna 310	A	I	4	4	8	24	6	24	6
539	Mar-19	EVB - New Smyrna Beach	Piston	C414 - Cessna Chancellor 414	B	I	70	66	136	420	6	396	6
540	Mar-19	EVB - New Smyrna Beach	Piston	COL4 - Lancair LC-41 Columbia 400	A	I	1	0	1	4	4	0	0
541	Mar-19	EVB - New Smyrna Beach	Piston	DA40 - Diamond Star DA40	A	I	0	1	1	0	0	6	6
542	Mar-19	EVB - New Smyrna Beach	Piston	DA42 - Diamond Twin Star	A	I	2	1	3	8	4	4	4
543	Mar-19	EVB - New Smyrna Beach	Piston	M20P - Mooney M-20C Ranger	A	I	5	5	10	20	4	20	4
544	Mar-19	EVB - New Smyrna Beach	Piston	M20T - Turbo Mooney M20K	A	I	2	3	5	8	4	12	4
545	Mar-19	EVB - New Smyrna Beach	Piston	M600 - Piper PA-46 M600	No Data	No Data	1	1	2	5	5	5	5
546	Mar-19	EVB - New Smyrna Beach	Piston	P28A - Piper Cherokee	A	I	4	3	7	16	4	12	4
547	Mar-19	EVB - New Smyrna Beach	Piston	P28R - Cherokee Arrow/Turbo	A	I	0	2	2	0	0	8	4
548	Mar-19	EVB - New Smyrna Beach	Piston	P28S - Airborne Piper Turbo Arrow 3	No Data	No Data	0	1	1	0	0	0	0
549	Mar-19	EVB - New Smyrna Beach	Piston	P32R - Piper 32	A	I	3	2	5	12	4	8	4
550	Mar-19	EVB - New Smyrna Beach	Piston	P32T - Embraer Lance 2	No Data	No Data	1	1	2	6	6	6	6
551	Mar-19	EVB - New Smyrna Beach	Piston	PA24 - Piper PA-24	A	I	1	1	2	5	5	5	5
552	Mar-19	EVB - New Smyrna Beach	Piston	PA31 - Piper Navajo PA-31	A	I	1	0	1	8	8	0	0
553	Mar-19	EVB - New Smyrna Beach	Piston	PA32 - Piper Cherokee Six	A	I	3	3	6	18	6	18	6
554	Mar-19	EVB - New Smyrna Beach	Piston	PA34 - Piper PA-34 Seneca	A	I	2	3	5	12	6	18	6
555	Mar-19	EVB - New Smyrna Beach	Piston	PA44 - Piper Seminole	A	I	13	12	25	52	4	48	4
556	Mar-19	EVB - New Smyrna Beach	Piston	PA46 - Piper Malibu	A	I	4	4	8	24	6	24	6
557	Mar-19	EVB - New Smyrna Beach	Piston	RV10 - Experimental	No Data	No Data	1	1	2	2	2	2	2
558	Mar-19	EVB - New Smyrna Beach	Piston	RV8 - RV-4/6/7/8; VANS	No Data	No Data	0	1	1	0	0	2	2
559	Mar-19	EVB - New Smyrna Beach	Piston	S22T - Cirrus SR-22 Turbo	A	I	3	4	7	12	4	16	4
560	Mar-19	EVB - New Smyrna Beach	Piston	SR20 - Cirrus SR-20	A	I	3	4	7	12	4	16	4
561	Mar-19	EVB - New Smyrna Beach	Piston	SR22 - Cirrus SR 22	A	I	4	3	7	16	4	12	4
562	Mar-19	EVB - New Smyrna Beach	Piston	T210 - Cessna T210M	A	I	1	1	2	2	2	2	2
563	Mar-19	EVB - New Smyrna Beach	Piston	T34P - Beech T-34B Mentor	No Data	No Data	0	1	1	0	0	2	2
564	Mar-19	EVB - New Smyrna Beach	Turbine	AC90 - Gulfstream Commander	B	I	0	1	1	0	0	4	4
565	Mar-19	EVB - New Smyrna Beach	Turbine	BE9L - Beech King Air 90	B	I	2	2	4	12	6	12	6
566	Mar-19	EVB - New Smyrna Beach	Turbine	C441 - Cessna Conquest	B	II	1	1	2	6	6	6	6
567	Mar-19	EVB - New Smyrna Beach	Turbine	MU2 - Mitsubishi Marquise/Solitaire	A	I	1	1	2	6	6	6	6
568	Mar-19	EVB - New Smyrna Beach	Turbine	P46T - Piper Malibu Meridian	A	I	2	3	5	12	6	18	6
569	Mar-19	EVB - New Smyrna Beach	Turbine	PC12 - Pilatus PC-12	A	II	1	1	2	9	9	9	9
570	Mar-19	EVB - New Smyrna Beach	Turbine	TBM7 - Socata TBM-7	A	I	0	1	1	0	0	4	4
571	Mar-19	EVB - New Smyrna Beach	Turbine	TBM8 - Socata TBM-850	A	I	3	3	6	21	7	21	7
572	Mar-19	EVB - New Smyrna Beach	Turbine	TBM9 - Socata TBM	A	I	1	0	1	7	7	0	0
573	Apr-19	EVB - New Smyrna Beach	Jet	BE40 - Raytheon/Beech Beechjet 400/T-1	B	I	1	1	2	5	5	5	5
574	Apr-19	EVB - New Smyrna Beach	Jet	C25A - Cessna Citation CJ2	B	I	2	2	4	16	8	16	8
575	Apr-19	EVB - New Smyrna Beach	Jet	C25C - Cessna Citation CJ4	B	II	1	1	2	6	6	6	6
576	Apr-19	EVB - New Smyrna Beach	Jet	C501 - Cessna I/SP	B	I	3	3	6	18	6	18	6

TFMSC Report (Airport)

From 05/2018 To 05/2019 | Airport=EVB

#	Date	Airport	Physical Class	Aircraft	Airplane Approach Category	Airplane Design Group	Departures	Arrivals	Total Operations	Departure Seats	Average Departure Seats	Arrival Seats	Average Arrival Seats
577	Apr-19	EVB - New Smyrna Beach	Jet	C550 - Cessna Citation II/Bravo	B	II	1	1	2	10	10	10	10
578	Apr-19	EVB - New Smyrna Beach	Jet	C551 - Cessna Citation II/SP	B	II	1	1	2	6	6	6	6
579	Apr-19	EVB - New Smyrna Beach	Jet	C560 - Cessna Citation V/Ultra/Encore	B	II	1	1	2	8	8	8	8
580	Apr-19	EVB - New Smyrna Beach	Jet	C56X - Cessna Excel/XLS	B	II	1	1	2	15	15	15	15
581	Apr-19	EVB - New Smyrna Beach	Jet	C680 - Cessna Citation Sovereign	B	II	2	2	4	24	12	24	12
582	Apr-19	EVB - New Smyrna Beach	Jet	CL30 - Bombardier (Canadair) Challenger 300	C	II	3	3	6	24	8	24	8
583	Apr-19	EVB - New Smyrna Beach	Jet	CL35 - Bombardier Challenger 300	C	II	6	6	12	48	8	48	8
584	Apr-19	EVB - New Smyrna Beach	Jet	E545 - Embraer EMB-545 Legacy 450	B	II	3	3	6	24	8	24	8
585	Apr-19	EVB - New Smyrna Beach	Jet	E55P - Embraer Phenom 300	B	II	5	5	10	40	8	40	8
586	Apr-19	EVB - New Smyrna Beach	Jet	F2TH - Dassault Falcon 2000	B	II	2	2	4	24	12	24	12
587	Apr-19	EVB - New Smyrna Beach	Jet	H25B - BAe HS 125/700-800/Hawker 800	C	I	1	1	2	12	12	12	12
588	Apr-19	EVB - New Smyrna Beach	Jet	HDJT - HONDA HA-420 HondaJet	B	I	0	1	1	0	0	5	5
589	Apr-19	EVB - New Smyrna Beach	Jet	PRM1 - Raytheon Premier 1/390 Premier 1	B	I	2	2	4	12	6	12	6
590	Apr-19	EVB - New Smyrna Beach	Piston	-1 - unknown	No Data	No Data	9	5	14	0	0	0	0
591	Apr-19	EVB - New Smyrna Beach	Piston	BE33 - Beech Bonanza 33	A	I	8	5	13	40	5	25	5
592	Apr-19	EVB - New Smyrna Beach	Piston	BE35 - Beech Bonanza 35	A	I	6	3	9	24	4	12	4
593	Apr-19	EVB - New Smyrna Beach	Piston	BE36 - Beech Bonanza 36	A	I	9	12	21	36	4	48	4
594	Apr-19	EVB - New Smyrna Beach	Piston	BE55 - Beech Baron 55	A	I	6	5	11	36	6	30	6
595	Apr-19	EVB - New Smyrna Beach	Piston	BE58 - Beech 58	B	I	3	2	5	12	4	8	4
596	Apr-19	EVB - New Smyrna Beach	Piston	C172 - Cessna Skyhawk 172/Cutlass	A	I	211	194	405	844	4	776	4
597	Apr-19	EVB - New Smyrna Beach	Piston	C182 - Cessna Skylane 182	A	I	3	3	6	12	4	12	4
598	Apr-19	EVB - New Smyrna Beach	Piston	C206 - Cessna 206 Stationair	B	I	1	0	1	4	4	0	0
599	Apr-19	EVB - New Smyrna Beach	Piston	C210 - Cessna 210 Centurion	A	I	1	1	2	6	6	6	6
600	Apr-19	EVB - New Smyrna Beach	Piston	C310 - Cessna 310	A	I	2	2	4	12	6	12	6
601	Apr-19	EVB - New Smyrna Beach	Piston	C337 - Cessna Turbo Super Skymaster	No Data	No Data	1	1	2	4	4	4	4
602	Apr-19	EVB - New Smyrna Beach	Piston	C414 - Cessna Chancellor 414	B	I	66	65	131	396	6	390	6
603	Apr-19	EVB - New Smyrna Beach	Piston	DA40 - Diamond Star DA40	A	I	1	1	2	6	6	6	6
604	Apr-19	EVB - New Smyrna Beach	Piston	DA42 - Diamond Twin Star	A	I	1	2	3	4	4	8	4
605	Apr-19	EVB - New Smyrna Beach	Piston	DC3 - Boeing (Douglas) DC 3	A	III	2	1	3	44	22	22	22
606	Apr-19	EVB - New Smyrna Beach	Piston	LGEZ - Rutan 61 Long-EZ	No Data	No Data	1	1	2	2	2	2	2
607	Apr-19	EVB - New Smyrna Beach	Piston	M20P - Mooney M-20C Ranger	A	I	4	3	7	16	4	12	4
608	Apr-19	EVB - New Smyrna Beach	Piston	NAVI - C335	No Data	No Data	1	1	2	4	4	4	4
609	Apr-19	EVB - New Smyrna Beach	Piston	P28A - Piper Cherokee	A	I	2	1	3	8	4	4	4
610	Apr-19	EVB - New Smyrna Beach	Piston	P28R - Cherokee Arrow/Turbo	A	I	1	1	2	4	4	4	4
611	Apr-19	EVB - New Smyrna Beach	Piston	P32T - Embraer Lance 2	No Data	No Data	1	1	2	6	6	6	6
612	Apr-19	EVB - New Smyrna Beach	Piston	P337 - Cessna T337G Pressurized Skymaster	No Data	No Data	1	1	2	6	6	6	6
613	Apr-19	EVB - New Smyrna Beach	Piston	PA24 - Piper PA-24	A	I	1	1	2	5	5	5	5
614	Apr-19	EVB - New Smyrna Beach	Piston	PA27 - Piper Aztec	A	I	1	0	1	4	4	0	0
615	Apr-19	EVB - New Smyrna Beach	Piston	PA31 - Piper Navajo PA-31	A	I	1	0	1	8	8	0	0
616	Apr-19	EVB - New Smyrna Beach	Piston	PA32 - Piper Cherokee Six	A	I	2	2	4	12	6	12	6
617	Apr-19	EVB - New Smyrna Beach	Piston	PA44 - Piper Seminole	A	I	24	22	46	96	4	88	4
618	Apr-19	EVB - New Smyrna Beach	Piston	PA46 - Piper Malibu	A	I	3	3	6	18	6	18	6
619	Apr-19	EVB - New Smyrna Beach	Piston	RV4 - Experimental	No Data	No Data	1	2	3	2	2	4	2
620	Apr-19	EVB - New Smyrna Beach	Piston	RV8 - RV-4/6/7/8; VANS	No Data	No Data	1	0	1	2	2	0	0
621	Apr-19	EVB - New Smyrna Beach	Piston	S22T - Cirrus SR-22 Turbo	A	I	1	1	2	4	4	4	4
622	Apr-19	EVB - New Smyrna Beach	Piston	SR20 - Cirrus SR-20	A	I	2	0	2	8	4	0	0
623	Apr-19	EVB - New Smyrna Beach	Piston	SR22 - Cirrus SR 22	A	I	6	4	10	24	4	16	4
624	Apr-19	EVB - New Smyrna Beach	Piston	T210 - Cessna T210M	A	I	1	1	2	2	2	2	2
625	Apr-19	EVB - New Smyrna Beach	Piston	T34P - Beech T-34B Mentor	No Data	No Data	2	1	3	4	2	2	2
626	Apr-19	EVB - New Smyrna Beach	Turbine	AC90 - Gulfstream Commander	B	I	2	1	3	8	4	4	4
627	Apr-19	EVB - New Smyrna Beach	Turbine	B350 - Beech Super King Air 350	B	II	4	4	8	24	6	24	6
628	Apr-19	EVB - New Smyrna Beach	Turbine	B36T - Allison 36 Turbine Bonanza	A	I	0	1	1	0	0	6	6
629	Apr-19	EVB - New Smyrna Beach	Turbine	BE20 - Beech 200 Super King	B	II	6	7	13	30	5	35	5
630	Apr-19	EVB - New Smyrna Beach	Turbine	BE30 - Raytheon 300 Super King Air	B	II	2	1	3	16	8	8	8
631	Apr-19	EVB - New Smyrna Beach	Turbine	BE9L - Beech King Air 90	B	I	2	2	4	12	6	12	6
632	Apr-19	EVB - New Smyrna Beach	Turbine	EVOT - Lancair Evolution Turbine	A	I	1	0	1	0	0	0	0
633	Apr-19	EVB - New Smyrna Beach	Turbine	P46T - Piper Malibu Meridian	A	I	1	1	2	6	6	6	6
634	Apr-19	EVB - New Smyrna Beach	Turbine	PC12 - Pilatus PC-12	A	II	1	1	2	9	9	9	9
635	Apr-19	EVB - New Smyrna Beach	Turbine	TBM7 - Socata TBM-7	A	I	0	1	1	0	0	4	4
636	Apr-19	EVB - New Smyrna Beach	Turbine	TBM8 - Socata TBM-850	A	I	1	1	2	7	7	7	7
637	Apr-19	EVB - New Smyrna Beach	Turbine	TBM9 - Socata TBM	A	I	0	1	1	0	0	7	7
Total:							**4,535**	**4,267**	**8,802**	**21,215**	**4**	**20,227**	**4**

Report created on Mon Jun 17 12:18:01 EDT 2019

Sources: Traffic Flow Management System Counts (TFMSC), Aviation System Performance Metrics (ASPM)

APPENDIX E
DETAILED ORDER OF MAGNITUDE COST ESTIMATES

Preliminary Cost Estimate for Projects to be Constructed Within 5 Years

Alternative 1A- Shift Sunset Drive for Approach Slope

Item	Description	Quanitity	Units	Unit Price	Extension
	CIVIL ITEMS				
1	New Road Asphalt (2.50") (Relocated Sunset Dr.)	1,115	TN	$150	$167,250
2	New Road Base Course	8,125	SY	$50	$406,250
3	Pavement Demolition & Restoration (Old Sunset Dr.)	3,980	SY	$50	$199,000
4	10' fill to meet pavement (plus 50' each side of road)	128,593	CY	$20	$2,571,860
5	Dredging (4' in depth) (plus 50' each side of road)	9,956	CY	$75	$746,700
6	Cofferdam	5,540	LF	$1,000	$5,540,000
7	Building Removal/Relocation	2	AL	$2,000,000	$4,000,000
8	Wetland Mitigation	8	Acre	$500,000	$4,000,000
				Civil Subtotal:	**$17,631,060**
9	Earthwork (15% of Civil Subtotal)	1	AL	$2,644,659	$2,644,659
10	Drainage (20% of Civil Subtotal)	1	AL	$3,526,212	$3,526,212
11	Permitting (5% Civil Subtotal)	1	AL	$881,553	$881,553
12	Pavement Markings (3% of Civil Subtotal)	1	AL	$528,932	$528,932
				Civil Total:	**$25,212,416**
	GENERAL CONSTRUCTION ITEMS				
13	Mobilization (12% Civil Total)	1	AL	$3,025,490	$3,025,490
14	Project Survey (2% Civil Total)	1	AL	$504,248	$504,248
15	Quality Control (4% Civil Total)	1	AL	$1,008,497	$1,008,497
16	Erosion Control (3% Civil Total)	1	AL	$756,372	$756,372
17	Safety and Security (2% Civil Total)	1	AL	$504,248	$504,248
18	Legal (7% Civil Total)	1	AL	$1,764,869	$1,764,869
				Construction Total:	**$32,776,141**
	PROJECT SOFT COSTS				
19	Project Design (12% of Construction Costs)	1	AL	$3,933,137	$3,933,137
20	Construction Administration and Inspection (13% of Construction Costs)	1	AL	$4,260,898	$4,260,898
21	Contingency (25% of Construction Costs)	1	AL	$8,194,035	$8,194,035
				Project Grand Total:	**$49,164,211**
				Project Grand Total (Rounded):	**$49,170,000**

Preliminary Cost Estimate for Projects to be Constructed Within 5 Years

Alternative 1B- Relocate U.S. 1 for Approach Slope - 710' US-1 Shift

Item	Description	Quanitity	Units	Unit Price	Extension
	CIVIL ITEMS				
	New Road Asphalt (6") (Relocated US-1)	9,618	TN	$150	$1,442,700
	New Road Base Course	29,206	SY	$50	$1,460,300
	Pavement Demolition & Restoration (Old US-1)	9,267	SY	$50	$463,350
	10' fill to meet pavement (plus 50' each side of road)	197,037	CY	$20	$3,940,740
	Dredging (4' in depth) (plus 50' each side of road)	78,815	CY	$75	$5,911,125
	Cofferdam	4,924	LF	$1,000	$4,924,000
	Wetland Mitigation	12.2	Acre	$500,000	$6,100,000
				Civil Subtotal:	**$24,242,215**
	Earthwork (15% of Civil Subtotal)	1	AL	$3,636,332	$3,636,332
	Drainage (20% of Civil Subtotal)	1	AL	$4,848,443	$4,848,443
	Permitting (5% Civil Subtotal)	1	AL	$1,212,111	$1,212,111
	Pavement Markings (3% of Civil Subtotal)	1	AL	$727,266	$727,266
				Civil Total:	**$34,666,367**
	GENERAL CONSTRUCTION ITEMS				
	Mobilization (12% Civil Total)	1	AL	$4,159,964	$4,159,964
	Project Survey (2% Civil Total)	1	AL	$693,327	$693,327
	Quality Control (4% Civil Total)	1	AL	$1,386,655	$1,386,655
	Erosion Control (3% Civil Total)	1	AL	$1,039,991	$1,039,991
	Safety and Security (2% Civil Total)	1	AL	$693,327	$693,327
	Legal (7% Civil Total)	1	AL	$2,426,646	$2,426,646
				Construction Total:	**$45,066,278**
	PROJECT SOFT COSTS				
	Project Design (12% of Construction Costs)	1	AL	$5,407,953	$5,407,953
	Construction Administration and Inspection (13% of Construction Costs)	1	AL	$5,858,616	$5,858,616
	Contingency (25% of Construction Costs)	1	AL	$11,266,569	$11,266,569
				Project Grand Total:	**$67,599,417**
				Project Grand Total (Rounded):	**$67,600,000**

Preliminary Cost Estimate for Projects to be Constructed Within 5 Years

Alternative 2C- Relocate Sunset Drive for RPZ - Bridge

Item	Description	Quanitity	Units	Unit Price	Extension
	CIVIL ITEMS				
1	New Bridge (1,750' X 42') (lump sum estimate)	73,500	SF	$200	$14,700,000
2	Pavement Demolition & Restoration (Old Sunset Dr.)	3,980	SY	$50	$199,000
3	Dredging (4' in depth)	10,900	CY	$75	$817,500
4	Wetland Mitigation	2	Acres	$500,000	$1,000,000
5	Building Removal/Relocation	1	AL	$2,000,000	$2,000,000
				Civil Subtotal:	**$18,716,500**
6	Earthwork (15% of Civil Subtotal)	1	AL	$2,807,475	$2,807,475
7	Drainage (20% of Civil Subtotal)	1	AL	$3,743,300	$3,743,300
8	Permitting (5% Civil Subtotal)	1	AL	$935,825	$935,825
9	Pavement Markings (3% of Civil Subtotal)	1	AL	$561,495	$561,495
				Civil Total:	**$26,764,595**
	GENERAL CONSTRUCTION ITEMS				
10	Mobilization (12% Civil Total)	1	AL	$3,211,751	$3,211,751
11	Project Survey (2% Civil Total)	1	AL	$535,292	$535,292
12	Quality Control (4% Civil Total)	1	AL	$1,070,584	$1,070,584
13	Erosion Control (3% Civil Total)	1	AL	$802,938	$802,938
14	Safety and Security (2% Civil Total)	1	AL	$535,292	$535,292
15	Legal (7% Civil Total)	1	AL	$1,873,522	$1,873,522
				Construction Total:	**$34,793,974**
	PROJECT SOFT COSTS				
16	Project Design (12% of Construction Costs)	1	AL	$4,175,277	$4,175,277
17	Construction Administration and Inspection (13% of Construction Costs)	1	AL	$4,523,217	$4,523,217
18	Contingency (25% of Construction Costs)	1	AL	$8,698,493	$8,698,493
				Project Grand Total:	**$52,190,960**
		Project Grand Total (Rounded):			**$52,200,000**

Preliminary Cost Estimate for Projects to be Constructed Within 5 Years

Alternative 1D- Relocate U.S. 1 for RPZ - 1230' US-1 Shift

Item	Description	Quanitity	Units	Unit Price	Extension
	CIVIL ITEMS				
1	New Road Asphalt (6") (Relocated US-1)	12,321	TN	$150	$1,848,150
2	New Road Asphalt (2.5") (Plant/Neighborhood realignment)	2,801	TN	$150	$420,150
3	New Road Base Course (All)	36,558	SY	$50	$1,827,900
4	Pavement Demolition & Restoration (Old US-1)	9,267	SY	$50	$463,350
5	10' fill to meet pavement (plus 50' each side of road)	253,333	CY	$20	$5,066,660
6	Dredging (4' in depth) (plus 50' each side of road)	78,815	CY	$75	$5,911,125
7	Cofferdam	8,266	LF	$1,000	$8,266,000
8	Wetland Mitigation	7.4	Acre	$500,000	$3,715,000
				Civil Subtotal:	**$27,518,335**
9	Earthwork (15% of Civil Subtotal)	1	AL	$4,127,750	$4,127,750
10	Drainage (20% of Civil Subtotal)	1	AL	$5,503,667	$5,503,667
11	Permitting (5% Civil Subtotal)	1	AL	$1,375,917	$1,375,917
12	Pavement Markings (3% of Civil Subtotal)	1	AL	$825,550	$825,550
				Civil Total:	**$39,351,219**
	GENERAL CONSTRUCTION ITEMS				
13	Mobilization (12% Civil Total)	1	AL	$4,722,146	$4,722,146
14	Project Survey (2% Civil Total)	1	AL	$787,024	$787,024
15	Quality Control (4% Civil Total)	1	AL	$1,574,049	$1,574,049
16	Erosion Control (3% Civil Total)	1	AL	$1,180,537	$1,180,537
17	Safety and Security (2% Civil Total)	1	AL	$787,024	$787,024
18	Legal (7% Civil Total)	1	AL	$2,754,585	$2,754,585
				Construction Total:	**$51,156,585**
	PROJECT SOFT COSTS				
19	Project Design (12% of Construction Costs)	1	AL	$6,138,790	$6,138,790
20	Construction Administration and Inspection (13% of Construction Costs)	1	AL	$6,650,356	$6,650,356
21	Contingency (25% of Construction Costs)	1	AL	$12,789,146	$12,789,146
				Project Grand Total:	**$76,734,877**
				Project Grand Total (Rounded):	**$76,740,000**

Preliminary Cost Estimate for Projects to be Constructed Within 5 Years

Alternative 2A- Tunnel Beneath Runway 7

Item	Description	Quanitity	Units	Unit Price	Extension
	CIVIL ITEMS				
1	520' ramp down to tunnel (per side)	1,040	LF	$60,000	$62,400,000
2	1050' tunnel	1,050	LF	$70,000	$73,500,000
3	Residential Access Relocation	7	AL	$1,000,000	$7,000,000
				Civil Subtotal:	**$142,900,000**
4	Earthwork (15% of Civil Subtotal)	1	AL	$21,435,000	$21,435,000
5	Drainage (20% of Civil Subtotal)	1	AL	$28,580,000	$28,580,000
6	Permitting (5% Civil Subtotal)	1	AL	$7,145,000	$7,145,000
7	Pavement Markings (3% of Civil Subtotal)	1	AL	$4,287,000	$4,287,000
				Civil Total:	**$204,347,000**
	GENERAL CONSTRUCTION ITEMS				
8	Mobilization (12% Civil Total)	1	AL	$24,521,640	$24,521,640
9	Project Survey (2% Civil Total)	1	AL	$4,086,940	$4,086,940
10	Quality Control (4% Civil Total)	1	AL	$8,173,880	$8,173,880
11	Erosion Control (3% Civil Total)	1	AL	$6,130,410	$6,130,410
12	Safety and Security (2% Civil Total)	1	AL	$4,086,940	$4,086,940
13	Legal (7% Civil Total)	1	AL	$14,304,290	$14,304,290
				Construction Total:	**$265,651,100**
	PROJECT SOFT COSTS				
14	Project Design (12% of Construction Costs)	1	AL	$31,878,132	$31,878,132
15	Construction Administration and Inspection (13% of Construction Costs)	1	AL	$34,534,643	$34,534,643
16	Contingency (25% of Construction Costs)	1	AL	$66,412,775	$66,412,775
				Project Grand Total:	**$398,476,650**
				Project Grand Total (Rounded):	**$398,480,000**

Preliminary Cost Estimate for Projects to be Constructed Within 5 Years

Alternative 2B- Tunnel Below Runway 25 - US 1 Tunnel

Item	Description	Quanitity	Units	Unit Price	Extension
	CIVIL ITEMS				
1	1170' ramp down to tunnel (per side)	2,340	LF	$60,000	$140,400,000
2	1250' tunnel	1,250	LF	$70,000	$87,500,000
3	Building Access Relocation	6	AL	$1,000,000	$6,000,000
4	New Plant Access Road- Asphalt (2.5")	495	TN	$150	$74,250
5	New Plant Access Road Base	3,605	SY	$50	$180,250
6	10' fill to meet pavement (plus 50' each side of road)	55,111	CY	$20	$1,102,220
7	Dredging (4' in depth) (plus 50' each side of road)	22,044	CY	$75	$1,653,300
8	Cofferdam	2,350	LF	$1,000	$2,350,000
9	Wetland Mitigation	3.4	Acre	$500,000	$1,700,000
				Civil Subtotal:	**$240,960,020**
10	Earthwork (15% of Civil Subtotal)	1	AL	$36,144,003	$36,144,003
11	Drainage (20% of Civil Subtotal)	1	AL	$48,192,004	$48,192,004
12	Permitting (5% Civil Subtotal)	1	AL	$12,048,001	$12,048,001
13	Pavement Markings (3% of Civil Subtotal)	1	AL	$7,228,801	$7,228,801
				Civil Total:	**$344,572,829**
	GENERAL CONSTRUCTION ITEMS				
14	Mobilization (12% Civil Total)	1	AL	$41,348,739	$41,348,739
15	Project Survey (2% Civil Total)	1	AL	$6,891,457	$6,891,457
16	Quality Control (4% Civil Total)	1	AL	$13,782,913	$13,782,913
17	Erosion Control (3% Civil Total)	1	AL	$10,337,185	$10,337,185
18	Safety and Security (2% Civil Total)	1	AL	$6,891,457	$6,891,457
19	Legal (7% Civil Total)	1	AL	$24,120,098	$24,120,098
				Construction Total:	**$447,944,677**
	PROJECT SOFT COSTS				
20	Project Design (12% of Construction Costs)	1	AL	$53,753,361	$53,753,361
21	Construction Administration and Inspection (13% of Construction Costs)	1	AL	$58,232,808	$58,232,808
22	Contingency (25% of Construction Costs)	1	AL	$111,986,169	$111,986,169
				Project Grand Total:	**$671,917,016**
				Project Grand Total (Rounded):	**$671,920,000**

Preliminary Cost Estimate for Projects to be Constructed Within 5 Years

Alternative 3- Closure of Sunset Drive Without Bridge

Item	Description	Quanitity	Units	Unit Price	Extension
	CIVIL ITEMS				
1	Asphalt Surface Course (6") Runway Extension	1,527	TN	$150	$229,050
2	Aggregate Base Course	4,638	SY	$50	$231,900
3	Stabilized Subbase Course	4,638	SY	$25	$115,950
4	Pavement Demolition & Restoration	4,638	SY	$15	$69,570
5	10' fill to meet 4:1 toe of slope	40,916	CY	$20	$818,320
6	Dredging (5' in depth)	20,458	CY	$75	$1,534,350
7	Cofferdam	1,473	LF	$1,000	$1,473,000
8	Building Removal/Relocation	2	AL	$2,000,000	$4,000,000
9	Wetland Mitigation	2.5	Acre	$500,000	$1,270,000
				Civil Subtotal:	**$9,742,140**
10	Earthwork (15% of Civil Subtotal)	1	AL	$1,461,321	$1,461,321
11	Drainage (20% of Civil Subtotal)	1	AL	$1,948,428	$1,948,428
12	Permitting (5% Civil Subtotal)	1	AL	$487,107	$487,107
13	Pavement Markings (3% of Civil Subtotal)	1	AL	$292,264	$292,264
14	Electrical (5% of Civil Subtotal)	1	AL	$487,107	$487,107
				Civil Total:	**$14,418,367**
	GENERAL CONSTRUCTION ITEMS				
15	Mobilization (12% Civil Total)	1	AL	$1,730,204	$1,730,204
16	Project Survey (2% Civil Total)	1	AL	$288,367	$288,367
17	Quality Control (4% Civil Total)	1	AL	$576,735	$576,735
18	Erosion Control (3% Civil Total)	1	AL	$432,551	$432,551
19	Safety and Security (2% Civil Total)	1	AL	$288,367	$288,367
20	Legal (7% Civil Total)	1	AL	$1,009,286	$1,009,286
				Construction Total:	**$18,743,877**
	PROJECT SOFT COSTS				
21	Project Design (12% of Construction Costs)	1	AL	$2,249,265	$2,249,265
22	Construction Administration and Inspection (13% of Construction Costs)	1	AL	$2,436,704	$2,436,704
23	Contingency (25% of Construction Costs)	1	AL	$4,685,969	$4,685,969
				Project Grand Total:	**$28,115,816**
		Project Grand Total (Rounded):			**$28,120,000**

Preliminary Cost Estimate for Projects to be Constructed Within 5 Years

Alternative 5A- EMAS on Runway 7 With Bridge

Item	Description	Quanitity	Units	Unit Price	Extension
	CIVIL ITEMS				
1	New Bridge (1,750' X 42') (lump sum estimate)	73,500	SF	$200	$14,700,000
2	Pavement Demolition & Restoration (Old Sunset Dr.)	3,980	SY	$50	$199,000
3	Dredging (4' in depth)	10,900	CY	$75	$817,500
4	Wetland Mitigation	2	Acres	$500,000	$1,000,000
5	Building Removal/Relocation	1	AL	$2,000,000	$2,000,000
6	New EMAS (See individual detail cost estimate)	1	AL	$5,834,068	$5,834,068
				Civil Subtotal:	**$24,550,568**
7	Earthwork (15% of Civil Subtotal)	1	AL	$3,682,585	$3,682,585
8	Drainage (20% of Civil Subtotal)	1	AL	$4,910,114	$4,910,114
9	Permitting (5% Civil Subtotal)	1	AL	$1,227,528	$1,227,528
10	Pavement Markings (3% of Civil Subtotal)	1	AL	$736,517	$736,517
				Civil Total:	**$35,107,312**
	GENERAL CONSTRUCTION ITEMS				
11	Mobilization (12% Civil Total)	1	AL	$4,212,877	$4,212,877
12	Project Survey (2% Civil Total)	1	AL	$702,146	$702,146
13	Quality Control (4% Civil Total)	1	AL	$1,404,292	$1,404,292
14	Erosion Control (3% Civil Total)	1	AL	$1,053,219	$1,053,219
15	Safety and Security (2% Civil Total)	1	AL	$702,146	$702,146
16	Legal (7% Civil Total)	1	AL	$2,457,512	$2,457,512
				Construction Total:	**$45,639,506**
	PROJECT SOFT COSTS				
17	Project Design (12% of Construction Costs)	1	AL	$5,476,741	$5,476,741
18	Construction Administration and Inspection (13% of Construction Costs)	1	AL	$5,933,136	$5,933,136
19	Contingency (25% of Construction Costs)	1	AL	$11,409,876	$11,409,876
				Project Grand Total:	**$68,459,259**
				Project Grand Total (Rounded):	**$68,460,000**

Preliminary Cost Estimate for Projects to be Constructed Within 5 Years

Alternative 5B- EMAS/US-1 Shift

Item	Description	Quanitity	Units	Unit Price	Extension
	CIVIL ITEMS				
1	New Road Asphalt (6") (Relocated US-1)	12,321	TN	$150	$1,848,150
2	New Road Asphalt (2.5") (Plant/Neighborhood realignment)	2,801	TN	$150	$420,150
3	New Road Base Course (All)	36,558	SY	$50	$1,827,900
4	Pavement Demolition & Restoration (Old US-1)	9,267	SY	$50	$463,350
5	10' fill to meet pavement (plus 50' each side of road)	253,333	CY	$20	$5,066,660
6	Dredging (4' in depth) (plus 50' each side of road)	78,815	CY	$75	$5,911,125
7	Cofferdam	8,266	LF	$1,000	$8,266,000
8	Wetland Mitigation	7.4	Acre	$500,000	$3,715,000
9	New EMAS (See individual EMAS detail cost estimate)	1	AL	$5,834,068	$5,834,068
				Civil Subtotal:	**$33,352,403**
10	Earthwork (15% of Civil Subtotal)	1	AL	$5,002,860	$5,002,860
11	Drainage (20% of Civil Subtotal)	1	AL	$6,670,481	$6,670,481
12	Permitting (5% Civil Subtotal)	1	AL	$1,667,620	$1,667,620
13	Pavement Markings (3% of Civil Subtotal)	1	AL	$1,000,572	$1,000,572
				Civil Total:	**$47,693,936**
	GENERAL CONSTRUCTION ITEMS				
14	Mobilization (12% Civil Total)	1	AL	$5,723,272	$5,723,272
15	Project Survey (2% Civil Total)	1	AL	$953,879	$953,879
16	Quality Control (4% Civil Total)	1	AL	$1,907,757	$1,907,757
17	Erosion Control (3% Civil Total)	1	AL	$1,430,818	$1,430,818
18	Safety and Security (2% Civil Total)	1	AL	$953,879	$953,879
19	Legal (7% Civil Total)	1	AL	$3,338,576	$3,338,576
				Construction Total:	**$62,002,117**
	PROJECT SOFT COSTS				
20	Project Design (12% of Construction Costs)	1	AL	$7,440,254	$7,440,254
21	Construction Administration and Inspection (13% of Construction Costs)	1	AL	$8,060,275	$8,060,275
22	Contingency (25% of Construction Costs)	1	AL	$15,500,529	$15,500,529
				Project Grand Total:	**$93,003,176**
		Project Grand Total (Rounded):			**$93,010,000**

Preliminary Cost Estimate for Projects to be Constructed Within 5 Years

Alternative 6A - Runway Shift Option #1

Item	Description	Quanitity	Units	Unit Price	Extension
	CIVIL ITEMS				
1	Relocation of Runway (lump sum)	375,000	SF	$200	$75,000,000
2	Wetland Mitigation	8.4	Acre	$500,000	$4,215,000
3	Economic Impacts	3,000,000	SF	$10	$30,000,000
				Civil Subtotal:	**$109,215,000**
4	Earthwork (15% of Civil Subtotal)	1	AL	$16,382,250	$16,382,250
5	Drainage (20% of Civil Subtotal)	1	AL	$21,843,000	$21,843,000
6	Permitting (5% Civil Subtotal)	1	AL	$5,460,750	$5,460,750
7	Pavement Markings (3% of Civil Subtotal)	1	AL	$3,276,450	$3,276,450
				Civil Total:	**$156,177,450**
	ELECTRICAL ITEMS				
8	Electrical Demolition (15% of Civil Total)	1	AL	$25,769,279	$25,769,279
9	Vault Modifications (10% of Civil Total)	1	AL	$15,617,745	$15,617,745
10	Ground Rods/Lightening Protection (5% of Civil Total)	1	AL	$8,589,760	$8,589,760
11	Temp Lights/NAVAIDS (1% of Civil Total)	1	AL	$1,717,952	$1,717,952
				Electrical Total:	**$206,154,234**
	GENERAL CONSTRUCTION ITEMS				
12	Mobilization (12% Electrical Total)	1	AL	$24,738,508	$24,738,508
13	Project Survey (2% Electrical Total)	1	AL	$4,123,085	$4,123,085
14	Quality Control (4% Electrical Total)	1	AL	$8,246,169	$8,246,169
15	Erosion Control (3% Electrical Total)	1	AL	$6,184,627	$6,184,627
16	Safety and Security (2% Electrical Total)	1	AL	$123,693	$123,693
17	Legal (7% Electrical Total)	1	AL	$14,430,796	$14,430,796
				Construction Total:	**$264,001,112**
	PROJECT SOFT COSTS				
18	Project Design (12% of Construction Costs)	1	AL	$31,680,133	$31,680,133
19	Construction Administration and Inspection (13% of Construction Costs)	1	AL	$34,320,145	$34,320,145
20	Contingency (25% of Construction Costs)	1	AL	$66,000,278	$66,000,278
				Project Grand Total:	**$396,001,668**
				Project Grand Total (Rounded):	**$396,010,000**

Preliminary Cost Estimate for Projects to be Constructed Within 5 Years

Alternative 6B- Runway Shift Option #2

Item	Description	Quanitity	Units	Unit Price	Extension
	CIVIL ITEMS				
1	Relocation of Runway (lump sum)	375,000	SF	$200	$75,000,000
2	Wetland Mitigation	9.5	Acre	$500,000	$4,770,000
3	Economic Impacts	3,000,000	SF	$10	$30,000,000
				Civil Subtotal:	**$109,770,000**
4	Earthwork (15% of Civil Subtotal)	1	AL	$16,465,500	$16,465,500
5	Drainage (20% of Civil Subtotal)	1	AL	$21,954,000	$21,954,000
6	Permitting (5% Civil Subtotal)	1	AL	$5,488,500	$5,488,500
7	Pavement Markings (3% of Civil Subtotal)	1	AL	$3,293,100	$3,293,100
				Civil Total:	**$156,971,100**
	ELECTRICAL ITEMS				
8	Electrical Demolition (15% of Civil Total)	1	AL	$25,900,232	$25,900,232
9	Vault Modifications (10% of Civil Total)	1	AL	$15,697,110	$15,697,110
10	Ground Rods/Lightening Protection (5% of Civil Total)	1	AL	$8,633,411	$8,633,411
11	Temp Lights/NAVAIDS (1% of Civil Total)	1	AL	$1,726,682	$1,726,682
				Electrical Total:	**$207,201,852**
	GENERAL CONSTRUCTION ITEMS				
12	Mobilization (12% Electrical Total)	1	AL	$24,864,222	$24,864,222
13	Project Survey (2% Electrical Total)	1	AL	$4,144,037	$4,144,037
14	Quality Control (4% Electrical Total)	1	AL	$8,288,074	$8,288,074
15	Erosion Control (3% Electrical Total)	1	AL	$6,216,056	$6,216,056
16	Safety and Security (2% Electrical Total)	1	AL	$124,321	$124,321
17	Legal (7% Electrical Total)	1	AL	$14,504,130	$14,504,130
				Construction Total:	**$265,342,692**
	PROJECT SOFT COSTS				
18	Project Design (12% of Construction Costs)	1	AL	$31,841,123	$31,841,123
19	Construction Administration and Inspection (13% of Construction Costs)	1	AL	$34,494,550	$34,494,550
20	Contingency (25% of Construction Costs)	1	AL	$66,335,673	$66,335,673
				Project Grand Total:	**$398,014,038**
				Project Grand Total (Rounded):	**$398,020,000**

Preliminary Cost Estimate for Projects to be Constructed Within 5 Years
Alternative 7 - Extend Runway 11

Item	Description	Quantity	Units	Unit Price	Extension
	CIVIL ITEMS				
1	Asphalt Surface Course (4")	15,412	TN	$150	$2,311,800
2	Aggregate Base Course (8")	70,199	SY	$50	$3,509,950
3	Stabilized Subbase Course (6")	70,199	SY	$25	$1,754,975
4	Sodding	11,500	SY	$10	$115,000
5	Pavement Demolition	59,447	SY	$15	$891,705
				Civil Subtotal:	$8,583,430
6	Earthwork (15% of Civil Subtotal)	1	AL	$1,287,515	$1,287,515
7	Drainage (20% of Civil Subtotal)	1	AL	$1,716,686	$1,716,686
8	Permitting (2% Civil Subtotal)	1	AL	$171,669	$171,669
9	Pavement Markings (3% of Civil Subtotal)	1	AL	$257,503	$257,503
				Civil Total:	**$ 14,855,060**
	ELECTRICAL ITEMS				
10	Taxiway or Runway Lights	120	EA	$1,000	$120,000
11	Taxiway or Runway Signs	50	EA	$6,000	$300,000
12	Electrical Conduit and Counterpoise	12,850	LF	$10	$128,500
13	Electrical Wire	30,840	LF	$6	$185,040
				Electrical Subtotal:	**$548,500**
14	Electrical Demolition (15% of Civil Total)	1	AL	$ 2,228,259	$ 2,228,259
15	Vault Modifications (10% of Civil Total)	1	AL	$ 1,485,506	$ 1,485,506
16	Ground rods/Lightening Protection (5% of Civil Total)	1	AL	$ 742,753	$ 742,753
17	Temp Lights/NAVAIDS (1% of Civil Total)	1	AL	$ 148,551	$ 148,551
				Electrical Total:	**$ 4,605,069**
	GENERAL CONSTRUCTION ITEMS				
18	Mobilization Total (12% of Electrical Total)	1	AL	$ 552,608	$ 552,608
19	Project Survey (2% of Electrical Total)	1	AL	$ 92,101	$ 92,101
20	Quality Control(4% of Electrical Total)	1	AL	$ 184,203	$ 184,203
21	Erosion Control (3% of Electrical Total)	1	AL	$ 138,152	$ 138,152
22	Safety And Security (2% of Electrical Total)	1	AL	$ 92,101	$ 92,101
23	Legal (7% of Electrical Total)	1	AL	$ 322,355	$ 322,355
24	Demolition of Residences in RPZ	7	EA	$ 35,000	$ 245,000
25	Fencing Around New Property	3000	LF	$ 35	$ 105,000
				General Construction Subtotal:	**$ 1,731,521**
				Construction Total:	**$ 21,191,649**
	PROJECT SOFT COSTS				
26	Project Design (12% of Construction Costs)	1	AL	$ 2,542,998	$ 2,542,998
27	Construction Administration ad Administration(13% of Construction Costs)	1	AL	$ 2,754,914	$ 2,754,914
28	Contingency (25% of Construction Costs)	1	AL	$ 5,297,912	$ 5,297,912
				Project Soft Costs Total:	$ 31,787,474
29	Purchase of Residences in RPZ	7	EA AVG	$ 181,030	$ 1,267,212
				Project Grand Total:	$ 33,054,686
				Project Grand Total (Rounded):	**$ 33,055,000**

Preliminary Cost Estimate for Projects to be Constructed Within 5 Years
Alternative 7 - Extend Runway 11

Item	Description	Quantity	Units	Unit Price	Extension
	CIVIL ITEMS				
1	Extension of Runway 11	68,550	SF	$ 200	$ 13,710,000
				Civil Subtotal:	**$ 13,710,000**
	Earthwork (15% of Civil Subtotal)	1	AL	$ 2,056,500	$ 2,056,500
	Drainage (20% of Civil Subtotal)	1	AL	$ 2,742,000	$ 2,742,000
	Permitting (5% of Civil Subtotal)	1	AL	$ 685,500	$ 685,500
	Pavement Markings (3% of Civil Subtotal)	1	AL	$ 411,300	$ 411,300
				Civil Total:	**$ 19,194,000**
	ELECTRICAL ITEMS				
	Electrical Demolition (15% of Civil Total)	1	AL	$ 2,879,100	$ 2,879,100
	Vault Modifications (10% of Civil Total)	1	AL	$ 1,919,400	$ 1,919,400
	Ground rods/Lightening Protection (5% of Civil Total)	1	AL	$ 959,700	$ 959,700
	Temp Lights/NAVAIDS (1% of Civil Total)	1	AL	$ 191,940	$ 191,940
				Electrical Total:	**$ 5,950,140**
	GENERAL CONSTRUCTION ITEMS				
	Mobilization Total (12% of Electrical Total)	1	AL	$ 714,017	$ 714,017
	Project Survey (2% of Electrical Total)	1	AL	$ 119,003	$ 119,003
	Quality Control(4% of Electrical Total)	1	AL	$ 238,006	$ 238,006
	Erosion Control (3% of Electrical Total)	1	AL	$ 178,504	$ 178,504
	Safety And Security (2% of Electrical Total)	1	AL	$ 119,003	$ 119,003
	Legal (7% of Electrical Total)	1	AL	$ 416,510	$ 416,510
	Demolition of Residences in RPZ	33	EA	$ 35,000	$ 1,155,000
	Fencing Around New Property	3000	LF	$ 35	$ 105,000
				General Construction Subtotal:	**$ 3,045,042**
				Construction Total:	**$ 28,189,182**
	PROJECT SOFT COSTS				
	Project Design (12% of Construction Costs)	1	AL	$ 3,382,702	$ 3,382,702
	Construction Administration ad Administration(13% of Construction Costs)	1	AL	$ 3,664,594	$ 3,664,594
	Contingency (25% of Construction Costs)	1	AL	$ 7,047,296	$ 7,047,296
				Project Soft Costs Total:	$ 42,283,773
	Purchase of Residences in RPZ	33	EA AVG	$ 183,758	$ 6,064,000
				Project Grand Total:	$ 48,347,773
				Project Grand Total (Rounded):	**$ 48,348,000**

Preliminary Cost Estimate for Projects to be Constructed Within 5 Years
Alternative 9 Extension of Runway 7

Item	Description	Quanitity	Units	Unit Price	Extension
	CIVIL ITEMS				
1	Asphalt Surface Course	649	TN	$150	$97,350
2	Aggregate Base Course	2,954	SY	$50	$147,700
3	Stabilized Subbase Course	2,954	SY	$25	$73,850
4	Sodding	338	SY	$10	$3,380
5	Pavement Demolition	8,348	SY	$15	$125,220
6	Pavement Milling	0	SY	$4	$0
				Civil Subtotal:	**$447,500**
7	Earthwork (15% of Civil Subtotal)	1	AL	$67,125	$67,125
8	Drainage (20% of Civil Subtotal)	1	AL	$89,500	$89,500
9	Permitting (2% Civil Subtotal)	1	AL	$8,950	$8,950
10	Pavement Markings (3% of Civil Subtotal)	1	AL	$13,425	$13,425
				Civil Total:	**$626,500**
	ELECTRICAL ITEMS				
11	Taxiway or Runway Lights	6	EA	$1,000	$6,000
12	Taxiway or Runway Signs	2	EA	$6,000	$12,000
13	Electrical Conduit and Counterpoise	800	LF	$10	$8,000
14	Electrical Wire	1,920	LF	$6	$11,520
				Electrical Subtotal:	**$37,520**
15	Electrical Demolition (15% of Electrical Subtotal)	1	AL	$5,628	$5,628
16	Vault Modifications (10% of Electrical Subtotal)	1	AL	$3,752	$3,752
17	Ground Rods/Lightening Protection (5% of Electrical Subtotal)	1	AL	$1,876	$1,876
18	Temp Lights/NAVAIDS (1% of Electrical Subtotal)	1	AL	$375	$375
				Electrical Total:	**$48,776**
	PROJECT SPECIFIC ITEMS				
19	TBD, i.e. Compass Calibration	1	AL	$0	$0
20	TBD, i.e. New Approach Lighting System	1	AL	$0	$0
				Construction Subtotal:	**$675,276**
	GENERAL CONSTRUCTION ITEMS				
21	Mobilization (12% Construction Subtotal)	1	AL	$81,033	$81,033
22	Project Survey (2% Construction Subtotal)	1	AL	$13,506	$13,506
23	Quality Control (4% Construction Subtotal)	1	AL	$27,011	$27,011
24	Erosion Control (3% Construction Subtotal)	1	AL	$20,258	$20,258
25	Safety and Security (2% Construction Subtotal)	1	AL	$13,506	$13,506
				Construction Total:	**$830,589**
	PROJECT SOFT COSTS				
26	Project Design (12% of Construction Costs)	1	AL	$99,671	$99,671
27	Construction Administration and Inspection (13% of Construction Costs)	1	AL	$107,977	$107,977
28	Contingency (15% of Construction Costs)	1	AL	$124,588	$124,588
				Project Grand Total:	**$1,162,825**
				Project Grand Total (Rounded):	**$1,170,000**

Preliminary Cost Estimate for Projects to be Constructed Within 5 Years
Alternative 9: Extension of Runway 25

Item	Description	Quanitity	Units	Unit Price	Extension
	CIVIL ITEMS				
1	Asphalt Surface Course (4")	1,133	TN	$150	$169,950
2	Aggregate Base Course (8")	5,159	SY	$50	$257,950
3	Stabilized Subbase Course (6")	5,159	SY	$25	$128,975
4	Sodding	563	SY	$10	$5,630
5	Pavement Demolition	1,242	SY	$15	$18,630
6	Pavement Milling	0	SY	$4	$0
				Civil Subtotal:	**$581,135**
7	Earthwork (15% of Civil Subtotal)	1	AL	$87,170	$87,170
8	Drainage (20% of Civil Subtotal)	1	AL	$116,227	$116,227
9	Permitting (2% Civil Subtotal)	1	AL	$11,623	$11,623
10	Pavement Markings (3% of Civil Subtotal)	1	AL	$17,434	$17,434
				Civil Total:	**$813,589**
	ELECTRICAL ITEMS				
11	Taxiway or Runway Lights	8	EA	$1,000	$8,000
12	Taxiway or Runway Signs	2	EA	$6,000	$12,000
13	Electrical Conduit and Counterpoise	1,000	LF	$10	$10,000
14	Electrical Wire	2,400	LF	$6	$14,400
				Electrical Subtotal:	**$44,400**
15	Electrical Demolition (15% of Electrical Subtotal)	1	AL	$6,660	$6,660
16	Vault Modifications (10% of Electrical Subtotal)	1	AL	$4,440	$4,440
17	Ground Rods/Lightening Protection (5% of Electrical Subtotal)	1	AL	$2,220	$2,220
18	Temp Lights/NAVAIDS (1% of Electrical Subtotal)	1	AL	$444	$444
				Electrical Total:	**$57,720**
	PROJECT SPECIFIC ITEMS				
19	TBD, i.e. Compass Calibration	1	AL	$0	$0
20	TBD, i.e. New Approach Lighting System	1	AL	$0	$0
				Construction Subtotal:	**$871,309**
	GENERAL CONSTRUCTION ITEMS				
21	Mobilization (12% Construction Subtotal)	1	AL	$104,557	$104,557
22	Project Survey (2% Construction Subtotal)	1	AL	$17,426	$17,426
23	Quality Control (4% Construction Subtotal)	1	AL	$34,852	$34,852
24	Erosion Control (3% Construction Subtotal)	1	AL	$26,139	$26,139
25	Safety and Security (2% Construction Subtotal)	1	AL	$17,426	$17,426
				Construction Total:	**$1,071,710**
	PROJECT SOFT COSTS				
26	Project Design (12% of Construction Costs)	1	AL	$128,605	$128,605
27	Construction Administration and Inspection (13% of Construction Costs)	1	AL	$139,322	$139,322
28	Contingency (15% of Construction Costs)	1	AL	$160,757	$160,757
				Project Grand Total:	**$1,500,394**
				Project Grand Total (Rounded):	**$1,510,000**

APPENDIX F
CORRESPONDENCE

HIGGINBOTHAM
AVIATION, L.L.C.

104 S. RIVERSIDE DRIVE, P.O. BOX 770
NEW SMYRNA BEACH, FLORIDA 32170

386-427-1444
FAX 386-426-8111

May 31, 2019

Rhonda Walker
City of New Smyrna Beach Airport Office
210 Sams Avenue
New Smyrna Beach, FL 32168

Dear Rhonda:

We have been operating out of the airport for 21 years, and we conduct 175 operations a year.

Currently, we are flying a Bombardier Challenger 350, and because of the size of the aircraft and insurance requirements, we need a minimum of 5,000 feet available to operate safely.

Best regards,

Phil Lappies

Phil Lappies
Chief Pilot

Airgate Aviation, Inc.
2022 Aero Circle
New Smyrna Beach, Florida 32168

Rebecca.h.harper@faa.gov
Rebecca Henry Harper, Assistant Manger
Federal Aviation Administration
Orlando Airports District Office
8427 South Park Circle, 5th Floor
Orlando, FL 32819

Re: Adverse impact to Airgate Aviation, Inc. (Part 135 Operator with commuter authority) with respect to publication of declared distances for runways 7/25 at KEVB

Dear Rebecca,

Per our discussion, the publication of declared distances with respect to runways 7/25 at KEVB would have an adverse impact on our FBO and Part 135 operations.[1] Airgate Aviation, Inc. ("Airgate") has been in business for almost 20 years. It has provided continuous service to passengers as a part 135 operator at KEVB since approximately May of 2010. Beginning in 2016, Airgate started acquiring jet aircraft and began the process to conform these aircraft and add them to its certificate. Additionally, Airgate also sought and received commuter authority from the Department of Transportation to expand into scheduled service in addition to its on demand operations. That approval has been granted; and Airgate is currently authorized to offer both scheduled and on demand service to passengers. Airgate has completed the required proving runs with its FSDO inspectors with respect to its jet operations and has been adding Cessna Citations to its certificate through the conformity process. Airgate has either completed or is in the process of conforming Citations N228MH, N524MA, N28WL, N900G, and N17HA. In addition to the Cessna Citations, Airgate has operated and will continue to operate Cessna 414A's.

Based on historic and current operations Airgate will utilize the Cessna Citations for approximately 1522 operations in the next 12 months. Those operations will substantially increase next year and will continue to do so thereafter. In addition, Airgate's FBO services approximately 800 operations annually for itinerant jet traffic. Many of these aircraft operate in a range between 4,000 and 5,000 feet for take-off and/or landing distances. Although Airgate's fleet can operate many of its flights in normal conditions on a runway of less than 5,000 feet, in situations with a contaminated runway (e.g. after a summer thunderstorm) a runway of 5,000 feet is needed. In many contaminated runway situations, the calculated take-off and/or landing distance for the CE-550/551's operated by Airgate is just short of 5,000 feet. For example, the calculated take-off distance for N524MA on a wet runway at maximum gross weight is 4,950 feet. The landing distance on a wet runway (standing water at maximum landing weight in 30 degrees celsius) is 4,862 feet. These numbers are similar with respect to other jets regularly operated at KEVB.

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[1] In addition, the ADO recently approved an apron improvement plan (together with funding) for KEVB which expands the apron to accommodate class II aircraft (an example of which is the Gulfstream 450). Many of these aircraft require approximately 5,000 feet for take-off and landing in many configurations and conditions. It seems counter-intuitive to expand the apron and simultaneously reduce the declared distances on the only 5,000 foot runway on the field.

Based on the foregoing and other relevant facts, maintaining runways 7/25 at 5,000 feet supports the continued safe operation of aircraft based at and/or operating at KEVB.

Respectfully,

Joseph W. Zitzka,
President

TAKEOFF SPEEDS/FIELD LENGTH – FLAPS 20

FLAPS 20° **WET RUNWAY TAKEOFF DATA**

ENGINE BLEED ON **ALTITUDE SEA LEVEL**

TAKEOFF SPEEDS (KIAS) AND FIELD LENGTH (FT)															
WT (LB) V_{FTO} (KIAS)	DATA	TEMPERATURE °C													
		-40	-30	-20	-10	0	10	15	20	25	30	35	40	45	50
28000 V_{FTO}=135	V_1	119	119	119	119	119	119	119	119	119	119	118	118	117	117
	V_R	119	119	119	119	119	119	119	119	119	119	118	118	117	117
	V_2	130	130	130	129	129	129	129	128	128	128	127	126	125	123
	TOFL	3400	3530	3660	3800	3930	4080	4140	4210	4280	4360	4500	4680	4890	5110
30000 V_{FTO}=140	V_1	119	119	119	119	118	118	118	118	118	118	118	117	117	117
	V_R	119	119	119	119	118	118	118	118	118	118	118	117	117	117
	V_2	129	128	128	128	128	127	127	127	127	127	126	125	124	122
	TOFL	3490	3630	3760	3910	4050	4200	4270	4340	4410	4490	4640	4840	5060	5310
32000 V_{FTO}=144	V_1	118	118	118	118	118	118	118	118	118	118	118	117	117	117
	V_R	118	118	118	118	118	118	118	118	118	118	118	117	117	117
	V_2	127	127	127	127	126	126	126	126	126	126	125	124	123	121
	TOFL	3590	3730	3870	4020	4170	4320	4390	4470	4540	4620	4780	5000	5240	5500
34000 V_{FTO}=149	V_1	118	118	118	118	118	118	118	118	118	118	117	117	117	116
	V_R	118	118	118	118	118	118	118	118	118	118	117	117	117	118
	V_2	126	126	126	125	125	125	125	125	125	124	124	123	122	122
	TOFL	3680	3820	3970	4130	4280	4440	4510	4590	4670	4760	4930	5160	5410	5690
36000 V_{FTO}=153	V_1	118	118	118	118	118	118	118	118	118	117	117	117	117	116
	V_R	119	119	119	119	119	119	119	119	119	119	120	120	121	122
	V_2	125	125	125	125	125	125	125	125	125	125	125	125	125	125
	TOFL	3780	3920	4070	4240	4400	4560	4640	4710	4790	4890	5070	5310	5580	5890
38000 V_{FTO}=157	V_1	118	118	118	118	117	117	117	117	117	117	117	117	117	120
	V_R	123	123	123	123	123	123	123	123	124	124	124	124	125	126
	V_2	129	129	129	129	129	129	129	129	129	129	129	129	129	129
	TOFL	3870	4020	4180	4340	4510	4680	4760	4840	4920	5020	5210	5470	5850	6490
40600 V_{FTO}=163	V_1	119	119	119	119	119	119	119	119	118	118	119	121	123	126
	V_R	128	128	128	128	128	128	128	128	128	128	128	129	130	130
	V_2	133	133	133	133	133	133	133	133	133	133	133	133	133	133
	TOFL	4120	4270	4420	4600	4780	4960	5040	5120	5200	5300	5610	6090	6730	7470

C350_QRH_IMP_TO_F20_0FT_WET_ECS_01MAY14

NOTES:

1. Applicable for ZERO Runway Gradient and ZERO Wind Conditions ONLY.
2. Appliable for Two Operable Thrust-Reversers
3. For Runway Gradient and Wind corrections, see corrections page.
4. Add 100 feet to the takeoff field length when using the rolling takeoff preocedure. See AFM for procedure.

Wet Runway
30° limited to 36,020 lbs
4890 ft

CHALLENGER 350

TAKEOFF SPEEDS/FIELD LENGTH – FLAPS 20

FLAPS 20°

ENGINE BLEED ON

DRY RUNWAY TAKEOFF DATA

ALTITUDE SEA LEVEL

TAKEOFF SPEEDS (KIAS) AND FIELD LENGTH (FT)

WT (LB) / V2 (KIAS)	DATA	TEMPERATURE °C													
		–40	–30	–20	–10	0	10	15	20	25	30	35	40	45	50
[illegible] / 135	V_1	119	119	119	119	119	119	119	119	119	119	118	118	117	117
	V_R	119	119	119	119	119	119	119	119	119	119	118	118	117	117
	V_2	130	130	130	129	129	129	129	128	128	128	127	126	125	123
	TOFL	2970	3080	3180	3300	3410	3520	3580	3630	3690	3750	3870	4040	4230	4440
[illegible] / 140	V_1	119	119	119	119	118	118	118	118	118	118	118	117	117	117
	V_R	119	119	119	119	118	118	118	118	118	118	118	117	117	117
	V_2	129	128	128	128	128	127	127	127	127	127	126	125	124	122
	TOFL	3040	3150	3260	3380	3500	3610	3670	3730	3780	3850	3980	4160	4360	4590
[illegible] / 144	V_1	118	118	118	118	118	118	118	118	118	118	118	117	117	117
	V_R	118	118	118	118	118	118	118	118	118	118	118	117	117	117
	V_2	127	127	127	127	126	126	126	126	126	126	125	124	123	121
	TOFL	3120	3230	3340	3460	3580	3700	3760	3820	3880	3950	4090	4290	4500	4750
34000 / 149	V_1	118	118	118	118	118	118	118	118	118	118	117	117	117	117
	V_R	118	118	118	118	118	118	118	118	118	118	117	117	117	118
	V_2	126	126	126	125	125	125	125	125	125	124	124	123	122	122
	TOFL	3190	3310	3420	3550	3670	3800	3860	3920	3980	4050	4200	4410	4650	4950
[illegible] / 153	V_1	118	118	118	118	118	118	118	118	118	117	117	118	120	122
	V_R	119	119	119	119	119	119	119	119	119	119	120	120	121	122
	V_2	125	125	125	125	125	125	125	125	125	125	125	125	125	125
	TOFL	3270	3390	3510	3630	3760	3890	3950	4010	4080	4150	4310	4650	5060	5580
[illegible] / 157	V_1	122	121	121	121	121	121	121	121	121	121	122	123	125	126
	V_R	123	123	123	123	123	123	123	123	124	124	124	124	125	126
	V_2	129	129	129	129	129	129	129	129	129	129	129	129	129	129
	TOFL	3560	3690	3800	3950	4090	4240	4300	4360	4430	4520	4770	5180	5680	6380
[illegible] / 163	V_1	127	127	126	126	126	126	126	126	126	126	127	128	130	130
	V_R	128	128	128	128	128	128	128	128	128	128	128	129	130	130
	V_2	133	133	133	133	133	133	133	133	133	133	133	133	133	133
	TOFL	4010	4150	4280	4450	4610	4770	4840	4920	4990	5090	5410	5910	6560	7470

[illegible]_OFF_TO_F20_0FT_DRY_ECS_01MAY14

NOTES:

1. Applicable for ZERO Runway Gradient and ZERO Wind Conditions ONLY.
2. For Runway Gradient and Wind corrections, see corrections page.
3. Add 100 feet to the takeoff field length when using the rolling takeoff procedure. See AFM for procedure.

MAX T.O. WT
40,600 @ 30°C
5090

Soderstrum, Mary

From: Joe Zitzka <Joe-Zitzka@flyairgate.com>
Sent: Friday, July 5, 2019 7:48 AM
To: Soderstrum, Mary
Cc: Resheidat, Khalid; Walker, Rhonda
Subject: KEVB - POH TO/L requirements Airgate
Attachments: Scan022.PDF

Mary,

Thank you for your time the other day.

Attached herein you will find take off and landing calculations for our jets along with other jets that regularly utilize the field. Please note that we have included general parameters used in our calculation for our aircraft. We have included relevant pages from our POH. We do not have that information for other operators.

Although I am certain you are aware of this, I believe it is worth noting again. The specific weight and balance of the aircraft impacts take off and landing distance (the weight is impacted by the amount of fuel and passenger count on each flight, along with other factors). Additionally, the specific temperature and weather conditions impact the take off and landing distance.

So, although some aircraft (in their general POH tables on a standard day under standard conditions) may reflect a performance capability that would allow for an operation on a runway shorter than 4,700 ft, when you factor in the real world temperatures and conditions under which operations take place, the average take off and landing calculation for aircraft operating at KEVB is generally within the 4,700 - 5,000 range. Many operators are also required to calculate the balance field requirements in order to operate (i.e., ground roll to take off point and ground roll to stop).

I can make my chief pilot and/or assistant chief pilot available for discussion if that helps.

We are assembling the jet operations information for the FBO to reflect actual jet operations and will get that over to you asap.

Should you have any questions regarding the above or need any additional information, please let me know.

Respectfully,

Joe Zitzka

The message is ready to be sent with the following file or link attachments:

Scan022.PDF

Note: To protect against computer viruses, e-mail programs may prevent sending or receiving certain types of file attachments. Check your e-mail security settings to determine how attachments are handled.

Airgate Aviation

The runway analyses information being provided for Cessna Citation Jet "CE-550" at New Smyrna Beach (KEVB) airport, is obtained from this aircraft's Flight Manual. The comparisons provided for the other Jet aircrafts takeoff and landing distances visiting New Smyrna Beach Airport, is information obtained from the manufactures internet pages and doesn't reflect any allowances for weight, temperature or runway adverse conditions

New Smyrna Beach Airport (KEVB) Runway 25-07. Length 5,000 x 75.

Conditions;
Average passenger weights and cargo loads are being used for these computations;

Parameters;

Temp 20c-30C at Sea Level. Takeoff weight 13,300. Zero wind.

	– Dry Runway	- Wet -	water Covered 0.4 inches.
Flaps 0	3440	4950	7150
Flaps 15	3400	4950	6800

Landing Weight 13,300 – Zero wind.

	- Dry Runway	- Wet –	Water Covered 0.5 inches.
Vref	2530	4100	5000
Vref + 10	2530	5700	6550

Bombardier Challenger 300

Variant	Challenger 300[9]	Challenger 350[12]
Crew	two	
Capacity	eight to nine	nine (standard)
Length	68.63 ft / 20.92 m	
Span	63.84 ft / 19.46 m	69 ft 0 in / 21.0 m
Height	20.33 ft / 6.20 m	20 ft 0 in / 6.1 m
Wing Area	523 ft² / 48.5 m²	
Aspect ratio	7.81	9.09
MTOW	38,850 lb / 17,622 kg	40,600 lb / 18,416 kg
OEW	23,500 lb / 10,659 kg	24,800 lb / 11,249 kg
Fuel capacity	14,150 lb / 6,418 kg	
Maximum payload	3,500 lb / 1,588 kg	3,400 lb / 1,542 kg
Wing loading	74.3 lb/ft²/ 363.3 kg/m²	77.6 lb/ft² / 379.7 kg/m²
Turbofans (2×)	Honeywell HTF7000	Honeywell HTF7350
Thrust[a]	6,826 lb / 30.4 kN	7,323 lbf / 33 kN

Maximum speed	Mach 0.82 / 470 kn / 870 km/h	Mach 0.83 / 477 kn / 882 km/h
Cruise speed	Mach 0.80 / 459 kn / 850 km/h	
Range[b]	3,100 nmi / 5,741 km	3,200 nmi / 5,926 km
Ceiling	45,000 ft / 13,716 m	
Takeoff[a]	4,810 ft / 1,466 m	4,835 ft / 1,474 m
Landing[a]	2,600 ft / 792 m	2,710 ft / 826 m

GULFSTREAM G500

back to top SPECIFICATIONS

PERFORMANCE

Maximum Range * (Mach 0.85, 8 passengers, 3 crew and NBAA IFR reserves)	5,200 nm
High-Speed Cruise	Mach 0.90
Long-Range Cruise	Mach 0.85
MMO (maximum operating Mach number)	Mach 0.925
Takeoff Distance (SL, ISA, MTOW)	5,300 ft
Landing Distance (SL, ISA, MLW)	3,100 ft
Initial Cruise Altitude	43,000 ft
Maximum Cruise Altitude	51,000 ft

* NBAA IFR theoretical range. Actual range will be affected by ATC routing, operating speed, weather, outfitting options and other factors. All performance is based on preliminary data and subject to change.

Citation XLS Performance

Takeoff at Sea Level, feet	3,560
Takeoff at 5000′ 25°C, feet	5,490
Landing Distance, feet	2,739
Certified Ceilings, feet	45,000
Fuel Consumption, gallons per hour	210
Total Variable Cost	$1,391
High Speed Cruise, knots	431
Ranges, Four Pax, Nautical Miles (NM)	1,722
600 NM Mission, Fight Time	1+29
1000 NM Mission, Flight Time	2+26

Honda HA-420 HondaJet

Performance

Maximum Cruise Speed at FL300
422 KTAS
Maximum Cruise Altitude

Rate of Climb
3990 ft / min
NBAA IFR Range (4 occupants)
1223 nm
Takeoff distance
< 4000 ft
Landing distance
< 3050 ft

Hawker 900 XP Performance

Takeoff at Sea Level, feet	5,032
Takeoff at 5000' 25°C, feet	7,795
Landing Distance, feet	2,295
Certified Ceilings, feet	41,000
Fuel Consumption, gallons per hour	257
Total Variable Cost	$1,499
High Speed Cruise, knots	448
Ranges, Four Pax, Nautical Miles (NM)	2,818
600 NM Mission, Fight Time	1+26
1000 NM Mission, Flight Time	2+19

Falcon 2000EX Performance

Takeoff at Sea Level, feet	5,585
Takeoff at 5000′ 25°C, feet	8,120
Landing Distance, feet	2,640
Certified Ceilings, feet	47,000
Fuel Consumption, gallons per hour	257
Total Variable Cost	$1,733
High Speed Cruise, knots	482
Ranges, Four Pax, Nautical Miles (NM)	3,912
600 NM Mission, Fight Time	1+27
1000 NM Mission, Flight Time	2+21

TAKEOFF FIELD LENGTH - FEET

FLAPS - 0°
SEA LEVEL

CONDITIONS: Runway Gradient - ZERO
Landing Gear - DOWN
Anti-Ice Systems - OFF
Speed Brakes - RETRACT
Inoperative Engine - WINDMILLING AFTER V_1
Operative Engine - TAKEOFF THRUST

WEIGHT = 13300 LBS — VENR = 152 KIAS

TEMP DEG C	TAILWIND -10 KTS V1 KIAS	TAILWIND -10 KTS DIST FT	0 KTS V1 KIAS	0 KTS DIST FT	HEADWINDS 10 KTS V1 KIAS	10 KTS DIST FT	20 KTS V1 KIAS	20 KTS DIST FT	30 KTS V1 KIAS	30 KTS DIST FT	VR KIAS	V2 KIAS
-25	111	3530	110	2680	110	2450	109	2230	108	2030	111	119
-20	111	3580	110	2730	110	2500	109	2280	108	2070	111	119
-15	111	3640	110	2780	109	2540	109	2320	108	2110	111	119
-10	111	3690	110	2830	109	2590	109	2370	108	2150	111	119
-5	111	3740	110	2880	109	2640	109	2410	108	2200	111	119
0	111	3800	110	2930	109	2690	109	2460	108	2240	111	119
5	110	3910	110	2980	109	2740	109	2510	108	2290	111	119
10	109	4110	110	3080	110	2830	109	2590	108	2370	111	119
15	108	4320	111	3180	110	2920	109	2680	109	2450	111	119
20	107	4790	111	3440	111	3120	110	2860	110	2610	111	119
25	108	5060	111	3760	111	3410	111	3070	111	2800	111	119
30	105	6030	111	4130	111	3740	111	3370	111	3020	111	119
35	104	6870	112	4570	112	4140	112	3730	112	3340	112	119
40	103	7800	112	5060	112	4580	112	4120	112	3680	112	119
45	102	8860	112	5620	112	5070	112	4560	112	4070	112	119
50	102	10190	112	6310	112	5680	112	5090	112	4540	112	119
54	101	11710	112	7080	112	6380	112	5700	112	5060	112	119

WEIGHT = 13000 LBS — VENR = 151 KIAS

TEMP DEG C	TAILWIND -10 KTS V1 KIAS	TAILWIND -10 KTS DIST FT	0 KTS V1 KIAS	0 KTS DIST FT	HEADWINDS 10 KTS V1 KIAS	10 KTS DIST FT	20 KTS V1 KIAS	20 KTS DIST FT	30 KTS V1 KIAS	30 KTS DIST FT	VR KIAS	V2 KIAS
-25	110	3360	108	2570	108	2350	107	2140	107	1940	110	118
-20	110	3410	108	2610	108	2390	107	2180	106	1980	110	118
-15	110	3460	108	2660	108	2440	107	2220	106	2020	110	118
-10	110	3510	108	2710	108	2480	107	2260	106	2060	110	118
-5	110	3560	108	2750	108	2520	107	2310	106	2100	110	118
0	110	3610	108	2800	108	2570	107	2350	106	2140	110	118
5	110	3880	108	2860	108	2620	107	2400	106	2190	110	118
10	110	3810	109	2950	108	2710	107	2480	107	2260	110	118
15	109	3950	109	3040	108	2790	108	2560	107	2340	110	118
20	108	4360	110	3270	109	2980	109	2730	108	2490	110	118
25	107	4880	110	3560	110	3230	110	2930	109	2670	110	118
30	107	5440	110	3910	110	3540	110	3190	110	2870	110	118
35	106	6170	110	4320	110	3910	110	3520	110	3150	110	118
40	105	7000	110	4770	110	4320	110	3880	110	3470	110	118
45	104	7930	110	5280	110	4770	110	4280	110	3820	110	118
50	103	9100	110	5910	110	5320	110	4770	110	4250	110	118
54	102	10420	111	6610	111	5950	111	5320	111	4730	111	118

129F

WEIGHT = 12500 LBS — VENR = 148 KIAS

TEMP DEG C	TAILWIND -10 KTS V1 KIAS	TAILWIND -10 KTS DIST FT	0 KTS V1 KIAS	0 KTS DIST FT	HEADWINDS 10 KTS V1 KIAS	10 KTS DIST FT	20 KTS V1 KIAS	20 KTS DIST FT	30 KTS V1 KIAS	30 KTS DIST FT	VR KIAS	V2 KIAS
-25	107	3090	105	2380	105	2180	104	1980	104	1790	107	116
-20	107	3140	105	2430	105	2220	104	2020	104	1830	107	116
-15	107	3180	105	2470	105	2260	104	2060	104	1870	107	116
-10	107	3230	105	2510	105	2300	104	2100	103	1910	107	116
-5	107	3280	105	2560	105	2350	104	2140	103	1940	107	116
0	107	3320	105	2600	105	2380	104	2180	103	1980	107	116
5	107	3390	105	2650	105	2430	104	2230	103	2030	107	116
10	107	3500	106	2730	105	2510	104	2300	104	2090	107	116
15	107	3620	106	2820	105	2590	105	2370	104	2160	107	116
20	108	3920	107	3010	106	2760	106	2530	105	2300	108	116
25	108	4270	108	3250	108	2950	107	2700	106	2460	108	116
30	108	4680	108	3560	108	3220	108	2900	107	2650	108	116
35	108	5170	108	3930	108	3550	108	3200	108	2860	108	116
40	107	5800	108	4320	108	3910	108	3510	108	3140	108	116
45	108	6520	108	4760	108	4300	108	3860	108	3450	108	116
50	105	7430	108	5290	108	4770	108	4280	108	3820	108	116
54	105	8470	108	5890	108	5300	108	4740	108	4220	108	116

WEIGHT = 12000 LBS — VENR = 145 KIAS

TEMP DEG C	TAILWIND -10 KTS V1 KIAS	TAILWIND -10 KTS DIST FT	0 KTS V1 KIAS	0 KTS DIST FT	HEADWINDS 10 KTS V1 KIAS	10 KTS DIST FT	20 KTS V1 KIAS	20 KTS DIST FT	30 KTS V1 KIAS	30 KTS DIST FT	VR KIAS	V2 KIAS
-25	104	2860	102	2210	102	2020	101	1830	101	1650	105	114
-20	104	2900	102	2250	102	2050	101	1870	101	1690	105	114
-15	104	2950	102	2290	102	2090	101	1900	100	1720	105	114
-10	104	2990	102	2330	102	2130	101	1940	100	1760	105	114
-5	104	3040	102	2370	101	2160	101	1970	100	1790	105	114
0	104	3080	102	2410	101	2200	101	2010	100	1830	105	114
5	104	3140	102	2460	102	2250	101	2050	100	1870	105	114
10	104	3230	103	2540	102	2320	101	2120	101	1930	105	114
15	105	3320	103	2610	102	2400	102	2180	101	1990	105	114
20	105	3590	104	2780	103	2550	103	2330	102	2120	105	114
25	105	3900	105	2970	104	2720	104	2490	103	2270	105	114
30	106	4260	106	3240	106	2930	105	2670	104	2430	106	114
35	106	4700	106	3560	106	3220	106	2900	105	2620	106	114
40	106	5160	106	3910	106	3530	106	3180	106	2840	106	114
45	106	5670	106	4290	106	3870	106	3480	106	3100	106	114
50	106	6290	106	4760	106	4280	106	3840	106	3420	106	114
54	106	6980	106	5250	106	4730	106	4230	106	3770	106	114

Figure 4-14 (Sheet 1 of 30)

TAKEOFF FIELD LENGTH - FEET

FLAPS - 15°
SEA LEVEL

CONDITIONS: Runway Gradient - ZERO
Landing Gear - DOWN
Anti-Ice Systems - OFF

Speed Brakes - RETRACT
Inoperative Engine - WINDMILLING AFTER V_1
Operative Engine - TAKEOFF THRUST

WEIGHT = 13300 LBS VENR = 152 KIAS

TEMP DEG C	TAILWIND -10 KTS V1 KIAS	TAILWIND -10 KTS DIST FT	0 KTS V1 KIAS	0 KTS DIST FT	HEADWIND 10 KTS V1 KIAS	HEADWIND 10 KTS DIST FT	HEADWIND 20 KTS V1 KIAS	HEADWIND 20 KTS DIST FT	HEADWIND 30 KTS V1 KIAS	HEADWIND 30 KTS DIST FT	VR KIAS	V2 KIAS
-25	108	3320	106	2530	104	2300	103	2090	103	1900	106	114
-20	108	3370	105	2570	104	2350	103	2130	103	1930	106	114
-15	108	3420	105	2620	104	2390	103	2180	103	1970	106	114
-10	108	3470	105	2660	104	2430	103	2220	103	2010	106	114
-5	108	3520	104	2710	104	2480	103	2260	103	2050	106	114
0	108	3570	104	2750	104	2520	103	2300	103	2090	106	114
5	108	3640	104	2810	104	2570	103	2350	103	2140	106	114
10	108	3760	105	2900	104	2660	103	2430	103	2210	106	114
15	108	3900	105	2990	104	2740	104	2500	103	2280	106	114
20	108	4210	108	3210	106	2930	105	2680	104	2430	106	114
25	108	4610	106	3500	108	3170	106	2870	105	2610	108	114
30	105	5220	108	3850	108	3480	108	3120	108	2810	106	114
35	104	6190	106	4280	106	3860	108	3460	108	3090	106	114
40	103	6150	107	4750	107	4280	107	3830	107	3410	107	114
45	102	7880	107	5280	107	4750	107	4250	107	3770	107	114
50	101	8800	107	5940	107	5330	107	4760	107	4220	107	114
53	101	9810	107	6450	107	5780	107	5150	107	4550	107	114

WEIGHT = 13000 LBS VENR = 151 KIAS

TEMP DEG C	TAILWIND -10 KTS V1 KIAS	TAILWIND -10 KTS DIST FT	0 KTS V1 KIAS	0 KTS DIST FT	HEADWIND 10 KTS V1 KIAS	HEADWIND 10 KTS DIST FT	HEADWIND 20 KTS V1 KIAS	HEADWIND 20 KTS DIST FT	HEADWIND 30 KTS V1 KIAS	HEADWIND 30 KTS DIST FT	VR KIAS	V2 KIAS
-25	105	3160	103	2420	102	2200	102	2000	101	1810	105	113
-20	105	3210	103	2460	102	2250	102	2040	101	1850	105	113
-15	105	3260	103	2510	102	2290	102	2080	101	1890	105	113
-10	105	3300	103	2550	102	2330	102	2120	101	1920	105	113
-5	105	3350	103	2590	102	2370	102	2160	101	1960	105	113
0	105	3400	103	2640	102	2410	101	2200	101	2000	105	113
5	105	3460	103	2690	102	2460	102	2250	101	2040	105	113
10	105	3580	103	2770	102	2540	102	2320	101	2110	105	113
15	105	3700	103	2860	103	2620	102	2390	102	2180	105	113
20	105	4020	105	3050	104	2800	103	2550	102	2320	105	113
25	105	4360	105	3320	105	3000	104	2740	103	2490	105	113
30	105	4800	105	3650	105	3290	105	2950	105	2680	105	113
35	105	5380	105	4040	108	3640	105	3270	105	2910	105	113
40	105	6230	105	4470	108	4030	105	3610	105	3210	105	113
45	104	6830	105	4950	105	4460	105	3990	105	3540	105	113
50	103	7830	105	5550	108	4990	105	4450	105	3950	105	113
54	102	9090	108	6240	108	5590	106	4980	106	4400	106	113

WEIGHT = 12500 LBS VENR = 148 KIAS

TEMP DEG C	TAILWIND -10 KTS V1 KIAS	TAILWIND -10 KTS DIST FT	0 KTS V1 KIAS	0 KTS DIST FT	HEADWIND 10 KTS V1 KIAS	HEADWIND 10 KTS DIST FT	HEADWIND 20 KTS V1 KIAS	HEADWIND 20 KTS DIST FT	HEADWIND 30 KTS V1 KIAS	HEADWIND 30 KTS DIST FT	VR KIAS	V2 KIAS
-25	102	2920	100	2250	99	2050	99	1860	98	1670	102	111
-20	102	2970	100	2290	99	2090	99	1890	98	1710	102	111
-15	102	3010	100	2330	99	2130	99	1930	98	1740	102	111
-10	102	3060	100	2370	99	2160	99	1960	98	1760	102	111
-5	102	3100	100	2410	99	2200	99	2000	98	1810	102	111
0	102	3150	100	2450	99	2240	99	2040	98	1850	102	111
5	102	3200	100	2500	99	2290	99	2080	98	1890	102	111
10	102	3300	100	2570	100	2360	99	2150	98	1950	102	111
15	103	3400	100	2650	100	2430	99	2210	99	2010	103	111
20	103	3690	102	2830	101	2590	100	2360	100	2150	103	111
25	103	4010	103	3030	102	2770	101	2530	101	2300	103	111
30	103	4400	103	3320	103	3000	103	2710	102	2470	103	111
35	103	4870	103	3670	103	3310	103	2980	103	2660	103	111
40	103	5380	103	4040	103	3640	103	3260	103	2900	103	111
45	103	5950	103	4460	103	4010	103	3590	103	3190	103	111
50	103	6550	103	4970	103	4460	103	3980	103	3540	103	111
54	103	7440	103	5530	103	4960	103	4420	103	3920	103	111

WEIGHT = 12000 LBS VENR = 145 KIAS

TEMP DEG C	TAILWIND -10 KTS V1 KIAS	TAILWIND -10 KTS DIST FT	0 KTS V1 KIAS	0 KTS DIST FT	HEADWIND 10 KTS V1 KIAS	HEADWIND 10 KTS DIST FT	HEADWIND 20 KTS V1 KIAS	HEADWIND 20 KTS DIST FT	HEADWIND 30 KTS V1 KIAS	HEADWIND 30 KTS DIST FT	VR KIAS	V2 KIAS
-25	99	2710	97	2080	96	1890	96	1710	95	1540	100	109
-20	99	2750	97	2120	96	1930	96	1750	95	1570	100	109
-15	98	2800	97	2160	96	1960	96	1780	95	1610	100	109
-10	99	2840	97	2180	96	2000	96	1810	95	1640	100	109
-5	99	2880	97	2230	96	2030	96	1850	95	1670	100	109
0	98	2920	97	2270	96	2070	96	1880	95	1700	100	109
5	99	2970	97	2310	96	2110	96	1920	95	1740	100	109
10	99	3060	97	2390	97	2180	96	1980	95	1800	100	109
15	99	3150	97	2460	97	2240	96	2050	96	1850	100	109
20	100	3370	98	2620	98	2390	97	2180	97	1980	100	109
25	101	3660	100	2790	99	2550	98	2330	98	2120	101	109
30	101	4010	101	3020	100	2740	100	2500	99	2270	101	109
35	101	4420	101	3320	101	3000	101	2690	100	2440	101	109
40	101	4870	101	3650	101	3290	101	2940	101	2620	101	109
45	101	5350	101	4010	101	3610	101	3230	101	2870	101	109
50	101	5940	101	4440	101	3990	101	3570	101	3170	101	109
54	101	6600	101	4920	101	4410	101	3940	101	3490	101	109

Figure 4-15 (Sheet 1 of 18)

TAKEOFF FIELD LENGTH - FEET

FLAPS - UP

DRY RUNWAY WITHOUT THRUST REVERSERS	ADVERSE RUNWAY CONDITIONS (NO THRUST REVERSERS, 15 FT SCREEN HEIGHT, ANTI-ICE OFF)												
	WET RUNWAY	WATER COVERED RUNWAY - INCHES *				SLUSH COVERED RUNWAY - INCHES *				SNOW INCHES *		COMPACT SNOW	WET ICE
		0.125	0.2	0.3	0.4	0.125	0.2	0.3	0.4	1.0	2.0		
1000	1650	2450	2350	2200	2100	2500	2350	2250	2100	2400	2200	1950	5050
1200	1950	2950	2750	2550	2450	2900	2750	2600	2450	2800	2550	2300	6000
1400	2250	3500	3200	3000	2800	3350	3150	2950	2800	3150	2850	2650	7000
1600	2550	4150	3800	3450	3200	3850	3600	3350	3150	3500	3200	3000	7950
1800	2900	4750	4350	3950	3650	4450	4100	3800	3550	3900	3500	3350	8950
2000	3150	5250	4800	4350	4050	4950	4600	4250	4000	4200	3800	3650	9550
2200	3400	5750	5300	4800	4500	5450	5050	4650	4400	4550	4150	3950	10150
2400	3650	6250	5750	5250	4950	5900	5500	5100	4800	4850	4500	4250	10700
2600	3900	6750	6250	5750	5400	6350	5950	5550	5200	5200	4800	4500	11250
2800	4150	7200	6750	6200	5850	6850	6400	5950	5600	5500	5150	4800	11800
3000	4400	7700	7250	6700	6350	7300	6850	6400	6050	5850	5500	5100	12300
3200	4700	8200	7700	7150	6750	7750	7250	6800	6450	6250	5900	5350	12800
3400	4950	8600	8050	7500	7150	8150	7650	7150	6800	6650	6300	5600	13300
3600	5250	9000	8450	7850	7500	8550	8000	7500	7150	7000	6700	5800	13700
3800	5550	9350	8800	8250	7850	8900	8350	7850	7500	7400	7100	6000	14000
4000	5850	9750	9150	8600	8200	9250	8700	8200	7850	7850	7450	6150	14300
4200	6150	10100	9550	8950	8550	9600	9050	8550	8200	8300	7850	6300	14600
4400	6400	10450	9900	9300	8900	9950	9400	8850	8500	8950	8200	6450	14900
4600	6650	10800	10200	9650	9250	10300	9750	9150	8800	9550	8600	6600	15200
4800	6900	11150	10550	9950	9550	10650	10050	9450	9100	10200	9000	6750	
5000	7100	11400	10800	10200	9800	10950	10300	9750	9400	11000	9350	6900	
5200	7250	11650	11050	10450	10000	11250	10550	10050	9700	11800	9750	7050	
5400	7400	11900	11300	10700	10200	11550	10800	10350	10000	12650	10150	7200	
5600	7550	12100	11500	10950	10400	11750	11000	10650	10300	13500	10550	7350	
5800	7700	12300	11700	11150	10600	11950	11200	10950	10600	14300	10950	7500	
6000	7850	12450	11850	11350	10800	12150	11400	11250	10900	15100	11350	7650	
6200	8000	12600	12000	11550	11000	12350	11600	11550	11200		11750	7800	
6400	8150	12750	12150	11750	11200	12500	11800	11800	11500		12100	7950	
6600	8300	12850	12300	11950	11400	12650	12000	12050	11800		12500	8100	
6800	8450	12950	12450	12150	11600	12800	12200	12300	12100		12900	8250	
7000	8600	13050	12600	12350	11800	12900	12400	12600	12400		13300	8400	
7500	8900	13300	12950	12850	12300	13150	12850	13300	13150		14300	8750	
8000	9200	13500	13250	13300	12750	13400	13300	14050	13900		15250	9100	
8500	9500	13700	13600	13800	13200	13650	13800	14800	14600			9500	
9000	9800	13900	13900	14300	13700	13900	14300	15550	15300			9950	
9500	10150	14100	14200	14850	14150	14150	14800					10350	
10000	10500	14300	14550	15500	14600	14400	15350					10750	
11000	11250	14650	15200		15650	14900						11550	
12000	12100	15000				15400						12400	
13000	13000											13200	
14000	14000											14100	
15000	15000											15000	

* Takeoffs should not be attempted in any precipitation depth greater than the highest depth presented or if any of the following limits are exceeded. If no limit is presented, use the dry runway limit.

Contaminate	Altitude	Temperature	Gross Weight	Wind
0.4 Inches Water	Greater than 10,000 ft	Greater than ISA+20° C	—	—
0.3 Inches Slush	Greater than 11,000 ft	Greater than ISA+15° C	—	—
0.4 Inches Slush	Greater than 8000 ft	Greater than ISA+5° C	—	—
1.0 Inch Snow	Greater than 6000 ft	Greater than ISA	Greater than 12,500 lbs	—
2.0 Inches Snow	Greater than 6000 ft	Greater than ISA	Greater than 12,500 lbs	Any Tailwind

Figure 7-1

TAKEOFF FIELD LENGTH - FEET

FLAPS - 15°

DRY RUNWAY WITHOUT THRUST REVERSERS	ADVERSE RUNWAY CONDITIONS (NO THRUST REVERSERS, 15 FT SCREEN HEIGHT, ANTI-ICE OFF)												
	WET RUNWAY	WATER COVERED RUNWAY - INCHES *				SLUSH COVERED RUNWAY - INCHES *				SNOW INCHES *		COMPACT SNOW	WET ICE
		0.125	0.2	0.3	0.4	0.125	0.2	0.3	0.4	1.0	2.0		
1000	1700	2450	2300	2150	2000	2500	2350	2200	2100	2400	2200	1950	4950
1200	2000	2900	2700	2500	2350	2900	2750	2550	2450	2800	2500	2350	5950
1400	2300	3400	3200	2900	2700	3300	3100	2900	2750	3150	2850	2700	6900
1600	2650	4050	3750	3350	3100	3750	3500	3250	3100	3500	3150	3050	7900
1800	2950	4550	4150	3750	3500	4250	3900	3600	3400	3850	3450	3400	8700
2000	3200	5000	4600	4200	3900	4800	4400	4050	3800	4150	3750	3650	9250
2200	3450	5500	5050	4600	4300	5250	4850	4450	4250	4450	4100	3950	9800
2400	3700	6000	5500	5050	4750	5700	5300	4900	4650	4800	4400	4250	10300
2600	3950	6450	5950	5450	5150	6150	5700	5300	5050	5100	4750	4500	10850
2800	4200	6900	6400	5950	5600	6600	6150	5700	5450	5450	5050	4800	11350
3000	4450	7400	6900	6400	6050	7050	6550	6100	5850	5750	5400	5050	11900
3200	4700	7850	7300	6800	6450	7450	7000	6500	6250	6100	5800	5350	12400
3400	4950	8250	7700	7200	6800	7800	7350	6850	6550	6450	6150	5600	12850
3600	5250	8600	8050	7550	7150	8200	7700	7200	6900	6800	6500	5800	13200
3800	5550	8950	8400	7900	7500	8550	8050	7550	7200	7150	6850	6000	13500
4000	5850	9350	8750	8250	7850	8900	8400	7900	7550	7500	7200	6150	13800
4200	6100	9700	9100	8550	8150	9250	8700	8200	7850	7800	7550	6300	14100
4400	6400	10050	9450	8850	8450	9600	9050	8500	8200	8100	7850	6450	14350
4600	6650	10350	9750	9150	8750	9950	9300	8800	8500	8400	8200	6600	14600
4800	6850	10600	10000	9450	9050	10200	9600	9100	8750	8700	8550	6750	14850
5000	7050	10850	10250	9700	9300	10450	9850	9400	9000	9000	8900	6850	15100
5200	7200	11050	10450	9900	9500	10650	10000	9700	9250	9300	9250	6950	
5400	7350	11250	10650	10100	9700	10800	10150	10000	9450	9600	9600	7050	
5600	7500	11400	10800	10300	9900	10950	10300	10300	9650	9900	9950	7150	
5800	7600	11550	11000	10450	10050	11100	10450	10600	9850	10200	10350	7250	
6000	7700	11700	11150	10600	10200	11200	10600	10900	10050	10500	10700	7350	
6200	7800	11850	11300	10750	10350	11300	10700	11200	10350	10800	11050	7450	
6400	7900	11950	11400	10900	10500	11400	10800	11500	10700	11100	11400	7600	
6600	8000	12050	11500	11050	10650	11500	10900	11800	11150	11400	11750	7750	
6800	8100	12150	11600	11200	10800	11600	11000	12100	11700	11700	12100	7900	
7000	8200	12250	11700	11300	10950	11700	11100	12400	12300	12000	12450	8100	
7500	8500	12450	11900	11550	11300	11850	11250	13100	13600	12750	13350	8600	
8000	8800	12650	12100	11800	11700	12000	11400	13850	15050	13500	14200	9100	
8500	9100	12850	12250	12050	12150	12150	11600	14600		14250	15100	9600	
9000	9400	13050	12400	12350	12700	12300	11800	15350		15000		10100	
9500	9750	13300	12600	12700	13250	12550	12100					10600	
10000	10150	13500	12850	13200	13950	12950	12550					11100	
11000	11050	13950	13500	14400	15400	14150	13900					12100	
12000	12000	14500	14300	15650		15600	15350					13100	
13000	13000	15400	15200				16800					14100	
14000	14000											15100	
15000	15000												

* Takeoffs should not be attempted in any precipitation depth greater than the highest depth presented or if any of the following limits are exceeded. If no limit is presented, use the dry runway limit.

Contaminate	Altitude	Temperature	Gross Weight	Wind
0.4 Inches Water	Greater than 6000 ft	Greater than ISA+20° C	—	—
0.3 Inches Slush	—	Greater than ISA+20° C	—	—
0.4 Inches Slush	—	Greater than ISA+5° C	—	—
1.0 Inch Snow	Greater than 5000 ft	Greater than ISA	Greater than 13,000 lbs	—
2.0 Inches Snow	Greater than 5000 ft	Greater than ISA	—	Any Tailwind

Figure 7-2

LANDING DISTANCE - FEET ACTUAL DISTANCE SEA LEVEL

CONDITIONS: Landing Gear - DOWN
Wing Flaps - LAND
Speed Brakes - EXTEND AFTER TOUCHDOWN
Anti-Ice Systems - ON or OFF
Thrust - IDLE
Airspeed - V_{REF} at 50 FEET

Some conditions may be brake energy limited. Refer to Figures 4-27 and 4-28 for allowable landing weights.

WEIGHT = 13300 LBS *
VREF = 111 KIAS VAPP = 118 KIAS

TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	HEADWINDS 10 KTS	20 KTS	30 KTS
-25	2780	2160	2030	1910	1790
-20	2840	2180	2050	1930	1810
-15	2900	2200	2070	1950	1830
-10	2970	2220	2090	1970	1850
-5	3040	2240	2110	1990	1870
0	3110	2270	2140	2010	1890
5	3180	2300	2160	2030	1910
10	3260	2340	2180	2050	1930
15	3340	2390	2200	2080	1950
20	3430	2430	2220	2100	1980
25	3520	2480	2250	2120	2000
30	3620	2530	2290	2140	2020
35	3720	2580	2330	2160	2040
40	3820	2630	2380	2180	2060
45	3930	2690	2420	2200	2080
50	4030	2740	2460	2230	2080
54	4100	2770	2490	2260	2100

WEIGHT = 12700 LBS
VREF = 108 KIAS VAPP = 116 KIAS

TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	HEADWINDS 10 KTS	20 KTS	30 KTS
-25	2580	2110	1980	1860	1740
-20	2630	2130	2000	1880	1760
-15	2680	2150	2020	1900	1780
-10	2730	2170	2040	1920	1800
-5	2790	2190	2060	1940	1820
0	2840	2210	2080	1960	1840
5	2900	2230	2100	1980	1860
10	2960	2250	2120	2000	1880
15	3020	2270	2140	2020	1900
20	3080	2290	2160	2040	1920
25	3150	2320	2180	2060	1940
30	3220	2340	2210	2080	1960
35	3290	2380	2230	2100	1980
40	3360	2420	2250	2120	2000
45	3440	2470	2270	2140	2020
50	3510	2510	2280	2160	2030
54	3550	2530	2300	2160	2040

WEIGHT = 12500 LBS
VREF = 108 KIAS VAPP = 115 KIAS

TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	HEADWINDS 10 KTS	20 KTS	30 KTS
-25	2530	2090	1960	1840	1730
-20	2570	2110	1980	1860	1750
-15	2620	2130	2000	1880	1770
-10	2670	2150	2020	1900	1790
-5	2710	2170	2040	1920	1810
0	2760	2190	2060	1940	1820
5	2820	2210	2080	1960	1840
10	2870	2230	2100	1980	1860
15	2930	2250	2130	2000	1880
20	2990	2280	2150	2020	1900
25	3050	2300	2170	2040	1920
30	3110	2320	2190	2060	1940
35	3170	2340	2210	2080	1960
40	3240	2360	2230	2100	1980
45	3310	2400	2250	2120	2000
50	3370	2440	2260	2140	2010
54	3410	2460	2270	2140	2020

WEIGHT = 12000 LBS
VREF = 106 KIAS VAPP = 113 KIAS

TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	HEADWINDS 10 KTS	20 KTS	30 KTS
-25	2470	2050	1920	1800	1690
-20	2490	2070	1940	1820	1710
-15	2510	2090	1960	1840	1730
-10	2530	2110	1980	1860	1750
-5	2560	2130	2000	1880	1760
0	2600	2150	2020	1900	1780
5	2640	2170	2040	1920	1800
10	2690	2190	2060	1940	1820
15	2730	2210	2080	1960	1840
20	2780	2230	2100	1970	1860
25	2830	2250	2120	1990	1880
30	2880	2270	2140	2010	1890
35	2930	2280	2160	2030	1910
40	2980	2300	2170	2050	1930
45	3040	2320	2190	2070	1950
50	3080	2340	2210	2080	1960
54	3110	2340	2210	2090	1970

To obtain landing distance with a runway gradient, refer to factors on page 4-180.

* For use in an emergency which requires a landing at a weight in excess of maximum design landing weight of 12,700 pounds.

Figure 4-29 (Sheet 1 of 30)

LANDING DISTANCE - FEET

FLAPS - FULL

AIRSPEED - V_{REF}

DRY RUNWAY WITHOUT THRUST REVERSERS	ADVERSE RUNWAY CONDITIONS (NO THRUST REVERSERS, V_{REF}, WITHOUT TAILWINDS, 50 FT SCREEN HEIGHT)														
	WET RUNWAY	WATER COVERED RUNWAY - INCHES					SLUSH COVERED RUNWAY - INCHES					SNOW INCHES		COMPACT SNOW	WET ICE
		0.125	0.2	0.3	0.4	0.5	0.125	0.2	0.3	0.4	0.5	1.0	2.0		
1200	1700	2300	2250	2050	1950	1900	2300	2200	2150	2100	2100	2400	2150	1900	6300
1400	2000	2700	2600	2450	2450	2400	2750	2650	2500	2500	2500	2850	2600	2300	7900
1600	2400	3300	3100	2950	2950	2800	3300	3150	3000	2900	2900	3300	3000	2700	9500
1800	2700	3950	3750	3500	3400	3250	3800	3700	3500	3350	3300	3700	3400	3100	10900
2000	3000	4700	4450	4000	3900	3700	4400	4200	4000	3800	3650	4150	3800	3450	12400
2200	3400	5400	5000	4700	4400	4100	5100	4850	4550	4200	4050	4550	4150	3850	13900
2400	3700	5850	5600	5100	4900	4600	5700	5300	5000	4600	4400	5000	4450	4250	
2600	4100	6500	6100	5600	5300	5000	6300	5800	5500	5100	4800	5400	4750	4600	
2800	4400	7500	6750	6200	5700	5450	7100	6300	5900	5450	5200	5800	5050	5000	
3000	4700	8100	7450	6750	6150	5900	7600	7000	6300	5800	5600	6200	5400	5400	
3200	5100	8650	8000	7200	6600	6300	8150	7500	6800	6350	6000	6600	5700	5650	
3400	5400	9150	8400	7650	6900	6650	8600	7900	7200	6700	6400	7000	6050	5950	
3600	5700	9550	8800	8050	7300	7000	9100	8500	7600	7000	6700	7400	6350	6200	
3800	6100	9950	9200	8450	7700	7300	9550	8850	8000	7400	6950	7800	6650	6400	
4000	6400	10300	9600	8800	8150	7700	10050	9250	8400	7800	7300	8200	6950	6650	
4200	6700	10700	10000	9150	8500	7900	10400	9600	8800	8100	7550	8600	7250	6850	
4400	7100	11000	10300	9450	8700	8200	10800	10000	9100	8400	7800	9000	7550	7000	
4600	7400	11400	10550	9700	9000	8400	11150	10350	9450	8700	8100	9400	7800	7150	
4800	7800	11800	10900	10000	9300	8700	11550	10700	9750	9000	8400	9800	8150	7300	
5000	8100	12100	11200	10300	9500	8900	11900	11000	10050	9300	8650	10100	8400	7450	
5200	8400	12350	11500	10600	9800	9200	12200	11300	10300	9500	8900	10400	8650	7600	
5400	8700	12700	11800	10850	10000	9400	12500	11600	10550	9700	9100	10700	8850	7750	
5600	9000	12900	12050	11050	10250	9600	12800	11900	10800	10000	9300	11000	9100	7900	
5800	9350	13200	12300	11300	10450	9800	13100	12100	11100	10300	9550	11300	9350	8100	
6000	9650	13500	12500	11500	10650	10000	13450	12400	11350	10500	9800	11600	9550	8250	
6200	10000	13800	12800	11700	10800	10100	13700	12700	11600	10700	10000	11900	9800	8400	
6400	10250	14000	13050	11900	11000	10300	14050	13000	11800	10900	10200	12200	10000	8550	
6600	10600	14300	13300	12200	11200	10500	14350	13300	12100	11150	10400	12500	10200	8700	
6800	10900	14550	13550	12400	11400	10700	14650	13500	12300	11350	10600	12850	10450	8850	
7000	11200	14800	13800	12600	11600	10850	14950	13800	12500	11600	10750	13100	10650	9000	
7200	11500		14050	12800	11800	11000		14100	12700	11800	10950	13400	10850	9150	
7400	11850		14300	13000	12000	11200		14400	13000	12000	11150	13750	11050	9300	
7600	12200		14550	13250	12200	11400		14700	13250	12200	11350	14050	11250	9450	
7800	12500		14800	13500	12400	11600		14950	13500	12400	11550	14350	11450	9650	
8000	12800			13700	12600	11750			13750	12600	11750	14650	11650	9800	
8400	13400			14100	13000	12100			14200	13050	12150		12000	10100	
8800	14000			14550	13400	12500			14700	13500	12500		12400	10400	
9200	14700			15000	13800	12850				13900	12900		12800	10750	
9600					14200	13200				14300	13300		13150	11050	
10000					14600	13600				14750	13700		13550	11350	
10400					15000	13900					14100		13900	11650	
10800						14300					14500		14250	12000	
11200						14650					14850		14650	12300	
11600						15000							15000	12600	
12000														12900	
12400														12250	
12800														12550	

NOTE

The published limiting maximum tailwind component for this airplane is 10 knots: however, Cessna does not recommend landings on precipitation-covered runways with any tailwind component. If a tailwind landing cannot be avoided, multiply the above data by the following factor:

	WET RUNWAY	WATER COVERED RUNWAY - INCHES					SLUSH COVERED RUNWAY - INCHES					SNOW INCHES		COMPACT SNOW	WET ICE
		0.125	0.2	0.3	0.4	0.5	0.125	0.2	0.3	0.4	0.5	1.0	2.0		
TAILWIND FACTOR	1.07	1.13	1.12	1.12	1.12	1.11	1.12	1.12	1.12	1.12	1.11	1.11	1.11	1.05	*

* Landings with any tailwind should not be attempted on wet ice.

Figure 7-3

LANDING DISTANCE - FEET

FLAPS - FULL

AIRSPEED - V_{REF} + 10 KNOTS

DRY RUNWAY WITHOUT THRUST REVERSERS	ADVERSE RUNWAY CONDITIONS (NO THRUST REVERSERS, V_{REF}+10, WITHOUT TAILWINDS, 50 FT SCREEN HEIGHT)														
	WET RUNWAY	WATER COVERED RUNWAY - INCHES					SLUSH COVERED RUNWAY - INCHES					SNOW INCHES		COMPACT SNOW	WET ICE
		0.125	0.2	0.3	0.4	0.5	0.125	0.2	0.3	0.4	0.5	1.0	2.0		
1400	2400	3350	3000	2900	2650	2500	3200	3000	2900	2700	2600	3100	2800	2800	9000
1600	2800	4050	3650	3450	3250	3050	3800	3600	3400	3200	3100	3600	3300	3300	11200
1800	3200	4800	4400	4100	3900	3650	4500	4200	4000	3700	3600	4100	3700	3800	12400
2000	3800	5800	5300	4900	4600	4350	5300	5000	4800	4400	4200	4750	4300	4250	13500
2200	4600	6900	6400	5900	5550	5300	6600	6200	5700	5300	5100	5700	5000	4650	14600
2400	5125	7800	7250	6700	6300	5900	7400	7000	6400	6000	5700	6400	5450	5150	
2600	5700	8850	8100	7400	7000	6550	8200	7700	7100	6650	6250	7050	6000	5550	
2800	6300	9500	8850	8050	7600	7150	9050	8450	7800	7250	6800	7750	6550	6000	
3000	7000	10350	9650	8750	8200	7750	9800	9200	8450	7900	7400	8400	7050	6400	
3200	7700	11200	10500	9450	8750	8300	10650	10000	9150	8550	7900	9050	7700	6750	
3400	8500	12000	11300	10150	9300	8800	11500	10700	9800	9200	8500	9850	8350	7000	
3600	9300	12850	12050	10750	9900	9300	12400	11450	10500	9800	9000	10700	9000	7250	
3800	10200	13700	12850	11550	10500	9800	13450	12450	11200	10400	9700	11500	9650	7450	
4000	11100	14600	13700	12350	11200	10600	14450	13500	12200	11400	10500	12400	10400	7650	
4200	12100		14500	13150	11950	11600		14500	13100	12500	11250	13800	11100	7800	
4400	13100			13950	12850	12600			14100	13650	12050	15000	12100	7950	
4600	14200			14750	13900	13500			15000	14800	13200		13500	8100	
4800						14450					14900			8250	
5000														8450	
5400														8750	
5800														9100	
6200														9450	
6600														9750	
7000														10100	
7400														10450	
7800														10750	
8200														11100	
8600														11450	
9000														11800	
9400														12100	
9800														12450	
10200														12800	
10600														13100	
11000														13500	
11400														13800	
11800														14150	
12200														14500	

NOTE

The published limiting maximum tailwind component for this airplane is 10 knots: however, Cessna does not recommend landings on precipitation-covered runways with any tailwind component. If a tailwind landing cannot be avoided, multiply the above data by the following factor:

	WET RUNWAY	WATER COVERED RUNWAY - INCHES					SLUSH COVERED RUNWAY - INCHES					SNOW INCHES		COMPACT SNOW	WET ICE
		0.125	0.2	0.3	0.4	0.5	0.125	0.2	0.3	0.4	0.5	1.0	2.0		
TAILWIND FACTOR	1.00	1.01	1.00	1.00	1.00	1.00	1.01	1.00	1.00	1.00	1.00	1.03	1.03	1.03	*

* Landings with any tailwind should not be attempted on wet ice.

Figure 7-4

Soderstrum, Mary

From: Joe Zitzka <Joe-Zitzka@flyairgate.com>
Sent: Monday, July 8, 2019 10:43 AM
To: Soderstrum, Mary; Resheidat, Khalid; Walker, Rhonda
Subject: RE: EVB Runway 7/25 Safety Area Alternatives Report

Mary,

Thank you for including me. I have just a couple comments/points of clarification regarding the report set out below.

1. Section 4. - Do we know who on the field operates the King Air 350 that was identified as the critical aircraft?

2. Section 8 - Airgate Aviation is a part 135 operator and has been in operation since 2002. This is not a new operation. Airgate is also a commuter aircarrier with economic authority issued by the DOT in addition to the part 135 (DOT/FAA). In accordance with the commuter authority, Airgate is authorized to operate scheduled service as well as on-demand operations. That is the expanded authority that was granted. Hopefully the additional landing/take-off information we provided helps in that section as well.

3. Section 9 - To clarify my point on the insurance, it is more complicated than a mere provision in the agreement regarding a 5,000 ft runway. Rather it goes to the substance of the terms of the agreement which require proper calculation by the pilot of the required take off and landing distances and compliance with the FAA regulations applicable to the specific flight. As a result, the specific factors required to calculate take off/landing distance prior to each operation is what impacts the 5,000 requirement. Specifically, as discussed and noted with our FAA POI and the ADO, many times the required distance ranges between 4,700 and 5,000 (e.g. the take off and landing distances for 524MA on a 30 degree c day are 4,950 and 4,862 respectively). So, although our policy does not contain express language requiring a 5,000 ft runway, the effect is that it does.

4. Missing section - I believe the report is missing a section related to the FAA grant assurance rules that require the airport sponsor to preserve and protect the airport infrastructure (including, but not limited to the runways).

Respectfully,

Joe Zitzka

From: Soderstrum, Mary [msoderstrum@avconinc.com]
Sent: Wednesday, July 03, 2019 3:30 PM
To: Resheidat, Khalid; Walker, Rhonda; Joe Zitzka
Subject: EVB Runway 7/25 Safety Area Alternatives Report

Please find attached the draft report for the EVB Runway 7/25 Safety Area Alternatives report. This draft does not yet address the information that was received tis morning. I will look that over within the next couple of days.

Mary Soderstrum, AIA, NCARB
Senior Airport Planner I AVCON, INC.

AVCON

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Soderstrum, Mary

From: Joe Zitzka <Joe-Zitzka@flyairgate.com>
Sent: Tuesday, July 9, 2019 10:54 AM
To: Soderstrum, Mary
Subject: RE: Airgate - unrelated jet traffic

Thank you Mary. I'll be out of town until Sunday, but I'll have someone in operations pull the logs and we'll get them over to you.

From: Soderstrum, Mary [msoderstrum@avconinc.com]
Sent: Tuesday, July 09, 2019 8:14 AM
To: Joe Zitzka
Subject: RE: Airgate - unrelated jet traffic

Joe,

I have reviewed the attachment that you sent yesterday. As discussed last evening, based on my experience with what the FAA will and won't except, the FAA would be much more likely to accept the actual records that you have, even/especially if they are hand written. It would be unusual for them to accept a digest of the logs. I regret that your folks spent so much time compiling the data. As we discussed last night, I believe that you are probably experiencing the operations now, they just have not been documented. I also believe that the Traffic Flow Management System County data will independently document the operations at this time next year, especially if you urge your pilots and customers to file flight plans every time that they use the field. I just don't have verifiable data at this time.

Mary Soderstrum, AIA, NCARB
Senior Airport Planner I AVCON, INC.

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-----Original Message-----
From: Joe Zitzka <Joe-Zitzka@flyairgate.com>
Sent: Monday, July 8, 2019 8:13 AM
To: Soderstrum, Mary <msoderstrum@avconinc.com>

Subject: Airgate - unrelated jet traffic

Mary,

Attached please find a list of third party jet traffic. This does not include any of our jet operations. Several of our customers have blocked tail numbers. So the girls broke the list down by aircraft type and date of travel. Each entry represents two operations only (i.e., multiple operations for a jet that stayed more than one day are not captured in this list). It also does not capture all jet traffic.

We do have access to tail numbers and owner names for most of the operations but it was taking too long to go through and try to get an okay to identify them.

Please let me know if I can help with anything else.

The message is ready to be sent with the following file or link attachments:

Scan023.PDF

Note: To protect against computer viruses, e-mail programs may prevent sending or receiving certain types of file attachments. Check your e-mail security settings to determine how attachments are handled.

Soderstrum, Mary

From: Joe Zitzka <Joe-Zitzka@flyairgate.com>
Sent: Tuesday, July 16, 2019 8:56 AM
To: Soderstrum, Mary
Cc: 'Rhonda Walker'; Resheidat, Khalid
Subject: RE: Additional Data for New Smyrna Beach Municipal Airport

Mary,

I returned yesterday. I'm back in the office today. I just spoke with our assistant chief pilot and will be getting the memo with additional calculations over today.

Let me know if you need anything else.

Joe

From: Soderstrum, Mary [msoderstrum@avconinc.com]
Sent: Monday, July 15, 2019 10:11 AM
To: Joe Zitzka
Cc: 'Rhonda Walker'; Resheidat, Khalid
Subject: Additional Data for New Smyrna Beach Municipal Airport

Joe,

Good morning. Did I misunderstand? Were you going to send me some additional data today?

Mary Soderstrum, AIA, NCARB
Senior Airport Planner I AVCON, INC.

AVCON

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Airgate Aviation, Inc.
2022 Aero Circle
New Smyrna Beach, Florida 32132

Memorandum

From: Joseph Zitzka, President

To: Rebecca Henry Harper, ADO assistant manager

Re: Runway needs with respect to Commuter air-carrier Citation fleet operations.

This memorandum addresses runway length needs regarding fleet operations for Airgate Aviation, Inc. ("Airgate"). Airgate is a part 135 operator with commuter authority and is currently authorized to operate scheduled and on-demand service out of airports[1] in the United States and Caribbean (including the Havana FIR). In order to better clarify and identify runway length issues impacting Airgate, this memorandum will highlight background information regarding the fleet operated by Airgate, actual operating calculations regarding runway length requirements, and identify representative airports at which Airgate has operated its Cessna 500 series[2] aircraft in the last three/four months.

Airgate has been in operation since 2002. Airgate's fleet includes Cessna 414A and Cessna 500 series aircraft. Airgate is currently operating four Cessna 414A aircraft and three Citation 500 series aircraft under its certificate. Airgate currently owns/operates six Cessna 414A and six Cessna 500 series aircraft. The tail numbers of the 500 series aircraft currently in operation under Airgate's certificate include N228MH, N28WL, and N524MA. Airgate also operates N900G and N17HA for training and part 91 purposes. N241BF is operated by Airgate's chief pilot for personal use. Airgate's jet operations will exceed 500 per year.[3]

As noted in pervious discussions, during summer months more than 1/3 of Airgate's operations involve take-off and/or landing determinations based on contaminated runways. The attached Exhibit A shows recorded contamination conditions at KEVB (Airgate's FBO) for the month of June. The recorded contaminated conditions does not capture the total number of days for which rainfall or other conditions created or gave rise to the need to determine take-off/landing distances under contaminated runway conditions for Airgate pilots. Examples of actual calculations involving various operating conditions for the Airgate fleet are set out below.[4] The below calculations are based on the pilot operating handbook with respect to the 500 series aircraft (550/551) for which the calculation was determined. Additionally, pursuant to Airgate's operations specifications and applicable regulations,

---

[1] Airgate Aviation, Inc. is authorized to operate scheduled service out of twelve airports in the state of Florida.
[2] Including 550/551 and 500/501 aircraft.
[3] Based on historic operations and current use, within 12 months Airgate 500 series operations will exceed 1,500.
[4] The first six rows of the table reflect take-off distance requirements. The final row reflects average landing distance under conditions reflected in the table.

pilots must take meteorological conditions into account when calculating and determining take-off and landing requirements. As is reflected in the foregoing and table below, it is worth noting that as temperatures and conditions change slightly, the real world impact is that actual take-off and landing distances range between 4,700 feet and 5,000 feet on a regular basis.

Temp	Weight	Contaminated (wet but no standing water) – 0 to 15 degree flap take-off distance	Comparative basic calculation without real world adjustment
20 degrees	13,300	4900 – 4950 ft	3210 – 3440 ft
20 degrees	13,000	4700 ft	3050 – 3270 ft
25 degrees	13,000	4950 ft	3320 – 3560 ft
20 degrees	12,500	4700 ft	2830 – 3010 ft
25 degrees	12,500	4950 ft	3030 – 3250 ft
30 degrees	12,500	4950 ft	3560 ft
25 degrees	12,700	4700 ft	3220 ft

During FAA proving runs within the last six months, Airgate 500 series aircraft operated at the airports on the runways; with identified runways lengths as set out below:

Airport	Runway	Runway Length
KORL	7/25; 13/31	6,000; 4,625
KBNA	2C/20C; 2R/20L; 13-31	8,000; 8,001; 11.030
KAVL	17/35	7,001
KSAV	1/19; 10/28	7,002; 9,351
KCHA	2/20; 15/33	7,400; 5,575
KMOB	15/33	8,502
KPNS	8/26; 17/35	7,000; 7,004
KMTH	7/25	5,008

TAKEOFF FIELD LENGTH - FEET

FLAPS - 0°
SEA LEVEL

CONDITIONS: Runway Gradient - ZERO
Landing Gear - DOWN
Anti-Ice Systems - OFF
Speed Brakes - RETRACT
Inoperative Engine - WINDMILLING AFTER V_1
Operative Engine - TAKEOFF THRUST

WEIGHT = 13300 LBS VENR = 152 KIAS

TEMP DEG C	TAILWIND -10 KTS V1 KIAS	DIST FT	0 KTS V1 KIAS	DIST FT	HEADWINDS 10 KTS V1 KIAS	DIST FT	20 KTS V1 KIAS	DIST FT	30 KTS V1 KIAS	DIST FT	VR KIAS	V2 KIAS
-25	111	3530	110	2680	110	2450	109	2230	108	2030	111	119
-20	111	3580	110	2730	110	2500	109	2280	108	2070	111	119
-15	111	3640	110	2780	109	2540	109	2320	108	2110	111	119
-10	111	3690	110	2830	109	2590	109	2370	108	2150	111	119
-5	111	3740	110	2880	109	2640	109	2410	108	2200	111	119
0	111	3800	110	2930	109	2690	109	2460	108	2240	111	119
5	110	3910	110	2980	109	2740	108	2510	108	2290	111	119
10	109	4110	110	3080	110	2830	109	2590	108	2370	111	119
15	108	4320	111	3180	110	2920	109	2680	109	2450	111	119
20	107	4790	111	3440	111	3120	110	2860	110	2610	111	119
25	106	5060	111	3760	111	3410	111	3070	111	2800	111	119
30	105	6030	111	4130	111	3740	111	3370	111	3020	111	119
35	104	8170	112	4570	112	4140	112	3730	112	3340	112	119
40	103	7800	112	5060	112	4580	112	4120	112	3680	112	119
45	102	9880	112	5620	112	5070	112	4560	112	4070	112	119
50	102	10160	112	6310	112	5680	112	5090	112	4540	112	119
54	101	11710	112	7090	112	6360	112	5700	112	5060	112	119

WEIGHT = 13000 LBS VENR = 151 KIAS

TEMP DEG C	TAILWIND -10 KTS V1 KIAS	DIST FT	0 KTS V1 KIAS	DIST FT	HEADWINDS 10 KTS V1 KIAS	DIST FT	20 KTS V1 KIAS	DIST FT	30 KTS V1 KIAS	DIST FT	VR KIAS	V2 KIAS
-25	110	3360	108	2570	108	2350	107	2140	107	1940	110	118
-20	110	3410	108	2610	108	2390	107	2180	106	1980	110	118
-15	110	3460	108	2660	108	2440	107	2220	106	2020	110	118
-10	110	3510	108	2710	108	2480	107	2260	106	2060	110	118
-5	110	3560	108	2750	108	2520	107	2310	106	2100	110	118
0	110	3610	108	2800	108	2570	107	2350	106	2140	110	118
5	110	3680	108	2860	108	2620	107	2400	106	2190	110	118
10	110	3810	109	2950	108	2710	107	2480	107	2260	110	118
15	109	3950	109	3040	109	2790	108	2560	107	2340	110	118
20	108	4360	110	3270	109	2980	109	2730	108	2490	110	118
25	107	4860	110	3580	110	3230	110	2930	109	2670	110	118
30	107	5440	110	3910	110	3540	110	3190	110	2870	110	118
35	106	6170	110	4320	110	3910	110	3520	110	3160	110	118
40	106	7000	110	4770	110	4320	110	3880	110	3470	110	118
45	104	7950	110	5280	110	4770	110	4280	110	3820	110	118
50	103	9100	110	5910	110	5320	110	4770	110	4260	110	118
54	102	10420	111	6810	111	5950	111	5320	111	4730	111	118

129F

WEIGHT = 12500 LBS VENR = 148 KIAS

TEMP DEG C	TAILWIND -10 KTS V1 KIAS	DIST FT	0 KTS V1 KIAS	DIST FT	HEADWINDS 10 KTS V1 KIAS	DIST FT	20 KTS V1 KIAS	DIST FT	30 KTS V1 KIAS	DIST FT	VR KIAS	V2 KIAS
-25	107	3090	105	2380	105	2180	104	1980	104	1790	107	116
-20	107	3140	105	2430	105	2220	104	2020	104	1830	107	116
-15	107	3180	105	2470	105	2260	104	2060	104	1870	107	116
-10	107	3230	105	2510	105	2300	104	2100	103	1910	107	116
-5	107	3280	105	2560	105	2350	104	2140	103	1940	107	116
0	107	3320	105	2600	105	2380	104	2180	103	1980	107	116
5	107	3390	105	2650	105	2430	104	2230	103	2030	107	116
10	107	3500	106	2730	105	2510	104	2300	104	2090	107	116
15	107	3620	106	2820	105	2590	105	2370	104	2160	107	116
20	108	3920	107	3010	106	2760	106	2530	105	2300	108	116
25	108	4270	108	3250	108	2950	107	2700	106	2460	108	116
30	108	4680	108	3560	108	3220	108	2900	107	2650	108	116
35	108	5170	108	3930	108	3550	108	3200	108	2860	108	116
40	107	5800	108	4320	108	3910	108	3510	108	3140	108	116
45	106	6520	108	4760	108	4300	108	3860	108	3450	108	116
50	105	7430	108	5290	108	4770	108	4280	108	3820	108	116
54	105	8470	108	5890	108	5300	108	4740	108	4220	108	116

WEIGHT = 12000 LBS VENR = 145 KIAS

TEMP DEG C	TAILWIND -10 KTS V1 KIAS	DIST FT	0 KTS V1 KIAS	DIST FT	HEADWINDS 10 KTS V1 KIAS	DIST FT	20 KTS V1 KIAS	DIST FT	30 KTS V1 KIAS	DIST FT	VR KIAS	V2 KIAS
-25	104	2860	102	2210	102	2020	101	1830	101	1650	105	114
-20	104	2900	102	2250	102	2050	101	1870	101	1690	105	114
-15	104	2950	102	2290	102	2090	101	1900	100	1720	105	114
-10	104	2990	102	2330	102	2130	101	1940	100	1760	105	114
-5	104	3040	102	2370	101	2160	101	1970	100	1790	105	114
0	104	3080	102	2410	101	2200	101	2010	100	1830	105	114
5	104	3140	102	2460	102	2250	101	2050	100	1870	105	114
10	104	3230	103	2540	102	2320	101	2120	101	1930	105	114
15	105	3320	103	2610	102	2400	102	2180	101	1990	105	114
20	105	3590	104	2780	103	2550	103	2330	102	2120	105	114
25	105	3900	105	2970	104	2720	104	2490	103	2270	105	114
30	106	4260	106	3240	106	2930	105	2670	104	2430	106	114
35	106	4700	106	3580	106	3220	106	2900	105	2620	106	114
40	106	5180	106	3910	106	3530	106	3180	106	2840	106	114
45	106	5670	106	4290	106	3870	106	3480	106	3100	106	114
50	106	6290	106	4750	106	4280	106	3840	106	3420	106	114
54	106	6980	106	5250	106	4730	106	4230	106	3770	106	114

Figure 4-14 (Sheet 1 of 30)

TAKEOFF FIELD LENGTH - FEET

FLAPS - 15°
SEA LEVEL

CONDITIONS: Runway Gradient - ZERO
Landing Gear - DOWN
Anti-Ice Systems - OFF

Speed Brakes - RETRACT
Inoperative Engine - WINDMILLING AFTER V_1
Operative Engine - TAKEOFF THRUST

WEIGHT = 13300 LBS VENR = 192 KIAS

TEMP	TAILWIND	HEADWINDS													
DEG	-10 KTS	0 KTS		10 KTS		20 KTS		30 KTS			
C	V1	DIST	V1	DIST	V1	DIST	V1	DIST	VR	V2
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	KIAS
-25	108	3310	108	2530	104	2300	103	2090	106	114
-20	108	3370	105	2570	104	2350	103	2130	106	114
-15	106	3420	105	2620	104	2390	103	2180	106	114
-10	106	3470	105	2680	104	2430	103	2220	106	114
-5	108	3520	104	2710	104	2480	103	2260	106	114
0	108	3570	104	2750	104	2520	103	2300	106	114
5	108	3640	104	2810	104	2570	103	2350	106	114
10	108	3730	105	2900	104	2660	103	2430	106	114
15	106	3800	105	2990	104	2740	104	2500	106	114
20	106	4230	106	3210	106	2930	105	2680	106	114
25	108	4440	108	3500	106	3170	106	2870	106	114
30	106	4720	108	3850	108	3480	106	3120	106	114
35	104	5120	106	4280	106	3860	106	3460	106	114
40	103	5750	107	4750	107	4280	107	3830	107	114
45	104	6590	107	5280	107	4750	107	4250	107	114
50	102	7600	107	5940	107	5330	107	4760	107	114
53	101	8030	107	6450	107	5780	107	5150	107	114

WEIGHT = 13000 LBS VENR = 191 KIAS

TEMP	TAILWIND	HEADWINDS													
DEG	-10 KTS	0 KTS		10 KTS		20 KTS		30 KTS			
C	V1	DIST	V1	DIST	V1	DIST	V1	DIST	VR	V2
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	KIAS
-25	105	3100	103	2420	102	2200	102	2000	101	113
-20	106	3210	103	2460	102	2250	102	2040	101	113
-15	105	3260	103	2510	102	2280	102	2080	101	113
-10	105	3300	103	2550	102	2330	102	2120	101	113
-5	105	3350	103	2590	102	2370	102	2160	101	113
0	105	3400	103	2640	102	2410	101	2200	101	113
5	105	3460	103	2690	102	2460	102	2250	101	113
10	105	3580	103	2770	102	2540	102	2320	101	113
15	105	3700	103	2860	103	2520	102	2390	102	113
20	105	4020	105	3050	104	2900	103	2550	102	113
25	106	4360	105	3320	105	3000	104	2740	103	113
30	105	4800	105	3850	105	3290	105	2950	105	113
35	105	5510	105	4040	105	3340	105	3270	105	113
40	106	6320	105	4470	105	4030	105	3610	105	113
45	104	7310	105	4950	105	4460	105	3990	105	113
50	103	8310	105	5550	105	4990	105	4460	105	113
54	103	8950	105	6240	105	5590	105	4980	106	113

WEIGHT = 12500 LBS VENR = 148 KIAS

TEMP	TAILWIND	HEADWINDS													
DEG	-10 KTS	0 KTS		10 KTS		20 KTS		30 KTS			
C	V1	DIST	V1	DIST	V1	DIST	V1	DIST	VR	V2
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	KIAS
-25	102	2920	100	2250	99	2050	99	1860	98	111
-20	102	2970	100	2290	99	2090	99	1890	98	111
-15	102	3010	100	2330	99	2130	99	1930	98	111
-10	102	3060	100	2370	99	2160	99	1960	98	111
-5	102	3100	100	2410	99	2200	99	2000	98	111
0	102	3150	100	2450	99	2240	99	2040	98	111
5	102	3200	100	2500	99	2290	98	2080	98	111
10	102	3300	100	2570	100	2360	99	2150	98	111
15	103	3400	100	2650	100	2430	99	2210	99	111
20	103	3560	102	2830	101	2590	100	2360	100	111
25	103	4010	103	3030	102	2770	101	2530	101	111
30	103	4400	103	3320	103	3000	103	2710	102	111
35	103	4870	103	3670	103	3310	103	2960	103	111
40	103	5380	103	4040	103	3640	103	3260	103	111
45	103	5960	103	4460	103	4010	103	3590	103	111
50	103	6610	103	4970	103	4460	103	3980	103	111
54	103	7110	103	5330	103	4960	103	4429	103	111

WEIGHT = 12000 LBS VENR = 145 KIAS

TEMP	TAILWIND	HEADWINDS													
DEG	-10 KTS	0 KTS		10 KTS		20 KTS		30 KTS			
C	V1	DIST	V1	DIST	V1	DIST	V1	DIST	VR	V2
	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	FT	KIAS	KIAS
-25	99	2710	97	2080	96	1890	96	1710	95	1540	100	109
-20	99	2750	97	2120	96	1930	96	1750	95	1570	100	109
-15	98	2800	97	2160	96	1980	96	1780	95	1610	100	108
-10	99	2840	97	2180	96	2000	96	1810	95	1640	100	109
-5	99	2880	97	2230	96	2030	96	1850	95	1670	100	109
0	98	2920	97	2270	96	2070	96	1880	95	1700	100	109
5	99	2970	97	2310	96	2110	96	1920	95	1740	100	109
10	99	3060	97	2390	97	2180	96	1980	95	1800	100	109
15	99	3150	97	2460	97	2240	96	2050	96	1850	100	109
20	100	3370	99	2620	98	2390	97	2180	97	1980	100	108
25	101	3680	100	2790	99	2550	98	2330	98	2120	101	109
30	101	4010	101	3020	100	2740	100	2500	99	2270	101	109
35	101	4420	101	3320	101	3000	101	2690	100	2440	101	109
40	101	4870	101	3850	101	3290	101	2940	101	2620	101	109
45	101	5350	101	4010	101	3610	101	3230	101	2870	101	109
50	101	5940	101	4440	101	3990	101	3570	101	3170	101	109
54	101	6600	101	4920	101	4410	101	3940	101	3490	101	109

Figure 4-15 (Sheet 1 of 18)

TAKEOFF FIELD LENGTH - FEET

FLAPS - UP

DRY RUNWAY WITHOUT THRUST REVERSERS	ADVERSE RUNWAY CONDITIONS (NO THRUST REVERSERS, 15 FT SCREEN HEIGHT, ANTI-ICE OFF)												
	WET RUNWAY	WATER COVERED RUNWAY - INCHES *				SLUSH COVERED RUNWAY - INCHES *				SNOW INCHES *		COMPACT SNOW	WET ICE
		0.125	0.2	0.3	0.4	0.125	0.2	0.3	0.4	1.0	2.0		
1000	1650	2450	2350	2200	2100	2500	2350	2250	2100	2400	2200	1950	5050
1200	1950	2950	2750	2550	2450	2900	2750	2600	2450	2800	2550	2300	6000
1400	2250	3500	3200	3000	2800	3350	3150	2950	2800	3150	2850	2650	7000
1600	2550	4150	3800	3450	3200	3850	3600	3350	3150	3500	3200	3000	7950
1800	2900	4750	4350	3950	3650	4450	4100	3800	3550	3900	3500	3350	8950
2000	3150	5250	4800	4350	4050	4950	4600	4250	4000	4200	3800	3650	9550
2200	3400	5750	5300	4800	4500	5450	5050	4650	4400	4550	4150	3950	10150
2400	3650	6250	5750	5250	4950	5900	5500	5100	4800	4850	4500	4250	10700
2500	3900	6750	6250	5750	5400	6350	5950	5550	5200	5200	4800	4500	11250
2800	4150	7200	6750	6200	5850	6850	6400	5950	5600	5500	5150	4800	11800
3000	4400	7700	7250	6700	6350	7300	6850	6400	6050	5850	5500	5100	12300
3200	4700	8200	7700	7150	6750	7750	7250	6800	6450	6250	5900	5350	12800
3400	4950	8600	8050	7500	7150	8150	7650	7150	6800	6650	6300	5600	13300
3600	5250	9000	8450	7850	7500	8550	8000	7500	7150	7000	6700	5800	13700
3800	5550	9350	8800	8250	7850	8900	8350	7850	7500	7400	7100	6000	14000
4000	5850	9750	9150	8600	8200	9250	8700	8200	7850	7650	7450	6150	14300
4200	6150	10100	9550	8950	8550	9600	9050	8550	8200	8300	7850	6300	14600
4400	6400	10450	9900	9300	8900	9950	9400	8850	8500	8950	8200	6450	14900
4600	6650	10800	10200	9650	9250	10300	9750	9150	8800	9550	8600	6600	15200
4800	6900	11150	10550	9950	9550	10650	10050	9450	9100	10200	9000	6750	
5000	7100	11400	10800	10200	9800	10950	10300	9750	9400	11000	9350	6900	
5200	7250	11650	11050	10450	10000	11250	10550	10050	9700	11800	9750	7050	
5400	7400	11900	11300	10700	10200	11550	10800	10350	10000	12650	10150	7200	
5600	7550	12100	11500	10950	10400	11750	11000	10650	10300	13500	10550	7350	
5800	7700	12300	11700	11150	10600	11950	11200	10950	10600	14300	10950	7500	
6000	7850	12450	11850	11350	10800	12150	11400	11250	10900	15100	11350	7650	
6200	8000	12600	12000	11550	11000	12350	11600	11550	11200		11750	7800	
6400	8150	12750	12150	11750	11200	12500	11800	11800	11500		12100	7950	
6600	8300	12850	12300	11950	11400	12650	12000	12050	11800		12500	8100	
6800	8450	12950	12450	12150	11600	12800	12200	12300	12100		12900	8250	
7000	8600	13050	12600	12350	11800	12900	12400	12600	12400		13300	8400	
7500	8900	13300	12950	12850	12300	13150	12850	13300	13150		14300	8750	
8000	9200	13500	13250	13300	12750	13400	13300	14050	13900		15250	9100	
8500	9500	13700	13600	13800	13200	13650	13800	14800	14600			9500	
9000	9800	13900	13900	14300	13700	13900	14300	15550	15300			9950	
9500	10150	14100	14200	14850	14150	14150	14800					10350	
10000	10500	14300	14550	15500	14600	14400	15350					10750	
11000	11250	14650	15200		15650	14900						11550	
12000	12100	15000				15400						12400	
13000	13000											13200	
14000	14000											14100	
15000	15000											15000	

* Takeoffs should not be attempted in any precipitation depth greater than the highest depth presented or if any of the following limits are exceeded. If no limit is presented, use the dry runway limit.

Contaminate	Altitude	Temperature	Gross Weight	Wind
0.4 Inches Water	Greater than 10,000 ft	Greater than ISA+20° C	—	—
0.3 Inches Slush	Greater than 11,000 ft	Greater than ISA+15° C	—	—
0.4 Inches Slush	Greater than 8000 ft	Greater than ISA+5° C	—	—
1.0 Inch Snow	Greater than 6000 ft	Greater than ISA	Greater than 12,500 lbs	—
2.0 Inches Snow	Greater than 6000 ft	Greater than ISA	Greater than 12,500 lbs	Any Tailwind

Figure 7-1

TAKEOFF FIELD LENGTH - FEET

FLAPS - 15°

DRY RUNWAY WITHOUT THRUST REVERSERS	ADVERSE RUNWAY CONDITIONS (NO THRUST REVERSERS, 15 FT SCREEN HEIGHT, ANTI-ICE OFF)												
	WET RUNWAY	WATER COVERED RUNWAY - INCHES *				SLUSH COVERED RUNWAY - INCHES *				SNOW INCHES *		COMPACT SNOW	WET ICE
		0.125	0.2	0.3	0.4	0.125	0.2	0.3	0.4	1.0	2.0		
1000	1700	2450	2300	2150	2000	2500	2350	2200	2100	2400	2200	1950	4950
1200	2000	2900	2700	2500	2350	2900	2750	2550	2450	2800	2500	2350	5950
1400	2300	3400	3200	2900	2700	3300	3100	2900	2750	3150	2850	2700	6900
1600	2650	4050	3750	3350	3100	3750	3500	3250	3100	3500	3150	3050	7900
1800	2950	4550	4150	3750	3500	4250	3900	3600	3400	3850	3450	3400	8700
2000	3200	5000	4600	4200	3900	4800	4400	4050	3800	4150	3750	3650	9250
2200	3450	5500	5050	4600	4300	5250	4850	4450	4250	4450	4100	3950	9800
2400	3700	6000	5500	5050	4750	5700	5300	4900	4650	4800	4400	4250	10300
2600	3950	6450	5950	5450	5150	6150	5700	5300	5050	5100	4750	4500	10850
2800	4200	6900	6400	5950	5600	6600	6150	5700	5450	5450	5050	4800	11350
3000	4450	7400	6900	6400	6050	7050	6550	6100	5850	5750	5400	5050	11900
3200	4700	7850	7300	6800	6450	7450	7000	6500	6250	6100	5800	5350	12400
3400	4950	8250	7700	7200	6800	7800	7350	6850	6550	6450	6150	5600	12850
3600	5250	8600	8050	7550	7150	8200	7700	7200	6900	6800	6500	5800	13200
3800	5550	8950	8400	7900	7500	8550	8050	7550	7200	7150	6850	6000	13500
4000	5850	9350	8750	8250	7850	8900	8400	7900	7550	7500	7200	6150	13800
4200	6100	9700	9100	8550	8150	9250	8700	8200	7850	7800	7550	6300	14100
4400	6400	10050	9450	8850	8450	9600	9050	8500	8200	8100	7850	6450	14350
4600	6650	10350	9750	9150	8750	9950	9300	8800	8500	8400	8200	6600	14600
4800	6850	10600	10000	9450	9050	10200	9600	9100	8750	8700	8550	6750	14850
5000	7050	10850	10250	9700	9300	10450	9850	9400	9000	9000	8900	6850	15100
5200	7200	11050	10450	9900	9500	10650	10000	9700	9250	9300	9250	6950	
5400	7350	11250	10650	10100	9700	10800	10150	10000	9450	9600	9600	7050	
5600	7500	11400	10800	10300	9900	10950	10300	10300	9650	9900	9950	7150	
5800	7600	11550	11000	10450	10050	11100	10450	10600	9850	10200	10350	7250	
6000	7700	11700	11150	10600	10200	11200	10600	10900	10050	10500	10700	7350	
6200	7800	11850	11300	10750	10350	11300	10700	11200	10350	10800	11050	7450	
6400	7900	11950	11400	10900	10500	11400	10800	11500	10700	11100	11400	7600	
6600	8000	12050	11500	11050	10650	11500	10900	11800	11150	11400	11750	7750	
6800	8100	12150	11600	11200	10800	11600	11000	12100	11700	11700	12100	7900	
7000	8200	12250	11700	11300	10950	11700	11100	12400	12300	12000	12450	8100	
7500	8500	12450	11900	11550	11300	11850	11250	13100	13800	12750	13350	8600	
8000	8800	12650	12100	11800	11700	12000	11400	13850	15050	13500	14200	9100	
8500	9100	12850	12250	12050	12150	12150	11600	14600		14250	15100	9500	
9000	9400	13050	12400	12350	12700	12300	11800	15350		15000		10100	
9500	9750	13300	12600	12700	13250	12550	12100					10600	
10000	10150	13500	12850	13200	13950	12950	12550					11100	
11000	11050	13950	13500	14400	15400	14150	13900					12100	
12000	12000	14500	14300	15650		15600	15350					13100	
13000	13000	15400	15200				16800					14100	
14000	14000											15100	
15000	15000												

* Takeoffs should not be attempted in any precipitation depth greater than the highest depth presented or if any of the following limits are exceeded. If no limit is presented, use the dry runway limit.

Contaminate	Altitude	Temperature	Gross Weight	Wind
0.4 Inches Water	Greater than 6000 ft	Greater than ISA+20° C	—	—
0.3 Inches Slush	—	Greater than ISA+20° C	—	—
0.4 Inches Slush	—	Greater than ISA+5° C	—	—
1.0 Inch Snow	Greater than 5000 ft	Greater than ISA	Greater than 13,000 lbs	—
2.0 Inches Snow	Greater than 5000 ft	Greater than ISA	—	Any Tailwind

Figure 7-2

LANDING DISTANCE - FEET ACTUAL DISTANCE SEA LEVEL

CONDITIONS: Landing Gear - DOWN
Wing Flaps - LAND
Speed Brakes - EXTEND AFTER TOUCHDOWN
Anti-Ice Systems - ON or OFF
Thrust - IDLE
Airspeed - V_{REF} at 50 FEET

Some conditions may be brake energy limited. Refer to Figures 4-27 and 4-28 for allowable landing weights.

WEIGHT = 13300 LBS *
VREF = 111 KIAS VAPP = 118 KIAS

TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	HEADWINDS 10 KTS	20 KTS	30 KTS
-25	2780	2160	2030	1910	1790
-20	2840	2180	2050	1930	1810
-15	2900	2200	2070	1950	1830
-10	2970	2220	2090	1970	1850
-5	3040	2240	2110	1990	1870
0	3110	2270	2140	2010	1890
5	3180	2300	2160	2030	1910
10	3260	2340	2180	2050	1930
15	3340	2390	2200	2080	1950
20	3430	2430	2220	2100	1980
25	3520	2480	2250	2120	2000
30	3620	2530	2290	2140	2020
35	3720	2580	2330	2160	2040
40	3820	2630	2380	2180	2060
45	3930	2690	2420	2200	2080
50	4030	2740	2460	2230	2080
54	4100	2770	2490	2260	2100

WEIGHT = 12700 LBS
VREF = 108 KIAS VAPP = 116 KIAS

TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	HEADWINDS 10 KTS	20 KTS	30 KTS
-25	2580	2110	1980	1860	1740
-20	2630	2130	2000	1880	1760
-15	2680	2150	2020	1900	1780
-10	2730	2170	2040	1920	1800
-5	2790	2190	2060	1940	1820
0	2840	2210	2080	1960	1840
5	2900	2230	2100	1980	1860
10	2960	2250	2120	2000	1880
15	3020	2270	2140	2020	1900
20	3080	2290	2160	2040	1920
25	3150	2320	2180	2060	1940
30	3220	2340	2210	2080	1960
35	3290	2380	2230	2100	1980
40	3360	2420	2250	2120	2000
45	3440	2470	2270	2140	2020
50	3510	2510	2280	2160	2030
54	3550	2530	2300	2160	2040

WEIGHT = 12500 LBS
VREF = 108 KIAS VAPP = 115 KIAS

TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	HEADWINDS 10 KTS	20 KTS	30 KTS
-25	2530	2090	1960	1840	1730
-20	2570	2110	1980	1860	1750
-15	2620	2130	2000	1880	1770
-10	2670	2150	2020	1900	1790
-5	2710	2170	2040	1920	1810
0	2760	2190	2060	1940	1820
5	2820	2210	2080	1960	1840
10	2870	2230	2100	1980	1860
15	2930	2250	2130	2000	1880
20	2990	2280	2150	2020	1900
25	3050	2300	2170	2040	1920
30	3110	2320	2190	2060	1940
35	3170	2340	2210	2080	1960
40	3240	2360	2230	2100	1980
45	3310	2400	2250	2120	2000
50	3370	2440	2260	2140	2010
54	3410	2460	2270	2140	2020

WEIGHT = 12000 LBS
VREF = 106 KIAS VAPP = 113 KIAS

TEMP DEG C	TAILWIND 10 KTS	ZERO WIND	HEADWINDS 10 KTS	20 KTS	30 KTS
-25	2470	2050	1920	1800	1690
-20	2490	2070	1940	1820	1710
-15	2510	2090	1960	1840	1730
-10	2530	2110	1980	1860	1750
-5	2560	2130	2000	1880	1760
0	2600	2150	2020	1900	1780
5	2640	2170	2040	1920	1800
10	2690	2190	2060	1940	1820
15	2730	2210	2080	1960	1840
20	2780	2230	2100	1970	1860
25	2830	2250	2120	1990	1880
30	2880	2270	2140	2010	1890
35	2930	2280	2160	2030	1910
40	2980	2300	2170	2050	1930
45	3040	2320	2190	2070	1950
50	3080	2340	2210	2080	1960
54	3110	2340	2210	2090	1970

To obtain landing distance with a runway gradient, refer to factors on page 4-180.

* For use in an emergency which requires a landing at a weight in excess of maximum design landing weight of 12,700 pounds.

Figure 4-29 (Sheet 1 of 30)

LANDING DISTANCE - FEET

AIRSPEED - V_{REF}

FLAPS - FULL

DRY RUNWAY WITHOUT THRUST REVERSERS	ADVERSE RUNWAY CONDITIONS (NO THRUST REVERSERS, V_{REF}, WITHOUT TAILWINDS, 50 FT SCREEN HEIGHT)														
	WET RUNWAY	WATER COVERED RUNWAY - INCHES					SLUSH COVERED RUNWAY - INCHES					SNOW INCHES		COMPACT SNOW	WET ICE
		0.125	0.2	0.3	0.4	0.5	0.125	0.2	0.3	0.4	0.5	1.0	2.0		
1200	1700	2300	2250	2050	1950	1900	2300	2200	2150	2100	2100	2400	2150	1900	6300
1400	2000	2700	2600	2450	2450	2400	2750	2650	2500	2500	2500	2650	2600	2300	7900
1600	2400	3300	3100	2950	2950	2800	3300	3150	3000	2900	2900	3300	3000	2700	9500
1800	2700	3950	3750	3500	3400	3250	3800	3700	3500	3350	3300	3700	3400	3100	10900
2000	3000	4700	4450	4000	3900	3700	4400	4200	4000	3800	3650	4150	3800	3450	12400
2200	3400	5400	5000	4700	4400	4100	5100	4650	4550	4200	4050	4550	4150	3850	13900
2400	3700	5850	5600	5100	4900	4600	5700	5300	5000	4600	4400	5000	4450	4250	
2600	4100	6500	6100	5600	5300	5000	6300	5800	5500	5100	4800	5400	4750	4600	
2800	4400	7600	6750	6200	5700	5450	7100	6300	5900	5450	5200	5800	5050	5000	
3000	4700	8100	7450	6750	6150	5900	7600	7000	6300	5800	5600	6200	5400	5400	
3200	5100	8650	8000	7200	6600	6300	8150	7500	6800	6350	6000	6600	5700	5650	
3400	5400	9150	8400	7650	6900	6650	8500	7900	7200	6700	6400	7000	6050	5950	
3600	5700	9550	8800	8050	7300	7000	9100	8500	7600	7000	6700	7400	6350	6200	
3800	6100	9950	9200	8450	7700	7300	9550	8850	8000	7400	6950	7800	6650	6400	
4000	6400	10300	9600	8800	8150	7700	10050	9250	8400	7800	7300	8200	6950	6650	
4200	6700	10700	10000	9150	8500	7900	10400	9600	8800	8100	7550	8600	7250	6850	
4400	7100	11000	10300	9450	8700	8200	10800	10000	9100	8400	7800	9000	7550	7000	
4600	7400	11400	10550	9700	9000	8400	11150	10350	9450	8700	8100	9400	7800	7150	
4800	7800	11800	10900	10000	9300	8700	11550	10700	9750	9000	8400	9800	8150	7300	
5000	8100	12100	11200	10300	9500	8900	11900	11000	10050	9300	8650	10100	8400	7450	
5200	8400	12350	11500	10600	9800	9200	12200	11300	10300	9500	8900	10400	8650	7600	
5400	8700	12700	11800	10850	10000	9400	12500	11600	10550	9700	9100	10700	8850	7750	
5600	9000	12900	12050	11050	10250	9600	12800	11900	10800	10000	9300	11000	9100	7900	
5800	9350	13200	12300	11300	10450	9800	13100	12100	11100	10300	9550	11300	9350	8100	
6000	9650	13500	12500	11500	10650	10000	13450	12400	11350	10500	9800	11600	9550	8250	
6200	10000	13800	12800	11700	10800	10100	13700	12700	11600	10700	10000	11900	9800	8400	
6400	10250	14000	13050	11900	11000	10300	14050	13000	11800	10900	10200	12200	10000	8550	
6600	10600	14300	13300	12200	11200	10500	14350	13300	12100	11150	10400	12500	10200	8700	
6800	10900	14550	13550	12400	11400	10700	14650	13500	12300	11350	10600	12850	10450	8850	
7000	11200	14800	13800	12600	11600	10850	14950	13800	12500	11600	10750	13100	10650	9000	
7200	11500		14050	12800	11800	11000		14100	12700	11800	10950	13400	10850	9150	
7400	11850		14300	13000	12000	11200		14400	13000	12000	11150	13750	11050	9300	
7600	12200		14550	13250	12200	11400		14700	13250	12200	11350	14050	11250	9450	
7800	12500		14800	13500	12400	11600		14950	13500	12400	11550	14350	11450	9650	
8000	12800			13700	12600	11750			13750	12600	11750	14650	11650	9800	
8400	13400			14100	13000	12100			14200	13050	12150		12000	10100	
8800	14000			14550	13400	12500			14700	13500	12500		12400	10400	
9200	14700			15000	13800	12650				13900	12900		12800	10750	
9600					14200	13200				14300	13300		13150	11050	
10000					14600	13600				14750	13700		13550	11350	
10400					15000	13900					14100		13900	11650	
10800						14300					14500		14250	12000	
11200						14650					14850		14650	12300	
11600						15000							15000	12600	
12000														12900	
12400														12250	
12800														12550	

NOTE

The published limiting maximum tailwind component for this airplane is 10 knots: however, Cessna does not recommend landings on precipitation-covered runways with any tailwind component. If a tailwind landing cannot be avoided, multiply the above data by the following factor:

	WET RUNWAY	WATER COVERED RUNWAY - INCHES					SLUSH COVERED RUNWAY - INCHES					SNOW INCHES		COMPACT SNOW	WET ICE
		0.125	0.2	0.3	0.4	0.5	0.125	0.2	0.3	0.4	0.5	1.0	2.0		
TAILWIND FACTOR	1.07	1.13	1.12	1.12	1.12	1.11	1.12	1.12	1.12	1.12	1.11	1.11	1.11	1.05	*

* Landings with any tailwind should not be attempted on wet ice.

Figure 7-3

LANDING DISTANCE - FEET

FLAPS - FULL

AIRSPEED - V_{REF} + 10 KNOTS

DRY RUNWAY WITHOUT THRUST REVERSERS	ADVERSE RUNWAY CONDITIONS (NO THRUST REVERSERS, V_{REF}+10, WITHOUT TAILWINDS, 50 FT SCREEN HEIGHT)														
	WET RUNWAY	WATER COVERED RUNWAY - INCHES					SLUSH COVERED RUNWAY - INCHES					SNOW INCHES		COMPACT SNOW	WET ICE
		0.125	0.2	0.3	0.4	0.5	0.125	0.2	0.3	0.4	0.5	1.0	2.0		
1400	2400	3350	3000	2900	2650	2500	3200	3000	2900	2700	2600	3100	2800	2800	9000
1600	2800	4050	3650	3450	3250	3050	3800	3600	3400	3200	3100	3600	3300	3300	11200
1800	3200	4800	4400	4100	3900	3650	4500	4200	4000	3700	3600	4100	3700	3800	12400
2000	3800	5800	5300	4900	4600	4350	5300	5000	4800	4400	4200	4750	4300	4250	13500
2200	4600	6900	6400	5900	5550	5300	6600	6200	5700	5300	5100	5700	5000	4650	14600
2400	5125	7800	7250	6700	6300	5900	7400	7000	6400	6000	5700	6400	5450	5150	
2600	5700	8650	8100	7400	7000	6550	8200	7700	7100	6650	6250	7050	6000	5550	
2800	6300	9500	8850	8050	7600	7150	9050	8450	7800	7250	6800	7750	6550	6000	
3000	7000	10350	9650	8750	8200	7750	9800	9200	8450	7900	7400	8400	7050	6400	
3200	7700	11200	10500	9450	8750	8300	10650	10000	9150	8550	7900	9050	7700	6750	
3400	8500	12000	11300	10150	9300	8800	11500	10700	9800	9200	8500	9850	8350	7000	
3600	9300	12850	12050	10750	9900	9300	12400	11450	10500	9800	9000	10700	9000	7250	
3800	10200	13700	12850	11550	10500	9800	13450	12450	11200	10400	9700	11500	9650	7450	
4000	11100	14600	13700	12350	11200	10600	14450	13500	12200	11400	10500	12400	10400	7650	
4200	12100		14500	13150	11950	11600		14500	13100	12500	11250	13800	11100	7800	
4400	13100			13950	12850	12600			14100	13650	12050	15000	12100	7950	
4600	14200			14750	13900	13500			15000	14800	13200		13500	8100	
4800						14450					14900			8250	
5000														8450	
5400														8750	
5800														9100	
6200														9450	
6600														9750	
7000														10100	
7400														10450	
7800														10750	
8200														11100	
8600														11450	
9000														11800	
9400														12100	
9800														12450	
10200														12800	
10600														13100	
11000														13500	
11400														13800	
11800														14150	
12200														14500	

NOTE

The published limiting maximum tailwind component for this airplane is 10 knots; however, Cessna does not recommend landings on precipitation-covered runways with any tailwind component. If a tailwind landing cannot be avoided, multiply the above data by the following factor:

	WET RUNWAY	WATER COVERED RUNWAY - INCHES					SLUSH COVERED RUNWAY - INCHES					SNOW INCHES		COMPACT SNOW	WET ICE
		0.125	0.2	0.3	0.4	0.5	0.125	0.2	0.3	0.4	0.5	1.0	2.0		
TAILWIND FACTOR	1.00	1.01	1.00	1.00	1.00	1.00	1.01	1.00	1.00	1.00	1.00	1.03	1.03	1.03	*

* Landings with any tailwind should not be attempted on wet ice.

Figure 7-4

Exhibit A

Weather history New Smyrna Beach june 2019

Day	High (°F)	Low (°F)	Precip. (inch)	Snow (inch)	Snow depth (inch)
1 jun 2019	90.0	73.9	-	-	-
2 jun 2019	90.0	73.9	0.76	-	-
3 jun 2019	93.0	73.9	0.00	-	-
4 jun 2019	93.0	73.9	1.28	-	-
5 jun 2019	87.1	77.0	0.00	-	-
6 jun 2019	86.0	75.9	0.00	-	-
7 jun 2019	93.0	73.0	-	-	-
8 jun 2019	91.0	73.9	-	-	-
9 jun 2019	87.1	73.0	2.51	-	-
10 jun 2019	89.1	71.1	3.18	-	-
11 jun 2019	91.0	72.0	0.05	-	-
12 jun 2019	91.0	73.9	0.35	-	-
13 jun 2019	91.9	72.0	0.68	-	-
14 jun 2019	86.0	71.1	-	-	-
15 jun 2019	82.9	72.0	-	-	-
16 jun 2019	84.9	73.9	0.02	-	-
17 jun 2019	86.0	75.9	0.00	-	-
18 jun 2019	86.0	75.0	0.00	-	-
19 jun 2019	91.0	73.0	0.87	-	-
20 jun 2019	91.0	72.0	1.68	-	-
21 jun 2019	93.9	72.0	-	-	-
22 jun 2019	96.1	77.0	-	-	-
23 jun 2019	95.0	78.1	0.00	-	-
24 jun 2019	90.0	75.0	0.00	-	-
25 jun 2019	91.9	75.0	-	-	-

Past weather New Smyrna Beach - june 2019

Average high temperature:	89.7°F (normal: 88°F)
Average low temperature:	71.6°F (normal: 71°F)
Average temperature:	80.65°F (normal: 79°F)
Total Precipitation:	12.33 inch (normal: 6.5 inch)
Total snowfall:	0 inch
Highest max temperature:	96.1°F
Lowest max temperature:	82.9°F
Highest min temperature:	78.1°F
Lowest min temperature:	°F

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26 jun 2019	90.0	75.9	-	-	-
27 jun 2019	91.9	75.0	0.00	-	-
28 jun 2019	87.1	-	0.00	-	-
29 jun 2019	88.0	75.9	0.00	-	-
30 jun 2019	86.0	73.0	0.95	-	-

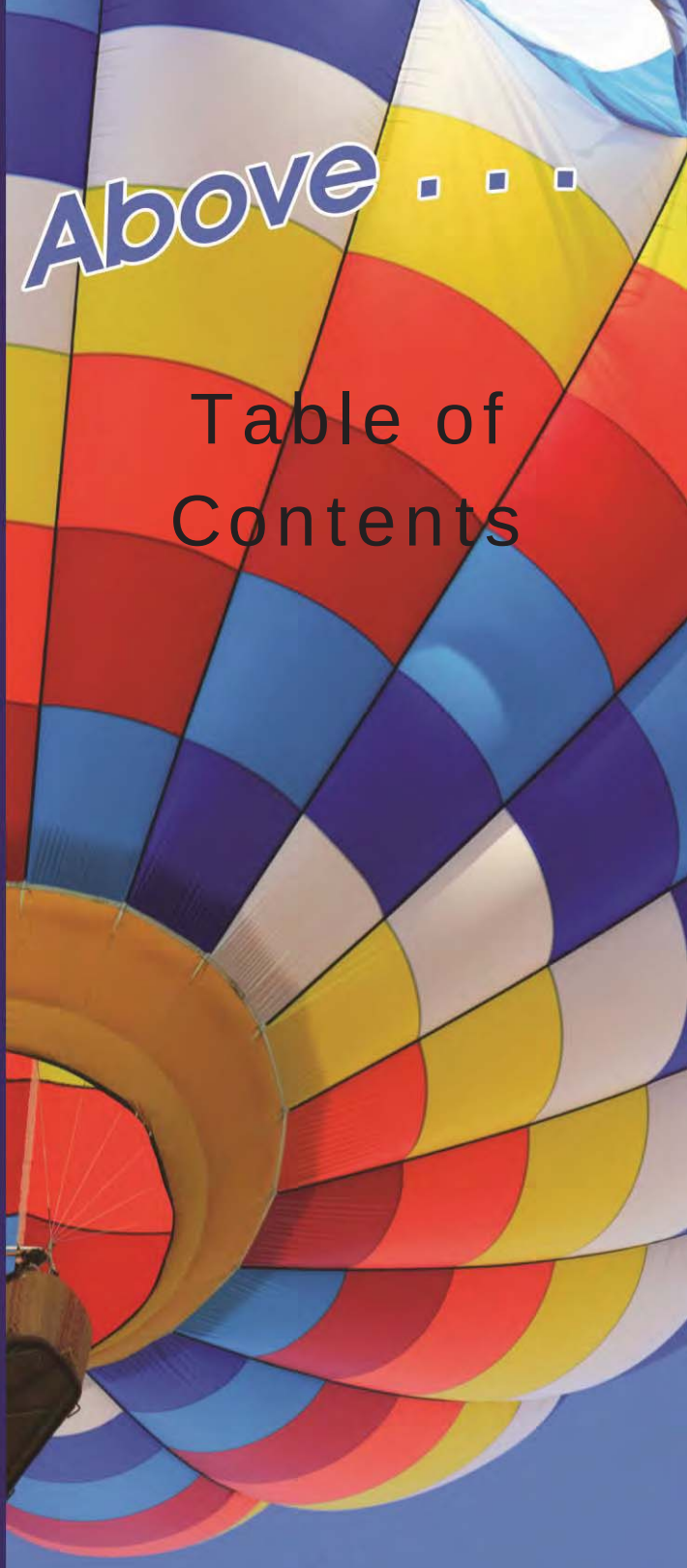
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New Smyrna Beach Municipal Airport

MASTER PLAN UPDATE

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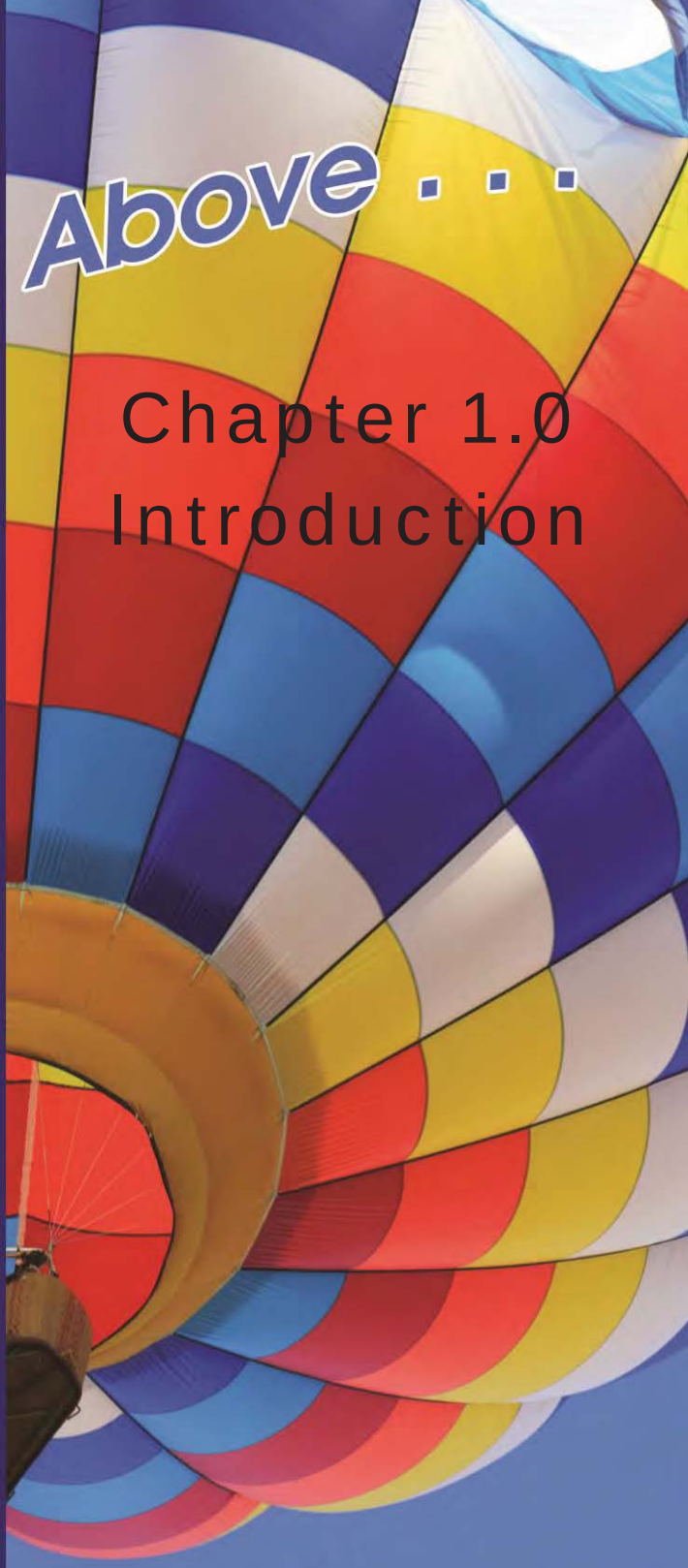
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Rising Above . . .

Chapter 1.0
Introduction



New Smyrna Beach Municipal Airport

MASTER PLAN UPDATE

1.0 INTRODUCTION

1.1 Overview

In 2015, the City of New Smyrna Beach contracted with Michael Baker International, Inc. to develop a Master Plan Update for the New Smyrna Beach Municipal Airport – Jack Bolt Field (EVB). The need for this update was essentially twofold. The primary reason being the Federal Aviation Administration (FAA) requires airports receiving development grants to conduct periodic updates to their future development plan. Secondly, over the past several years many changes have occurred at the airport, which include a new City Administration and direction for the future. These local events coupled with recent changes in the aviation industry have prompted the need to reassess the airport's anticipated growth and 20-year airport capital improvement plans.

The purpose of the master plan document is to identify in detail the justifications, methodologies, and reasoning for the developments shown within the Airport Layout Plan (ALP) drawing set. In addition to grant funding, the airport's master plan serves a variety of functions including projecting future aviation activity, being a tool for financial planning, and guiding adjacent land uses. The primary planning objective of this Master Plan Update was to create a 20-year development program that would maintain a safe, efficient, economical, and environmentally acceptable airport facility for the City of New Smyrna Beach. By achieving this objective, the document should provide guidance to satisfy aviation demand in a financially feasible and responsible manner, while at the same time addressing the aviation, environmental, and socioeconomic issues of the community.

The airport does not exist in a static environment, but rather within the context of a larger community. As such, any future developments identified by this study considered potential impacts to the community. Multiple opportunities were available for community and governmental representatives to participate in this study. This involvement was facilitated through the formulation of a Technical Advisory Committee (TAC) and was furthermore presented and discussed in an open forum at Airport Advisory Board meetings, community workshop/public meetings and also at City Commission meetings. It is important to note that the study results and the future developments presented in this report represent a plan to guide the airport and the City Commission in meeting demands as they develop; therefore, no development should be undertaken until there is a clearly identified need for it.

Although the development of a master plan and associated ALP drawing set serves many objectives, one of the most significant purposes of this study is to allow the airport to meet federal assurances for grant funding eligibility. In 1982, the federal government adopted the Airport and Airway Improvement Act; this act allowed federal funds to be distributed through a grant program to airports throughout the country. These federal grants did not require repayment provided that certain rules were followed and adhered to (i.e., assurances). Over the years, the grant legislation has been revised, renamed, and expanded to presently include 39 separate assurances that must be met in order to be considered "compliant." The current grant program, referred to as the Airport Improvement Program (AIP), provides grant funding to cover a significant portion of the costs required to address airport safety, capacity, security, or environmental concerns. Grant Assurance Number 29 states that the airport sponsor will develop and maintain an ALP which denotes the

airport's boundaries along with all existing and proposed development within. The ALP and any revision or modification thereof must be reviewed and approved via signature by an authorized FAA representative.

Federal guidance provided by the FAA forms the basis for state guidance from FDOT. FDOT also has grant assurances that must be complied with as part of receiving grants. However, there are regulations specific to Florida that are provided through Florida Statutes (Chapters 163, 332, and 333), and Florida Administrative Code (Chapter 14-60). These regulations specify rules on topics ranging from funding and compliance with local planning efforts to hazard prevention and licensing standards. Additionally, the Florida Aviation System Plan (FASP) 2025 is a strategic statewide planning document that identifies services, facilities, and infrastructure anticipated to be required to meet current and forecasted demand over the next 20 years. This Master Plan Update must be consistent with the aviation system role for EVB described in the FASP. Also, it is important that recommendations from this study support the overall goals of the FASP.

Projects eligible for AIP funding at EVB may receive up to 90 percent of the project cost to be covered by the FAA with the FDOT and the City of New Smyrna Beach responsible for five percent each. The FDOT also has special funding programs that typically cover up to either 80 percent of the project cost for non-revenue generating projects or 50 percent of the project cost for revenue generating projects. It is noted that these are typical funding shares, but the shares at EVB tend to vary widely based on the individual project, local commitment to conduct projects, and funding availability. Therefore, the shares in the airport's CIP discussed later in this plan do not necessarily follow a standard funding scenario. Of key importance is the fact that an airport is not eligible for any state funding without FDOT approval of the Master Plan and the Airport Layout Plan.

1.2 Key Issues

The overall goal of an airport master plan is to provide guidelines for future airport development that will satisfy aviation demand in a cost-effective, feasible manner while addressing aviation, environmental, and socioeconomic issues of the community. The Master Plan Update will provide New Smyrna Beach with a comprehensive overview of the airport's needs over the next 20 years and will include the identification, location, timing, and costs of proposed developments as necessary to meet future demand projections or to increase safety. The Master Plan Update will establish a realistic schedule for the implementation of the development proposed in the plan, particularly the short-term capital improvement program. The overall success of the EVB Master Plan Update will be measured by tracking the city's ability to achieve the plan's implementation schedule.

Some of the specific issues to be evaluated as part of this master plan process are delineated below, and specific tasks were incorporated into the study in an effort to address these considerations. This is not intended to be an exhaustive listing of items that require consideration within the study, but rather identifies major concerns or issues that should be addressed in support of New Smyrna Beach's long-term airport goals. Some specific goals and objectives to be considered include:

- Assess the operational efficiency, effectiveness, and safety of the airport.

- Evaluate the airport facility layout for conformance with FAA guidance and regulations.
- Evaluate and incorporate the aviation needs of both the community and users.
- Assess the needs of current tenants and requirements necessary to attract new tenants and/or to expand their facilities.
- Assist the airport in supporting aviation demand within the region.
- Identify existing and alternative funding sources for airport development.
- Identify areas of environmental concern and provide mitigation options for future development.
- Evaluate long-term development options for general aviation and airport support facilities.
- Review the airport's existing and ultimate runway length requirements to identify any improvements necessary to meet demand and/or to entice additional traffic to the airport in the future.
- Identify vertical obstructions and investigate the associated impacts and/or mitigation options.
- Collect additional survey data as necessary to meet FAA AC 150/5300-18B for Airport Layout Plans.

Process

This Master Plan Update provides a systematic outline of the development actions required to maintain and further develop airfield and landside facilities. This process provides the officials responsible for the scheduling, budgeting, and ultimate funding of airport improvement projects with advanced notice of the future needs of the airport. By phasing the airport improvements, the development can be conducted in an orderly and timely fashion.

In order to accomplish New Smyrna Beach's long-term development goals for EVB, this Master Plan Update was prepared in accordance with the requirements of the FAA and the Florida Department of Transportation (FDOT). All portions of this document are based on the criteria set forth in the FAA AC 150/5070-6B, Airport Master Plans, AC 150/5300-13A, Airport Design, FDOT Guidebook for Airport Master Planning, and Chapter 14-60 FAC – Airport Licensing, Registration and Airspace Protection. The following study tasks were performed for this effort:

- Conducted an inventory of the existing documents related to the airport, the physical airport facilities, the demographics of the airport service area, and the airport environment.
- Evaluated and compared the airfield capacity to the expected aviation activity.
- Determined the airport facilities required to meet the forecast demand.
- Developed and evaluated alternative methods to meet the facility requirements of the airfield.
- Developed a concise ALP drawing set that reflects proposed 20-year improvements.
- Compiled a schedule of the proposed improvements to include the cost estimates, phasing, and financial feasibility of each.

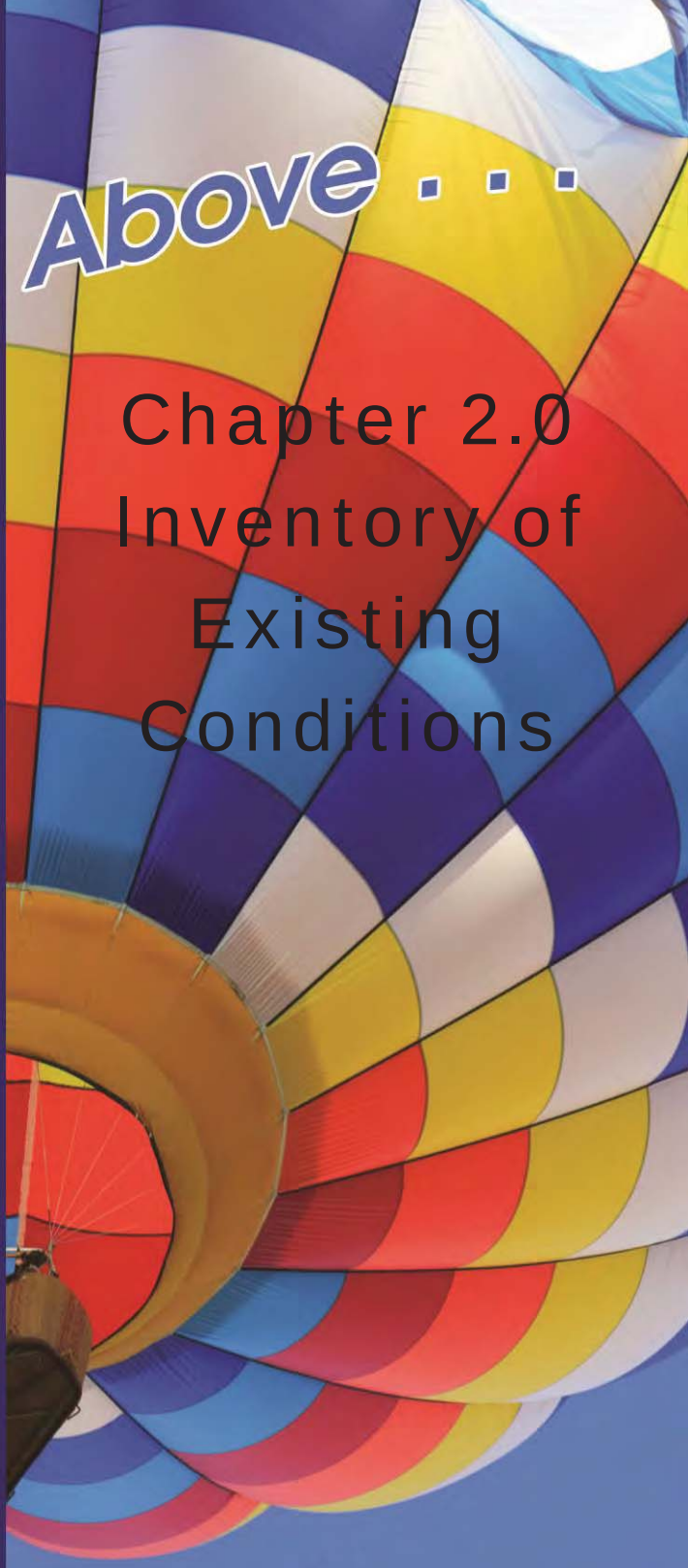
Reviews of this Master Plan Update report were conducted at key points such as at the completion of the forecasts and during the development of the alternatives. This ensured that input was received from important stakeholders such as the TAC, Airport Advisory Board, City Commission, FAA, FDOT, and the general public. The individual report chapters provide detailed explanations

of these key steps. It should be noted that each step in the master plan process is built upon information and decisions made during previous steps. Taken as a whole, they address the key issues identified above and show how the study objective was met.

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Rising Above . . .

Chapter 2.0 Inventory of Existing Conditions



New Smyrna Beach Municipal Airport

MASTER PLAN UPDATE

2.0 INVENTORY OF EXISTING CONDITIONS

2.1 Introduction

This chapter of the Airport Master Plan updates and documents the characteristics and features of the New Smyrna Beach Municipal Airport (EVB) – Jack Bolt Field. This initial collection of airport information describes the current status of the airport and provides the baseline for determining future facility needs. This chapter provides an inventory of the following:

- Airport Characteristics
- Operational Characteristics
- Meteorological Data
- Airside Facilities
- Landside Facilities
- Airspace and Air Traffic Control
- Environmental Factors

The necessary inventory data has been collected from various sources, including on-site airport visits, interviews with City of New Smyrna staff (Owner) and airport management; review of aerial photography; review of FAA documents; the Florida Department of Transportation and City of New Smyrna Beach ordinances.

2.2 Airport Characteristics

Location

EVB is located in New Smyrna Beach, Florida in Volusia County. New Smyrna Beach is in East Central Florida about 15 miles south of Daytona Beach and 40 miles northeast of Orlando, Florida. Interstate 95 is located three miles to the west and provides access to the eastern corridor of the United States. The airport is situated along U.S. Highway 1. Airports located nearby include Daytona Beach International Airport 9 nautical miles (nm) to the northwest, Ormond Beach Municipal Airport 17 nm to the northwest, Deland Municipal Airport 18 nm to the west, and Orlando Sanford International Airport 22 nm to the southwest.

History

The airport at New Smyrna Beach began as a grass strip in the middle of an orange grove. In 1942, the strip was acquired by the United States Navy and was immediately developed into a military airfield. Navy operations began soon after in 1944. Originally the facility consisted of four intersecting asphalt runways; however, only three of the runways remain operational today. After World War II, the airport was given to the City of New Smyrna Beach by the U.S. Government's War Assets Administration on April 10, 1947, becoming New Smyrna Beach Municipal Airport. In late 2004, EVB became a controlled airport with the addition of an airport traffic control tower (ATCT), supporting today's complex aviation environment. Two years later, the city added the additional name of Jack Bolt Field to the airport in honor of the late and decorated local Naval Aviator. Today, this active general aviation facility accommodates flight training, business and

recreational aviation activity and is home to the popular New Smyrna Beach Balloon and Sky Fest event held annually in April.

Aviation Role

New Smyrna Beach Municipal Airport – Jack Bolt Field is a public-use facility owned and operated by the City of New Smyrna Beach. The airport serves a variety of general aviation users. Airport development is guided by an Airport Advisory Board (AAB) and the New Smyrna Beach City Commission. The AAB makes recommendations regarding the development, use, and operation of the airport to airport staff and the City Commission. The AAB is made up of six members that serve 3-year terms with a two term limit.

FAA Service Level

In the U.S., there are 5,148 public use airports and of these there are 3,345 airports that are identified by the FAA's National Plan of Integrated Airport Systems (NPIAS) as important to national air transportation and eligible to receive grants under the FAA Airport Improvement Program (AIP). The NPIAS defines the roles of these airports as one of four service levels. **Table 2-1** presents the classifications and their criteria.

Table 2-1
FAA NPIAS Service Level

Service Level	Criteria
Commercial Service – Primary	Public use commercial airports enplaning more than 10,000 passengers annually.
Commercial Service – Non-primary	Public use commercial airports enplaning between 2,500 and 10,000 passengers annually.
General Aviation – Reliever	General aviation airport having the function of relieving congestion at a commercial service airport and providing general aviation access to its community. Must have at least 100 based aircraft or 25,000 annual itinerant operations.
General Aviation	All other NPIAS airports.
Source: FAA Order 5090.3C, Field Formulation of the National Plan of Integrated Airport Systems, December, 2000.	

EVB is classified as a General Aviation - Reliever airport, catering to a variety of uses, including corporate travel, pilot flight training, agriculture, and personal flying. As a reliever airport, EVB serves the function of relieving congestion at nearby Daytona Beach International Airport and Orlando Sanford International Airport (SFB), and provides more general aviation access to the overall community. EVB is an active aviation training facility and does not accommodate scheduled commercial service.

In 2012, the FAA further defined the roles of General Aviation airports in *"General Aviation Airports: A National Asset (ASSET 1)."* This comprehensive 18-month study developed the following categories of General Aviation airports: National, Regional, Local, Basic, and Unclassified. **Table 2-2** presents these categories and their description. EVB is classified as a Regional airport.

Table 2-2
FAA ASSET Categories

Service Level	Criteria
National	Serves national – global markets with very high levels of activity with many jets and multi-engine propeller aircraft. National airports average about 200 total based aircraft, including 30 jets.
Regional	Serves regional – national markets with high levels of activity with some jets and multi-engine propeller aircraft. Regional airports average about 90 total based aircraft, including 3 jets.
Local	Serves local – regional markets with moderate levels of activity with some multi-engine propeller aircraft. Local airports average about 33 based propeller driven aircraft and no jets.
Basic	Often serves critical aeronautical functions within local and regional markets with moderate to low levels of activity. Basic airports average about 10 propeller-driven aircraft and no jets.
Unclassified	Airports that do not fit into any other category.

Source: "General Aviation Airports: A National Asset", May, 2012.

Florida Aviation System Plan (FASP) 2025

The FASP 2025 is a state level planning document, completed in 2005, by the Florida Department of Transportation (FDOT). The plan provides a description and assessment of the performance of the current aviation system as well as guidance for the future development of aviation in the state. The plan was updated in 2012 with the assistance of the *Continuing Florida Aviation System Planning Process (CFASPP).* This process incorporates the traditional aviation system planning elements provided for in most system plans but also includes an analysis of the intermodal aspects of the State transportation system and a strategic planning element. Currently, FDOT is preparing a comprehensive update of the FASP that is being conducted in parallel to the EVB Master Plan Update. During this statewide planning process, aviation professionals throughout the state are afforded the opportunity to identify and validate system priorities. The most recent updates for EVB pertaining to airport roles, existing and future demand, and system requirements were reviewed and used as appropriate for the current update of the EVB Airport Master Plan.

The FASP highlights the critical importance of East Central Florida's aviation services to the state's present and future economic prosperity. This region is home to Walt Disney World, Sea World, other theme parks, and the Kennedy Space Center. The region's rapid population growth is fueled by global tourism, which depends on commercial passenger service. This need underscores the importance of general aviation airports, especially reliever airports.

The FASP identifies the various types of aviation demand EVB currently serves and predicts the future demand types. EVB currently serves business/recreational, corporate, flight training, recreational/sport, and tourism activities.

Local Role

EVB is a general aviation airport, with no commercial airline service, primarily serving the communities within the East Central Florida Metropolitan Area. The predominant users of the airport include flight training aircraft, business aircraft, and charter aircraft.

Land Ownership and Land Use

EVB occupies nearly 770 acres of land. The City of New Smyrna Beach owns this property fee simple. Off-airport land use around New Smyrna Beach Municipal Airport consists of various uses ranging from industrial to residential.

Zoning and Land Use

The FAA takes a special interest in compatible land use planning and in Grant Assurance 21 directs the airport sponsor to adopt zoning laws and restrict the use of land adjacent to or in the immediate vicinity of the airport to activities that are compatible with normal airport operations. According to the FAA in *Land Use Compatibility and Airports, a Guide for Effective Land Use Planning,* agricultural, commercial, and industrial uses are normally considered compatible while residential areas, schools, and churches are considered incompatible uses.

The airport is surrounded by the City of New Smyrna Beach. The City has several zoning districts including various types of residential, commercial, agricultural, and industrial. The airport property is currently zoned by the city as industrial. Zoning districts adjacent to the airport are designated as industrial, commercial, conservation, recreation, and residential.

Existing and future land uses are addressed in the *City of New Smyrna Beach Comprehensive Plan.* In the 2010-2025 planning horizon, the airport is designated as "Public Grounds and Buildings." Existing and future uses immediately surrounding the airfield are classified as industrial. Other land use districts in the vicinity are conservation, marina, low density residential, recreation, and commercial. Existing land uses both on and off-airport are shown in **Figure 2-1**.

While the airport is surrounded by some residential areas, the city has taken the appropriate planning measures to ensure future land uses are compatible with the airport.

Height Zoning

Federal Aviation Regulation (FAR) Part 77 provides for the safe, efficient use, and preservation of the navigable airspace at public-use airports. Part 77 establishes the standards for "imaginary" surfaces in relation to the airport and to each runway. The size of each surface is based on the type of approach available or planned for that runway. Any proposed construction or alteration of tall structures that exceed federal notification criteria are required to submit FAA Form 7460-1, Notice of Proposed Construction or Alteration.

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Michael Baker INTERNATIONAL

Figure 2-1 2015 Land Use

The City of New Smyrna Beach Code of Ordinances, Chapter 22 Sections 22-92 and 22-93, establishes four "airport overlay zones of influence" and detail notification regulations. The purpose of the overlay zones is to regulate development in proximity to the airport. The four zones are defined as the following:

Airport height notification zone – the area within the municipal boundaries, underlying that area extending outward 20,000 feet from the ends and each side of all active runways of the airport;

Runway protection zone – an area at ground level that begins at the end of a primary surface (as defined in Part 77) and extends with the width of each approach surface (as defined in Part 77) to terminate directly below each approach surface slope at the point where the slope reaches a height of 50 feet above the runway elevation of the runway;

Airport noise impact zone – an area contiguous to the airport measuring half the length of the longest active runway on either side of and at the end of each active runway centerline; and

Building restriction line zone – a line beyond which no aboveground structures may be constructed, erected, installed, assembled or placed on the airport property, or property that abuts the airport property.

A copy of the ordinance is provided in **Appendix A.**

Previous Studies

During the course of this planning effort, previous studies were reviewed and utilized whenever possible in order to gather as much pertinent background information prior to developing forecasts and development recommendations. Over the past several years, there have been several studies completed by state and federal agencies regarding EVB. Examples of these studies include but are not limited to the airport's previous master plan update, FAR Part 150 Noise Study, Continuing Florida Aviation System Planning Process (CFASPP), and prior activity forecasts. The following sections provide an overview of the 2005 Master Plan Update and the FAR Part 150 Study.

2005 Master Plan Update

The previous Master Plan Update for EVB was completed in January 2005 and included the thought and reasoning behind proposed development recommendations. Therefore, the previous study provides insight that is useful for conducting this current planning effort. The 2005 Master Plan Update included recommendations to expand the existing Runway 11-29 to 5,723 feet, rehabilitate existing pavements, improve airfield lighting and navigational aids, and to promote taxiway and apron improvements in support of the expanded airfield configuration. The study also recommended additional corporate and T-Hangar developments. Several of the recommendations from the study have either been completed or are underway at EVB. Given these changes, and that more accurate activity data is now available from the ATCT, the need for a new Master Plan Update was justified to reevaluate the airport's long-term needs and address the city's goals to emphasize business development in the region.

Since the completion of the 2005 Master Plan Update, the airport has gone through changes which include a new City administration and direction for the future. The EVB Master Plan Update is intended to address the steps over the next twenty-years, although primary focus will be on the short (0-5 years) and intermediate-term (6-10 years) actions, to improve and maintain airport facilities, air safety, and maximize development and economic impact to generate resources to support the airport.

FAR Part 150 Study

The FAR Part 150 Noise Study for EVB was conducted in two phases. The first phase developed the Noise Exposure Maps (NEM's) for the airport representing the existing (2009) noise environment and the future (2014) noise environment. The second phase, the Noise Compatibility Program (NCP) analyzed abatement, mitigation, and administrative alternatives to address the noise concerns expressed by the local residents.

The study, conducted over a four-year period, resulted in 39 different alternatives being reviewed: 29 abatement (operational) alternatives, five mitigation (land use) alternatives, and five administrative alternatives. Of the 39 alternatives reviewed, 24 recommendations were included in the plan submitted for consideration by the FAA.

The FAA after its preliminary review of the plan commended the airport on its comprehensive analysis of potential operational changes, land use and program management to reduce noise levels over the residential areas surrounding the airport. Furthermore, the agency recommended that the city not submit the plan for formal FAA review due to the decrease in the number of operations. For purposes of the EVB Master Plan Update, recommendations from the Part 150 Study will be considered as future development alternatives are evaluated. Also, noise contours developed as part of the FAR Part 150 Study will be incorporated into the Land Use Drawing of the Airport Layout Plan Update. An electronic copy of the FAR Part 150 Study is available on the airport's website.

Historical Airport Development Projects

The FAA and FDOT recommend that Master Plans be updated approximately every five to ten years, which significantly increases the potential for State and Federal funding in capital improvement projects. Therefore, this Master Plan Update for New Smyrna Beach Municipal Airport is being prepared to update the previous study completed in January 2005. However, it is important to note that many of the planning, design and construction projects conducted at EVB over the years could not have been accomplished without Federal and State assistance through the FAA's Airport Improvement Program. **Table 2-3** depicts the FAA grant activity at EVB since the previous Master Plan Update.

Table 2-3
FAA Grant Activity

Fiscal Year	Project Description	Grant Sequence Number	Original Grant Amount
2005	Install Taxiway Lighting, Install Weather Reporting Equipment, Rehabilitate Runway 6-24 Lighting	10	$1,176,100
2007	Install Guidance Signs	11	$141,900
2008	Conduct Noise Compatibility Plan Study	12	$275,608
2008	Rehabilitate Runway 7-25	13	$169,950
2010	Rehabilitate Taxiway	14	$612,750
2012	Install Runway 11-29 Vertical/Visual Guidance System, Rehabilitate Runway 11-29, Rehabilitate Taxiway	15	$106,695
2013	Rehabilitate Runway 11-29, Rehabilitate Taxiway	16	$1,659,600
2014	Rehabilitate Runway 7-25, Rehabilitate Taxiway	17	$49,800
2014	Update Airport Master Plan Study	18	$250,200
2015	Install Miscellaneous NAVAIDS, Rehabilitate Runway 7-25, Rehabilitate Taxiway	19	$1,251,000
2016	Construct Taxiway	20	$366,300

Source: CRAA. FAA Airport Improvement Program (AIP) Grant Histories

2.3 Operational Characteristics

Operations

Airport activity levels include the number of operations and based aircraft. A single operation is defined as either an aircraft takeoff or landing. Because EVB has an operational ATCT on the field, data can be drawn from the Air Traffic Activity System (ATADS). ATADS contains the official NAS air traffic operations data available. These data are published monthly and provide accurate traffic counts. In 2014, the airport recorded approximately 161,721 total operations, of which 106,013 were local general aviation and 55,708 were itinerant general aviation. According to the ATCT Manager, approximately 165,000 to 170,000 operations are estimated to occur in 2015. These data is shown in **Table 2-4.** Most of these operations consisted of small single engine and multi-engine turbine aircraft with some jet activity. Peak periods of aviation activity coincide with increased levels of flight training during the months of September to April.

Table 2-4
ATADS Historical

	2009	2010	2011	2012	2013	2014	All Years
Air Carrier	0	59	0	14	1	0	74
Air Taxi	41	62	267	460	1,879	2,276	4,985
GA Local	87,761	87,409	86,844	88,620	106,229	106,013	562,876
GA Itinerant	54,856	46,553	41,893	48,792	46,506	53,406	292,006
Military	67	3	41	207	59	26	403
Total	**142,725**	**134,086**	**129,045**	**138,093**	**154,674**	**161,721**	**860,344**

Source: Air Traffic Activity System (ATADS), Federal Aviation Administration; 2015.

Based Aircraft

The FAA's 5010-1 Airport Master Record is the official record kept by the FAA for public-use airport activities and facility conditions. The data is recorded from airport management and the FAA. According to the airport's latest 5010-1, there are currently 90 based aircraft: 74 single-engine, 10 multi-engine aircraft, 2 turboprops, 1 jet, and 3 helicopters.

2.4 Meteorological Data

Due to the effect of weather on aircraft performance and airfield design, an overview of meteorological characteristics for East Central Florida is presented below for further use in this study.

Climate

The field elevation at EVB is 10 ft above Mean Sea Level (MSL). EVB has a humid subtropical climate throughout the year. According to historic temperature data from the National Oceanic and Atmosphere Administration's National Climatic Data Center, the mean annual temperature in the area is 71.3° Fahrenheit (F). Mean maximum temperature during the summer months is 89.1° F, and mean minimum temperature during winter months is 50.7° F.

Wind Coverage

Historical wind conditions have been evaluated to determine the percentage of wind coverage for all runways at EVB. Ample wind coverage of the runway is important because aircraft takeoff and land into the wind, and extensive crosswinds are not conducive to safe or optimum flight operations. The FAA Advisory Circular (AC) 150/5300-13A, Airport Design, recommends that 95% wind coverage across runways be achieved.

The 95% wind coverage is computed based on the crosswind not exceeding 10.5 knots (kts) (12 miles per hour (mph)) for the aircraft designed for airport reference codes (ARC) of A-I and B-I; 13 kts (15 mph) for ARCs A-II and B-II; 16 kts (18 mph) for ARCs A-III, B-III, C-I through D-III; and 20 kts (23 mph) for ARCs A-IV through D-VI. If 95% wind coverage is not provided at an airport for the maximum crosswind component of the critical aircraft, then the addition of a crosswind runway should be considered. According to EVB air traffic controllers and FBOs, three runways are needed for safety and because of the complexity of the airfield. All three runways are needed to maintain training on one runway and regular arrivals and departures on the other two. From an operational perspective, an east operation using Runways 7, 11, and 2 is considered the most convenient. Results of this analysis will be used to determine future runway requirements presented later in this study.

The FAA recommends that a period of at least 10 consecutive years of local wind data be examined when evaluating runway wind coverage. The historic weather data for a period of 2006-2015 at New Smyrna Beach, Florida was utilized as representative of weather conditions at the airport. For this analysis, wind data for was obtained from the National Oceanic and Atmosphere Administration's National Climatic Data Center. Wind coverage percentages account for approach and visibility minimums associated with each runway. Therefore, all weather conditions and Instrument Meteorological Conditions (IMC) conditions have been analyzed using the FAA's Airports GIS Wind Rose Form and Wind Analysis tools. This information is presented in **Table 2-5.** Wind coverage is only included for the crosswind speed that corresponds to the approach category and airplane design group that would utilize that runway. In the case of EVB, the ARC is associated with C-II aircraft; therefore, 10.5 kts, 13 kts, and 16 kts crosswind components were analyzed.

Table 2-5
Wind Coverage

Runway	All Weather			IFR			VFR		
	10.5 knots	13 knots	16 knots	10.5 knots	13 knots	16 knots	10.5 knots	13 knots	16 knots
2/20	87.93%	93.66%	98.71%	89.95%	94.08%	97.73%	87.81%	93.63%	98.77%
7/25	88.43%	94.12%	98.58%	82.11%	90.11%	96.75%	88.69%	94.29%	98.66%
11/29	88.76%	93.64%	98.15%	80.47%	87.78%	95.78%	89.16%	93.93%	98.27%
Combined	99.45%	99.88%	99.98%	98.85%	99.73%	99.95%	99.47%	99.88%	99.98%
7/25 - 11/29	94.71%	97.70%	99.30%	87.65%	94.03%	98.21%	95.04%	97.87%	99.35%
	49,933 Observations			2,636 Observations			47,175 Observations		

Sources: National Climatic Data Center, KEVB, 2006-2015; Michael Baker International, 2015.
Notes:
VMC – Ceiling greater than or equal to 1,000 ft AGL and visibility of greater than or equal to three mi.
IMC – Instrument Meteorological Conditions. Ceiling less than 1,000 ft AGL and visibility less than three mi.

2.5 Airside Facilities

Runways, taxiways, aids to navigation, signage, and lighting comprise the airside facilities at EVB. These airside facilities are dedicated to supporting the movement and operation of aircraft. The current airfield configuration and existing facilities at EVB are graphically depicted on **Figure 2-2**.

Runways

New Smyrna Beach Municipal Airport is currently served by three active runways, Runway 2-20, Runway 7-25, and Runway 11-29. Runway 15-33 was decommissioned in April, 2003. All runways are constructed of asphalt with a published gross weight pavement strength of 55,000 pounds for aircraft with a single wheel configuration. A detailed summary of all runways is presented in **Table 2-6.**

Runway 11-29 is 4,319 ft long and 75 ft wide. This runway is considered the primary runway because of its non-precision approach capability and that it is used in preference when conditions permit. The runway pavement and non-precision runway markings are in good condition. An airport improvement project was completed in 2014 to rehabilitate the runway. Runway 11-29 is equipped with four-light Precision Approach Path Indicators (PAPI), located on the left side of both thresholds and Medium Intensity Runway Edge Lights (MIRL). Runway 29 has a left traffic pattern and Runway 11 has a right traffic pattern.

Runway 7-25 is 5,000 ft long and 75 ft wide. Both thresholds to Runway 7-25 are displaced, 335 ft and 300 ft, respectively. The runway is considered the airport's secondary runway, but it is heavily used. As a result, the runway pavement and visual runway markings are in good condition. The portion of the runway between the two displaced thresholds is slated for rehabilitation in the near future. Runway 7-25 is equipped with four-light PAPIs, located on the left side of both thresholds and MIRL. Runway 7 has a left traffic pattern and Runway 25 has a right traffic pattern. Runway 7-25 is considered by air traffic controllers to be the most versatile for touch and go activity.

Runway 2-20 is 4,000 ft long and 75 ft wide. The runway pavement and visual runway markings are in fair to poor condition. Runway 2 has a left traffic pattern and Runway 20 has a right traffic

pattern. According to airport management and airport traffic control tower staff, this runway is used regularly by smaller aircraft as a result of seasonal variations in crosswind conditions.

Table 2-6
Runway Summary

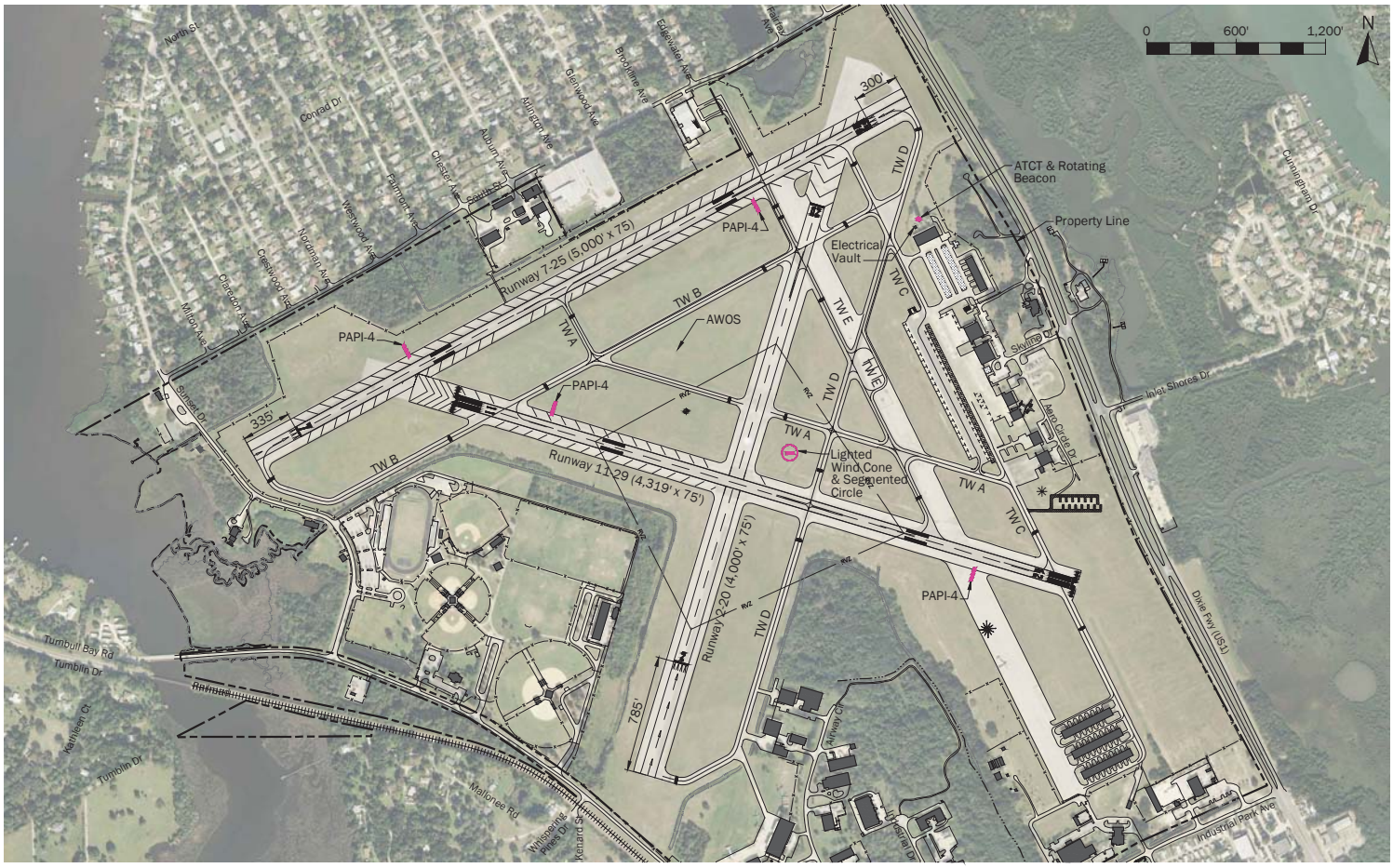
	2-20	7-25	11-29
Runway Length	4,000 ft	5,000 ft	4,319 ft
Runway Width	75 ft	75 ft	100 ft
Displaced Threshold	785 ft-N/A	335 ft-300 ft	N/A – N/A
Pavement Type	Asphalt	Asphalt	Asphalt
Pavement Condition	Fair	Good	Good
Strength	55,000 SW	55,000 SW	55,000 SW
Effective Gradient	0.012	0.048	0.056
Traffic Pattern	Left	Left	Left
Existing Part 77 Approach Slope	34:1-20:1	34:1-34:1	20:1-34:1
Lighting	None	MIRL	MIRL
Marking	Visual	Visual	Non-Precision
Marking Condition	Poor	Good	Good
Sources: National Flight Data Center (NFDC); Michael Baker International, 2015.			

Taxiways

EVB is served by a complex taxiway system consisting of five main taxiways: A, B, C, D and E. There are two full length parallel taxiways: Taxiways B and D that serve Runways 7-25 and 2-20, respectively. Runway 11-29 is served by partial parallel Taxiway A. Taxiway E, constructed on former Runway 15-33, provides direct access between the northeast and southeast areas of the airport. Taxiway C provides access to Runway 25 and to the terminal apron and the south T-hangar area.

The taxiway pavements are of asphalt design and vary in width from 35 to 40 feet. All taxiways are equipped with Medium Intensity Taxiway Lighting (MITL) and pavements are currently in fair to good condition. Taxiway markings are also in fair to good condition throughout the airfield. Most taxiways are equipped with taxiway centerline stripes and holding position markings. However, most taxiways at the airport do not have edge markings to delineate the width of the taxiways. This will be addressed in later sections of this plan. Based upon discussions with the ATCT Manager, land and hold short operations (LAHSO) markings are needed near the intersections of Taxiway B and Runways 20 and 11 to allow simultaneous use.

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Michael Baker INTERNATIONAL

Figure 2-2 Existing Airside Facilities

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Apron Areas

EVB is served by one 150,000 sf public-use terminal apron area. The apron is located on the east side of the airport in front of the airport administration building and fixed base operators between Runways 20 and 29. There is no apron edge lighting available. However, lighting for the ramp and hangar areas is provided via outdoor lighting affixed to the hangars and poles. Currently, the airport is in the process of expanding and reconfiguring the terminal apron area to provide clear taxiway access through the terminal area (Taxiway C) and better accommodate aircraft parking needs of airport users and tenants. Drainage and edge lighting improvements are also included in this project. The results of the terminal apron project will be incorporated into this Airport Master Plan Update.

Aids to Navigation

Aids to navigation (NAVAIDS) provide pilots with information to assist them in locating the airport and provide horizontal and/or vertical guidance during landing. Navigational aids also permit access to the airport during poor weather conditions. Aids to navigation include electronic, satellite, and visual systems. EVB's NAVAIDS are described in the following sections.

Electronic and Satellite Aids

Navigational aids based on electronic and satellite systems are useful in both VFR and IFR weather conditions. EVB is equipped with several systems, as discussed below.

- Area Navigation (RNAV),
- Global Positioning System (GPS), and
- Wide Area Augmentation System (WAAS).

RNAV non-precision approaches utilize GPS technology for horizontal course guidance. GPS is a space-based navigation system comprised of satellites, transmitting stations, and user receivers. An aircraft receiver can track the position of the aircraft by calculating and comparing the signal distance from several satellites. Aviation GPS equipment often depicts position and area information, such as airspace and terrain, on a moving map display in the cockpit. Because no ground facilities are required at airports to operate this navigational system, the system is reliable in all weather conditions and all terrain and is typically accurate to within 100 ft.

WAAS is a GPS-based navigation system, which augments the existing GPS signals with additional information, providing the user highly accurate position and tracking information. Localizer Precision with Vertical Guidance (LPV) instrument approaches utilize WAAS technology to provide both vertical and horizontal course guidance to aircraft receivers. Like RNAV GPS navigation, LPV and other future WAAS approaches are available in all weather and all terrain conditions.

Runways 2, 25, and 29 have a published LPV instrument approach, providing weather minimums down to 336 ft MSL (327 ft AGL) and 1¼ statute mile (sm) visibility for Runway 2, 303 ft MSL (293 ft AGL) and one sm visibility for Runway 25 and 308 ft MSL (298 ft AGL) and one sm visibility for Runway 29. Runway 7 has an RNAV approach with minimums of 440 ft MSL and one sm visibility.

Aircraft not equipped with WAAS technology may still utilize the RNAV approaches to 2, 25, and 29, but are required to apply the higher RNAV minimums and not the lower LPV minimums.

Airport Surveillance Radar (ASR)

ASR is a type of radar approach in which an air traffic controller provides navigational guidance to the pilot. In this type of radar approach, the controller can only provide lateral guidance. Equipment consists of a ground-based radar system and an airplane-based radio system. ASR is available for Runway 11 and circling for all runways. The minimums for the ASR approach at EVB are 620 ft MSL and one statute mile visibility.

Visual Aids

Visual aids at an airport provide additional information for identification and safe operation at an airport. New Smyrna Beach Municipal Airport is equipped with a rotating beacon, a lighted wind cone, and PAPIs, for visual cues of airport conditions.

Rotating Beacon

EVB is equipped with a rotating beacon, co-located with the Airport Traffic Control Tower on the northeast side of the field. High intensity lamps mounted on an assembly rotate 360° every six seconds, giving the illusion of emitting flashes of light. The designation for EVB, a civilian land airport, is alternating green and white lights in equal duration. The rotating beacon is in good condition and is operational from sunset to sunrise and during IMC.

Wind Cone

The lighted wind cone is located in the middle of the airfield in between Runway 2-20 and Taxiway D. It provides visual surface wind information to pilots. The wind cone is also co-located with a segmented circle, which physically indicates the direction of the traffic pattern for each runway end. It has been reported that the primary wind cone is not easily visible to pilots on approach to Runway 7. Therefore, the installation of a supplemental wind cone(s) will be further evaluated as part of this study.

Precision Approach Path Indicators (PAPI)

Runways 7-25 and 11-29 are equipped with 4-light PAPIs located on the left side of each runway threshold. These landing aids help pilots visually establish aircraft on the proper approach glide path for landing, by emitting two red lights and two white lights when the aircraft is vertically aligned properly. The PAPI system emits four red lights if the aircraft is lower than the glide path and four white lights if the aircraft is higher than the proper glide path, indicating to the pilot an adjustment of altitude is needed. The PAPIs have been recently flight tested and are in good working order.

Weather Reporting Facilities

The airport is equipped with an Automated Weather Observation Station (AWOS-III) weather reporting system located at mid-field on the southeast side of the runway. The AWOS is a modern weather collection and reporting system that measures the following meteorological conditions:

- Wind velocity and direction,
- Temperature and dewpoint,
- Visibility,
- Cloud cover and sky conditions,
- Barometric pressure, and
- Prevalent weather conditions (fog, thunderstorms, rain).

The AWOS equipment gathers meteorological data every minute and automatically transcribes current conditions via a designated radio frequency. The automatic transcription is also available via telephone and aviation weather websites. As of July 2015, the AWOS is out of service.

Airfield Lighting

Runways 11-29 and 7-25 are outfitted with Medium Intensity Runway Lighting (MIRL) systems. Taxiways A, B, and C are equipped with Medium Intensity Taxiway Lighting (MITL). When the ATCT is not operational, the airfield lighting is pilot-activated via the Common Traffic Advisory Frequency (CTAF) of 119.675 Mhz.

Table 2-7 summarizes the existing airside facilities at EVB.

Table 2-7
Summary of Existing Airside Facilities

Item	Existing Condition
Airport Role	FAA - Reliever/Regional
Airport Elevation	10.8 ft
Airport Property	770 acres
Maximum Mean Temperature of Hottest Month	89.5° (July)
Airport Reference Point Lat/Long	29° 3' 20.50" N 80° 56' 56.08" W
Magnetic Declination	6° 40' West
Annual Magnetic Variation	0° 5' West
Instrument Approach Procedures	RNAV, LPV
Taxiway Lighting	MITL
Sources: National Flight Data Center (NFDC); Michael Baker International, 2015.	

2.6 Landside Facilities

The landside facilities at EVB include the various aviation businesses, hangars, fuel storage, the airport administration building and support facilities. These facilities support and provide services for aircraft operators at the airport. The location and description of the landside facilities are depicted on **Figure 2-3**.

Airport Businesses

EVB is served by two full-service Fixed Base Operators: Airgate Aviation and Epic Aviation. Airgate Aviation leases 24,900 square feet (sf) of hangar space, 2,092 sf of office space, and nearly 80,000 sf of apron space from the City of New Smyrna Beach. Airgate's services include: aircraft parking, maintenance, full-service fueling, courtesy cars, rental cars, a passenger waiting area, a ticketing office, cafe and a pilot lounge. Additionally, Airgate Aviation offers six roundtrip charter flights a day to Marsh Harbour, Bahamas using CNA141 aircraft. They currently fly a maximum

of 72 passengers a day and accommodate approximately 10,000 to 13,000 passengers annually. Approximately 60 percent of their passenger service occurs between Memorial Day and August with the remainder during the winter season. Airgate is located just north of the airport administration building and east of Runway 20.

Epic Aviation leases 61,000 square feet of ramp space from the City of New Smyrna Beach. Epic Aviation is a Cessna Service Center and an active Part 141 flight school that also offers a variety of other services including full-service fueling, aircraft parking, aircraft rentals, avionics sales and service, and a pilot lounge. Epic Aviation is located just south of the airport administration building. Epic is interested in additional hangar capacity in the future for aircraft storage and maintenance activities.

Other on-airport businesses include the Airgate Café, BiPlane FunFlights LLC, American Aero Services, George Baker Aviation, and the Lost Lagoon Wings & Grill.

Aircraft Storage

EVB has a variety of different aircraft storage options on the airfield. There are a total of 6 T-Hangar buildings with 77 units, 2 executive hangars, and 13 conventional hangars. In addition, there are approximately 70 tie-down spaces that accommodate based and transient aircraft on the terminal apron area. Two additional conventional hangars are owned by George Baker Aviation, a maintenance provider located off airport property on the airport's north side near Taxiway E.

Three of the T-Hangar buildings (30 units) are located near the ATCT within the northeast portion of the airport. Two of these hangars are in poor condition, have reached the end of their useful service life and repairs are cost prohibitive. The third hangar is in fair condition and does not meet current design standards and local building codes. It is recommended that all three hangars be replaced in accordance with current airfield design standards and local building codes. The southeast hangar area includes 3 T-Hangar buildings with a total of 47 units. These facilities are in good condition and are maintained by the city.

Within the terminal area, there are 6 conventional hangars of varying sizes that support FBO operations and related business activities on the airport. There are 7 conventional/maintenance hangars located the in the south hangar area of the airport. Airfield access to this area is provided via Taxiway D. The larger maintenance hangar that currently houses American Aero Services was recently renovated to include a new roof, hydraulic doors, lighting and air conditioning and the installation of a new stairwell. In the near future, the airport has plans to replace the existing narrow (30 ft wide), structurally failed concrete taxilane serving the South Hangar Area off of United Drive with a new 35 ft wide asphalt-paved taxilane for Airplane Design Group II (ADG II) aircraft. The taxilane will be located to provide better access to the apron area.

The project will also include widening the existing apron pavements to improve ADG II aircraft movement in the area in front of the hangars, and drainage improvements as required.



Figure 2-3 Existing Landside Facilities

Fuel Storage

The City owns and operates a fuel farm located at the north end of the aircraft apron. The fuel farm currently includes two above-ground storage tanks, one 12,000 gal Jet-A tank and one 12,000 gal AvGas 100LL tank, with the capability to accommodate an additional 12,000 gal tank in the future. The fuel facility is designed to serve 24/7 as a Jet-A and 100LL self-service fuel station for the flying public. In addition, the airport's FBOs, Airgate Aviation and Epic Aviation, purchase fuel from the self-service facility to fill their own fuel trucks. Airgate Aviation and Epic Aviation both operate two fuel trucks each (four fuel trucks) to provide fueling services to aircraft. These include: one 1,000 gallon 100LL fuel truck and one 3,000 gallon Jet A fuel truck each.

Airport Support Facilities

Airport Administration

Airport administration includes the airport manager and administrative staff who report to the City Manager. The administration building is located at the end of Skyline Drive adjacent to the terminal apron area on the east side of the airport.

Airport Maintenance

The Airport Maintenance facility is located adjacent to the City of New Smyrna Beach Maintenance Operations Department located on the southeast portion of the airport off of Industrial Park Avenue. The on-airport facility is used for the storage and maintenance of city-owned vehicles and equipment.

Emergency Services

The City of New Smyrna Beach provides police and firefighting services for the airport. The city's police and fire complex and training facilities are located onsite in the southeast portion of the airport property off of Industrial Park Avenue.

Auto Parking

Businesses located at the New Smyrna Municipal Airport and Airport Industrial Park have designated parking areas for their employees and patrons. For the purpose of this study, vehicular parking associated with the FBO, hangars, and airport support facilities were identified as part of the inventory of existing facilities. Designated parking facilities in the Airport Administration and FBO terminal areas are inadequate. During the inventory site visit, vehicles were observed parking in designated areas as well as the unpaved areas and the overflow parking area located south of Skyline Drive and east of Aero Circle. However, there are plans in the future to pave the overflow lot. This information will be used later in this study to identify future parking needs.

Fencing / Security

The entire perimeter of the airport is securely enclosed by a six-foot high fence. Gates are provided at various locations throughout the property as needed for airside access. Airside access at motorized gate locations is accomplished by card access entry; whereas, remotely located gates are chained and locked with padlocks that can only be accessed by airport personnel. The existing

fence does not meet the current FAA and TSA security guidelines. This item will be addressed in later sections of this study.

Airport Access

New Smyrna Beach Municipal Airport is bounded by a mix of major arterial and local roadways. U.S. Highway 1 runs parallel to the airport's eastern boundary. The four-lane arterial roadway has historically served as the primary access to, and entry into, the airport. Direct access from U.S. Highway 1 to the east side of the airport is provided by Skyline Drive and Aero Circle. South Street, a two-lane local road, provides access to facilities located along the northern boundary of the airport. South Street connects to Sunset Drive, a local road providing access to the northeast side of the airport and Turnbull Bay Road. Turnbull Bay Road, which lies along the airport's southern and western boundary, is a two-lane county urban collector roadway that provides access to the Airport Industrial Park, southern hangar development area, and the Smyrna Beach Sports Complex. Industrial Park Avenue, a two-lane local roadway, was constructed generally along the airport's southern boundary and provides major access to the Airport Industrial Park and southeastern hangar development area. The Airport Industrial Park can be accessed directly via United Drive, Airway Circle and Industrial Drive. There are no on-airport roadways offering access from one quadrant of the airfield to another.

Airfield Signage

EVB has a number of illuminated airfield signs which display instruction and guidance information to pilots. Holding designation signage (e.g., runway/taxiway intersection) is identified by white numbers on a red background. Directional and informational signage is identified by black inscriptions on a yellow background; whereas, signs that contain yellow text on a black background identify the runway or taxiway on which the aircraft is located. Currently, additional airfield signage is needed in some locations on the airfield and existing signage is in need of replacement or upgrade as the equipment reaches the end of its useful service life. In particular, signage is needed near the intersection of Runway 20 and Taxiways B and E, a known hotspot on the airport. A hot spot is defined as a location on an airport movement area with a history of potential risk of collision or runway incursion, and where heightened attention by pilots and drivers is necessary.

Airport Utilities

The facility requirements and development alternatives created in this study are partially dependent upon the airport's ability to provide essential utility service to future development areas. Because existing electrical, drainage, sanitary sewer, and water service is currently provided to existing structures such as businesses throughout the Airport Industrial Park, the FBOs, hangars and support facilities, it is safe to assume that developments located around the periphery of the airfield will have the ability to easily connect to utilities.

2.7 Airspace and Air Traffic Control

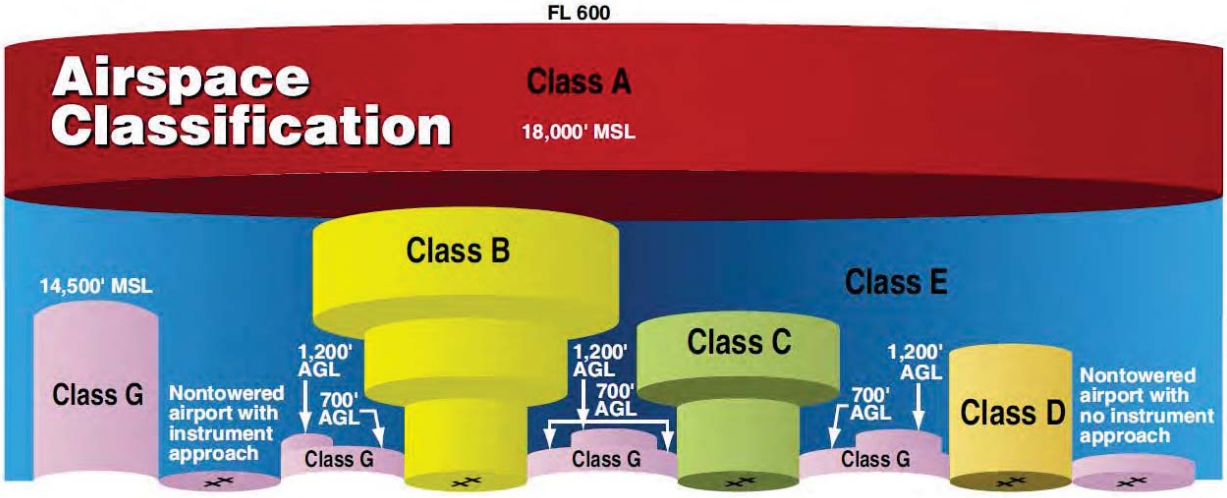
The ATCT at EVB was constructed in 2004 and handles all VFR and IFR traffic during the business hours of 7 am to 11 pm daily. The ATCT is staffed by Robinson Aviation, Inc. (RVA) and is a participant in the FAA's Contract Tower program. The ATCT not only oversees aircraft

flying within the controlled airspace near EVB, but also the vehicles and aircraft operating on the ground within the defined movement area. Vehicle or aircraft operators must maintain contact with tower personnel in either of these areas, whether on the ground or in the air. ATCT personnel's purpose is to ensure that all movements are coordinated in a safe manner.

During an interview conducted as part of the inventory site visit, the ATCT Manager indicated that the ATCT structure leaks. There are current plans to address this important issue by weatherizing and painting the facility and providing new radio and tower equipment in the near future. The ATCT Manager also indicated that a third radio position is needed to handle traffic during peak periods.

EVB is surrounded by Class D airspace within a four nm radius, extending from the surface up to but not including 1,200 ft MSL when the tower is operational. All other times, the airport operates in Class E airspace. EVB is located under Daytona Beach International's Class C airspace. This airspace extends from 1,200 ft MSL to 4,000 ft MSL. **Figure 2-4** graphically depicts a comparison of the airspace classes by type; whereas, the aeronautical chart for EVB and the surrounding area is shown in **Figure 2-5**.

Figure 2-4
Airspace Classes



Source: FAA 2008 Pilot's Handbook of Aeronautical Knowledge.

2.8 Environmental Factors

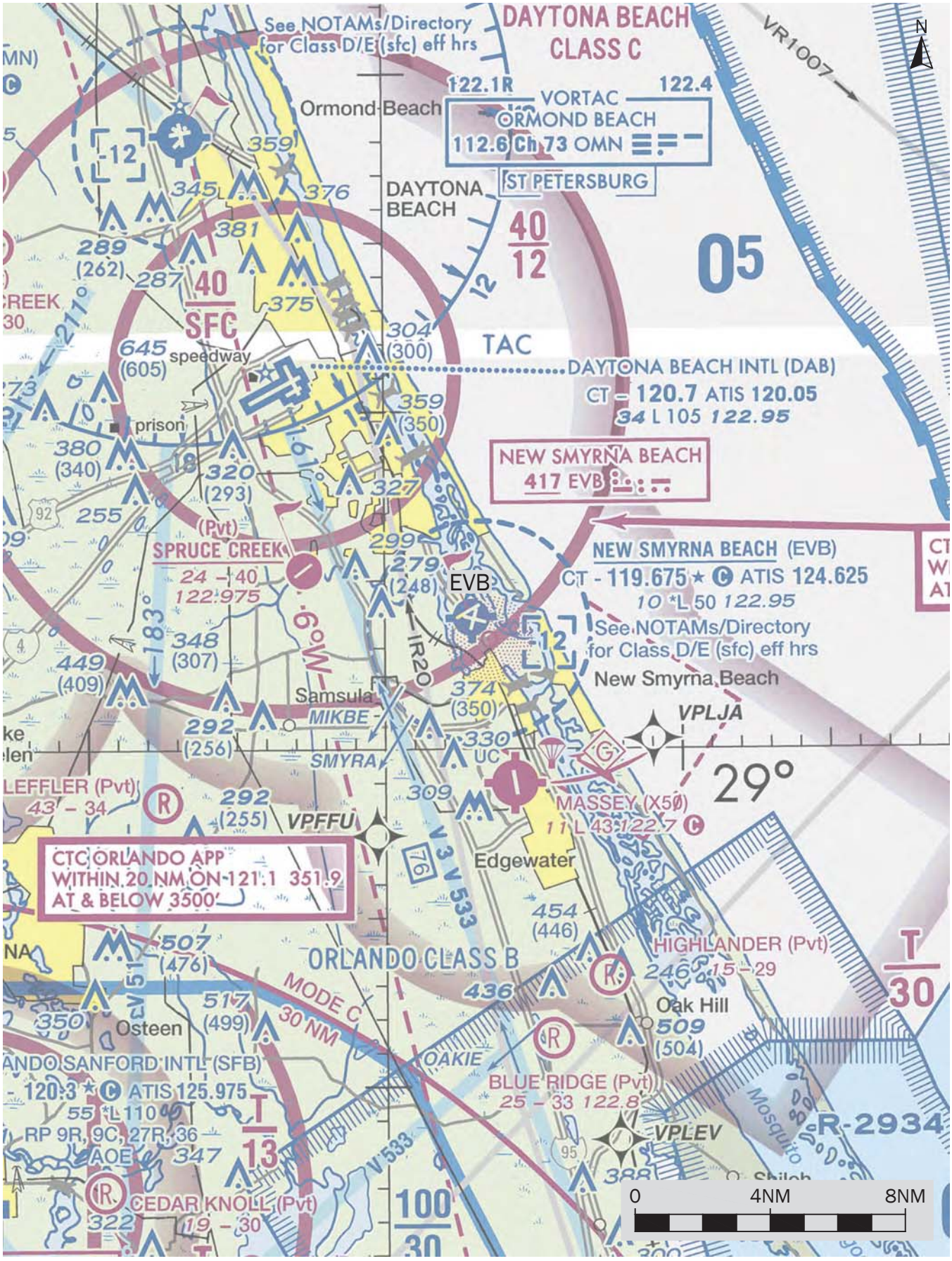
Some of the proposed improvement projects at the airport will require environmental permitting through a number of different agencies, each with its own criteria and focus. Future development of the airport and the integration of environmental permitting will be critical to the success of each project as well as to the success of the airport.

Coordination with the appropriate agencies for permitting requirements will be made on an individual basis as each project is funded. Additional details to the possible environmental impacts are included as part of the alternatives analysis in this Master Plan Update.

2.9 Summary

The inventory section provides the foundation upon which the remaining elements of the master plan process will be developed. The information contained in this section provides guidance to assess potential changes to facilities and procedures necessary to meet the goals of the airport planning process. The inventory section presents data to determine the needs of airport users and prepares the City of New Smyrna Beach to meet those needs. Thus, the inventory of existing conditions is the first step in the complex process of developing the plan to meet projected aviation demands in the community. This information is based on activity in the 2014 timeframe and facility observations in 2015 timeframe.

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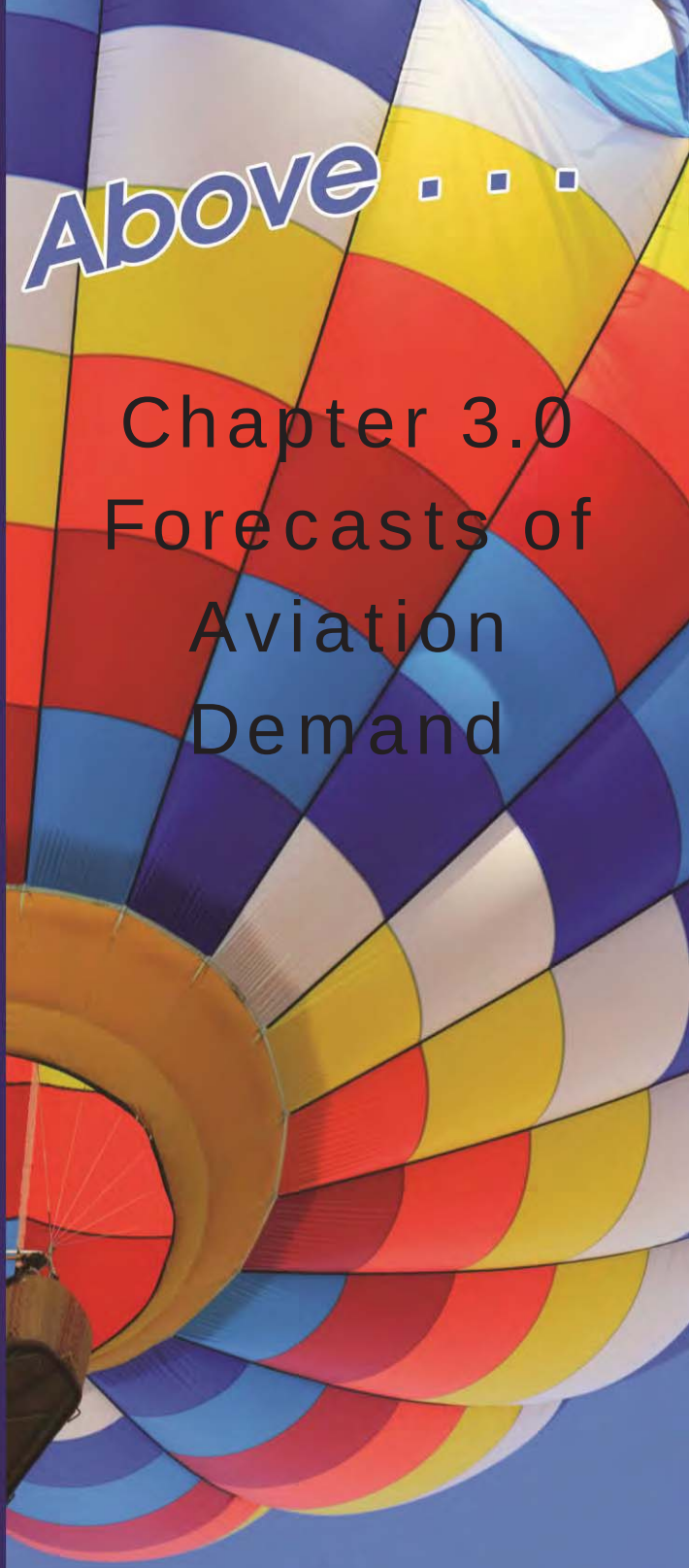


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Figure 2-5 Sectional Aeronautical Chart

Rising Above . . .

Chapter 3.0 Forecasts of Aviation Demand



New Smyrna Beach Municipal Airport

MASTER PLAN UPDATE

3.0 FORECASTS OF AVIATION DEMAND

3.1 Introduction

This aviation forecasting effort was conducted in 2015 as a component of the Master Plan Update (MPU) for the New Smyrna Beach Municipal Airport (EVB). The forecasts were developed based on the most recent information available at the time and are utilized in later sections of this MPU to determine facility requirements, alternatives, and recommendations. The forecasts are presented over a 20-year planning period that extends from 2015 through 2035. Although there was only a partial year of data available for 2015 at the time that the forecasting effort was conducted, the month-to-month activity totals were similar to what occurred in 2014 at EVB; therefore, for planning purposes, the 2015 base year activity total was held constant at the 2014 total. In the Federal Aviation Administration's (FAA's) National Plan of Integrated Airport Systems (NPIAS), EVB is classified as a "Reliever" facility to help accommodate the busy General Aviation (GA) traffic that occurs at Daytona Beach International Airport (DAB) and Orlando Sanford International Airport (SFB). In 2015, 297,678 operations were recorded at DAB (located nine miles northwest of EVB) and 293,605 were recorded at SFB (located 22 nautical miles southwest of EVB). Consequently, EVB is not only home to a busy flight school, Epic Flight Academy, but also accommodates a high number of training flights from Embry-Riddle Aeronautical University (ERAU) at DAB, Aerosim Flight Academy at SFB, and other organizations. In Boeing's 2014 Pilot and Technician Outlook, the company projects that a total of 533,000 new pilots will be needed to support the global demands of commercial airlines by 2024. As an increasing number of pilots reach their mandatory retirement age in the US and in other countries (e.g., age 65 in the US), many organizations like the Air Line Pilots Association (ALPA) are concerned about the potential for pilot shortages and are advocating for a renewed interest in pilot training programs. It is anticipated that much of that training activity will continue to occur at EVB and the surrounding airports, particularly with the global recognition and presence of ERAU in Daytona Beach. These types of historical and anticipated trends are explored throughout this chapter to determine how they may influence the forecasts of aviation demand for EVB. The following forecasting elements are presented herein:

- Forecasting Limitations
- Historical & Current Air Traffic Activity
- Factors & Opportunities Affecting Activity Levels
- Itinerant and Local Operations Forecast
- Operations by Aircraft Type Forecast
- Instrument Operations Forecast
- Peak Activity Forecast
- Based Aircraft Forecast
- Forecast Summary

3.2 Forecasting Limitations

Forecasting aviation activity is a complex process that considers a multitude of factors, both controllable and beyond an airport's control. Forecasts are not to be construed with predictions of the future, but rather an educated guess of future activity based on a variety of predictors,

calculations, assumptions, and subjective judgement. The accuracy of the estimates decline as the planning term is extended, potentially as a result of unforeseen local or geo-political events, natural disasters, and/or climatological events. It is also known that there are several concerns about aircraft noise exposure in the local community. Although the concerns of the community are recognized, this forecasting effort must identify the potential for all realistic facets of aviation growth so the airport and surrounding community can adequately plan for that growth and potentially mitigate for any impacts thereof.

The FAA's forecast approval process typically constitutes an approval for planning purposes only, which allows the airport sponsor to depict projects that are consistent with the long-term growth expectations on the Airport Layout Plan (ALP). In most cases, prior to issuing a grant, the FAA will require updated information demonstrating that a proposed project is justified by activity at the time, or by activity that would directly result from the implementation of the proposed project. This policy helps to ensure that funding is directed towards critical projects throughout the US

3.3 Historical & Current Air Traffic Activity

Many elements compose the broad definition of GA activity. In simplest terms, GA includes all segments of the aviation industry except those conducted by scheduled air carriers and the US military. GA activities may include pilot training, sightseeing, aerial photography, law enforcement, and medical flights, as well as business, corporate, and personal travel. GA operations are divided into the categories of local or itinerant. Local operations are arrivals or departures performed by aircraft that remain within the airport traffic pattern, or those that occur within sight of the airport. Local operations are most often associated with training activity and flight instruction (e.g., touch-and-goes). Itinerant operations are arrivals or departures that do not remain within the airport traffic pattern and/or that originate from another airport. The FAA defines an operation as either a single aircraft landing or takeoff. Under this definition, touch-and-goes are considered two operations (one takeoff plus one landing) and are deemed local operations. Itinerant operations are typically comprised of private, business/corporate, and air taxi flight activity, but may also include law enforcement and medical flights. A summary of the historical and baseline operations and based aircraft values is presented below.

Historical & Baseline Operations

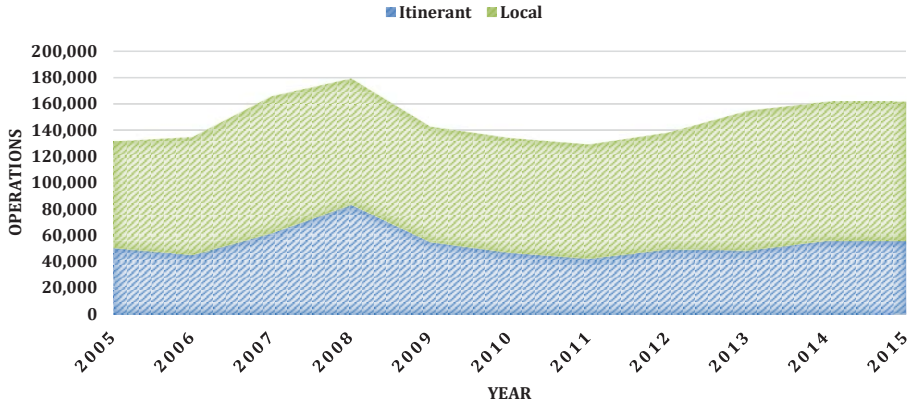
Construction of the Airport Traffic Control Tower (ATCT) at EVB was completed in 2004 and records of activity have been maintained since that time. **Table 3-1** summarizes the historical ATCT records from 2005 through 2015 as obtained from the FAA's Operations Network (OPSNET) database. The information in the OPSNET database is generated from ATCT-reported activity counts and thus closely resembles the records maintained by the ATCT staff at EVB. For the years prior to 2005, all annual operations values were estimated by some combination of staff from the airport, FAA, and/or FDOT. As an example, the baseline activity values in the 2005 Master Plan Update (2005 MPU) were obtained from the FAA's Terminal Area Forecast (TAF) for EVB. Today, actual historical and baseline activity values are available for use in this study, and for that reason, it was possible to conduct a more detailed assessment of historical activity trends at EVB to determine what the potential for future growth might be. A discussion of the FAA's 2014 TAF is presented at the end of this chapter in relation to the recommended operations and based aircraft forecasts herein.

Table 3-1
Historical & Baseline Operations (2005-2015)

Year	Itinerant						Local				Total Operations
	Air Carrier	Air Taxi	GA	Military	Total	% Total	Civil	Military	Total	% Total	
2005	122	639	49,424	94	50,279	38.28%	80,819	238	81,057	61.72%	131,336
2006	228	800	43,917	193	45,138	33.48%	89,670	14	89,684	66.52%	134,822
2007	0	1,202	60,183	234	61,619	37.18%	103,543	586	104,129	62.82%	165,748
2008	0	545	82,634	92	83,271	46.44%	96,020	10	96,030	53.56%	179,301
2009	0	41	54,856	22	54,919	38.48%	87,761	45	87,806	61.52%	142,725
2010	59	62	46,553	2	46,676	34.81%	87,409	1	87,410	65.19%	134,086
2011	0	267	41,893	19	42,179	32.69%	86,844	22	86,866	67.31%	129,045
2012	14	460	48,792	181	49,447	35.81%	88,620	26	88,646	64.19%	138,093
2013	1	1,879	46,506	39	48,425	31.31%	106,229	20	106,249	68.69%	154,674
2014	0	2,276	53,406	14	55,696	34.44%	106,013	12	106,025	65.56%	161,721
2015	0	2,276	53,406	14	55,696	34.44%	106,013	12	106,025	65.56%	161,721
AAGR 2005-2015	-100.00%	13.54%	0.78%	-17.34%	1.03%	-1.05%	2.75%	-25.82%	2.72%	0.61%	2.10%
AAGR 2010-2015	-100.00%	105.57%	2.78%	47.58%	3.60%	-0.21%	3.93%	64.38%	3.94%	0.11%	3.82%

Sources: FAA Operations Network (OPSNET) database, ATCT records, and Michael Baker International, 2015.

Figure 3-1
Historical & Baseline Operations (2005-2015)



Sources: FAA Operations Network (OPSNET) database, ATCT records, and Michael Baker International, 2015.

As shown in Table 3-1, the airport has historically received a larger percentage of local operations than itinerant operations primarily due to the high volume of flight training activity. In 2012 and 2013, the greatest number of local civil operations was recorded since the ATCT was constructed. The recent growth in air taxi operations is due to AirGate Aviation's service to the Bahamas which includes six daily outbound and six daily inbound flights to and from Marsh Harbour in the Abaco Islands. AirGate Aviation returned to EVB in 2010 and continued their service to the Bahamas which was previously conducted out of Daytona Beach International Airport (DAB). Further historical and forecast activity trends are explored later in this chapter, such as the potential impacts of the economic recession that may have caused some of the activity decline at EVB in 2009 through 2011, which can be seen in **Figure 3-1**. For the remainder of this chapter, the 2014 activity numbers were carried over to 2015 and 2015 was considered the baseline year.

Historical flight plan activity data from the FAA's Traffic Flow Management System Counts (TFMSC) database is presented in **Table 3-2**. Flight plans are filed by aircraft that intend to fly within Instrument Flight Rules (IFR) controlled airspace, which includes the majority of jets and turboprops. It is noted that the 2010 flight plan number for jets appears to be overestimated and inaccurate.

Table 3-2
Historical & Baseline FAA Flight Plan Data (2010-2015)

Year	Jet	Turboprop	Piston	Unclassified	Total
2010	975	257	4,652	300	6,184
2011	467	347	5,024	273	6,111
2012	466	266	6,607	302	7,641
2013	453	282	6,989	231	7,955
2014	436	413	6,589	208	7,646
2015	436	413	6,589	208	7,646
AAGR 2010-2015	-14.87%	9.95%	7.21%	-7.06%	4.34%

Sources: FAA TFMSC database and Michael Baker International, 2015.

Historical & Baseline Based Aircraft

The historical based aircraft counts from the FAA's 2014 TAF are summarized in **Table 3-3** from 2005 to 2015. As shown, there are currently 90 based aircraft at EVB including 74 single-engine pistons, 10 multi-engine pistons, two turboprops, one jet, and three helicopters. However, it is noted that the 2015 baseline numbers may be revised based on an update to the airport's based aircraft inventory. There was a sharp decline in the number of based aircraft during the economic recession from 2008 to 2011 which was a common trend for airports throughout the country.

Table 3-3
Historical & Baseline Based Aircraft (2005-2015)

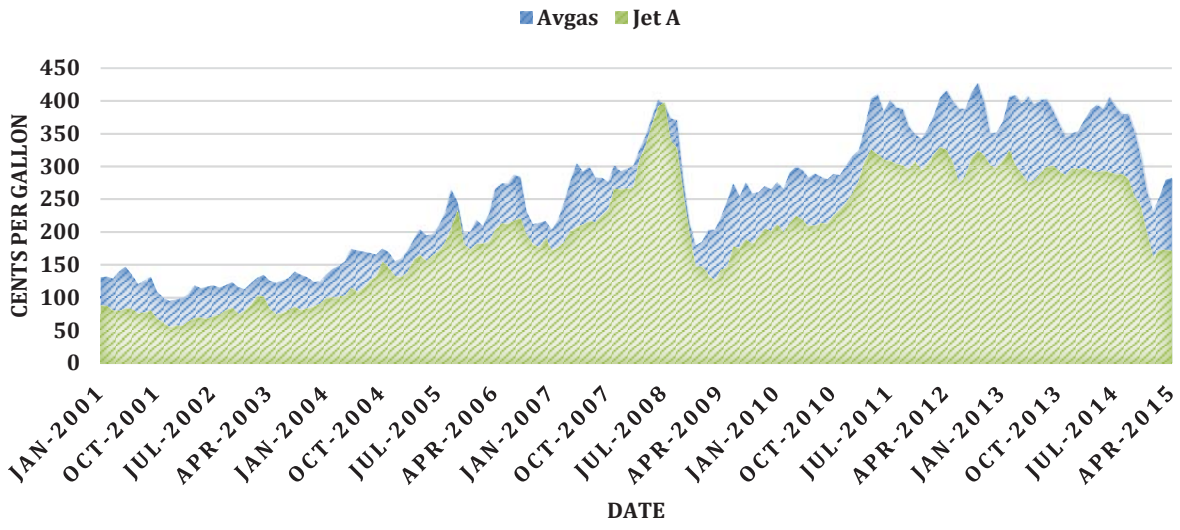
Year	Single	Jet	Multi	Helicopter	Total
2005	136	0	20	3	159
2006	136	0	20	3	159
2007	136	0	20	3	159
2008	105	1	20	3	129
2009	93	1	17	3	114
2010	93	1	17	3	114
2011	62	1	8	3	74
2012	69	1	10	3	83
2013	69	1	10	3	83
2014	69	1	10	3	83
2015	75	1	11	3	90
2005 to 2015	-5.78%	N/A	-5.80%	0.00%	-5.53%
2010 to 2015	-4.21%	0.00%	-8.34%	0.00%	-4.62%

Sources: FAA 2014 TAF, airport records, and Michael Baker International, 2015.

3.4 Factors & Opportunities Affecting Activity Levels

This section describes past and present trends that may influence EVB's operations and based aircraft levels. As part of any forecasting effort, the FAA recommends the identification of historical factors that represented turning points for the US aviation industry such as the terrorist attacks on September 11, 2001, sharp fuel price increases after Hurricane Katrina damaged Gulf Coast refineries in August 2005 (refer to **Figure 3-2**), and the economic recession of the late 2000s. Although some of those factors were impossible to predict, their resulting consequences had considerable impacts on aviation activity throughout the U.S. Local trends are also important because they provide airport-specific information that can be used to support the selection of preferred forecasts. Trends evaluated include economic conditions, airport-specific factors, and the FAA Next Generation Air Transportation System (NextGen).

Figure 3-2
U.S. Aviation Gasoline Wholesale/Resale by Refiners (2001-2015)



Sources: U.S. Energy Information Administration and Michael Baker International, 2015.

Economic Conditions

The economic conditions surrounding an airport have the potential to influence activity levels. For example, the growth or decline in a local population may correlate to the growth or decline in operations and based aircraft levels at an airport. **Table 3-4** summarizes historical and forecast population, households, and median age statistics for the U.S., Florida, Volusia County, and the City of New Smyrna Beach. Although the historical and forecast growth in population and households in the local area was and is anticipated to be slower than the state as a whole, aviation activity around Volusia County is more related to the high volume of flight training activity, tourist attractions (e.g., Daytona International Speedway and the local beaches), and AirGate Aviation's service to the Bahamas. Consequently, although historical and forecast economic statistics are presented in this section, they were not used to project future activity growth for EVB.

Table 3-4
Historical & Forecast Economic Statistics (2000-2019)

Year	U.S.	Florida	Volusia	NSB
Population				
2000	281,422,839	15,982,368	443,328	20,015
2010	308,745,538	18,801,310	494,593	22,465
2014	318,283,904	19,749,424	502,623	22,918
2019	331,097,940	21,058,799	527,742	23,818
AAGR 2000-2010	0.93%	1.64%	1.10%	1.16%
AAGR 2010-2014	0.76%	1.24%	0.40%	0.50%
AAGR 2014-2019	0.79%	1.29%	0.98%	0.77%
Households				
2000	105,480,206	6,337,910	184,715	9,724
2010	116,716,292	7,420,802	208,236	11,167
2014	120,696,822	7,808,380	212,172	11,430
2019	126,162,821	8,362,621	224,107	11,964
AAGR 2000-2010	1.02%	1.59%	1.21%	1.39%
AAGR 2010-2014	0.84%	1.28%	0.47%	0.58%
AAGR 2014-2019	0.89%	1.38%	1.10%	0.92%
Median Age				
2000	35.5	38.8	42.5	51.1
2010	37.1	40.8	45.3	54.3
2014	37.4	41.3	46.0	55.1
2019	38.0	42.0	47.2	57.0
AAGR 2000-2010	0.44%	0.50%	0.64%	0.60%
AAGR 2010-2014	0.20%	0.32%	0.41%	0.37%
AAGR 2014-2019	0.29%	0.34%	0.52%	0.68%

Sources: Alteryx, Inc. and Michael Baker International, 2015.

Airport-Specific Factors

The airport is an important site for economic development within the City of New Smyrna Beach and Volusia County. There are several existing aviation and non-aviation tenants on the airport property and there are various vacant parcels that can be developed in the future to further support the needs of aviation and non-aviation tenants. The availability of land and proximity to major highways (Interstate 95, Interstate 4, and U.S. 1) makes the airport attractive for future growth opportunities. Racing events at Daytona International Speedway and New Smyrna Speedway also result in increased aviation activity both by racing teams and visitors. The annual New Smyrna Beach Balloon & Sky Fest helps bring the public to the airport and highlights the contribution of

EVB to the local economy. These and other positive features of the airport should be viewed as indicators that EVB will continue to support future activity and based aircraft growth.

FAA Next Generation Air Transportation System (NextGen)

NextGen includes a series of improvements to the national aviation system that are intended to make air travel more safe, convenient, and dependable. By investing in new technologies and replacing aging systems, NextGen initiatives are focused on improving schedule predictability, reducing environmental impacts, flying more direct routes, limiting ground holding, better circumventing poor weather, providing better approaches and access to airports, and improving safety for accident avoidance. The FAA's investment in NextGen initiatives should help to improve access and approach capability for airports around the U.S. At GA airports such as EVB, the benefits of NextGen technologies are becoming more and more apparent with the rollout of Localizer Performance with Vertical Guidance (LPV) approaches that provide horizontal and vertical course guidance to aircraft via Global Positioning System (GPS). Through the recommendations of this MPU and the FAA's ongoing NextGen initiatives, it is anticipated that EVB will continue to become more accessible for corporate aircraft traffic and instrument flight operations.

3.5 Itinerant & Local Operations Forecast

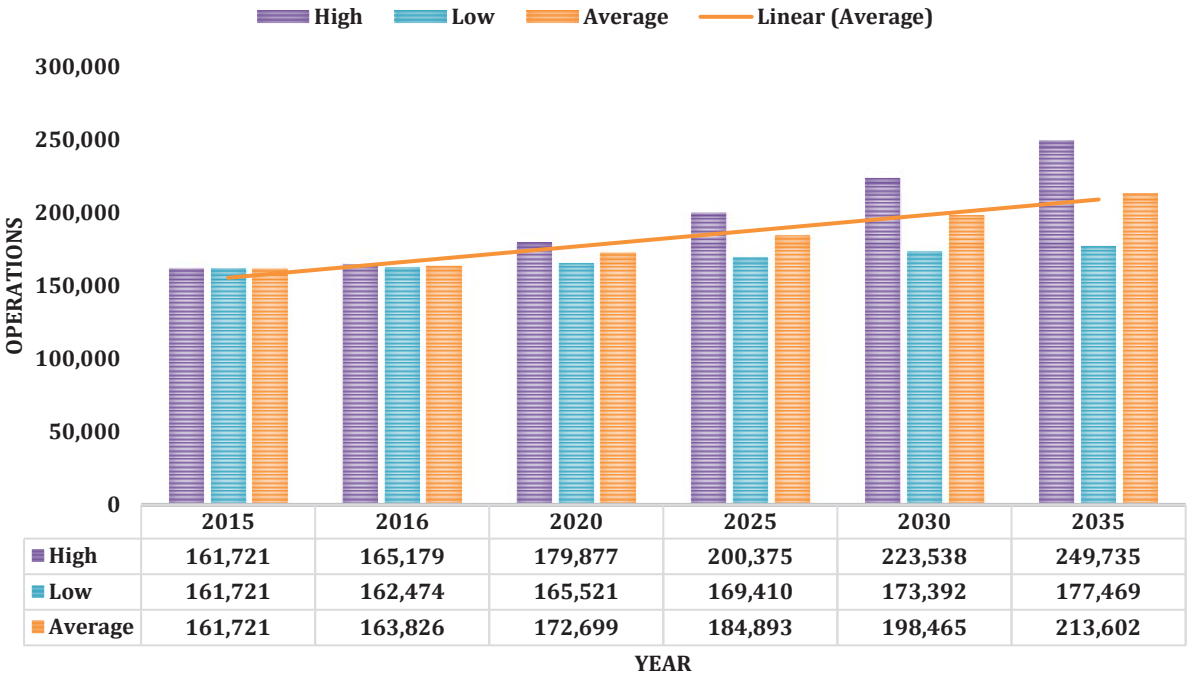
As part of this planning effort for EVB, the first set of forecasts were conducted for itinerant and local operations. Several factors were reviewed in the determination of applicable growth trends for this forecast and it was ultimately determined that two separate scenarios should be considered. The main concern was related to the potential for a drastic increase in operations due to the need for new airline pilots over the next 20 years (per the Boeing forecast) and how that may require the airport to provide the necessary airfield and landside facilities for additional flight training activities. As shown in **Table 3-5**, the "High Growth Forecast" employed historical growth rates from Table 3-1 to illustrate a scenario where the number of total operations at EVB increases from 161,721 in 2015 to 249,735 by 2035 (i.e., an additional 88,014 annual operations by 2035). A "Low Growth Forecast" was also produced that employed growth rates from the FAA Aerospace Forecast Fiscal Years 2015-2035 (FAA Aerospace Forecast) for "Total Combined Aircraft Operations at Airports with FAA and Contract Traffic Control Service (Table 32)." That forecast may be more realistic if future events like natural disasters and economic recessions cause occasional impacts to aviation activity levels. Because both the high and low growth forecasts are speculative, it was determined that an average of the two forecasts reflected a good case for EVB because it consists of a composite of recent growth trends at the airport as well as long-term growth trends that the FAA expects for the U.S. as a whole. For those reasons, the average forecast was considered the recommended forecast for this planning efforts. **Figure 3-3** presents a comparison of the three forecasting efforts. **Figure 3-4** illustrates the percentage of itinerant and local operations to total operations associated with the recommended forecast during the planning period. As shown, the percentage of local operations is anticipated to grow at a faster rate than itinerant operations in response to the growing need for new pilots and flight training activities.

Table 3-5
Itinerant & Local Operations Forecast (2015-2035)

Year	Itinerant				Local				Total Operations
	GA	Military	Total	% Total	Civil	Military	Total	% Total	
High Growth Forecast									
2015	55,682	14	55,696	34.44%	106,013	12	106,025	65.56%	161,721
2016	56,255	14	56,269	34.07%	108,898	12	108,910	65.93%	165,179
2020	58,605	14	58,619	32.59%	121,246	12	121,258	67.41%	179,877
2025	61,681	14	61,695	30.79%	138,668	12	138,680	69.21%	200,375
2030	64,919	14	64,933	29.05%	158,594	12	158,606	70.95%	223,538
2035	68,327	14	68,341	27.37%	181,382	12	181,394	72.63%	249,735
AAGR 2015-2035	1.03%	0.00%	1.03%	-1.14%	2.72%	0.00%	2.72%	0.51%	2.20%
Low Growth Forecast									
2015	55,682	14	55,696	34.44%	106,013	12	106,025	65.56%	161,721
2016	55,905	14	55,919	34.42%	106,543	12	106,555	65.58%	162,474
2020	56,805	14	56,819	34.33%	108,690	12	108,702	65.67%	165,521
2025	57,950	14	57,964	34.22%	111,435	12	111,447	65.78%	169,410
2030	59,118	14	59,132	34.10%	114,248	12	114,260	65.90%	173,392
2035	60,310	14	60,324	33.99%	117,133	12	117,145	66.01%	177,469
AAGR 2015-2035	0.40%	0.00%	0.40%	-0.07%	0.50%	0.00%	0.50%	0.03%	0.47%
Average of High & Low Growth Forecasts (Recommended)									
2015	55,682	14	55,696	34.44%	106,013	12	106,025	65.56%	161,721
2016	56,080	14	56,094	34.24%	107,721	12	107,733	65.76%	163,826
2020	57,705	14	57,719	33.42%	114,968	12	114,980	66.58%	172,699
2025	59,815	14	59,829	32.36%	125,051	12	125,063	67.64%	184,893
2030	62,018	14	62,032	31.26%	136,421	12	136,433	68.74%	198,465
2035	64,318	14	64,332	30.12%	149,258	12	149,270	69.88%	213,602
AAGR 2015-2035	0.72%	0.00%	0.72%	-0.67%	1.73%	0.00%	1.73%	0.32%	1.40%

Source: Michael Baker International, 2015.

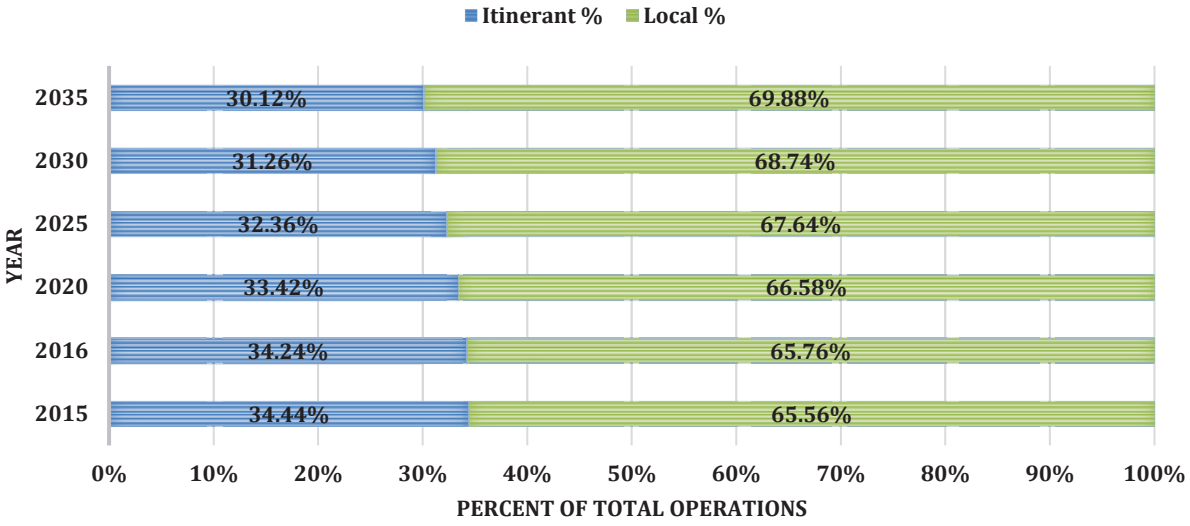
Figure 3-3
Operations Forecast Comparison (2015-2035)



	2015	2016	2020	2025	2030	2035
High	161,721	165,179	179,877	200,375	223,538	249,735
Low	161,721	162,474	165,521	169,410	173,392	177,469
Average	161,721	163,826	172,699	184,893	198,465	213,602

Source: Michael Baker International, 2015.

Figure 3-4
Recommended Forecast Itinerant & Local Operations Split (2015-2035)



Source: Michael Baker International, 2015.

3.6 Operations by Aircraft Type Forecast

Airfield design standards are determined based on the most demanding aircraft that regularly operates at the airport, which is referred to as the critical or design aircraft. The FAA defines regular activity as at least 500 annual operations. The operations by aircraft type forecast is presented in **Table 3-6** and was conducted as described below. The critical aircraft determination is included as part of the facility requirements determination in the next chapter of this report.

- **Turboprops –** The forecast of turboprops was conducted first. Based on discussions with the Fixed Base Operators (FBOs), it was determined that corporate aircraft frequently have to be turned away from EVB because of the limited parking area for larger transient aircraft and also limited hangar space for overnight storage. Therefore, one additional turboprop arrival and departure per week was added to 2016 to illustrate the operations that would be occurring at EVB if adequate facilities were available. Thereafter, turboprop operations were increased in accordance with the FAA Aerospace Forecast for "Active General Aviation & Air Taxi Hours Flown (Table 29)."
- **Jets –** The same analysis that was conducted for turboprops was conducted for jets.
- **Helicopters –** The 2005 MPU indicated that helicopters comprised 1.30 percent of total airport activity in 2002. That value was applied to determine the 2015 baseline operations value for helicopters at EVB. Thereafter, a growth rate from the FAA Aerospace Forecast was used to project helicopter activity growth through 2035.
- **Single-Engine Pistons** – Comprised 88.10 percent of the remainder of operations.
- **Multi-Engine Pistons** – Comprised 11.90 percent of the remainder of operations.

Table 3-6
Operations by Aircraft Type Forecast (2015-2035)

Year	SEP	MEP	Turboprop	Jet	Helicopter	Total Operations
2015	139,869	18,901	413	436	2,102	161,721
2016	141,465	19,117	524	556	2,165	163,826
2020	148,935	20,126	561	640	2,437	172,699
2025	159,183	21,511	610	764	2,825	184,893
2030	170,566	23,049	664	912	3,275	198,465
2035	183,234	24,761	722	1,088	3,797	213,602
AAGR 2015-2035	1.36%	1.36%	2.83%	4.68%	3.00%	1.40%

Source: Michael Baker International, 2015.

3.7 Instrument Operations Forecast

According to the FAA report, Forecasting Aviation Activity by Airport, instrument operations consist of "arrivals, departures, and overflights conducted by an FAA approach control facility for aircraft with an Instrument Flight Rule (IFR) flight plan or special Visual Flight Rule (VFR) procedures." At EVB, IFR operations generally consist of approaches and departures by aircraft filing flight plans with the FAA, which included a total of 7,646 operations in 2015 or 4.73 percent of all operations. For this forecasting effort, it was assumed that instrument operations would increase at an average annual growth rate of 0.80 percent per year in accordance with the FAA's forecast of IFR GA aircraft at en route traffic control centers from the FAA Aerospace Forecast. As shown in **Table 3-7**, this forecast results in instrument operations increasing from 7,646

operations in 2015 to 8,967 operations by 2035. It is anticipated that this forecast is consistent with the FAA's ongoing NextGen improvements that are being conducted to improve access to airports and efficiency within the nation's airspace system.

Table 3-7
Instrument Operations Forecast (2015-2035)

Year	Instrument Operations	Total Operations	% Total
2015	7,646	161,721	4.73%
2016	7,707	163,826	4.70%
2020	7,957	172,699	4.61%
2025	8,280	184,893	4.48%
2030	8,617	198,465	4.34%
2035	8,967	213,602	4.20%
AAGR 2015-2035	0.80%	1.40%	-0.59%

Source: Michael Baker International, 2015.

3.8 Peak Activity Forecasts

Peak activity was calculated for various factors at EVB by reviewing historical records provided by the ATCT. Peaking forecasts are conducted so that airports can plan for times when the highest concentration of activity occurs. For example, these forecasts are important for airfield capacity determinations and to calculate requirements for apron and terminal space. **Table 3-8** presents the peak activity forecasts for EVB and the methodology for each component detailed below.

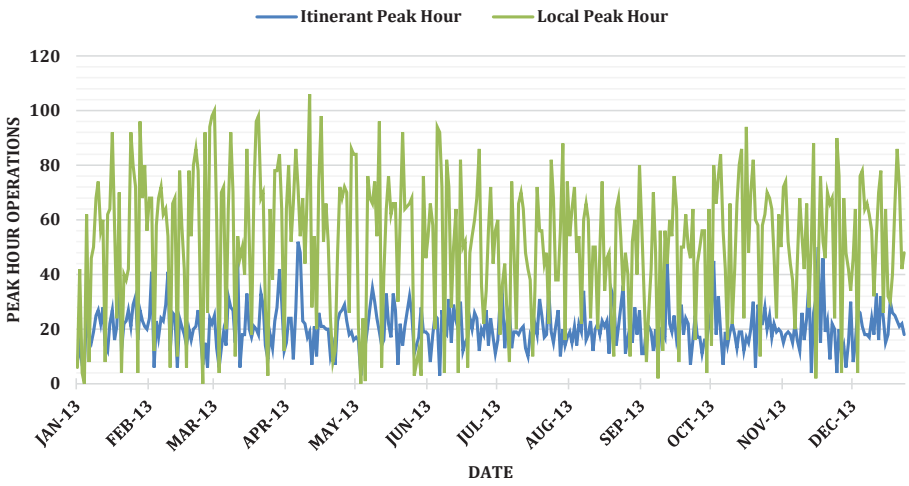
- **Average Peak Month (APM) –** Through a review of five years of records from the ATCT (2010 to 2014), the APM represented 10.47 percent of total annual activity.
- **Average Day Peak Month (ADPM) –** An average month contains 30.42 days (365 ÷ 12). The ADMP was calculated by dividing the APM by 30.42.
- **Average Day Peak Month Itinerant (ADPM IT) –** During the peak month, the average itinerant peak day represented approximately 0.96 percent of total monthly traffic.
- **Average Day Peak Month Local (ADPM LOC) –** During the peak month, the average local peak day represented approximately 2.26 percent of total monthly traffic.
- **Average Day Peak Hour Itinerant (ADPH IT) –** During the peak month, the average daily itinerant peak hour represented 15.80 percent of itinerant traffic. **Figure 3-5** illustrates the daily itinerant and local peak hours that occurred in 2013.
- **Average Day Peak Hour Local (ADPH LOC) –** During the peak month, the average daily local peak hour represented 22.04 percent of local traffic. Figure 3-5 illustrates the daily itinerant and local peak hours that occurred in 2013.
- **Average Day Peak Hour Composite (ADPH Combo) –** This was calculated by adding the two peak hour variables immediately above.
- **Average Day Peak Month Passengers (PAX Day) –** This was assumed to include the passenger activity that would be visiting the FBOs, but not inclusive of AirGate Aviation's passenger service to the Bahamas. It was assumed that 25.00 percent of the ADPM IT operations would be travelling with two passengers.
- **Average Day Peak Hour Passengers (PAX Hour) –** This was assumed to include 25.00 percent of the ADPH IT operations travelling with two passengers.

Table 3-8
Peak Activity Forecasts

Year	Total	APM	ADPM	ADPM IT	ADPM LOC	ADPH IT	ADPH LOC	ADPH Combo	PAX Day	PAX Hour
2015	161,721	16,927	557	163	383	26	84	110	82	13
2016	163,826	17,148	564	165	388	26	86	112	83	13
2020	172,699	18,076	594	174	409	28	90	118	87	14
2025	184,893	19,353	636	186	438	29	96	126	93	15
2030	198,465	20,773	683	200	470	32	104	135	100	16
2035	213,602	22,358	735	215	506	34	111	145	108	17
AAGR 2015-2035	1.40%	1.40%	1.40%	1.40%	1.40%	1.40%	1.40%	1.40%	1.40%	1.40%

Source: Michael Baker International, 2015.

Figure 3-5
Daily Itinerant & Local Peak Hours (2013)



Sources: FAA ATCT records and Michael Baker International, 2015.

3.9 Based Aircraft Forecast

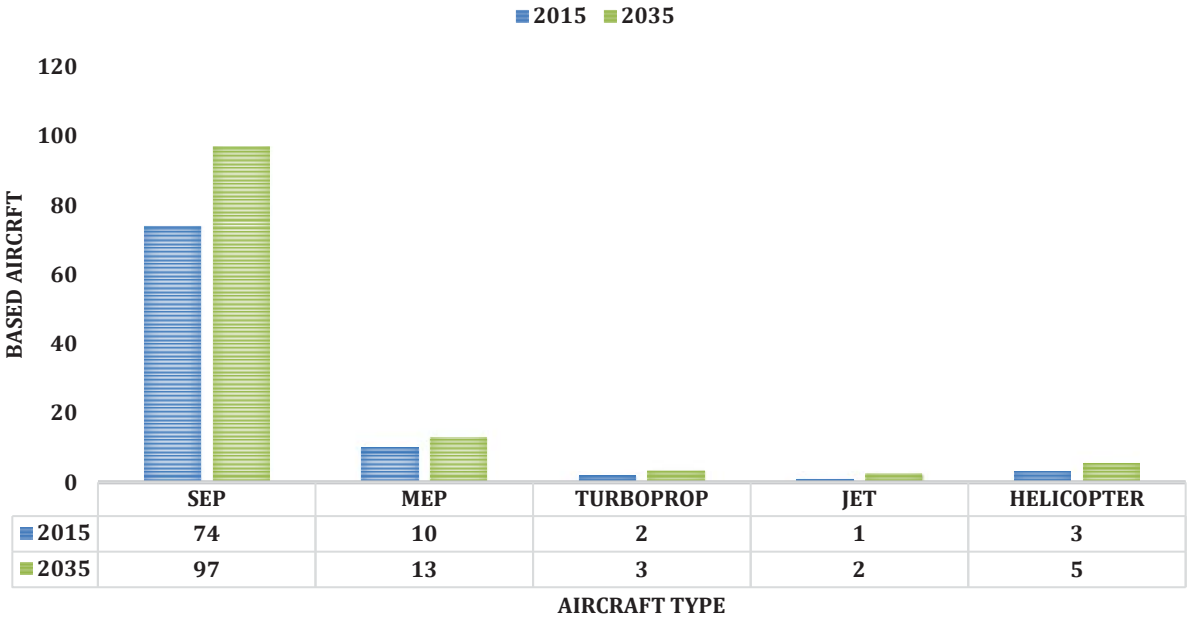
As shown in **Table 3-9** and **Figure 3-6**, the forecast of based aircraft by type employed the annual growth rates that were calculated for operations by aircraft type (refer to Table 3-6). This produced consistent growth scenarios for both operations and based aircraft. The forecast increases the number of based aircraft by 31 from 90 in 2015 to 121 by 2035. Single-engine pistons are expected to continue to comprise the majority of EVB's fleet mix throughout the planning period.

Table 3-9
Based Aircraft Forecast (2015-2035)

Year	SEP	MEP	Turboprop	Jet	Helicopter	Total
2015	74	10	2	1	3	90
2016	75	10	2	1	3	91
2020	79	11	2	1	3	97
2025	85	11	3	2	4	104
2030	91	12	3	2	5	113
2035	97	13	3	2	5	121
AAGR 2015-2035	1.36%	1.36%	2.83%	4.68%	3.00%	1.51%

Source: Michael Baker International, 2015.

Figure 3-6
Based Aircraft Forecast (2015 & 2035)



Source: Michael Baker International, 2015.

3.10 Forecast Summary

Table 3-10 presents a summary of the forecasts for EVB. According to the FAA's June 2008 Review and Approval of Aviation Forecasts guidance, total operations and based aircraft forecasts are considered consistent with the TAF if they differ by less than 10 percent in the five-year forecast period and 15 percent in the 10-year forecast period. The operations forecast is consistent with the TAF thresholds (as shown in red in the table), while the based aircraft forecast exceeds the TAF thresholds. It is noted that the TAF held all values constant with fewer aircraft than are currently based at EVB and subsequently did not account for any growth at the airport. Overall, the forecasts were developed in order to allow the airport to plan for facility improvements that are typical of an airport such as EVB, if and when they may be needed in the future.

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Table 3-10
Airport Planning Forecasts
Forecast Levels and Growth Rates

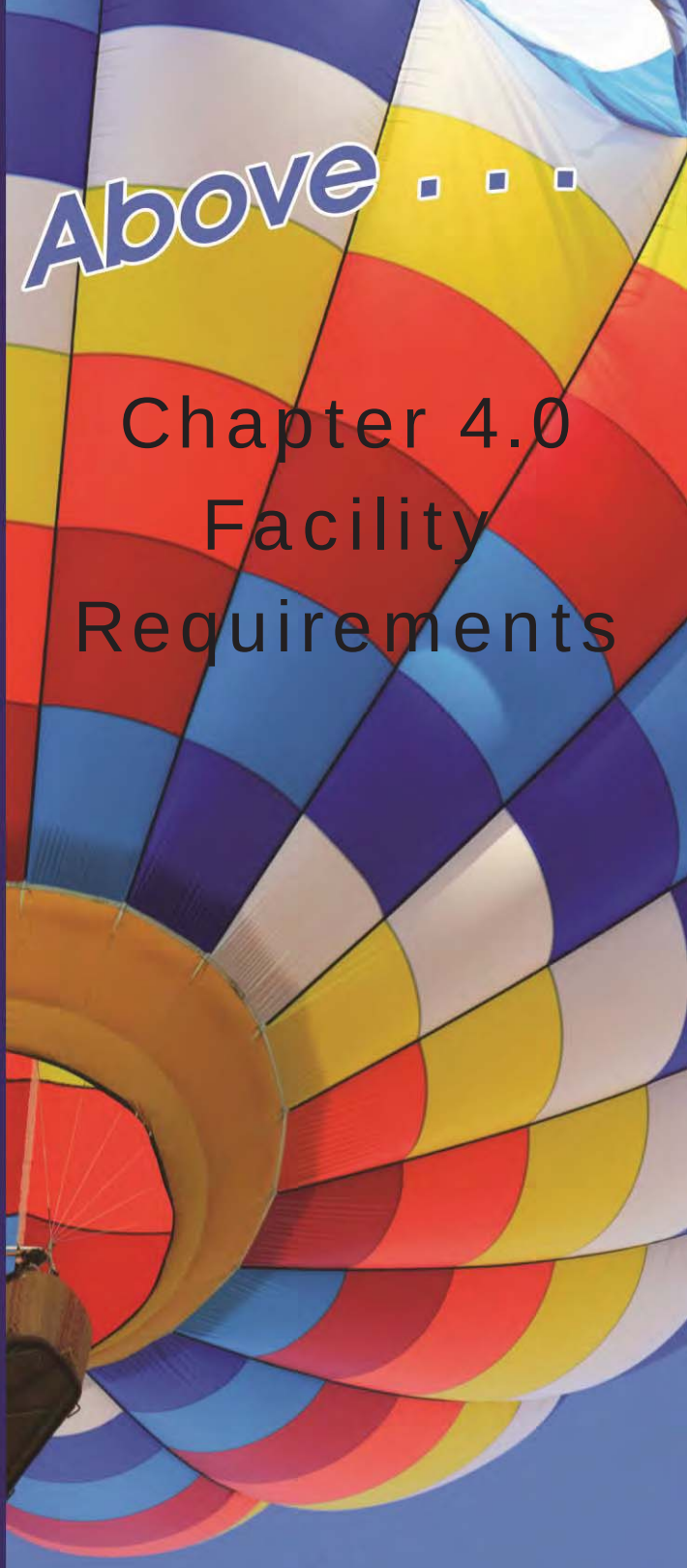
New Smyrna Beach Municipal Airport, New Smyrna Beach, Florida
Base Year: 2015

							Average Annual Compound Growth Rates				
	Base Yr. Level	Base Yr. + 1Yr.	Base Yr. + 5Yrs.	Base Yr. + 10Yrs.	Base Yr. + 15Yrs.	Base Yr. + 20Yrs.	Base Yr. to +1	Base Yr. to +5	Base Yr. to +10	Base Yr. to +15	Base Yr. to +20
	2015	2016	2020	2025	2030	2035	2016	2020	2025	2030	2035
Itinerant and Local Operations											
Itinerant Operations	55,696	56,094	57,719	59,829	62,032	64,332	0.71%	0.72%	0.72%	0.72%	0.72%
Itinerant %	34.44%	34.24%	33.42%	32.36%	31.26%	30.12%	-0.58%	-0.60%	-0.62%	-0.64%	-0.67%
Local Operations	106,025	107,733	114,980	125,063	136,433	149,270	1.61%	1.63%	1.67%	1.70%	1.73%
Local %	65.56%	65.76%	66.58%	67.64%	68.74%	69.88%	0.30%	0.31%	0.31%	0.32%	0.32%
Total Operations	**161,721**	**163,826**	**172,699**	**184,893**	**198,465**	**213,602**	**1.30%**	**1.32%**	**1.35%**	**1.37%**	**1.40%**
2014 TAF Operations	**164,221**	**165,107**	**168,724**	**173,407**	**178,279**	**183,350**	**0.54%**	**0.54%**	**0.55%**	**0.55%**	**0.55%**
Difference from TAF	**-1.52%**	**-0.78%**	**2.36%**	**6.62%**	**11.32%**	**16.50%**					
Operations by Aircraft Type and Critical Aircraft											
Single-Engine Piston	139,869	141,465	148,935	159,183	170,566	183,234	1.14%	1.26%	1.30%	1.33%	1.36%
Multi-Engine Piston	18,901	19,117	20,126	21,511	23,049	24,761	1.14%	1.26%	1.30%	1.33%	1.36%
Turboprop	413	524	561	610	664	722	26.88%	6.30%	3.97%	3.21%	2.83%
Jet	436	556	640	764	912	1,088	27.45%	7.98%	5.77%	5.04%	4.68%
Rotorcraft	2,102	2,165	2,437	2,825	3,275	3,797	3.00%	3.00%	3.00%	3.00%	3.00%
IFR Operations											
IFR Operations	7,646	7,707	7,957	8,280	8,617	8,967	0.80%	0.80%	0.80%	0.80%	0.80%
IFR %	4.73%	4.70%	4.61%	4.48%	4.34%	4.20%	-0.50%	-0.52%	-0.54%	-0.57%	-0.59%
Peak Operations											
Average Peak Month (APM)	16,927	17,148	18,076	19,353	20,773	22,358	1.30%	1.32%	1.35%	1.37%	1.40%
Average Day Peak Month (ADPM)	557	564	594	636	683	735	1.30%	1.32%	1.35%	1.37%	1.40%
Itinerant Peak Hour	26	26	28	29	32	34	1.30%	1.32%	1.35%	1.37%	1.40%
Local Peak Hour	84	86	90	96	104	111	1.30%	1.32%	1.35%	1.37%	1.40%
Based Aircraft											
Single-Engine Piston	74	75	79	85	91	97	1.36%	1.36%	1.36%	1.36%	1.36%
Multi-Engine Piston	10	10	11	11	12	13	1.36%	1.36%	1.36%	1.36%	1.36%
Turboprop	2	2	2	3	3	3	2.83%	2.83%	2.83%	2.83%	2.83%
Jet	1	1	1	2	2	2	4.68%	4.68%	4.68%	4.68%	4.68%
Rotorcraft	3	3	3	4	5	5	3.00%	3.00%	3.00%	3.00%	3.00%
Total Based Aircraft	**90**	**91**	**97**	**104**	**113**	**121**	**1.48%**	**1.49%**	**1.50%**	**1.50%**	**1.51%**
2014 TAF Based Aircraft	**83**	**83**	**83**	**83**	**83**	**83**	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**
Difference from TAF / 2012 Baseline	**8.43%**	**10.04%**	**16.75%**	**25.78%**	**35.61%**	**46.33%**					
Operational Factors											
Total Ops Per Based Aircraft	1,797	1,794	1,782	1,771	1,763	1,759	-0.18%	-0.16%	-0.15%	-0.13%	-0.11%
Local Ops Per Based Aircraft	1,178	1,180	1,187	1,198	1,212	1,229	0.13%	0.14%	0.17%	0.19%	0.21%
IFR Ops to Total Ops	4.73%	4.70%	4.61%	4.48%	4.34%	4.20%	-0.50%	-0.52%	-0.54%	-0.57%	-0.59%

Source: Michael Baker International, 2015.

Rising Above . . .

Chapter 4.0
Facility Requirements



New Smyrna Beach Municipal Airport

MASTER PLAN UPDATE

4.0 FACILITY REQUIREMENTS

The facility requirements assess both the aviation and non-aviation components of the New Smyrna Beach Municipal Airport (EVB) including the runways and taxiways, aircraft storage facilities, supporting infrastructure (e.g., roadways and parking), the adjoining industrial park, and undeveloped properties. EVB is a key focus area for economic development within the City of New Smyrna Beach. The airport provides opportunities for both aviation and non-aviation development that is beneficial for creating jobs in Volusia County—one of the world's busiest locations for aviation training activity. EVB benefits from a congestion-free airspace environment and is near Embry-Riddle Aeronautical University and a well-established and growing aviation and aerospace sector. These are important considerations of the facility requirements, in addition to meeting Federal Aviation Administration (FAA) design standards as identified in FAA Advisory Circular (AC) 150/5300-13A, Airport Design, and other appropriate guiding documents. The facilities that would be needed to meet the FAA-approved forecasts of aviation demand are also identified in this chapter. The goal was to identify improvements that would be needed over the course of the 20-year planning period that extends from 2015 to 2035.

An analysis of the following airport components is presented herein:

- City of New Smyrna Beach Vision Statement
- Identification of Critical Aircraft
- Runway Utilization and Wind Coverage Analysis
- Airfield Capacity
- Airfield Design Standards Analysis
- Runway Length Analysis
- Runway Strength Analysis
- Taxiway and Taxilane System
- Airfield Lighting, Markings, Signage, and Navigational Aids
- Transient Apron and Based Aircraft Storage
- Airport Support Facilities
- Land Acquisition Requirements
- Airport Security Analysis
- Summary

4.1 City of New Smyrna Beach Vision Statement

In December 2009, the city commission adopted the vision statement below for the City of New Smyrna Beach. Although the vision statement is for the city as a whole, the specific elements are applicable to the goals and objectives for EVB. The airport is viewed as a key area for both aviation and non-aviation growth opportunities within the city and county. The airport and the city's economic development department work together to actively market EVB for such opportunities, and through the development of this master plan update, will have an updated plan that identifies areas where targeted development projects could occur at EVB and/or where the redevelopment of existing facilities may be beneficial. Many airports have the benefit of being able to utilize multiple funding mechanisms for new project development, particularly those in the

State of Florida where the Florida Department of Transportation (FDOT) Aviation and Spaceports Office commonly provides financial assistance to airports at higher levels than DOTs in other states (and for a wider variety of projects). Therefore, the City of New Smyrna Beach should continue to embrace the elements of the vision statement below as it applies to EVB.

Vision Statement for City of New Smyrna Beach (adopted December 2009)

We will build an attractive City that offers exceptional opportunities for her citizens and lifestyles that embrace an enhanced quality of life.

Our walking-friendly City with her beautiful waterways will engender diverse recreational and economic opportunities for people of all ages.

Job opportunities will abound throughout our industrial centers and downtown areas. Beautifully landscaped corridors with attractive signage will refine our City with a well-maintained road system and a transportation network, including train and air transportation.

Our City will boast of sustainable business corridors and office parks. We will possess a hospital district and be a hub for educational enhancement through our schools and colleges.

Through our diligence our City will grow and be a place in which people want to live. Our partnerships with educational institutions, governmental entities, community and cultural groups will further be a testament to being responsive to citizens' needs and proactive in making our vision a reality.

4.2 Identification of Critical Aircraft

AC 150/5000-17, Critical Aircraft and Regular Use Determination, dated June 20, 2017, "provides guidance on the use of critical aircraft in the conduct of facility planning studies for federally obligated airports" and also defines the term regular use. The AC references FAA Order 5100.38D, Airport Improvement Program Handbook, which defines eligibility and justification requirements for airport projects. The AC further defines the critical aircraft as "the most demanding aircraft type, or grouping of aircraft with similar characteristics, that make regular use of the airport. Regular use is 500 operations, excluding touch-and-go operations. An operation is either a takeoff or landing." The existing critical aircraft must be identified based on documented aeronautical activity, typically for the most recent 12-month period that is available. The future critical aircraft is based on an FAA-approved forecast and any change to the existing critical aircraft must be supported by a credible forecast.

The previous master plan update identified the Beechcraft 1900 as the existing and future critical aircraft for all three runways at EVB, which is a twin-engine turboprop that has capacity for 19 passengers and two crew members. Although EVB experienced several hundred operations by turboprops with similar specifications as the Beechcraft 1900 in 2015, there were very few operations by a Beechcraft 1900. The forecasts of aviation demand show the number of both turboprop and jet operations exceeding 500 by 2016 (524 turboprop operations and 556 jet operations in 2016). FAA airfield design criteria (e.g., required separations and safety area dimensions) is determined based on the approach speed and wingspan of the identified critical aircraft. As shown in **Table 4-1**, each runway is assigned a Runway Design Code (RDC) that is a

function of the critical aircraft's Aircraft Approach Category (AAC) or approach speed in knots and Airplane Design Group (ADG) or wingspan and tail height in feet.

Based on a review of recent activity data for EVB, the most appropriate existing and future critical aircraft was determined to be a medium-sized corporate jet with an RDC of B-II. The Cessna Citation 560XL falls into that category, commonly operates at EVB, and was therefore selected as the existing and future critical aircraft for this planning effort (refer to aircraft characteristics in Table 4-1). Later sections of this master plan update consider the characteristics of the Cessna Citation 560XL and an RDC of B-II to determine requirements for facilities at EVB. Although this is considered the overall critical aircraft for all three runways, some facilities at EVB should be evaluated in accordance with a different 'design aircraft' that best represents the specific requirements of the facility.

Table 4-1
Runway Design Code (RDC) and Critical Aircraft

Aircraft Approach Category (AAC)		Airplane Design Group (ADG)		
Category	**Approach Speed (Knots)**	**Group**	**Tail Height (Feet)**	**Wingspan (Feet)**
A	<91	I	<20	<49
B	91 to <121	II	20 to <30	49 to <79
C	121 to <141	III	30 to <45	79 to <118
D	141 to <166	IV	45 to <60	118 to <171
E	>166	V	60 to <66	171 to <214
		VI	66 to <80	214 to <262

Critical Aircraft	Cessna Citation 560XL
Aircraft Type	Jet
Aircraft Approach Category/Approach Speed	B / 117 Knots
Airplane Design Group/Wingspan	II / 55.7 Feet
Runway Design Code (RDC)	RDC B-II
Tail Height	17.2 Feet
Main Gear Width	14.9 Feet
Cockpit to Main Gear	21.9 Feet
Taxiway Design Group (TDG)	TDG-2
Max Takeoff Weight (MTOW)	20,200 Pounds
Max Landing Weight (MLW)	18,700 Pounds
Max Passengers	11 Passengers + 2 Crew



Sources: FAA AC 150/5300-13A, Airport Design, and Cessna Aircraft Company.

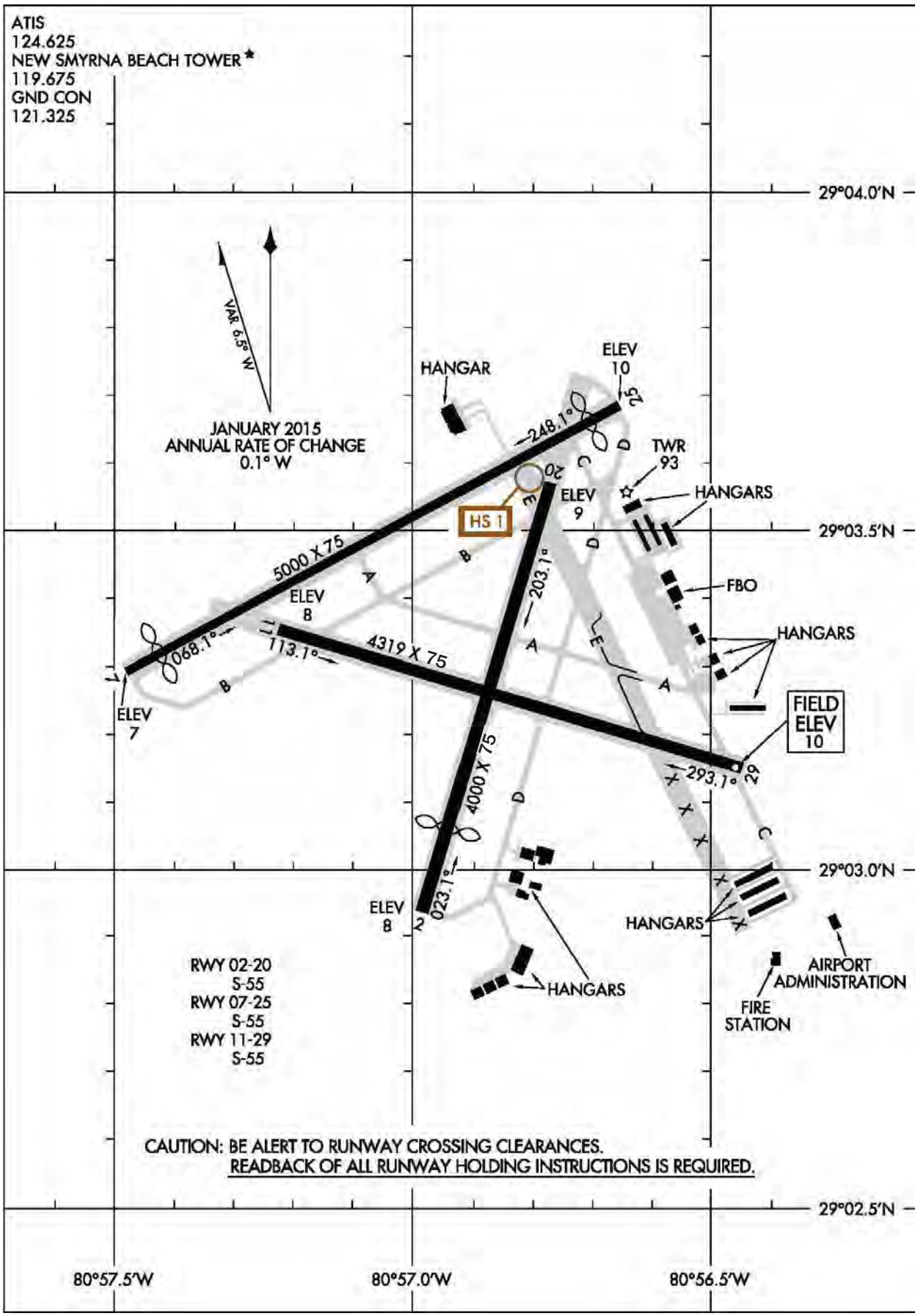
4.3 Runway Utilization and Wind Coverage Analysis

The FAA's airport diagram for EVB is presented in **Figure 4-1** to illustrate the three-runway airfield configuration in a simplified format. The airfield consists of two intersecting runways (Runways 2-20 and 11-29) and a 5,000 foot long runway (Runway 7-25) that is primarily used for training activity to the north. The previous master plan update indicated that only Runways 7-25 and 11-29 are eligible for FAA Airport Improvement Program (AIP) funds, which means the cost to maintain Runway 2-20 must be fully covered by the City, FDOT, and/or other sources. The purpose of this analysis is to illustrate the critical need to maintain all three runways.

Due to factors such as the high volume of training activity at EVB, the complex airfield configuration, and seasonal/daily wind variations, the three runways typically remain active at all times and each serves a very specific function for maintaining efficient traffic flows. Personnel from the Airport Traffic Control Tower (ATCT) provide the capability for all three runways to remain active at all times. Prior to the completion of the ATCT in 2004, pilots had to operate in more of a 'see and avoid' manner while also relying on radio transmissions from pilots and Daytona Approach/Departure Control. Today, personnel from the ATCT allow the three-runway airfield configuration to work as efficiently as it can with today's technologies, much like the FAA has employed Next Generation Air Transportation System (NextGen) technologies to improve access and efficiency at the nation's busiest airports. At EVB, ATCT personnel work with the aviation training universities and academies to limit the number of aircraft that are conducting touch-and-go's at any given time and often have to turn away aircraft when the pattern is full (e.g., typically six aircraft can operate in a pattern). ATCT personnel make a complex airfield configuration work at EVB, but highly depend on the availability of all three runways to do so.

During discussions as part of this planning process, personnel from the ATCT explained the general traffic flows at EVB. Although the winds in Florida have the tendency to change on a seasonal/daily/hourly and instantaneous basis and subsequently alter traffic patterns, the general flow of the airfield can be summarized by the following three observations:

1. Runway 7-25 is the training runway. Runway 7 operations follow a left-hand traffic pattern and Runway 25 operations follow a right-hand traffic pattern.
2. Runway 2-20 is primarily used for itinerant traffic arriving from/departing to the east. Runway 20 is the least utilized runway end at EVB.
3. Runway 11-29 is primarily used for itinerant traffic arriving from/departing to the west.



Y:\Planning\EVB - New Smyrna Beach Municipal Airport\Master Plan Update\Drawings\Report Figures\Fig_4-1_(EVB)_FAA Airport Diagram.dwg May 23 2017-07:20

Figure 4-1 FAA Airport Diagram

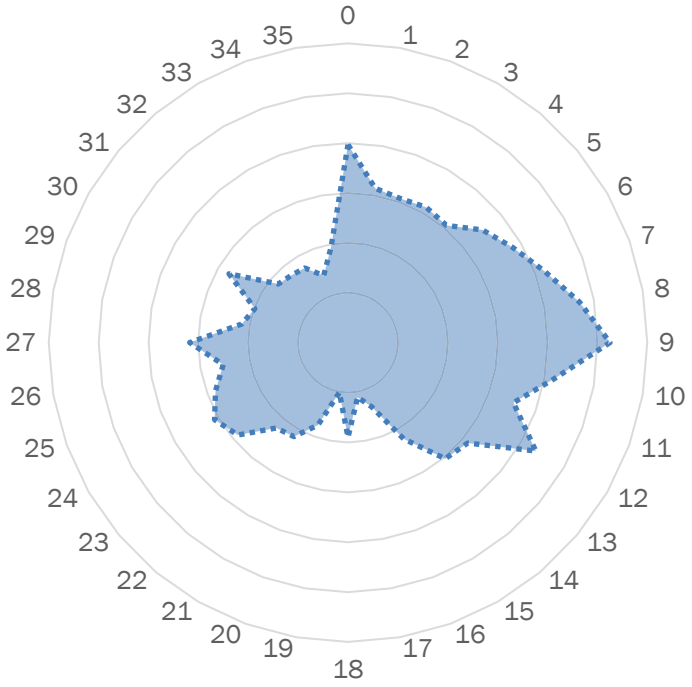
The general traffic pattern and runway configuration suggests that EVB has two separate runway environments—one for local or training activity and one for itinerant activity. The next section of this chapter illustrates that both runway environments are needed to provide adequate capacity levels both currently and in the future at EVB, combined with the assistance of ATCT personnel to manage the aircraft traffic flows. Both runway environments are also needed for wind coverage. Historical wind records from the on-site Automated Weather Observing System (AWOS) were reviewed to determine the percentage of time that adequate wind coverage is provided by the airfield. According to FAA AC 150/5300-13A, Airport Design, a crosswind runway is recommended when the primary runway orientation provides less than 95.0 percent wind coverage. For runways that serve small aircraft with gross weights less than 12,500 pounds and an RDC of A-I or B-I, the allowable crosswind component is 10.5 knots. For runways that serve large aircraft with gross weights of 12,500 pounds or more and an RDC of A-II or B-II, the allowable crosswind component is 13 knots. Consequently, as the weight and approach speed of an aircraft increases, the aircraft has the ability to operate in higher crosswind speeds. The wind coverage analysis for EVB is presented in **Table 4-2** for All Weather, Instrument Flight Rules (IFR), and Visual Flight Rules (VFR) conditions, with the wind coverage percentages less than 95.00 percent highlighted. **Figure 4-2** illustrates the percentage of time all wind observations were coming from each direction (averaged during the period from 2006 to 2016), with each circle representing a one percent interval. If Runway 2-20 was no longer operational, the remaining two-runway configuration would not provide adequate crosswind coverage for the critical aircraft during IFR conditions and would also not provide adequate crosswind coverage for small aircraft activity.

Table 4-2
EVB Wind Coverage Analysis (2006-2016)

Runway	True Heading	All Weather		IFR		VFR	
		10.5 knots	13 knots	10.5 knots	13 knots	10.5 knots	13 knots
7-25	61.60 / 241.61	88.58%	94.18%	81.65%	89.70%	88.88%	94.38%
2-20	16.60 / 196.61	88.20%	93.78%	90.28%	94.17%	88.08%	93.75%
11-29	106.62 / 286.62	88.67%	93.56%	79.63%	87.12%	89.11%	93.87%
Three Runway	Combined	99.46%	99.88%	98.80%	99.66%	99.49%	99.89%
7-25 / 11-29	Combined	94.63%	97.66%	86.97%	93.55%	94.99%	97.85%
7-25 / 2-20	Combined	94.70%	98.16%	95.03%	97.94%	94.66%	98.17%
2-20 / 11-29	Combined	98.80%	99.71%	98.80%	99.71%	98.87%	99.75%
Conditions		Ceiling = All Visibility = All 53,129 Observations		Ceiling < 1,000' ≥ 200' Visibility < 3 Miles ≥ ½-Mile 2,874 Observations		Ceiling ≥ 1,000' Visibility ≥ 3 Miles 50,168 Observations	

Source: Station 722361, New Smyrna Beach, Florida, 2006-2016.
Highlighted values are less than 95.00%.

Figure 4-2
All Weather Wind Direction Analysis (2006-2016)



Source: Station 722361, New Smyrna Beach, Florida, 2006-2016.
Note: This graph illustrates the percentage of time all wind observations were coming from each direction from 2006 to 2016. The circles are shown in 1% intervals.

No single runway at EVB provides 95.00 percent or more coverage for the 10.5 knot and 13 knot crosswind components. Although the RDC for Runway 7-25 is B-II, 100,000 or more small aircraft operations may occur on that runway each year (or aircraft with a 10.5 knot crosswind component). Runway 7-25 provides 88.88 percent coverage under the 10.5 knot crosswind component, which means that a crosswind runway is recommended for the training activity at EVB. Furthermore, no combination of Runway 7-25 and any other runway provides completely adequate crosswind coverage for both the small training aircraft and larger corporate aircraft, while the combination of all three runways provides adequate crosswind coverage for all aircraft that regularly operate at EVB. Although the combination of Runways 2-20 and 11-29 provides adequate crosswind coverage for All Weather, IFR, and VFR conditions, that two-runway configuration would not allow the airfield to maintain acceptable levels of capacity both currently and during the planning period, as discussed in the following section.

4.4 Airfield Capacity

The FAA defines airfield capacity as an estimate of aircraft that can be processed through the airfield system during a specific period with acceptable levels of delay. This section evaluates whether the existing airfield configuration of EVB is capable of accommodating forecast levels of demand during the planning period. Estimates of airfield capacity were developed in accordance with the methods presented in FAA AC 150/5060-5, Airport Capacity and Delay (Capacity AC). This methodology does not account for every possible situation at an airport, but rather the most common situations observed at U.S. airports when the Capacity AC was adopted. The Capacity AC provides a methodology for determining the hourly capacity, Annual Service Volume (ASV), and aircraft delay, which are defined below. Each of these factors was calculated for existing conditions and for the last year of the planning period at EVB. The results are used for planning purposes to determine if airfield improvements are needed.

- **Hourly Airfield Capacity –** An airport's hourly airfield capacity represents the maximum number of aircraft that can be accommodated under conditions of continuous demand during a one-hour period. Using peak hour forecasts, the hourly airfield capacity is determined for both VFR and IFR activity.
- **Annual Service Volume (ASV) –** The ASV estimates the annual number of operations that the airfield configuration should be capable of handling with minimal delays. The ASV accounts for peaking characteristics in its calculation of 12-month demand as well as periods of low-volume activity.
- **Delay –** The average anticipated delay is based on a ratio of forecast demand to the calculated ASV. According to the Capacity AC, "as demand approaches capacity, individual aircraft delay is increased. Successive hourly demands exceeding the hourly capacity result in unacceptable delays."

FAA Order 5090.3C, Field Formulation of the National Plan of Integrated Airport Systems, states that Chapter 2 of the Capacity AC (Capacity and Delay Calculations for Long-Range Planning) should be used for most airports. The Capacity AC does not identify capacity thresholds for an airfield configuration such as EVB's. This is because airports with three runways typically have at least two parallel runways, which allows for simultaneous use of the parallel runways. Although the airfield configuration at EVB does not allow the airport to maximize capacity in accordance with the recommendations in the Capacity AC, personnel from the ATCT have organized a way for the aircraft traffic to efficiently operate on the three runways, but the presence of the three runways is needed for them to continue to handle the activity. Because the Capacity AC does not address a configuration such as EVB's, this analysis focused on illustrating what the impacts would be if EVB had a two runway configuration. It was assumed that a minimum of two runways would be needed because no single runway provides adequate crosswind coverage. As shown in **Figure 4-3**, three airfield configurations were reviewed as it pertains to the capacity assessment for EVB. The first one is an intersecting runway configuration, which would apply to EVB if Runways 2-20 and 11-29 were the only two runways available. The other two represent non-intersecting runway configurations that have different hourly capacities and ASVs depending upon the direction of traffic. FAA Order 5100.38D, Airport Improvement Program Handbook, identifies the following policy regarding the justification of runways.

FAA Policy on Secondary, Crosswind, and Additional Runways (FAA Order 5100.38D)

Per FAA policy, the ADO [FAA Airports District Office) can only fund a single runway at an airport unless the ADO has made a specific determination that an additional runway is justified. The requirements, justification and eligibility for runways are listed in Table 3-7 [see below].

Before planning a project on a runway, the ADO must determine the type of runway (primary, secondary, or additional).

A runway that is not a primary runway, a secondary runway, or a crosswind runway is considered to be an additional runway. It is not unusual for a two-runway airport to have a primary runway and an additional runway, and no secondary or crosswind runway. That is because the ADO can only designate a runway as a secondary or crosswind runway if it meets the specific operating and justification parameters in Table 3-7.

Additional runways are not eligible. Any development such as marking, lighting, or maintenance projects on an additional runway is also ineligible.

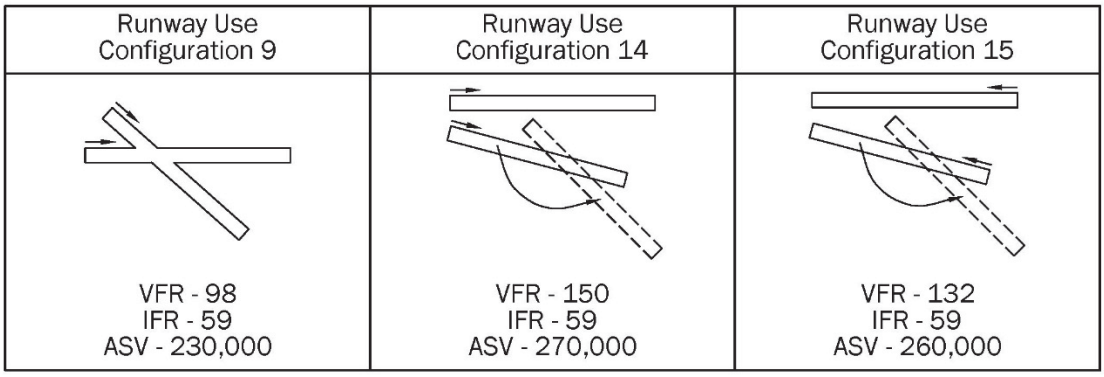
Table 3-7 Runway Types and Eligibility

For the following runway type…	Must meet all of the following criteria…	And is…
a. Primary Runway	**(1)** A single runway at an airport is eligible for development consistent with FAA design and engineering standards.	Eligible
b. Crosswind Runway	**(1)** The wind coverage on the primary runway is less than 95%.	Eligible if justified
c. Secondary Runway	**(1)** There is more than one runway at the airport. **(2)** The non-primary runway is not a crosswind runway. **(3)** Either of the following: **(a)** The primary runway is operating at 60% or more of its annual capacity, which is based on guidance developed by APP-400 as the threshold for considering when to plan a new runway, or **(b)** APP-400 has made a specific determination that the runway is required for operation of the airfield.	Eligible if justified.
d. Additional Runway	**(1)** There is more than one runway on the airport. **(2)** The ADO has determined that the nonprimary runway does not meet the requirements to be designated a crosswind runway. **(3)** The ADO has determined that the nonprimary runway does not meet the requirements to be designated a secondary runway.	Ineligible.

EVB has a need for all three runways for crosswind purposes because only the combination of the three runways provides adequate coverage. Although it is difficult to assign a primary and secondary runway, the analysis in **Table 4-3** should illustrate that a secondary runway is needed because the number of annual operations at EVB currently exceeds 60 percent or more of the ASV of any of the two-runway airfield configurations, which is the threshold for when a new runway should be planned. Depending upon the traffic flows, the number of annual operations at EVB was as high as 70 percent of ASV in 2015 and as low as 60 percent. By 2035, those percentages are forecast to be as high as 93 percent of ASV and as low as 79 percent. Although it would be ideal to plan for a new parallel runway to improve airfield capacity, the ability to do so may be highly unfeasible at EVB. Rather, ATCT personnel have developed procedures so the existing three-runway configuration can handle the busy combination of local training and itinerant aircraft activity, but they rely on the continued operation of all three runways. Therefore, the City of New Smyrna Beach has made it a key priority to maintain all three runways at EVB because they are not only needed for crosswind purposes, but also because the number of annual operations under a two-runway configuration would exceed 60 percent of ASV and would trigger the need to plan for a new runway (which the airfield currently provides). Because Runway 2-20 is currently in fair/poor condition, the pavement should be rehabilitated in order to preserve the capability for ATCT personnel to manage the traffic flows. Furthermore, although it was not assessed as part of this master plan update, many of the airports near EVB also experience a high number of local training operations. The separation of local and itinerant traffic that is provided by the three-runway configuration at EVB helps to improve airfield capacity within the region (and crosswind coverage for both small and large aircraft), and a reduction in capabilities at EVB may produce impacts elsewhere within the region. The FAA's guidebook for calculating such impacts was produced by the MITRE Corporation and is named Calculated Delay Propagation Multipliers for Cost-Benefit Analysis. According to the guidebook, "delays that originate at one location in the National Airspace System (NAS) often propagate or result in delays at other locations. Given an infrastructure investment at an airport that is expected to reduce delay at that airport, it is reasonable to expect that the investment may also reduce delay at other airports through a reduction in propagated delay." In 2015, there were 297,678 operations at Daytona Beach International Airport (DAB) and 293,605 operations at Orlando Sanford International Airport (SFB). EVB plays a crucial role by serving as a reliever facility for those airports. The continued investment in the runways at EVB is viewed as important for reducing the overall aviation delay at other airports in the region.

Other capacity-enhancing improvements are incorporated into the alternatives including by-pass taxiways at the runway ends, which basically serve the same function as holding aprons to allow aircraft to better maneuver around each other. Such improvements will help to reduce the overall delay that is experienced by aircraft maneuvering on the airfield.

Figure 4-3
Runway Use Configurations



Source: FAA AC 150/5060-5, Airport Capacity and Delay.

Table 4-3
Airfield Capacity Calculations

Configuration – Year	Annual		Hourly			
	Operations	% ASV	VFR Peak Hour	% VFR Capacity	IFR Peak Hour	% IFR Capacity
9 – 2015	161,721	70%	84	86%	26	44%
9 – 2035	213,602	93%	111	113%	34	58%
14 – 2015	161,721	60%	84	56%	26	44%
14 – 2035	213,602	79%	111	74%	34	58%
15 – 2015	161,721	62%	84	64%	26	44%
15 – 2035	213,602	82%	111	84%	34	58%

Source: Michael Baker International, Inc., 2016.

4.5 Airfield Design Standards

The runways, taxiway and aircraft parking aprons at EVB were analyzed for compliance with FAA design standards and the ability to handle existing and forecast levels of demand. The FAA defines the requirements for airfield design standards in AC 150/5300-13A, Airport Design. These include numerous safety area and separation standards that must be followed to ensure that aircraft have adequate wingtip-to-wingtip clearances, overrun protection, and obstruction-free movement areas. **Tables 4-4**, **4-5**, and **4-6** summarize the airfield design standards for existing conditions at EVB, with non-standard or non-preferential conditions identified in **red**. Although many of the airfield design standards are self-explanatory, important features such as the Runway Safety Area (RSA), Runway Object Free Area (ROFA), and Runway Protection Zone may require further definition. These important features are discussed below and illustrated in **Figure 4-4**.

- **Runway Safety Area (RSA) –** The RSA is a rectangular surface that is centered on the runway. The FAA dictates that RSAs shall be: "1) cleared and graded and have no potentially hazardous ruts, humps, depressions, or other surface variations; 2) drained by grading or storm sewers to prevent water accumulation; 3) capable, under dry conditions, of supporting snow removal equipment, aircraft rescue and firefighting equipment, and the occasional passage of aircraft without causing structural damage to the aircraft; and 4) free of objects, except for objects that need to be located in the RSA because of their function." Beyond both ends of Runway 7-25, the RSAs extend over roads (Sunset Drive to the west and U.S. Route 1 to the east) and the Runway 25 RSA also extends off the airport property.

Therefore, as part of this master plan update, alternatives for bringing those RSA into compliance will be explored in accordance with FAA Order 5200.8, Runway Safety Area Program. Alternatives may include the application of declared distances in order to publish what runway lengths are available for takeoff and landing calculations, threshold relocations, runway length reductions, and others to comply with FAA criteria. Furthermore, the RSA beyond the Runway 20 end extends over the Runway 7-25 RSA, which is often viewed as a non-preferential scenario. In such cases, the FAA may recommend that the portion of the RSA beyond the runway end be corrected so that it no longer overlaps the RSA of the other runway.

- **Runway Object Free Area (ROFA) –** The ROFA must be clear of ground objects protruding above the RSA edge elevation and is a rectangular surface that is centered on the runway. The ROFA is intended to "enhance the safety of aircraft operations by having the area free of objects, except for objects that need to be located in the ROFA for air navigation or aircraft ground maneuvering purposes." The ROFAs beyond each end of Runway 7-25 are also non-compliant because they extend off the airport property and over roads. A small portion of the ROFA beyond the Runway 2 end also extends over a road. Opportunities for correcting those non-compliant ROFAs will also be explored as part of this master plan update.

- **Runway Protection Zone (RPZ) –** The RPZs extend off the airport property beyond all six runway ends at EVB. "The RPZ's function is to enhance the protection of people and property on the ground. This is achieved through airport owner control over RPZs. Such control includes clearing RPZ areas (and maintaining them clear) of incompatible objects and activities. Control is preferably exercised through the acquisition of sufficient property interest in the RPZ." In 2012, the FAA issued a memorandum on Interim Guidance on Land Uses Within a Runway Protection Zone. The information in the memorandum will be used to coordinate any potential changes to the RPZs with the FAA. For the RPZs that currently extend off the airport property, some degree of control should be implemented (e.g., acquisition, easement, or zoning) in order to maintain land use compatibility within the vicinity of EVB and to allow the airport to remove obstructions beyond the runway ends. The Code of Ordinances of the City of New Smyrna Beach has RPZ regulations for EVB that prohibit specific land uses within the RPZs, although it may be necessary to revise the ordinance (Chapter 22, Article III, Section 22-96) to prohibit all types of development within the RPZs.

FAA Engineering Brief 75 (EB-75), Incorporation of Runway Incursion Prevention into Taxiway and Apron Design, provides guidance on design strategies of taxiways and aprons to help prevent runway incursions (the FAA defines a runway incursion as any unauthorized intrusion onto a runway, regardless of whether or not an aircraft presents a potential conflict). According to EB-75, "these design strategies are only recommendations. They are not a set of standards that must be followed whenever possible. Airfield design is often a process that must balance safety, efficiency, capacity, and other factors. There will be cases where the strict application of these recommendations is unjustified and unwise. Instead, use the recommendations as a checklist to insure the runway incursion aspects of any design proposal are properly considered." Many of these recommendations have also been incorporated into FAA AC 150/5300-13A, Airport Design.

- Limit the number of aircraft crossing an active runway
    - The preference is for aircraft to cross in the last third of the runway whenever possible, since within the middle third of the runway the arriving/departing aircraft is usually on the ground and traveling at a high rate of speed
- Optimize pilots' recognition of entry to the runway (increase situational awareness) through design of taxiway layout, for example:
    - Use a right angle for taxiway-runway intersections (except for high speed exits)
    - Limit the number of taxiways intersecting in one spot
    - Avoid wide expanses of pavement at runway entry
- Insure the taxiway layouts take operational requirements and realities into account to:
    - Safely and efficiently manage departure queues
    - Avoid using runways as taxiways
    - Use taxiway strategies to reduce the number of active runway crossings
    - Correct runway incursion "hot spots"

EB-75 presents several additional design recommendations for preventing runway incursions. The complex airfield configuration at EVB has several areas where improvements can be conducted to improve situational awareness for pilots and are incorporated into the study recommendations. As previously illustrated in Figure 4-1, the FAA has identified the intersection of Runway 20, Taxiway B, and Taxiway E as a hot spot at EVB. Opportunities to simplify that intersection as well as other features of the airfield are examined in later sections of this master plan update.

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Table 4-4
Evaluation of Existing Airfield Design Standards (Runway 2-20)

Design Standard	Required Dimension	Runway 2 Evaluation	Runway 20 Evaluation
Runway Design Code (RDC)	B-II		
RW Approach Visibility Minimums	Varies by End	1-Mile	Visual
Runway (RW) Width	75 Feet	100 Feet	
RW Safety Area (RSA) Width	150 Feet	**Runway 20 End RSA Overlaps Runway 25 RSA Runway 2 End ROFA Extends Over Turnbull Bay Road**	
RSA Length Beyond RW End	300 Feet		
RW Object Free Area (ROFA) Width	500 Feet	Meets Standard	
ROFA Length Beyond RW End	300 Feet		
RW Obstacle Free Zone (ROFZ) Width	400 Feet	Meets Standard	
ROFZ Length Beyond RW End	200 Feet		
RW Protection Zone (RPZ) Inner Width	500 Feet	500 Feet	500 Feet
RPZ Outer Width	700 Feet	700 Feet	700 Feet
RPZ Length	1,000 Feet	1,000 Feet	1,000 Feet
RPZ Notes	N/A	**RPZs Extend Off Airport**	
RW Blast Pad Width	95 Feet	Meets Standard	
RW Blast Pad Length	150 Feet		
RW Shoulder Width	10 Feet	Meets Standard	
Taxiway (TW) Width (TDG-2)	35 Feet	Meets Standard	
TW Safety Area (TSA) Width	79 Feet	Meets Standard	
TW Object Free Area (TOFA) Width	131 Feet	Meets Standard	
Taxilane (TL) Object Free Area Width	115 Feet	Meets Standard	
TW Shoulder Width (TDG-2)	10 Feet	Meets Standard	
RW Centerline to Parallel TW Centerline	240 Feet	Meets Standard	
RW Centerline to Holdline	200 Feet	Meets Standard	
RW Centerline to Aircraft Parking Area	250 Feet	Meets Standard	
TW Centerline to Parallel TW/TL Centerline	105 Feet	Meets Standard	
TW Centerline to Fixed or Movable Object	65.5 Feet	Meets Standard	
TL Centerline to TL Centerline	97 Feet	Meets Standard	
TL Centerline to Fixed or Movable Object	57.5 Feet	Meets Standard	
RW Surface Gradient and Line of Sight	Maximum 2.0% Grade	Meets Standard	

Source: Michael Baker International, Inc., 2016.

Table 4-5
Evaluation of Existing Airfield Design Standards (Runway 7-25)

Design Standard	Required Dimension	Runway 7 Evaluation	Runway 25 Evaluation
Runway Design Code (RDC)	B-II		
RW Approach Visibility Minimums	Varies by End	1- Mile	1- Mile
Runway (RW) Width	75 Feet	75 Feet	
RW Safety Area (RSA) Width	150 Feet	**Runway 20 End RSA Overlaps Runway 25 RSA**	
RSA Length Beyond RW End	300 Feet	**RSAs and ROFAs Extend Over Roads**	
RW Object Free Area (ROFA) Width	500 Feet	Meets Standard	
ROFA Length Beyond RW End	300 Feet		
RW Obstacle Free Zone (ROFZ) Width	400 Feet	Meets Standard	
ROFZ Length Beyond RW End	200 Feet		
RW Protection Zone (RPZ) Inner Width	500 Feet	500 Feet	500 Feet
RPZ Outer Width	700 Feet	700 Feet	700 Feet
RPZ Length	1,000 Feet	1,000 Feet	1,000 Feet
RPZ Notes	N/A	**RPZs Extend Off Airport**	
RW Blast Pad Width	95 Feet	Meets Standard	
RW Blast Pad Length	150 Feet		
RW Shoulder Width	10 Feet	Meets Standard	
Taxiway (TW) Width (TDG-2)	35 Feet	Meets Standard	
TW Safety Area (TSA) Width	79 Feet	Meets Standard	
TW Object Free Area (TOFA) Width	131 Feet	Meets Standard	
Taxilane (TL) Object Free Area Width	115 Feet	Meets Standard	
TW Shoulder Width (TDG-2)	10 Feet	Meets Standard	
RW Centerline to Parallel TW Centerline	240 Feet	Meets Standard	
RW Centerline to Holdline	200 Feet	Meets Standard	
RW Centerline to Aircraft Parking Area	250 Feet	Meets Standard	
TW Centerline to Parallel TW/TL Centerline	105 Feet	Meets Standard	
TW Centerline to Fixed or Movable Object	65.5 Feet	Meets Standard	
TL Centerline to TL Centerline	97 Feet	Meets Standard	
TL Centerline to Fixed or Movable Object	57.5 Feet	Meets Standard	
RW Surface Gradient and Line of Sight	Maximum 2.0% Grade		

Source: Michael Baker International, Inc., 2016.

Table 4-6
Evaluation of Existing Airfield Design Standards (Runway 11-29)

Design Standard	Required Dimension	Runway 11 Evaluation	Runway 29 Evaluation
Runway Design Code (RDC)	B-II		
RW Approach Visibility Minimums	Varied by End	Visual	1- Mile
Runway (RW) Width	75 Feet	100 Feet	
RW Safety Area (RSA) Width	150 Feet	Meets Standard	
RSA Length Beyond RW End	300 Feet		
RW Object Free Area (ROFA) Width	500 Feet	Meets Standard	
ROFA Length Beyond RW End	300 Feet		
RW Obstacle Free Zone (ROFZ) Width	400 Feet	Meets Standard	
ROFZ Length Beyond RW End	200 Feet		
RW Protection Zone (RPZ) Inner Width	500 Feet	500 Feet	500 Feet
RPZ Outer Width	700 Feet	700 Feet	700 Feet
RPZ Length	1,000 Feet	1,000 Feet	1,000 Feet
RPZ Notes	N/A	**RPZs Extend Off Airport**	
RW Blast Pad Width	95 Feet	Meets Standard	
RW Blast Pad Length	150 Feet		
RW Shoulder Width	10 Feet	Meets Standard	
Taxiway (TW) Width (TDG-2)	35 Feet	Meets Standard	
TW Safety Area (TSA) Width	79 Feet	Meets Standard	
TW Object Free Area (TOFA) Width	131 Feet	Meets Standard	
Taxilane (TL) Object Free Area Width	115 Feet	Meets Standard	
TW Shoulder Width (TDG-2)	10 Feet	Meets Standard	
RW Centerline to Parallel TW Centerline	240 Feet	Meets Standard	
RW Centerline to Holdline	200 Feet	Meets Standard	
RW Centerline to Aircraft Parking Area	250 Feet	Meets Standard	
TW Centerline to Parallel TW/TL Centerline	105 Feet	Meets Standard	
TW Centerline to Fixed or Movable Object	65.5 Feet	Meets Standard	
TL Centerline to TL Centerline	97 Feet	Meets Standard	
TL Centerline to Fixed or Movable Object	57.5 Feet	Meets Standard	
RW Surface Gradient and Line of Sight	Maximum 2.0% Grade		

Source: Michael Baker International, Inc., 2016.



Figure 4-4 Airfield Design Standards Analysis

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4.6 Runway Length Analysis

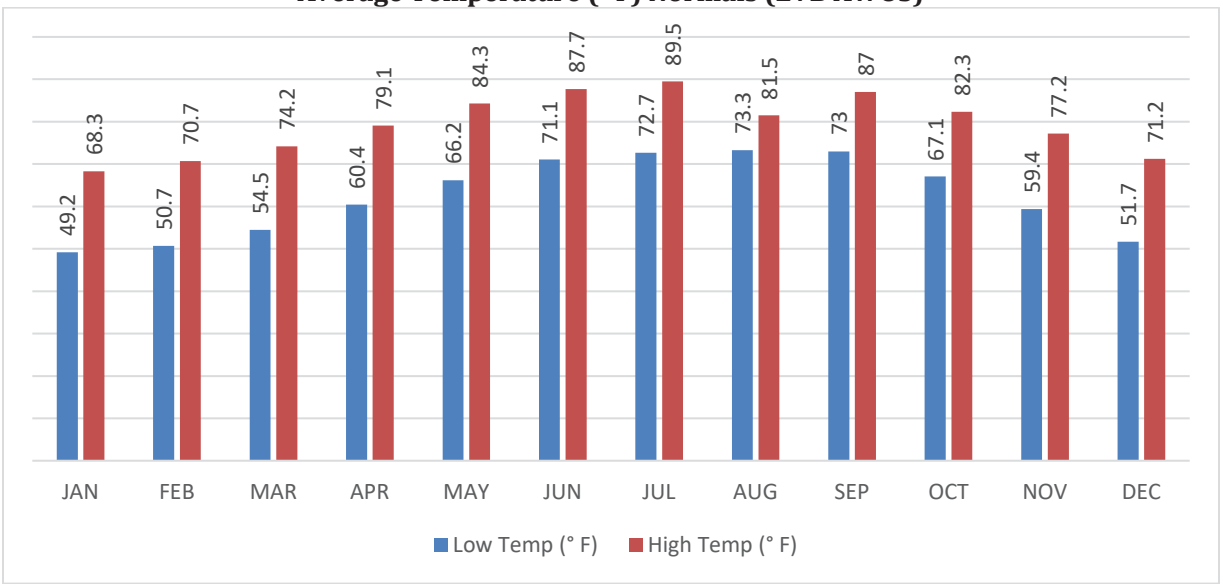
Runway length requirements were evaluated in accordance with FAA AC 150/5325-4, Runway Length Requirements for Airport Design (Runway Length AC). The Runway Length AC presents methodologies for determining runway length requirements by aircraft type. Multiple variables affect takeoff calculations including field elevation, average maximum temperature during the hottest month, runway conditions (e.g., wet runway), takeoff weight, and differences in runway end elevations. As shown in **Table 4-7** and **Figure 4-5**, the average maximum temperature during the hottest month is 89.5° Fahrenheit and occurs in July. Aircraft takeoff performance is maximized at lower elevations and colder temperatures, which means that aircraft operating at EVB benefit from the low elevation of 10.4 feet Above Mean Sea Level (AMSL) but frequently can be restricted by the warm temperatures in Florida.

Table 4-7
Average Temperature & Precipitation Normals (EVB AWOS)

Variable	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Low Temp (° F)	49.2	50.7	54.5	60.4	66.2	71.1	72.7	73.3	73	67.1	59.4	51.7
High Temp (° F)	68.3	70.7	74.2	79.1	84.3	87.7	89.5	81.5	87	82.3	77.2	71.2
Precipitation (In.)	2.80	2.85	4.05	2.52	3.08	6.50	5.91	6.48	6.54	4.28	2.36	2.39

Source: NOAA climate normals generated from the average of EVB AWOS records from 1981 to 2010.

Figure 4-5
Average Temperature (° F) Normals (EVB AWOS)



Source: NOAA climate normal generated from the average of EVB AWOS records from 1981 to 2010.

The Runway Length AC contains various methodologies for determining recommended runway lengths that are based on the type of aircraft utilizing the runway (e.g., small aircraft with less or more than 10 passenger seats, corporate aircraft weighing more than 12,500 pounds but less than 60,000 pounds, and large aircraft weighing more than 60,000 pounds and regional jets). The categories that are applicable to EVB are those for small aircraft and for corporate aircraft, whereas the heavier aircraft category is typically reserved for commercial airports. For airports with multiple runways such as EVB, the runway length requirements for each runway may vary. Specifically, the primary runway is supposed to be designed to handle the critical aircraft and the crosswind runway is supposed to be "100 percent of the recommended runway length determined for the lower crosswind capable airplanes using the primary runway." For additional primary runways intended for separating airplane classes (e.g., local versus itinerant traffic), the "recommended runway length [is determined] for the less demanding airplane design group or individual design airplane." Consequently, there are several factors that must be considered for EVB because it was previously shown that all three runways should be maintained. The following assumptions were made regarding the three runways as it pertains to the runway length requirements and the methodologies in the Runway Length AC:

- **Runway 11-29** is considered the primary runway for itinerant traffic and should be designed for the critical aircraft (the Cessna Citation 560XL). Chapter 3 of the Runway Length AC contains charts for determining runway length recommendations for aircraft in that category, which is considered a medium-sized corporate jet. At EVB's elevation and temperature, aircraft in that category require 4,700 feet for takeoff and 5,405 feet for landing when utilized at 60 percent useful load (determined based on Figure 3-1 in the Runway Length AC), with the greater length becoming the overall recommendation. As the number of jet operations is forecast to increase from 436 in 2015 to 1,088 by 2035, there may be a need to evaluate greater runway length needs, which can be as high as 7,000 feet for aircraft in that category when operating at 90 percent useful load (i.e., closer to the maximum passenger capacity and range of the aircraft). **For the initial planning phases, the City should focus on providing a length of 5,405 feet for Runway 11-29, but may select a recommended development plan that reserves for the potential to provide additional length and flexibility.**

- **Runway 2-20** is considered the crosswind runway for itinerant traffic and should be designed for the lower crosswind capable airplanes using the primary runway, which would consist of small aircraft weighing less than 12,500 pounds. Chapter 2 of the Runway Length AC contains charts for those types of aircraft. Specifically, Figure 2-2 in the Runway Length AC contains the chart for small airplanes having 10 or more passenger seats, which includes many turboprops that frequently operate at EVB such as the Beechcraft King Air C90. **For those aircraft under EVB conditions, a runway length of 4,200 feet is recommended.** That is the next lower runway length recommendation compared to the primary runway and should be considered to the extent practicable for Runway 2-20.

- **Runway 7-25** is technically considered an additional primary runway for the local training activity, at least how it applies to the methodologies in the Runway Length AC. The runway length requirement for Runway 7-25 was thus evaluated "for the less demanding airplane design group or individual design airplane," which was determined to be a turboprop

weighing more than 12,500 pounds such as the Beechcraft King Air 350i. Those types of aircraft also frequently operate at EVB, are consistent with the critical aircraft that was identified in the previous master plan, and are representative of the design characteristics of Runway 7-25. Those aircraft also represent a less demanding airplane in order to comply with the methodologies in the Runway Length AC for determining length requirements for additional primary runways. The same chart that was utilized for determining the length recommendation for Runway 11-29 was used for this evaluation, but the landing requirement was not adjusted for wet conditions to comply with the Runway Length AC. **This results in a recommended runway length of 4,700 feet for Runway 7-25.** Although this is shorter than the current 5,000-foot length of Runway 7-25, both ends of the runway have displaced thresholds that reduce the available runway length for landings.

4.7 Runway Strength Analysis

One of the most important features of airfield pavement is its ability to withstand repeated use by the most weight-demanding aircraft operating at the airport. The current weight bearing capacity for all three runways is 55,000 pounds for aircraft with a single-wheel configuration. All three runways are constructed of asphalt. Runways 11-29 and 7-25 are in good condition and Runway 2-20 is in fair/poor condition. The current strength of the runways is sufficient to accommodate the demands of the critical aircraft throughout the planning period. The actual pavement strength requirements will be evaluated on a project-by-project basis as rehabilitation becomes necessary and is determined during the design phase through a review of recent and anticipated aircraft activity.

4.8 Taxiway and Taxilane System

Taxiways provide airfield and terminal access and enhance the operational capacity of the airport by minimizing runway occupancy. An effective taxiway system provides for the orderly movement of aircraft and enhances operational efficiency and safety by reducing the potential for congestion, runway crossings, and pilot confusion. The existing taxiway system at EVB consists of full-length parallel taxiways for all three runways with multiple connector taxilanes. The system of taxiways and taxilanes at EVB provides access to the runways, aircraft parking areas, aprons, and hangars.

All taxiways require a designated width of Taxiway Safety Area (TSA) and Taxiway Object Free Area (TOFA) centered on the taxiway centerline. The standards are based on the critical aircraft, which was previously identified as the Cessna Citation 560XL that falls into the Taxiway Design Group (TDG) 2 category and requires a 35-foot taxiway width. All taxiways meet taxiway width, TSA, and TOFA requirements; however, it is recommended that action be taken to limit the number of taxiways that intersect at one location such as the FAA-identified hot spot at the intersection of Runway 20, Taxiway B, and Taxiway E. It is also important to note that Taxiway E was previously a runway, and from the air a pilot may confuse it for runway. Therefore, it is recommended that this be remedied through marking or pavement removal. The FAA recently revised the standards for taxiway fillet geometry as part of AC 150/5300-13A, Airport Design, which are the areas where taxiways turn and extra pavement is needed to meet the necessary turn

radii of the critical aircraft. Recommendations for improved fillet geometry are presented as part of the alternatives analysis.

It is noted that a reconfiguration of the terminal apron was recently conducted in order to widen the apron taxilane to accommodate regular activity by aircraft with wider wingspans of up to but not including 79 feet. The project is not only being conducted for safety reasons, but also to better accommodate visiting aircraft with the wider wingspans. A reconfiguration of the apron tiedowns is also being conducted as part of the project.

4.9 Airfield Lighting, Markings, Signage, and Navigational Aids

The following sections describe the requirements for airfield lighting, markings, signage, and navigational aids at EVB.

Airfield Lighting

The airfield lighting at EVB consists of Medium Intensity Runway Lights (MIRLs) along the edges of Runways 11-29 and 7-25. Runway 2-20 should also be provided with MIRLs in order to supplement the non-precision approach procedure to Runway 2 and to allow for use of the runway at night. Most taxiways are equipped with Medium Intensity Taxiway Lights (MITLs), with the exception of Taxiway D and some short taxiway sections. Because Taxiway D is parallel to Runway 2-20, MITLs should be installed in order to permit night activity on that runway.

Airfield Markings

Pavement markings are designed according to the FAA AC 150/5340-1L, Standards for Airport Markings. Many markings at the airport should be refreshed in order to meet current standards, better delineate taxiways, and/or because they are faded. There are only two runway ends with markings that are consistent with the approach procedures that are currently available: Runways 11 and 20. Therefore, the recommendations of this master plan update include the correction of several runway markings at EVB in order to comply with the latest standards. The taxiways at EVB are equipped with centerline stripes and holding position markings. However, some of the holding position markings are located at varied separations from the runway centerlines and should be corrected wherever possible. Also, most taxiways at the airport do not have edge markings to depict the width of the taxiways, which can be confusing particularly in the areas where there is a wide expanse of pavement and at intersections. Based on discussions with personnel from the ATCT, markings are needed near the intersections of Taxiways B and Runways 20 and 11 to permit Land and Hold Short Operations (LAHSO).

Airfield Signage

The guidelines for airfield signage are provided in FAA AC 150/5340-18F, Standards for Airport Sign Systems. Currently, additional airfield signage is needed in some locations on the airfield and existing signage is in need of replacement or upgrade as the equipment reaches the end of its useful service life. In particular, signage is needed near the intersection of Runway 20 and Taxiways B and E—a known hot spot on the airport. A hot spot is defined as a location on an airport movement area with a history of potential risk of collision or runway incursion, and where

heightened attention by pilots and drivers is necessary. Furthermore, lighted holding position signs should be installed at the intersections of Runway 7-25 and Taxiways C, D, and E.

Navigational Aids

Navigational aids (NAVAIDs) are visual or electronic devices that provide information or position data to aircraft in flight. At EVB, the main NAVAID improvement is associated with repairing the AWOS that is currently out of service. The AWOS provides pilots and the ATCT with up-to-date weather information and is an important feature that should be maintained. No other NAVAID-related improvements were identified for EVB; however, the ability to provide non-precision instrument approaches to all runway ends is evaluated as part of the alternatives analysis.

4.10 Transient Apron and Based Aircraft Storage

Apron and hangar requirements are calculated in consideration of the airport's existing and forecast based aircraft mix, owner storage preferences, and transient aircraft parking demands. In previous years it was assumed that a certain percentage of based aircraft, mostly single and multi-engine pistons, would desire apron tiedown parking because it is the lowest cost storage option. Today, most owners want to be able to protect their aircraft from poor weather and vandalism and therefore opt for hangar storage. While this is largely the case at EVB, the flight training aircraft are parked on the terminal apron most of the time due to their frequency of use. Most of the other based aircraft are parked within hangars. The following sections describe the requirements for transient apron space and based aircraft storage during the planning period.

Transient Apron

The transient apron areas at EVB are located on the terminal apron. As mentioned earlier, the terminal apron is being reconfigured and expanded to accommodate the required taxilane widths for larger aircraft as well as to provide additional space for visiting aircraft. The project is expected to result in the loss of tiedown positions. Both FBOs also identified the need to pave grass portions that are located between paved areas of the terminal apron to provide additional space for aircraft parking and to enhance maneuverability within the area. There was also a concern that some light poles on the terminal apron are located very close to where aircraft frequently park. Therefore, some improvements may be needed to provide a free and clear environment for aircraft activity on the terminal apron. There is also a need for additional tiedown positions associated with the flight training aircraft and visiting aircraft, as well as an area where several larger corporate aircraft can be parked during peak times. Apron space requirements are frequently calculated for those times and depend upon specific taxilane width and tiedown square footage parameters. There is a lot of room for continued expansion of the existing terminal apron and opportunities for making the area more maneuverable and accessible for both transient and based aircraft are explored as part of the alternatives analysis, with a focus on providing a more defined separation between the busy local training aircraft and larger corporate aircraft.

Based Aircraft Storage

There are several different types of based aircraft storage facilities available at EVB including apron tiedowns, T-hangars, corporate hangars, and smaller bulk hangars. For this analysis, it was assumed that all forms of based aircraft storage are full at EVB. Therefore, in order to

accommodate any new based aircraft, the construction of a new facility would be needed. Although some of the existing facilities and tenants at EVB may be able to accommodate additional based aircraft, they are mostly occupied and it would be preferential for new facilities to be provided. There have also been discussions of potentially repurposing some areas for other types of development (e.g., potentially removing some or all of the T-hangars located south of the ATCT and constructing larger corporate hangars). Those types of decisions are typically driven by demand and finances, but they can free up prime space that may be desirable for an existing or potential tenant. **Table 4-8** illustrates how the based aircraft storage requirements were calculated for EVB. The number of based aircraft is forecast to increase from 90 in 2015 to 121 by 2035. Those 31 additional aircraft include 24 single-engine pistons, three multi-engine pistons, one turboprop, one jet, and two helicopters. Based on common based aircraft storage practices at EVB, the 2035 requirements for based aircraft include the addition of six apron tiedown positions, 19 T-hangar bays, and 22,000 square feet of conventional hangar space. Those represent benchmarks for this planning effort, but the alternatives analysis illustrates various concepts for hangar development and apron expansion so the airport has a plan in-place to react to unforeseen demands that may arise.

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Table 4-8
Based Aircraft Storage Requirements

Apron Tiedown



2035 Requirement Calculation

Aircraft	Piston	TP / Jet	Rotor
Requirement %	25%	0%	0%
2035 Requirement	6	0	0
6 Apron Tiedowns Required by 2035			



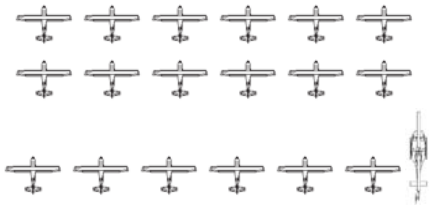
Note: The sample piston, jet, turboprop, and rotorcraft aircraft shown in this table are provided for illustration purposes only.

T-Hangar



2035 Requirement Calculation

Aircraft	Piston	TP / Jet	Rotor
Requirement %	70%	0%	50%
2035 Requirement	18	0	1
19 T-Hangar Bays Required by 2035			

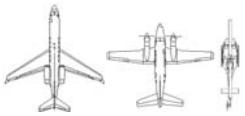


Conventional Hangar



2035 Requirement Calculation

Aircraft Type	Piston	TP / Jet	Rotor
Requirement %	0%	100%	50%
2035 Requirement	0	2	1
SF Requirement	2,000 SF	10,000 SF	2,000 SF
2035 Requirement	0 SF	20,000 SF	2,000 SF
22,000 SF of Conventional Hangar Space Required by 2035			



Source: Michael Baker International, Inc., 2016.

4.11 Airport Support Facilities

Support facilities are those airport features that are not necessarily specific to aircraft operations, movement, and storage, but which are vital to ensuring the efficiency, safety, and persistency of aircraft activity. For EVB, the existing support facilities consist of the FBO terminal area, airport fueling facilities, airport maintenance facility, automobile parking and access, and ATCT. A review of EVB's existing support facilities is presented in the following sections.

Fixed Base Operator (FBO)

AirGate Aviation and Epic Aviation are the two FBOs at EVB, while the airport/City of New Smyrna Beach arrange for the fuel deliveries and self-service fuel distribution. Both FBOs also have trucks to provide fuel to those aircraft that do not utilize the self-service pumps. AirGate Aviation provides most of the traditional FBO services and facilities at EVB including a terminal, maintenance, rental cars, and a variety of pilot and aircraft amenities. Epic Aviation mostly performs services for the busy aircraft training operation associated with Epic Flight Academy. Both FBOs would like to grow their business and expand their facilities at EVB. Both FBOs expressed a need for a larger terminal apron in order to better accommodate the existing based aircraft and visiting aircraft activity. The alternatives analysis will consider the expansion needs for both FBOs, particularly near their existing facilities.

Airport Fueling Facilities

As previously noted in the inventory chapter, fuel is owned and operated by the City of New Smyrna Beach. There are two aboveground 12,000 gallon storage tanks located on the northwest side of the terminal apron adjacent to Taxiway C: one for 100LL (Avgas) and the other for Jet A. Avgas is used by piston-powered aircraft and some helicopters, and although those aircraft typically require less fuel than jets, it is the most consumed fuel at EVB because of air charter operations and the high volume of training operations using piston-powered aircraft. Jet fuel is utilized by turboprops, jets, and also some helicopters. The pumps on the terminal apron are self-service and are available 24 hours a day by credit card. Both FBOs purchase fuel from the City and distribute fuel by truck, which is often the preferred method of fueling for corporate aircraft such as jets and turboprops.

Airport fuel storage requirements are often determined based on peak times when the most flowage occurs. At an airport such as EVB where fuel deliveries are managed by the City, it is important to make sure that adequate fuel supplies are provided for tenants and the FBO businesses that operate seven days a week. The presence of one tank for each type of fuel may not always allow for the reserves necessary during peak times, particularly at a busy airport such as EVB. The ability to arrange for fuel deliveries at any time is a key priority for aviation-oriented businesses. When the City constructed the fuel farm on the terminal apron, they planned for expansion potential. It is often difficult to obtain competitive pricing for fuel unless it is purchased in high volumes. Therefore, any challenges associated with the current fueling practices should be openly discussed between the City and airport tenants to determine when additional reserve capacity may be necessary. As the need for both 100LL and Jet A is forecast to increase during the planning period, the flexibility to install additional tanks should be maintained.

Airport Administration Building

The airport administration building is located on the terminal apron between the two FBOs and along the entrance road to EVB—Skyline Drive. Because the building occupies a prime location, there may be opportunities to repurpose the space with a facility that may provide additional lease revenue for the airport. Both the apron frontage and the location along Skyline Drive may be attractive features for a potential tenant to develop a facility such as a hangar where the airport administration building is currently located. Therefore, opportunities for potentially relocating the airport administration building should be discussed in order for the airport to better utilize the area.

Airport Traffic Control Tower (ATCT)

The ATCT was completed in 2004 and is an important feature for managing the aircraft traffic at EVB. As discussed in this chapter, the complex configuration of the airfield requires all three runways to serve specific purposes. Without the presence of ATCT personnel at EVB, the ability to manage aircraft traffic and to maintain the ability to utilize all three runways would be challenging. This is especially true considering the various non-preferential taxiway intersections that do not have right-angled turns, the excess of pavement on some taxiways, and multi-node intersections. With the high volume of annual and hourly operations at EVB, there is a justified need for an ATCT and for ATCT personnel to allow for the safe operation of aircraft activity around the airfield—ATCT personnel have emphasized the importance of having all three runways operational in order to have the capability to do that.

Airport Maintenance Facilities

The airport maintenance facility is located along Industrial Park Avenue and is used for the storage and maintenance of city-owned vehicles and equipment. Because airport maintenance facilities do not generate revenues, they are often located in remote areas that are unlikely to be attractive to a potential business. Being located near an intersection that might be prime for future business development (U.S. Route 1 and Industrial Park Avenue), the City should reserve a site on the airport property where the airport maintenance facility could be relocated to if such a business interest arises.

Airport Access and Parking

The access roadways in the vicinity of the airport are intended to provide adequate access to and from the airport and the community. EVB can be accessed via U.S. Highway 1 which is the eastern boundary of the airport. Other aviation facilities are located along Industrial Park Avenue on the south, Trumbull Bay Road on the west, and South Street on the north, as well as along roads in the Airport Industrial Park. Although further expansion of the Airport Industrial Park is desired with the associated roadway extensions, no major access improvements are planned for EVB. The recommendations of this master plan update include sufficient access and parking for new developments in order to encourage development practices that are attractive for existing and potential tenants.

Regarding parking, several improvements are needed for the facilities located along U.S. Highway 1. Various individuals park at EVB on a daily basis and include a combination of employees, visitors, based aircraft tenants, flight students, and passengers flying to/from the Bahamas with AirGate Aviation. Numerous vehicles park in grass and loose gravel areas with large depressions

which are sometimes muddy and/or slippery. The recommendations of this master plan update include paving areas where vehicles frequently park and making the areas along Skyline Drive more attractive for pedestrians. This should help boost the appearance of the airport's primary entry point and provide a safer and cleaner parking and walking environment.

4.12 Land Acquisition Requirements

The purpose of the land area requirements is to review the airport's facilities in comparison to FAA standards in order to identify additional property that may be required for inclusion into the land property envelope. The additional properties may be necessary for land use compatibility purposes, future development needs, or to obtain control over an RPZ. For EVB, the main concern is obtaining control over the RPZs via acquisition, easement, or zoning. As mentioned, the Code of Ordinances of the City of New Smyrna Beach contains RPZ regulations that prohibit certain land uses within the RPZs, but should be revised to prohibit any future development within those areas. The code also contains several additional ordinances that are intended to control and maintain compatibility between the airport and surrounding land uses that are contained in Chapter 22, Article III. Through the development of alternatives, additional need may arise for land acquisition and/or easement. Those needs will be identified in later sections of this master plan update.

4.13 Airport Security Analysis

In May 2004, the Transportation Security Administration (TSA) released Security Guidelines for General Aviation Airports. According to the TSA website, this document "constitutes a set of federally-endorsed guidelines for enhancing airport security at general aviation facilities throughout the nation. It is intended to provide general aviation airport owners, operators, and users with guidelines and recommendations that address aviation security concepts, technology, and enhancements."

To assist in defining which security methods are most appropriate for a general aviation airport, the document includes an Airport Characteristics Measurement Tool (ACMT) that is used to assess the recommended security characteristics for general aviation airports. First, each airport is assigned a certain point value that is calculated considering the airport's location, number and types of based aircraft, runway length, surface characteristics and number of and types of aircraft operations. For EVB, a point value of 40 was calculated, which means the security features shown within the 25-44 point range in **Table 4-9** are recommended. EVB has most of the recommended security features already in-place to some extent. The New Smyrna Beach Police Department is also located on the airport property, as well as Fire Station 53, which provides additional security for the airport.

In addition, FDOT performed security assessments for general aviation airports in 2012 with criteria different than that presented in Table 4-9. The FDOT Safety Assessment for EVB included the following items:

- Personnel ID System
- CCTV
- Vehicle ID System
- LEO Support
- Lighting System
- Access Controls
- Security Committee
- Transient Pilot Sign-In/Out Procedures
- Threat Assessment
- Fencing
- Positive Passenger/Cargo/Baggage ID
- Challenge Procedures
- Signs
- Documented Security Procedures
- Community Watch Program
- All Aircraft Secured
- Contact List

Based on the 2012 security assessment and the evaluation of airport security characteristics, FDOT recommended electronic gate, CCTV, and additional access point lighting improvements.

Table 4-9
EVB Security Features

TSA Recommended Security Feature	Point Range / Applicable Security Feature				EVB Status
	>45	25-44	15-24	0-14	
Fencing					✓
Hangars					✓
Closed Circuit Television (CCTV)					✓
Intrusion Detection System					✓
Access Controls					✓
Lighting System					✓
Personnel ID System					✓
Vehicle ID System					✓
Challenge Procedures					✓
Law Enforcement Support					✓
Security Committee					✓
Pilot Sign-In/Out Procedures					✓
Signs					✓
Documented Security Procedures					✓
Positive Passenger/Cargo ID					✓
All Aircraft Secured					✓
Community Watch Program					✓
Contact List					✓

Source: TSA Security Guidelines for General Aviation Airports.

4.14 Summary

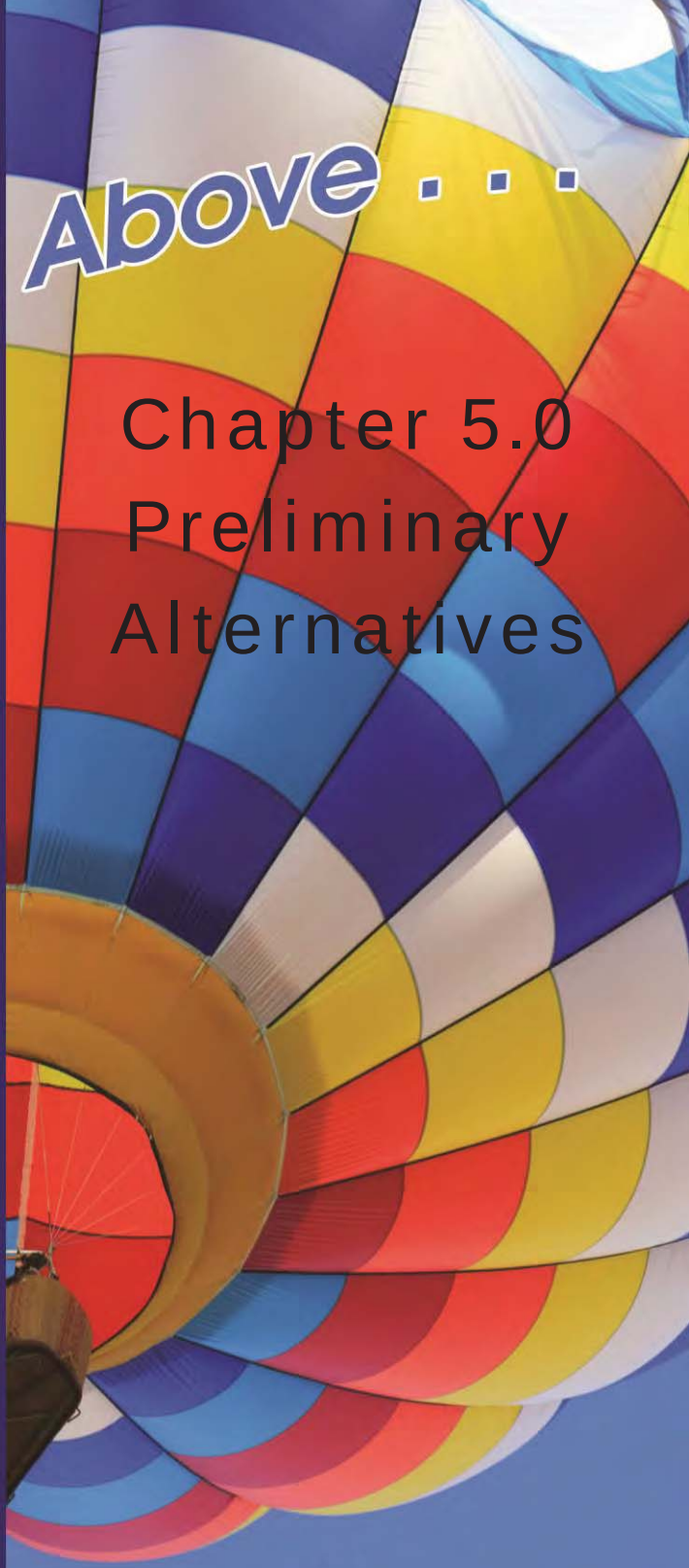
Table 4-10 presents a summary of the identified facility requirements. The remaining sections of this report present recommendations to satisfy these facility requirements at EVB, including a phased development program over the next 20 years.

Table 4-10
Summary of Facility Requirements

Category	Requirement
Critical Aircraft	Cessna Citation 560XL (medium-sized corporate jet)
Runway Design Code (RDC)	RDC B-II
Taxiway Design Group (TDG)	TDG-2
Runway Wind Coverage	All three runways needed for wind coverage purposes, combined with assistance from ATCT personnel
Airfield Capacity	All three runways needed for airfield capacity purposes. The number of annual and hourly operations at EVB illustrates the need for three runways.
Airfield Design Standards	Runway 7-25 RSAs and ROFAs contain roads, Runway 2 ROFA contains a road, Runway 20 end RSA overlaps the Runway 25 RSA, and all RPZs extend off the airport property
Runway Length	Runway 11-29 – Requirement of 5,405 feet, but additional length may be planned Runway 2-20 – 4,200 feet Runway 7-25 – 4,700 feet
Runway Strength	Maintain existing strength
Taxiway and Taxilane System	Correct hot spot, fillets, and complex intersections wherever possible
Airfield Lighting	Light Runway 2-20 and Taxiway D for night operations
Airfield Markings	Correct non-standard runway markings, improve taxiway edge and holding position markings, and add LAHSO markings
Airfield Signage	Upgrade signage at holding positions
Navigational Aids	Repair AWOS and consider non-precision approach capability for all runway ends
Transient Apron	Provide additional space for large aircraft (e.g., corporate jets) and pave grass sections for improved maneuverability.
Based Aircraft	By 2035, add six apron tiedowns, 19 T-hangar bays, and 22,000 square feet of conventional hangar space
Fixed Base Operator (FBO)	Reserve space for the FBOs expansion needs
Fueling	As necessary, provide additional tanks to allow for reserve capacity
Airport Administration Building	The current location may be better suited for another use. Consider relocating the facility to free up prime frontage on the terminal apron.
Airport Traffic Control Tower (ATCT)	ATCT personnel are critical for managing traffic flows on a complex airfield configuration
Airport Maintenance Facility	The maintenance facility is located at an intersection where commercial development may be desirable. Consider the potential to relocate the facility to a more remote area on the airport property.
Airport Access and Parking	Improve roadway access within the industrial park and pave grass and gravel parking areas to provide a safer and cleaner parking and walking environment.
Land Acquisition	Consider acquisition needs as part of the alternatives analysis
Security	As necessary, update security procedures and features

Rising Above . . .

Chapter 5.0
Preliminary Alternatives



New Smyrna Beach Municipal Airport

MASTER PLAN UPDATE

5.0 PRELIMINARY ALTERNATIVES

The previous chapter of this master plan update presented the facility requirements for the New Smyrna Beach Municipal Airport (EVB). The identified requirements included improvements to the airfield for capacity, safety, and conformance with design standards, expansion of aprons and additional hangars in the landside area, and other support facility recommendations. This chapter presents the preliminary alternatives for EVB that are intended to illustrate potential options for satisfying the identified requirements during the 20-year planning period (2015 through 2035). The preliminary alternatives are intended for discussion purposes between the various airport stakeholders including airport tenants, the Technical Advisory Committee (TAC), City of New Smyrna Beach, and the public. The individual components of each preliminary alternative were evaluated to aid in the selection of a preferred alternative that represents the desired development plan for EVB, which is presented in Chapter 6. For that reason, the preliminary alternatives should be viewed as flexible development plans that may be refined or combined to best satisfy the needs of the airport's stakeholders. They are intended to provide a clear understanding of the airport's possibilities and limitations for airfield and landside development, as well as within the industrial park. An evaluation of the following is presented in this chapter:

- Landside Evaluation Areas
- Instrument Approach Evaluation
- Airfield Design Standards Alternative
- Runway 11-29 Extension Alternatives
- Terminal Area Development Alternative
- Industrial Park Development Evaluation

Two separate meetings were held on May 19, 2016 to present the preliminary alternatives to the TAC and public. The input and comments from those meetings were used to determine the long-term recommended plan for EVB (i.e., the preferred alternative). It is noted that the preliminary alternatives do not present all facilities and equipment that would be needed during the 20-year planning period; rather, alternatives are shown to evaluate potential impacts, understand the desires of airport stakeholders, and to provide sample illustrations of what the airport is capable of accommodating. The preferred alternative and Airport Layout Plan (ALP) illustrate many of the more finite facilities whose location is dictated by the Federal Aviation Administration (FAA) and/or the ultimate layout of airfield and landside facilities.

5.1 Landside Evaluation Areas

The purpose of this analysis is to evaluate vacant parcels on the airport property in terms of their potential use, aircraft and automobile access, allowable construction elevations, and feasibility of development. This land use analysis should provide the airport with information that will be useful for identifying suitable sites for potential tenants. As shown in **Figure 5-1**, 18 vacant parcels were loosely identified on the airport property and are evaluated in **Table 5-1**. Further assessments of the airport property are provided in the remaining sections of this chapter.



Figure 5-1 Landside Evaluation Areas

Table 5-1
Land Use Analysis

Landside Zone	Approximate Acreage	Min / Max Elevation Above Nearest Point of Runway	Potential Use	Aircraft / Automobile Access	Development Concerns
1	2.4	3.6' to 62.7'	Aviation / Industrial	Aircraft access could temporarily be provided by a connection to Taxiway E, but ultimately should be provided from a parallel taxiway along Runway 7-25. Automobile access could be provided from South Street.	There are wetlands in this are that could affect development. Also, buildings would have to be constructed closer to South Street to prevent the creation of obstructions.
2	5.7	55.7' to No Major Restrictions	Aviation	Aircraft access could be provided by the existing taxilanes. Automobile access could be provided from Skyline Drive or a future access road.	No major issues, with the exception of having to taxi around aging T-hangars.
3	0.8	No Major Restrictions	Aviation Support	No aircraft access. Automobile access could be provided from Skyline Drive.	No major issues.
4	5.7	20' to 141.1'	Aviation / Aviation Support / Parking	Aircraft access could be provided from Taxiway C. Automobile access could be provided from Skyline Drive or a future access road.	No major issues.
5	6.3	20' to 104'	Aviation	Aircraft access could be provided from Taxiway E. Automobile access could be provided from the hangar access road.	No major issues.
6	7.8	No Major Restrictions	Aviation	Aircraft access could be provided from Taxiway C. Automobile access could be provided from the hangar access road.	Need to consider the potential for a runway extension.
7	42.1	20' to No Major Restrictions	Aviation / Industrial	Aircraft access could be provided from Taxiway D or E. Automobile access would vary, but may require expansion of the existing roadway network in the industrial park.	There are wetlands and a historic Minorcan ditch that may affect the development potential of this area. Also, utilities and infrastructure need to be extended further into the industrial park.
8	5.8	No Major Restrictions	Industrial	No aircraft access. Automobile access could be provided from Airway Circle and Industrial Drive.	There are wetlands that may affect the development potential of this area.
9	14.9	No Major Restrictions	Industrial	No aircraft access. Automobile access could be provided from Industrial Park Avenue and Turnbull Bay Road.	There are wetlands that may affect the development potential of this area.
10	0.6	No Major Restrictions	Industrial	No aircraft access. Automobile access could be provided from Airway Circle.	There are wetlands that may affect the development potential of this area.
11	1.4	57.7' to 110.3'	Aviation / Industrial	Aircraft access could be provided from Taxiway D. Automobile access could be provided from Airway Circle.	No major issues.
12	4.0	20' to 73.4'	Aviation	Aviation access could be provided from Taxiway D. Automobile access could be provided from Airway Circle or United Drive.	Apron and taxilane expansion is planned for this area.
13	1.4	122.1' to No Major Restrictions	Limited / Utility	No aircraft access. Automobile access could be provided from Turnbull Bay Road.	There are wetlands that may affect the development potential of this area.
14	0.9	No Major Restrictions	Limited / Utility	No aircraft access. Automobile access could be provided from Turnbull Bay Road.	Surrounding wetlands.
15	2.9	62.9' to No Major Restrictions	Limited / Utility	No aircraft access. Automobile access could be provided from Turnbull Bay Road or Sunset Drive.	Surrounding wetlands.
16	0.4	17' to 51.6'	Limited / Utility	No aircraft access. Automobile access could be provided from Sunset Drive.	There are wetlands that may affect the development potential of this area.
17	1.8	20' to 58'	Aviation / Industrial / Other	Aircraft access should be provided from a new parallel taxiway along Runway 7-25. Automobile access could be provided from South Street.	There are wetlands in this are that could affect development. Also, buildings would have to be constructed closer to South Street to prevent the creation of obstructions.
18	5.8	20' to 61.9'	Aviation / Industrial	Aircraft access should be provided from a new parallel taxiway along Runway 7-25. Automobile access could be provided from South Street.	There are wetlands in this are that could affect development. Also, buildings would have to be constructed closer to South Street to prevent the creation of obstructions.

Source: Michael Baker International, Inc., 2016.

5.2 Instrument Approach Evaluation

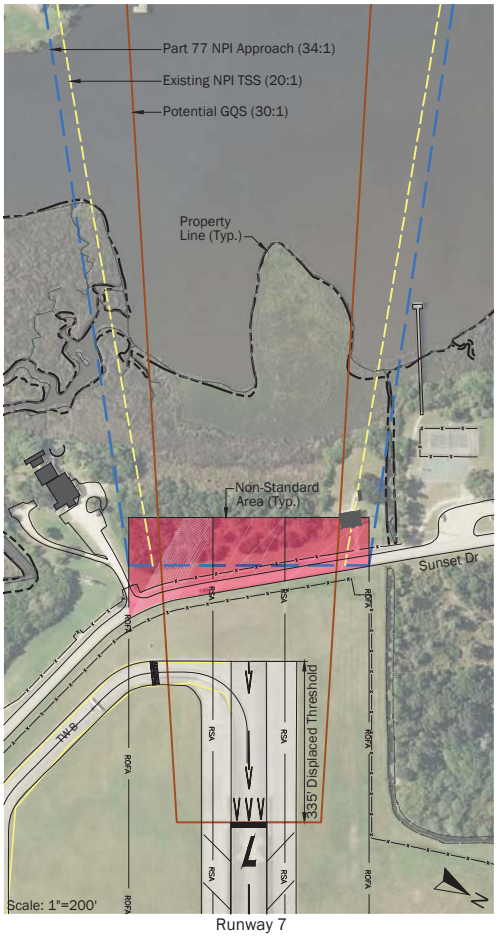
The facility requirements identified the desire to provide both horizontal and vertical approach guidance to all runway ends at EVB (i.e., Localizer Performance with Vertical Guidance (LPV) approaches). LPV approaches are satellite-based non-precision approaches that use in-aircraft GPS equipment to navigate to runway ends and are currently published to the ends of Runways 2, 25, and 29. Therefore, the instrument approach evaluation focused on the two runway ends that are visual only (11 and 20) and the non-precision approach to Runway 7 which only provides horizontal guidance to aircraft. As shown in **Figure 5-2**, several surfaces need to be evaluated in order to determine if certain approach procedures can be implemented to those runway ends. Figure 5-5 also shows the non-standard Runway Safety Areas (RSAs) and Runway Object Free Areas (ROFAs) beyond those runway ends, opportunities for airfield pavement removal, and potential new airfield pavements that are explored later in this chapter. It is important to note that all airports licensed by the state of Florida shall comply with minimum airfield standards as prescribed in Chapter 14-60 FAC, Airport Licensing, Registration and Airspace Protection. Potential impacts to the surface areas (i.e. Primary, Approach and Transitional Surfaces) identified in Chapter 14-60 FAC must also be evaluated when contemplating an instrument approach.

There are three different types of approach surfaces illustrated in the graphic: 1) the Federal Aviation Regulations (FAR) Part 77 Approach Surface that is typically used to adopt building height and land use restrictions around airports, 2) the Glide Path Qualification Surface (GQS) that is used to determine if an approach procedure with vertical guidance would be authorized, and 3) the Threshold Siting Surface (TSS) that is evaluated to determine if one or more of the following actions may be necessary:

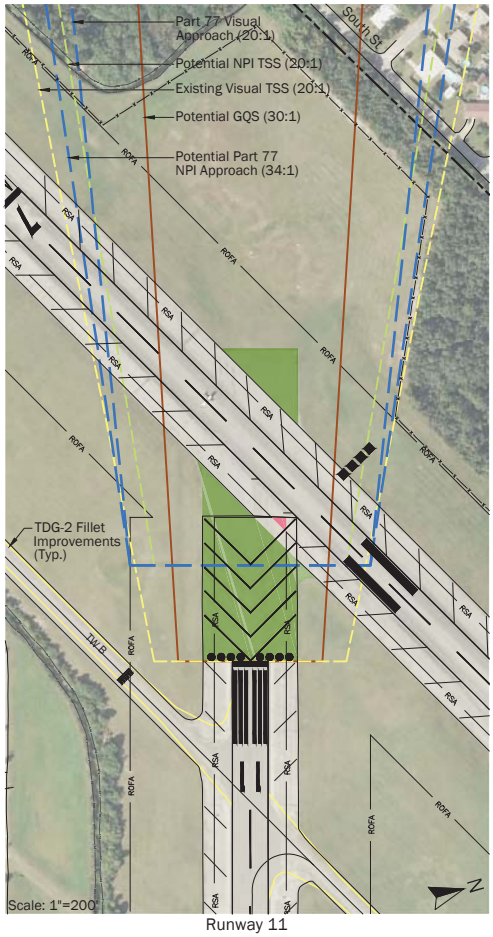
- Obstacle clearing, marking, or lighting within the TSS.
- Displacement of the runway threshold because obstacles cannot be cleared from the TSS, resulting in a shorter landing distance.
- Modification of the approach glide path and/or threshold crossing height.
- Prohibition of nighttime operations unless an approved Visual Glide Slope Indicator (VGSI) is in use. A PAPI is an approved VGSI.

In conjunction with the ALP component of this master plan update, the approaches to Runways 7, 11, and 20 are evaluated as follows:

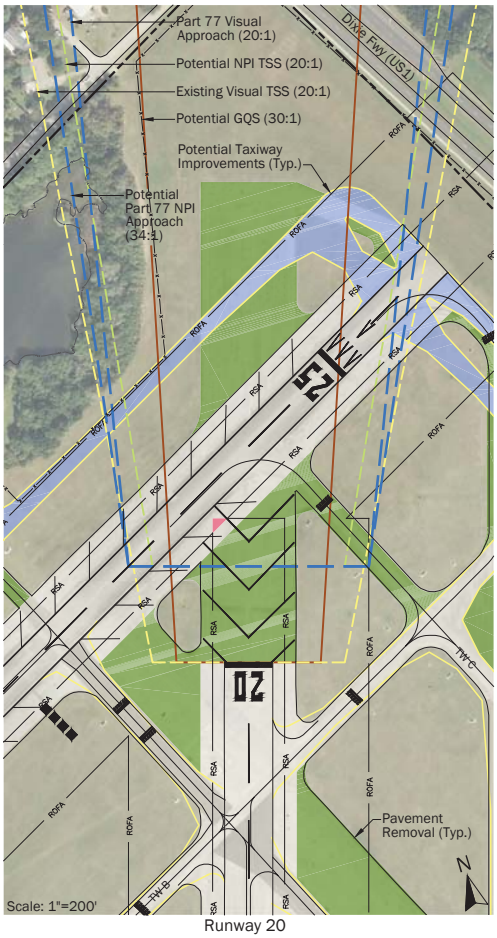
- **Runway 7 –** The existing non-precision approach to Runway 7 only provides horizontal guidance to aircraft. Therefore, the GQS is evaluated to determine if an approach procedure with vertical guidance can be authorized for Runway 7. If the GQS contains obstacles that cannot be cleared (trees, vehicles, etc.), it is unlikely that the FAA would publish an LPV procedure for Runway 7.
- **Runways 11 and 20 –** Because the existing approaches to Runways 11 and 20 are visual only, several different evaluations need to be conducted to determine if upgraded approach capability could be provided. When approaches change from visual to non-precision, the width of the surfaces increases and the clearance slope becomes more stringent. Therefore, several additional obstructions may be created if Runways 11 and 20 were to be provided with non-precision approach capability.



Runway 7



Runway 11



Runway 20

Note: Obstacles to the illustrated approach surfaces are evaluated in conjunction with the Airport Layout Plan (ALP) Drawing Set.

Figure 5-2 Instrument Approach Evaluation

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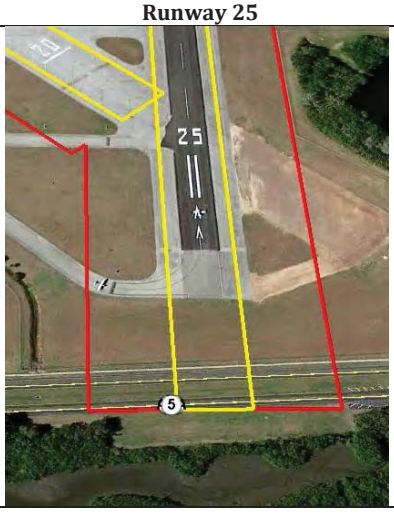
5.3 Airfield Design Standards Alternative

The airfield design standards alternative includes several improvements to correct non-standard and non-preferential conditions at EVB including RSAs, ROFAs, recommendations to prevent runway incursions in accordance with FAA Engineering Brief 75 (EB-75), Incorporation of Runway Incursion Prevention into Taxiway and Apron Design, and changes in taxiway fillet/turn geometry as dictated in FAA Advisory Circular (AC) 150/5300-13A, Airport Design. The airfield design standards alternative is illustrated in **Figure 5-3** and is discussed in the following order: 1) correction of non-standard RSAs and ROFAs, 2) runway incursion prevention recommendations, and 3) taxiway fillet geometry recommendations.

Correction of Non-Standard RSAs and ROFAs

The RSAs and ROFAs beyond the ends of Runways 2, 7, and 25 currently extend over roads and off property in some cases, which are non-standard for those protective surfaces (refer to **Table 5-2)**. According to AC 150/5300-13A, Airport Design, the FAA may issue a Modification of Standards (MOS) for "Any approved nonconformance to FAA standards, other than dimensional standards for RSAs, applicable to airport design, construction, or equipment procurement project that is necessary to accommodate an unusual local condition for a specific project on a case-by-case basis while maintaining an acceptable level of safety." Therefore, it is necessary to resolve the non-standard RSAs at EVB based on one of the strategies identified in FAA Order 5200.8, Runway Safety Area Program (RSA Program Order). As listed below, the RSA Program Order recommends that several different alternatives be considered in the determination of a preferred correction measure.

Table 5-2
Non-Standard RSAs and ROFAs at EVB

Runway 2	Runway 7	Runway 25
		

Sources: Google Earth Pro and Michael Baker International, Inc., 2016.
Note: RSAs shown in yellow and ROFAs shown in red.



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Figure 5-3 Airfield Design Standards Alternative

a. Relocation, shifting, or realignment of the runway.
b. Reduction in runway length where the existing runway length exceeds that which is required for the existing or projected design aircraft.
c. A combination of runway relocation, shifting, grading, realignment, or reduction.
d. Declared distances.
e. Engineered Materials Arresting Systems (EMAS).

The alternatives were reviewed for the non-standard RSAs at EVB, but the ultimate determination was made based on the following criteria: 1) no road relocations and/or property acquisitions were considered appropriate to provide compliant RSA, 2) it is desirable to maintain as much runway length as possible, and 3) EMAS are not applicable corrective measures for EVB, which are crushable concrete blocks that stop aircraft, because they are intended for 1,000 foot long RSAs. Therefore, declared distances was considered the most appropriate corrective measure for EVB. In general, the entire length of a runway might not be declared available for aircraft takeoff and/or landing calculations because of issues such as non-standard RSA or ROFA length beyond a runway end, obstructions to approach or departure surfaces, or other property conflicts associated with movement of Runway Protection Zones (RPZs). The declared distance calculations are defined below.

- **Takeoff Run Available (TORA) –** The runway length declared available and suitable for the ground run of an airplane taking off. The entire runway length is typically declared available for TORA, unless obstructions to the departure surface or property conflicts make movement of the departure RPZ infeasible. General aviation aircraft usually follow TORA when evaluating takeoff requirements, as opposed to commercial and corporate aircraft that have stricter operating requirements.
- **Takeoff Distance Available (TODA) –** The TORA plus the length of any remaining clearway beyond the far end of the TORA. At EVB, TODA should always be equal to the runway length.
- **Accelerate-Stop Distance Available (ASDA) –** The distance to accelerate from brake release to V_1 (i.e., takeoff decision speed) and then to decelerate to stop, plus safety factors. ASDA is the runway length available during an aborted takeoff and is used by commercial and corporate aircraft to evaluate takeoff requirements. Restrictions to ASDA occur when there is insufficient RSA length beyond a runway end.
- **Landing Distance Available (LDA) –** The distance from the threshold to complete the approach, touchdown, and decelerate to stop, plus safety factors. If the full runway is not available for landing, a displaced threshold is typically provided to indicate the point where aircraft can touchdown. Common impacts to LDA include obstructions to the approach surface, property conflicts that make movement of the approach RPZ infeasible, and insufficient RSA length prior to the landing threshold.

In order to correct the non-standard RSAs and ROFAs by publishing declared distances, the existing and proposed declared distances shown in **Table 5-3** would apply. The proposed declared distances shown in **red** would be reduced following the FAA's approval and publishing of the declared distances for EVB. The runway length requirement for Runway 2-20 was identified as 4,200 feet and for Runway 7-25 was 4,700 feet, which means that both runways would meet the identified requirement for all takeoff procedures. Because this is an administrative action, declared

distances would essentially be a no cost resolution for the non-standard RSAs and ROFAs. By publishing the proposed declared distances, the RSAs would comply with Florida statutes for RSAs beyond a paved runway end. The RSAs would extend the minimum length and width required by Florida statutes beyond the length of the runway that is declared available for both ASDA and LDA calculations.

Table 5-3
Existing Published and Proposed Declared Distances

Distance	Runway 2	Runway 20	Runway 7	Runway 25	Runway 11	Runway 29
Existing Published Declared Distances						
TORA	4,000'	4,000'	5,000'	5,000'	4,319'	4,319'
TODA	4,000'	4,000'	5,000'	5,000'	4,319'	4,319'
ASDA	4,000'	4,000'	5,000'	5,000'	4,319'	4,319'
LDA	3,215'	4,000'	4,665'	4,700'	4,319'	4,319'
Proposed Declared Distances						
TORA	4,000'	4,000'	5,000'	5,000'	5,233'	4,484'
TODA	4,000'	4,000'	5,000'	5,000'	5,398'	5,398'
ASDA	4,000'	**3,952.7'**	**4,853.5'**	**4,763.5'**	5,398'	5,398'
LDA	3,215'	**3,952.7'**	**4,518.5'**	**4,763.5'**	4,484'	5,233'

Source: Michael Baker International, Inc., 2016.

Runway Incursion Prevention Recommendations

In accordance with EB-75 and AC 150/5300-13A, Airport Design, several airfield improvements are recommended to improve situational awareness for pilots and to prevent the chance for incursions. The recommendations include the following and are depicted in Figure 5-3:

- Removal of excess pavement.
- Removal of direct connections from runways to aircraft parking areas.
- Correction of complex intersections and hot spot.
- Elimination of angled entrances/exits to runways wherever possible.

These recommendations should be discussed with personnel from the Airport Traffic Control Tower (ATCT) and airport users to determine if they permit efficient traffic flows throughout the airfield. Where appropriate, other taxiway improvements may be considered as part of the preferred alternative to further enhance traffic flows at EVB.

Taxiway Fillet Geometry Recommendations

The taxiway fillet geometry was recently revised with the release of AC 150/5300-13A, Airport Design, to include additional pavement at curves and intersections. The purpose was to improve the standards for cockpit over centerline steering, which is intended to reduce the potential for aircraft excursions from the pavement surface. As can be seen in Figure 5-3, at many of the taxiway curves and intersections at EVB, additional pavement would be needed to meet the revised fillet standards. It is likely that these projects would be conducted in conjunction with taxiway rehabilitation projects during the planning period.

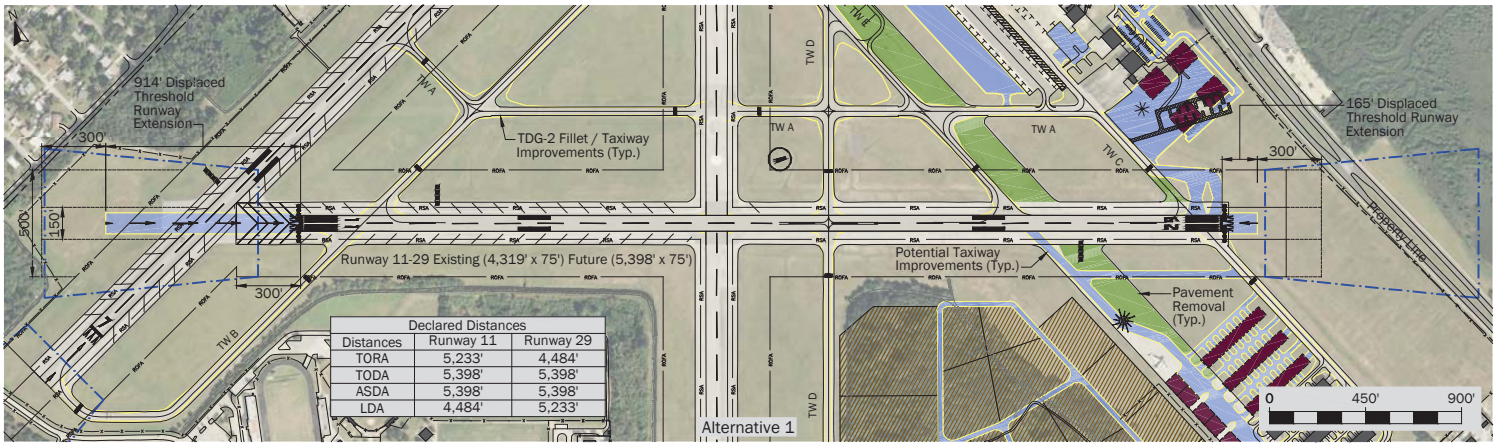
5.4 Runway 11-29 Extension Alternatives

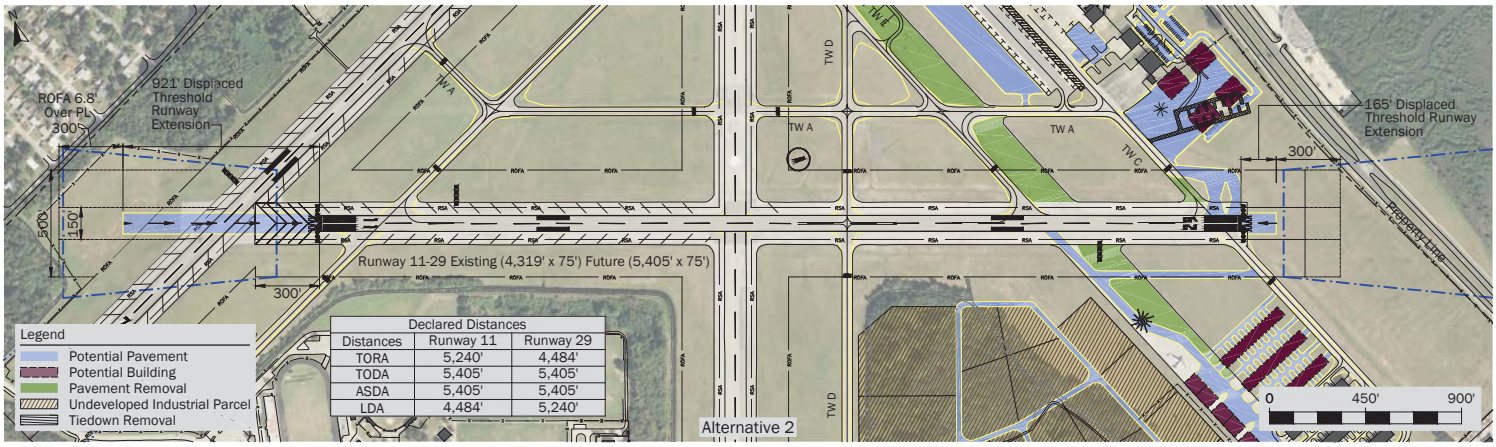
Runway extension alternatives were only evaluated for Runway 11-29 due to the previously-identified RSA and ROFA issues associated with the other two runways at EVB (Runways 2-20 and 7-25). The identified runway length requirement for Runway 11-29 was 5,405 feet to accommodate the medium-sized corporate jet activity that occurs at the airport. With a current length of 4,319 feet, that would require an extension(s) of the runway totaling 1,086 feet. There are some challenges associated with such an extension(s) at EVB that are more regulated today than when the previous master plan update was completed in 2005.

The primary challenge is related to the RPZs. There are currently both approach and departure RPZs beyond each end of Runway 11-29 that overlap each other. As discussed in the requirements chapter, the RPZs should be clear and owned by the airport sponsor. In 2012, the FAA issued a memorandum called Interim Guidance on Land Uses Within a Runway Protection Zone. If the RPZs move in conjunction with a runway extension, the memorandum indicates that coordination with FAA headquarters is required to determine what type of mitigation may be necessary. In many cases, the FAA requires the airport sponsor to acquire the property within the relocated RPZ and to remove any incompatible land uses including buildings and structures, recreational land, transportation facilities, fuel storage facilities, hazardous material storage, wastewater treatment facilities, and above-ground utility infrastructure. Other challenges include the extended RSAs and ROFAs and relocated approach and departure surfaces that may occur with an extension(s) of Runway 11-29. The City of New Smyrna Beach does not want to acquire and/or impact residential properties, nor are costly road relocations desired to conduct a runway extension at EVB.

Therefore, the purpose of the Runway 11-29 extension alternatives was to identify the maximum runway length possible without creating off-airport impacts. As shown in **Figure 5-4**, that scenario is illustrated in Alternative 1 and results in a runway length of 5,398 feet (seven feet short of the identified requirement of 5,405 feet). In order to prevent any relocation of the RPZs and TSS, Alternative 1 shows displaced threshold extensions to both ends of Runway 11-29 (through a 914 foot extension of the Runway 11 end and a 165 foot extension of the Runway 29 end) and also implements declared distances. Under Alternative 1, the runway would provide 5,398 feet of ASDA in both directions, which is the most critical takeoff calculation for corporate jets, but other declared distances would not be maximized primarily due to the RPZ concerns. Alternative 2 is similar, but illustrates that an off-airport impact would occur (within the ROFA) if a runway length of 5,405 was pursued.

The extension alternatives should be discussed with the FAA and FDOT prior to the selection of a preferred alternative to consider the opportunities and limitations associated with providing additional length on Runway 11-29.





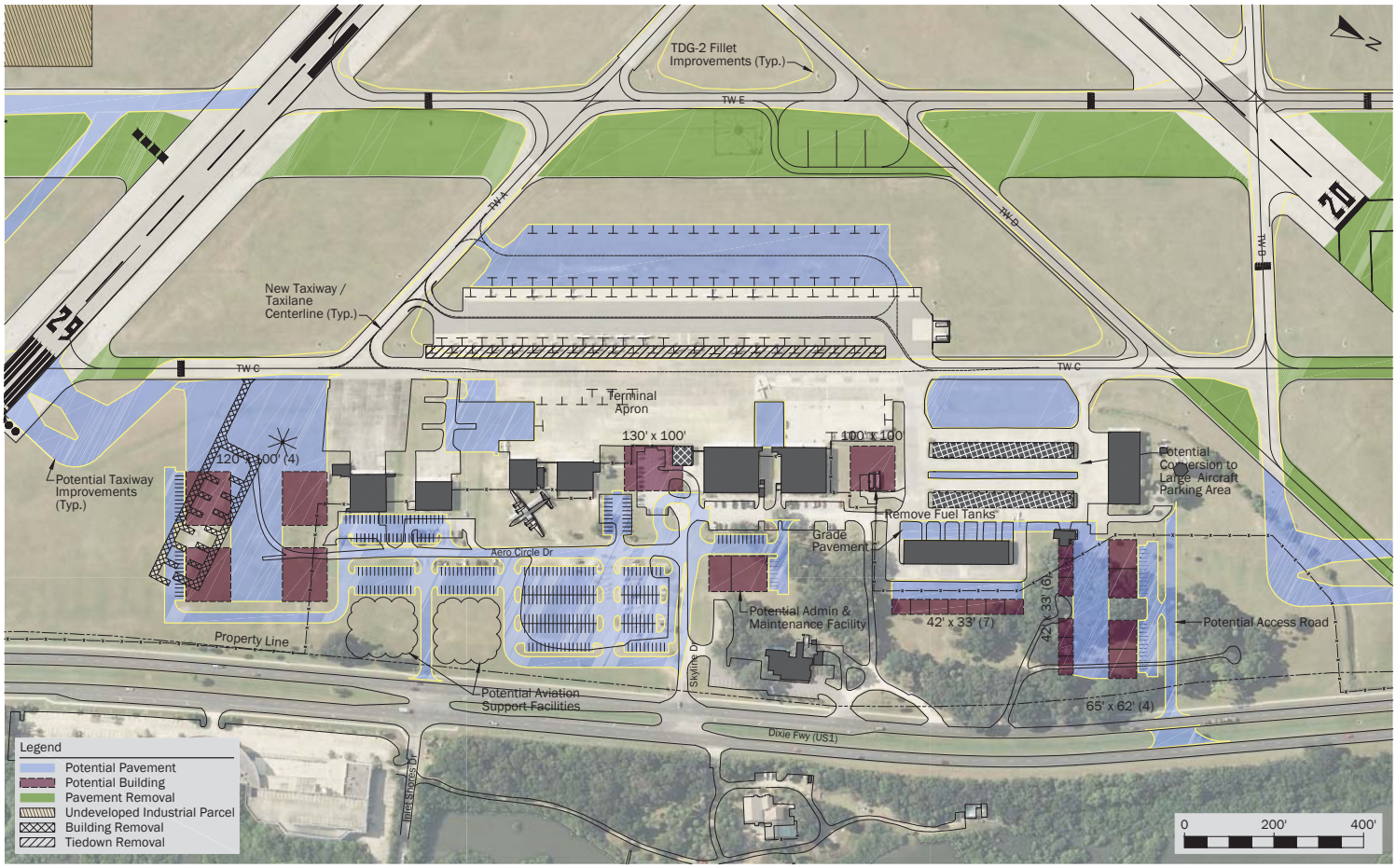
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Figure 5-4 Runway 11-29 Extension Alternatives

5.5 Terminal Area Development Alternative

Figure 5-5 illustrates potential development in the terminal area at EVB to promote discussions with airport stakeholders. At the time of this writing, the terminal apron was being modified to accommodate Airplane Design Group (ADG) II taxilane geometry that requires a Taxilane Object Free Area (TOFA) width of 115 feet. Because the apron was previously designed for ADG I with a TOFA of 79 feet, the project required the removal of several paved tie-down positions and the addition of pavement in some areas to provide additional parking. The Terminal Area Development Alternative reflects those modifications and illustrates further expansions of the terminal apron (towards Taxiway E) to add 37 new paved tie-down positions. Based on the need to provide additional space for large aircraft parking during peak periods, the removal of two T-hangar facilities is shown on the north side of the terminal apron with additional pavement added to allow aircraft with greater taxi-in/taxi-out opportunities—this is not a preferred area for larger hangar development because the hangars could produce line of sight and shadow issues between the ATCT and movement areas. The displaced aircraft in the T-hangars would be relocated to new T-hangars on the south side of the airport or the smaller box hangars shown on the north side. The other improvements on the north side were for that purpose (i.e., to provide space for displaced aircraft), to allow for continued use of a T-hangar facility that is in good condition, and to allow for construction of some box hangars that could be accessed outside the airport fence through the construction of a new access road and parking areas, which may be attractive for future aviation business opportunities at EVB. All of the 17 smaller box hangars shown on the north side could be constructed with limited impacts to existing facilities, but would mostly be beneficial for ADG I aircraft with wingspans less than 49 feet.

Some larger box hangars are also shown on the back side of the terminal apron in response to the desire to be able to store larger aircraft overnight and to further expand business opportunities; however, removal of the aboveground fuel tanks (which are not used) and the airport administration building would be required to accommodate their construction. For that reason, a potential consolidated airport administration building and maintenance facility is shown in an area that would not be beneficial for aviation development. The Terminal Area Development Alternative also shows a large-scale redevelopment of the parking and access for EVB. Not only would paved parking be provided in the current grass areas to accommodate passengers flying to/from the Bahamas, but it would also serve the flight school and other airport businesses. Such a project would make the airport entrance more attractive and may enhance the overall experience of the airport for visitors and potential tenants. A potential new entrance to EVB is also shown in-line with Inlet Shores Drive, which was being considered to improve safety for both pedestrians and vehicles in the area possibly as signalized intersection. With the parking configuration shown, there may be some opportunities for aviation support facilities to be constructed near the airport property line. The development shown closest to the Runway 29 end is best suited for large hangar development because it is currently undeveloped and has the depth available to construct hangars as needed along a shared taxilane (i.e., one hangar could be constructed at a time).



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Figure 5-5 Terminal Area Development Alternative

5.6 Industrial Park Development Evaluation

The Industrial Park Development Evaluation in **Figure 5-6** is not intended to represent a site plan, but to discuss the opportunities for the area. A potential roadway configuration was developed and undeveloped parcels were highlighted without considering existing lease lines. By conducting this evaluation, it was found that nearly all of the undeveloped parcels in the industrial park were largely covered by wetlands and/or were located near the historic Minorcan ditch that runs through the area; consequently, those types of sensitive environmental and historic features may limit the development potential of many of those parcels. Parcel 2 is the only parcel along Airway Circle that does not appear to be affected by wetlands or the ditch and would be suitable for aviation/industrial development. To determine the viability of constructing facilities on the other parcels and whether it would be worthwhile to extend infrastructure further into the industrial park, some degree of field research should be conducted to verify the presence of wetlands and the historic Minorcan ditch if such an analysis has not yet been conducted. The preferred alternative contains a more detailed assessment of this area to identify what types of actions would be needed to develop these parcels.

Parcels 24 through 28 appear to have the potential to be utilized for other purposes, most likely for aviation purposes due to the location along Taxiway E. The T-hangars and box hangars shown below Parcels 24 through 28 are mostly based on previous planning efforts for EVB. Although continued T-hangar expansion is expected on the south side of the airport, box hangars may be removed from the preferred alternative to allow for larger aviation business development within Parcels 24 through 28 (not necessarily in the defined acreages that are shown for discussion purposes only). As needed, additional hangar developments could occur in the 'Potential Hangar Expansion Area.' The area in the bottom left corner of the graphic was identified as a prime site for a potential commercial development opportunity due to its location at the intersection of Industrial Park Drive and U.S. Route 1.

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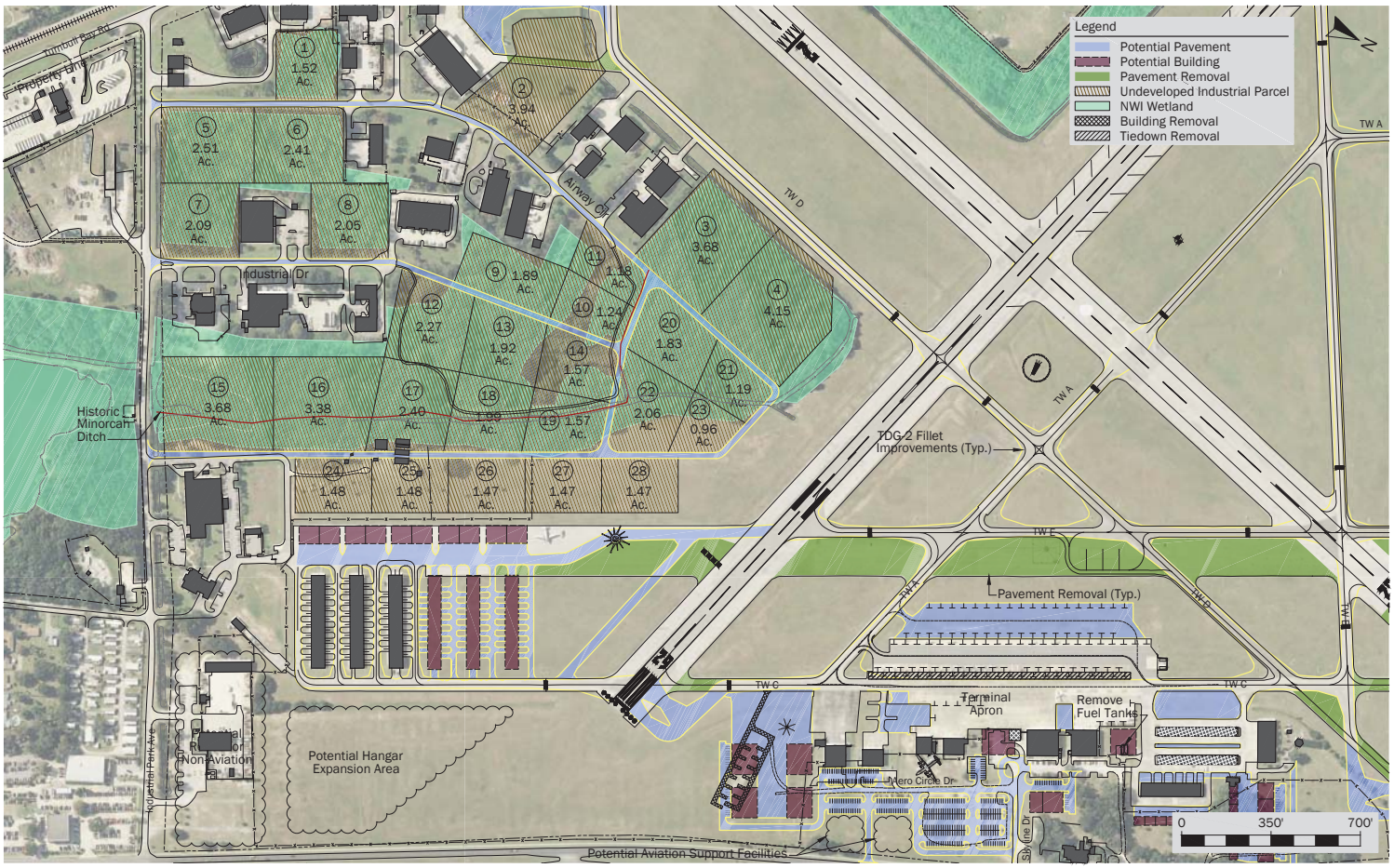
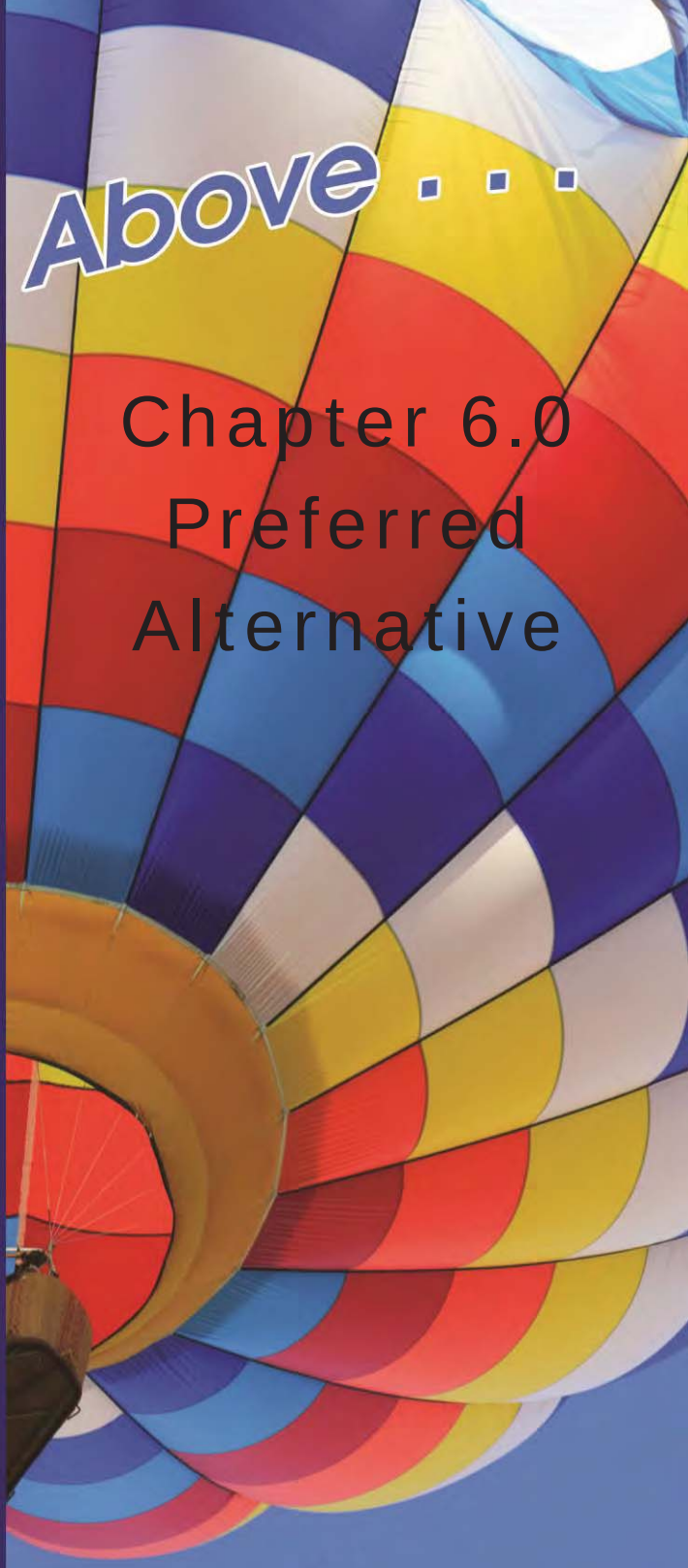


Figure 5-6 Industrial Park Development Evaluation

Rising Above . . .

Chapter 6.0 Preferred Alternative



New Smyrna Beach Municipal Airport

MASTER PLAN UPDATE

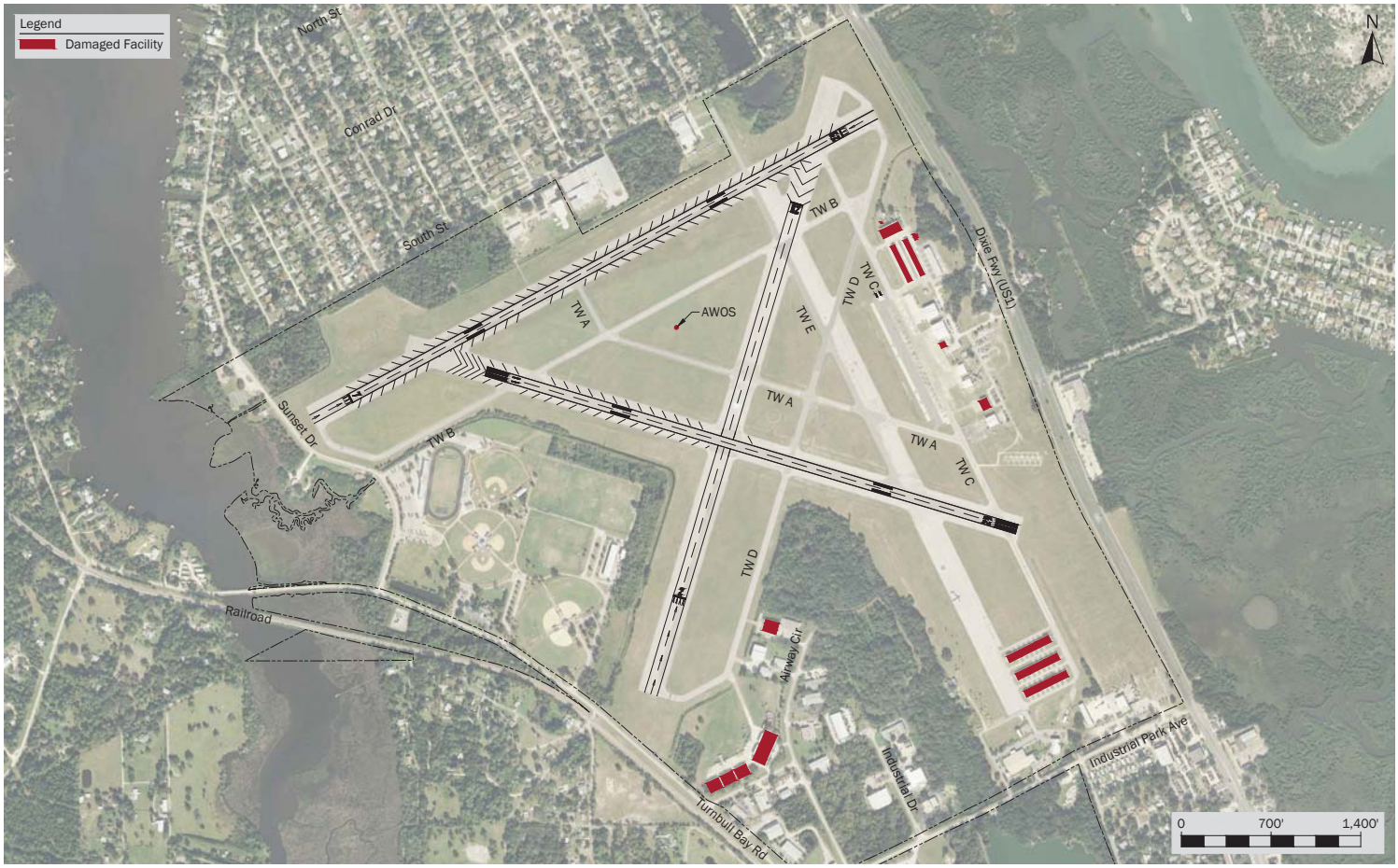
6.0 PREFERRED ALTERNATIVE

The previous chapter presented the preliminary alternatives for the New Smyrna Beach Municipal Airport (EVB). The preliminary alternatives included a mix of corrective actions for non-standard airfield conditions (e.g., the Runway Safety Areas (RSAs), strategies to help prevent runway incursions, and compliance with updated Federal Aviation Administration (FAA) regulations), a runway extension alternative for Runway 11-29, and various landside development opportunities for aviation and non-aviation infrastructure. The third Technical Advisory Committee (TAC) meeting was held on May 19, 2016 to discuss the preliminary alternatives, which was immediately followed by a public meeting to present the initial findings of the master plan update. The TAC concluded that much of what was shown in the preliminary alternatives was acceptable, but some modifications were necessary to meet the overall demands of airport users and to be compatible with ongoing design plans for airport facilities. This chapter presents the preferred alternative for EVB and potential environmental consequences associated with each project thereof. Following the fourth TAC meeting on May 11, 2017, the preferred alternative was modified as needed and the Capital Improvement Plan (CIP) was developed that includes anticipated project phasing and funding sources during the 20-year planning period. The elements of the preferred alternative are conceptual in nature and are intended to illustrate what can be done with the airport property should the demand and funding be available to construct facilities. The following evaluations were conducted as part of this chapter:

- Preferred Airfield Alternative
- Preferred Landside Alternative
- Preferred Property Acquisition Alternative
- Summary of Preferred Alternative
- Environmental Review of Preferred Alternative

In October 2016, Hurricane Matthew made landfall in New Smyrna Beach and caused damage to several facilities at EVB. As shown in **Figure 6-1**, various hangars, the airport administration building, and the Automated Weather Observing System (AWOS) were damaged by the hurricane. While it is recognized that several facilities were damaged, this master plan update assumes that the facilities will be repaired in-place and that the associated costs will not result in any significant financial burden to the airport.

In September 2016, the airport received a letter from the Florida Department of Transportation (FDOT) indicating that there were several airfield deficiencies that needed to be corrected (including RSAs, runway markings, approach surfaces, etc.). Where possible, the recommended corrections were incorporated into the preferred alternative; however, because this study was ongoing at the time, some of the recommended corrections may need to be addressed as part of a future Airport Layout Plan (ALP) update where they differ from the recommended corrective measures proposed in this master plan update.



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Figure 6-1 Damaged Facilities

6.1 Preferred Airfield Alternative

The overall preferred alternative for EVB is illustrated in **Figure 6-2** with the airfield recommendations labeled as "A#," the landside recommendations labeled as "L#," and the property acquisition recommendations listed as "P#." In previous chapters, it was identified that the airfield currently has several non-standard conditions including RSAs and Runway Object Free Areas (ROFAs). At EVB, the recommended correction of the RSA and ROFA issues is to publish declared distances for the runways as previously shown in **Table 5-3**. This limited cost solution would correct the issues by publishing alternate lengths that are currently available for some takeoff and landing calculations. Specifically, reduced Accelerate-Stop Distance Available (ASDA) and Landing Distance Available (LDA) distances would be published on Runways 7, 20, and 25 as follows:

- On Runway 7, the ASDA would be reduced from 5,000 feet to 4,854 feet and the LDA would be reduced from 4,665 feet to 4,519 feet. By publishing those declared distances, the RSA and ROFA beyond the Runway 7 end would no longer cross over Sunset Drive and the RSA and ROFA beyond the Runway 25 end would no longer cross over U.S. Route 1 (Dixie Freeway).
- On Runway 20, the ASDA and LDA would be reduced from 4,000 feet to 3,954 feet, which would prevent the RSA and ROFA beyond the Runway 2 end from crossing over Turnbull Bay Road.
- On Runway 25, the ASDA would be reduced from 5,000 feet to 4,764 feet and the LDA would be increased from 4,700 feet to 4,764 feet. By publishing those declared distances, the RSA and ROFA beyond the Runway 25 end would no longer cross over U.S. Route 1 (Dixie Freeway) and the RSA and ROFA beyond the Runway 7 end would no longer cross over Sunset Drive.

Those changes are reflected within the ALP drawing set associated with this master plan update and are considered the least cost solution for correcting the non-standard airfield conditions at EVB.

During FDOT's inspection in September 2016, the agency noted that the airport also has issues associated with Part 77 Imaginary Surfaces, which are protective surfaces that surround the runways and are intended to preserve the navigable airspace around the airport. The inspection report also noted that the markings on Runway 2-20 do not comply with current FAA guidance. Regarding the Part 77 Imaginary Surface concerns, the primary recommendations include removal of the identified obstacles wherever possible (e.g., trees), but the provision of obstruction lighting may also be an acceptable mitigation strategy in some instances (e.g., for fence and roads). Corrected markings are illustrated in **Figure 6-2** in accordance with FAA Advisory Circular (AC) 150/5340-1L, Standards for Airport Markings.



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Figure 6-2 Preferred Alternative

The airfield also has non-preferential conditions and improvements are needed to help prevent runway incursions in accordance with FAA Engineering Brief 75 (EB-75), Incorporation of Runway Incursion Prevention into Taxiway and Apron Design, and changes in taxiway fillet/turn geometry as dictated in FAA AC 150/5300-13A, Airport Design (Airport Design). **Figure 6-2** illustrates strategies for correcting the airfield to comply with the strategies in EB-75 and Airport Design. Those projects listed as **A1** illustrate the recommended airfield design standards corrections, which are summarized below.

- Removal of unnecessary pavement in order to comply with the recommendations of EB-75 and Airport Design. The wide expanses can result in confusion for pilots and serve a limited purpose at EVB. While it would be desirable to fully remove those sections, it may be permissible to paint some areas in green to indicate that aircraft should not taxi in those locations. Project **A1** includes removing or painting the excess pavement sections shown in green to accomplish the FAA's recommendations. A run-up area would be preserved in the paved area between Taxiways A and D to continue to allow that activity to be performed by aircraft with the appropriate clearances from aircraft taxiing along Taxiway E.
- The FAA also recommends the removal of direct connections between runways and aircraft parking areas, which currently occurs in three locations at EVB: 1) between Runway 11-29 and the terminal apron, 2) between Runway 7-25 and the terminal apron, and 3) between Runway 7-25 and Baker Aviation. Correction of the direct connection between Runway 11-29 and the terminal apron is shown with removal of the existing connection and by providing a short parallel taxiway connection to a relocated Runway 29 end (associated with a 165-foot displaced threshold extension of the Runway 29 end). Correction of the direct connection between Runway 7-25 and the terminal apron is shown with removal of the existing connection. The direct connection to Baker Aviation is shown with removal of the existing connection and by providing a parallel taxiway on the north side of the runway. Those corrections would require aircraft to turn onto parallel taxiways prior to entering the runways and should help to improve situational awareness for pilots while taxiing on the airfield.
- Project **A1** also attempts to clean up the complex intersection where Taxiways B, C, and D currently converge because an intersection with three taxiways is considered non-preferential if it can be avoided. Consequently, a piece of pavement would be removed to end Taxiway D at Taxiway C and only Taxiways B and C would then converge.
- Project **A1** also includes the provision of bypass taxiways at the ends of Runways 25 and 29 to assist with airfield capacity during peak times.
- Lastly, project **A1** includes the correction of the taxiway fillet geometry around the airfield, which mostly includes the addition of pavement in areas where taxiways turn. This project would be necessary to comply with revised guidance and Airport Design, and would likely be conducted as each respective taxiway section requires maintenance.

Project **A2** includes the extension of Runway 11-29 to an overall length of 5,398 feet, which was the longest runway length that can be achieved while keeping the RSAs and OFAs on the airport property. Under this development option, the acquisition of off-airport properties is not required since the Runway Protection Zones (RPZs) will not move from their current locations. The project would include a 914-foot displaced threshold extension of the Runway 11 end and a 165-foot displaced threshold extension of the Runway 29 end. In order to prevent the movement of the

RPZs, declared distances would be employed. The runway would provide 5,398 feet of ASDA in both directions, which is the most critical takeoff calculation for corporate jets, but other declared distances would not be maximized due to the RPZ concerns. Overall, this is the longest runway length that could be achieved on the airport property without impacting off-airport properties. This project also includes the completion of the parallel taxiway on the north side of Runway 7-25, but the costs associated with the extended portion of Runway 29 are incorporated into project **A1**.

Project **A3** includes the provision of a new compass calibration pad near the intersection of Taxiways A and B. Because the current compass calibration pad would be impacted by future hangar development, it may ultimately be necessary to provide a site on the airport where a new one could be constructed. AC 150/5300-13A, Airport Design, defines the siting and layout criteria for such facilities. Basically, in order to prevent magnetic interference, the pad should be located at least 150 feet from taxiway lighting and electrical conductors, 300 feet from buildings, and should not produce non-standard airfield conditions. While a first attempt was made to find an existing paved area where those criteria could be achieved (e.g., somewhere along Taxiway E), it was difficult to find an area that would not conflict with existing and proposed developments. Therefore, it was determined that the next best area was near the intersection of Taxiways A and B (just west of the AWOS). Entrances to the pad are shown from both taxiways to leave the option open for use of either or both, but it is likely that an entrance would only be provided from one taxiway. Interestingly, if Taxiway A were selected, aircraft could enter the pad and would not have to maneuver as much to properly align to magnetic north.

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6.2 Preferred Landside Alternative

The preferred landside alternative for EVB is also illustrated in **Figure 6-2** and includes the 26 recommended projects below. A zoom-in on the terminal area is provided in **Figure 6-3**. It is anticipated that many of the new hangars would be privately funded and constructed through land leases with the airport, with the exception of the T-hangars.

- **L1** – Includes paving the existing portions along the terminal apron that are currently grass, removing the two T-hangars to the north of the terminal apron, and paving that space for large aircraft parking. This project also includes re-grading the area in front of the other T-hangar in that area to allow for standard access to each unit.
- **L2** – Includes the expansion of the terminal apron to provide additional aircraft tiedown parking.
- **L3** – Includes the construction of four 4,030 square foot hangars, six 1,386 square foot hangars, and the associated apron and parking required to support those facilities. These hangars could be accessed from U.S. Route 1 (Dixie Freeway) via a new connection and could therefore be accessible to the public. The new road connection would provide an alternate access point to the northernmost facilities on the airport property.
- **L4** – Includes the construction of a 10,000 square foot hangar along the terminal apron.
- **L5** – Includes the construction of a new administration and maintenance facility just northeast of the existing administration building.
- **L6** – Includes the construction of a new paved parking lot immediately off of Skyline Drive, a loop road in front of a potential new terminal building, and a small paved parking area just southeast of the potential terminal building.
- **L7** – Includes the potential construction of a 13,000 square foot new terminal building and the demolition of the existing administration building.
- **L8** – Includes the construction of new roads and parking south of the existing administration building (all the way prior to the potential new hangars near the Runway 29 end).
- **L9** – Includes the construction of a 12,000 square foot hangar and associated apron and parking areas.
- **L10** – Includes the construction of a 12,000 square foot hangar and associated apron and parking areas.
- **L11** – Includes the construction of a 12,000 square foot hangar and associated apron and parking areas.
- **L12** – Includes the construction of a 12,000 square foot hangar and associated apron and parking areas.
- **L13** – Includes the construction of a 18,750 square foot hangar and associated apron and parking areas.
- **L14** – Includes the construction of a 18,750 square foot hangar and associated apron and parking areas.
- **L15** – Includes the construction of a 18,750 square foot hangar and associated apron and parking areas.
- **L16** – Includes the construction of a 18,750 square foot hangar and associated apron and parking areas.

- **L17** – Includes the construction of a 18,750 square foot hangar and associated apron and parking areas.
- **L18** – Includes the construction of a 18,750 square foot hangar and associated apron and parking areas.
- **L19** – Includes the construction of a 18,750 square foot hangar and associated apron and parking areas.
- **L20** – Includes the construction of a 13-unit T-hangar.
- **L21** – Includes the construction of a 13-unit T-hangar.
- **L22** – Includes the construction of a 13-unit T-hangar.
- **L23** – Includes the construction of a 13-unit T-hangar.
- **L24** – Includes the construction of a 13-unit T-hangar.
- **L25** – Includes the construction of a 13-unit T-hangar.
- **L26** – Includes the expansion of the South Apron and a new connection to Taxiway D.

In the previous chapter, there was a detailed discussion about the industrial park and the associated development potential thereof. The same layout has been carried out as part of the preferred alternative. Because many of the remaining parcels contain wetlands and the historic Minorcan ditch, there may be added challenges associated with developing in that area. Specifically, the cost to impact wetlands and conduct appropriate mitigation may be expensive and the historic Minorcan ditch essentially cannot be impacted. Additional information regarding this area is presented as part of the environmental consequences section later in this chapter.

6.3 Preferred Property Acquisition Alternative

The FAA provides the checklist shown in **Table 6-1** to identify the process that should be followed when Airport Improvement Program (AIP) grants are being utilized to acquire property; however, the individual elements of the checklist may vary depending upon the scope of the property acquisition and the funding source. FAA AC 150/5100-17, Land Acquisition and Relocation Assistance for Airport Improvement Program Assisted Projects, provides detailed procedural guidance regarding property acquisition. At EVB, four parcels located along South Street and one parcel that is bounded by the airport property in the terminal area were identified for potential acquisition should they become available for purchase in the future. Details regarding the parcels are summarized in **Table 6-2** and **Figure 6-2**.

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Figure 6-3 Preferred Alternative (Terminal Area)

Table 6-1
FAA Land Project Checklist

Step	Description
1	Develop Exhibit A Property Map that clearly delineates the land to be required.
2	Consult with the FAA Project Manager to verify that proposed parcels are identified on an approved Airport Layout Plan (ALP).
3	Verify environmental requirements of the National Environmental Policy Act (NEPA) are met.
4	Prepare surveys and plats for proposed property acquisition.
5	Order preliminary title search to confirm ownership and encumbrances on property title.
6	Select and negotiate contract for qualified appraiser and review appraiser.
7	Select and negotiate contract for Environmental Site Assessment (ESA) consultant (if not completed in project planning phase).
8	Select and negotiate contract for qualified land acquisition and relocation consultant, if required.
9	Conduct Environmental Site Assessment of property suspected of being contaminated.
10	Prepare relocation plan if there are any persons to be displaced.
11	Perform appraisals and appraisal review, and approve appraised fair market value. The property owner shall be given the opportunity to accompany the appraiser on the inspection of the property.
12	Submit appraisal and review appraisal reports to the FAA if required by project manager.
13	Make written offer of just compensation. At initiation of negotiations, provide general notice of the property owner's rights and entitlements on the acquisition of their property and an explanation of the relocation assistance and payment entitlements. Provide notice of relocation eligibility to displaced persons.
14	Negotiate purchase agreement. If reasonable attempts to negotiate an agreement or acceptable settlement are unsuccessful, the acquisition may be referred to the sponsor's attorney for condemnation under the airport's eminent domain authority.
15	Closing/court award, title conveyance, and schedule possession of acquired property. (Sponsor's attorney / title company /escrow agent.)
16	Complete relocation assistance for displaced persons. Assure a comparable replacement dwelling has been made available for all persons displaced from their residence, (as applicable).
17	Clear property for project use.
18	Furnish project application with Exhibit A Property Map and land acquisition cost breakdown sheet, Certification of Environmental Site Assessment, Certificate of Title, and Sponsor Certification for Real Property.
19	Execute grant agreement.
20	Submit final Outlay Report and Request for Reimbursement for Construction Programs (Form SF-271) and make final drawdown.

Source: FAA Land Project Checklist.

Table 6-2
Property Acquisition Analysis

Graphic Parcel ID	County Parcel ID	Acres	Class	Appraised Value (2016)
P1	7340-01-00-0041	3.3	Light Manufacturing	$1,037,809
P2	7340-01-00-0043	1.6	Light Manufacturing	$880,757
P3	7340-01-00-0040	5.8	Vacant Industrial	$53,823
P4	7340-01-00-0042	3.8	Light Manufacturing	$488,281
P5	7438-12-00-0171	0.5	Vacant Industrial	$24,394
Totals		**15**		**$2,485,064**

Source: Volusia County Property Appraiser.

6.4 Noise Contours and Land Use Compatibility

In 2012, the final draft of the FAR Part 150 Noise Study for New Smyrna Beach Municipal Airport was approved by the City Commission and forwarded to the Federal Aviation Administration (FAA) for review and approval. In the FAA's response letter dated January 8, 2013, the FAA addressed the second phase of the Noise Compatibility Program (NCP). However, the FAA noted that since the Noise Exposure Maps (NEM) were accepted, there had been a significant drop in operations at EVB, which would likely reduce the size of the noise contours.

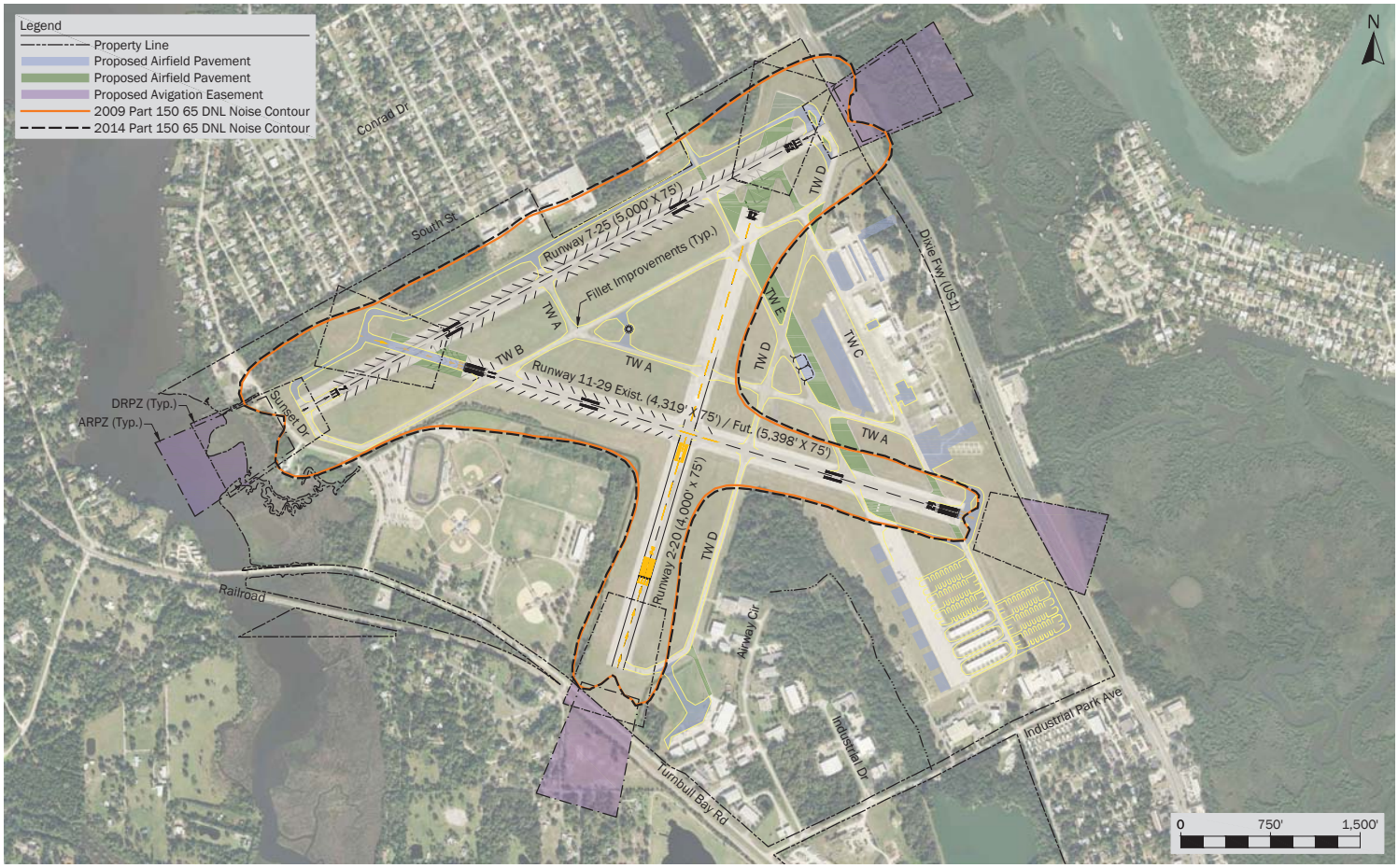
The FAA determined that the projected NEM's for the airport were significantly less than submitted due to a decline in the actual number of operations reported for 2012. Because of the discrepancy the City would no longer be able to certify the NEM's submitted with the NCP study. The reduction in operations also made it unlikely that the FAA would formally approve any mitigation measures identified in the Part 150 Study.

As a result, the City withheld submitting the NCP for formal review and approval. Instead, the City would continue to use any voluntary land use or operational measures that it has developed and implemented at the local level. In the FAA's response letter, the agency reiterated the value of the Part 150 Study citing, "the FAA believes that the City's NCP document is very thorough and provides tremendous value not only as a local airport noise management planning tool but also for informing land use planning around the airport."

Significant progress was made during the Part 150 process in working with the local aircraft operators and the FAA Airport Traffic Control Tower (ATCT) to reduce the annoyance associated with aircraft overflights. The study involved a comprehensive noise analysis including flight tests demonstrating whether specific measures have the potential to provide a noise benefit and/or reduce the potential for annoyance.

The FAR Part 150 Study resulted in a better understanding of the existing noise conditions, an opportunity to provide potential measures that may result in a noise benefit, and a valuable tool for future land use planning around the airport. Therefore, it was determined during the scoping of this airport master plan that the Part 150 noise contours (shown in **Figure 6-4**) would be incorporated into the Study and used to promote land use compatibility with the surrounding community.

Aside from noise, the projects illustrated within the preferred alternative should not produce any new incompatible land uses. Although portions of the Runway Protection Zones (RPZs) extend beyond the ends of all runway ends, no additional incompatible land uses would be introduced into the RPZs as part of the preferred alternative. Furthermore, easements are recommended for those portions of the RPZ that extend off the airport property in order to be able to clear trees and to prevent the construction of incompatible land uses. The airspace is currently protected in accordance with the New Smyrna Beach Code of Ordinances, Chapter 22, Article III, Airport and Airspace Zoning, which describes a specific zoning ordinance pertaining to the airport. At the time of this report, Volusia County was in the process of amending Chapter 72, Section 72-296 Airport Hazards, of the Volusia County Zoning Code, creating Airport Protection and Land Use Compatibility Zone regulations pursuant to F.S. Chapter 333, Airport Zoning. New Smyrna Beach Municipal Airport is identified in the proposed amendment.



Noise Contour Source: EVB Part 150 Study, Environmental Science Associates, Inc., 2012.

Figure 6-4 Part 150 Noise Contours

6.5 Summary of Preferred Alternative

Table 6-3 summarizes the recommended capital improvements associated with the master plan projects only. The projects are presented in no particular order and can be seen in the key map in **Figure 6-2**. The following chapter of this study includes a detailed phasing and funding plan for the master plan recommendations, in addition to cost estimates and additional projects associated with the annual maintenance of facilities at EVB.

Table 6-3
Summary of Preferred Alternative

Figure 6-2 ID	Project
A1	Design Standards Corrections & Runway 29 Extension (Pavement Removal & Addition)
A2	Runway 11 Extension & Parallel Taxiway
A3	Compass Calibration Pad
L1	Terminal Apron Infill & T-Hangar Removal
L2	Terminal Apron Expansion
L3	4,030 SF Hangars (4) & 1,386 SF Hangars (6)
L4	10,000 SF Hangar
L5	Potential Admin & Maintenance Facility
L6	Parking Lot Improvements (Phase 1)
L7	Potential Terminal Building
L8	Parking Lot Improvements (Phase 2)
L9	12,000 SF Hangar
L10	12,000 SF Hangar
L11	12,000 SF Hangar
L12	12,000 SF Hangar
L13	18,750 SF Hangar
L14	18,750 SF Hangar
L15	18,750 SF Hangar
L16	18,750 SF Hangar
L17	18,750 SF Hangar
L18	18,750 SF Hangar
L19	18,750 SF Hangar
L20	13-Unit T-Hangar
L21	13-Unit T-Hangar
L22	13-Unit T-Hangar
L23	13-Unit T-Hangar
L24	13-Unit T-Hangar
L25	13-Unit T-Hangar
L26	South Apron Expansion
P1	Parcel 7340-01-00-0041 (3.3 Acres)
P2	Parcel 7340-01-00-0043 (1.6 Acres)
P3	Parcel 7340-01-00-0040 (1.6 Acres)
P4	Parcel 7340-01-00-0042 (3.8 Acres)
P5	Parcel 7438-12-00-0171 (0.5 Acres)

Source: Michael Baker International, Inc., 2017.

6.6 Environmental Review of Preferred Alternative

The following sections describe the necessary level of documentation and permitting that would be associated with undertaking the projects proposed within the preferred alternative in accordance with the National Environmental Policy Act (NEPA), and identify potential environmental impacts that would be expected as a result of implementation of those projects.

Potential NEPA Documentation

FAA Order 1050.1F, Environmental Impacts: Policies and Procedures, provides the FAA policy and procedures to ensure compliance with the requirements of NEPA for FAA-funded projects and lists the type of NEPA documentation required for each project type. Chapter 5 of that document contains advisory and emergency actions and categorically excluded projects and actions. Categorically excluded projects and actions are those that meet the criteria contained in 40 CFR 1508.4 and represent actions that do not normally require an Environmental Assessment (EA) or Environmental Impact Statement (EIS) and do not individually or cumulatively have a significant effect on the environment. Chapter 3 of that document provides a summary of requirements for environmental assessments [a summary of Findings of No Significant Impact (FONSI) is provided in Chapter 6 of that document], and lists examples of actions or projects that normally require an EA which includes but is not limited to the following:

- Actions that are not categorically excluded
- Actions that are categorically excluded but involves at least one extraordinary circumstance that may significantly impact the environment
- Actions that require land acquisition greater than 3 acres
- Federal financial participation in or unconditional airport layout plan approval of a major runway extension

The examples were limited to those relevant to the projects proposed in the preferred alternative. Subsequently, the proposed projects are not anticipated to require an EIS to meet NEPA requirements.

Potential Regulatory Permits

Permitting requirements for each project type are based upon current federal, state, and local environmental regulations. The following criteria were used to determine the potential environmental permit that would be required for each project:

1. *State Environmental Resource Permit (ERP)*

An ERP is required if the project meets one of the following criteria:

a. The project proposes work in, on or over wetlands and surface waters.
b. The project proposes to construct more than 4,000 square feet of impervious or semi-pervious surface.
c. The project proposed has an area that is greater than one acre.
d. The project proposes impounding greater than 40 acre-feet.
e. The project has a dam that is greater than 10 feet in height.

f. The project is part of a larger development plan.
g. The project is a modification of an existing permit.

2. *National Pollutant Discharge Elimination System (NPDES) Permit for Construction Activity*

An NPDES for Construction permit is required if the project area is greater than one acre.

3. *Gopher Tortoise Relocation Permit*

The project is in an undeveloped upland that has the potential to contain gopher tortoise habitat and gopher tortoise.

4. *Section 404 Permit or Corps of Engineers (COE) Dredge and Fill Permit*

A Section 404 Permit is required if the project proposes to fill or dredge wetlands.

Preferred Alternative Projects

The projects proposed for the preferred alternative was overlaid on a Florida Land Use, Cover and Classification System (FLUCFCS) map and the most recent aerial photograph to determine if the proposed project has would potentially impact developed areas, wetlands, non-forested uplands, and forested uplands. The projects proposed for the preferred alternative, their potential impact to wetlands, forested uplands, and protected species, the anticipated level of documentation (Categorical Exclusion or Environmental Assessment) that will be required by the FAA to satisfy NEPA requirements and the section of FAA Order 1050.1F that the project falls under, and the regulatory permits that would be required to construct the project are listed in **Table 6-4**. **Figure 6-2** depicts the location of each of the proposed projects.

The projects have been divided into the following:

- Projects with no potential environmental impact
- Projects with potential protected species impact
- Projects with potential wetland impact
- Projects with potential wetland and protected species impact

Projects with No Potential Environmental Impacts

Projects with no potential environmental impact are projects that are located on developed areas within airport property (i.e., mowed upland or paved areas), do not require land acquisition, and has a project area that is less than one acre are typically categorically excluded and require a ERP and NPDES permit except when specifically identified in FAA Order 1050.1F such as the construction of a fueling facility or major extension of a runway.

Projects with Potential Protected Species Impacts

Projects with potential protected species impacts are projects that are located on undeveloped forested and non-forested areas of the airport that has the potential to contain gopher tortoise and their habitat. The gopher tortoise is a listed species in the State of Florida and impacts to this listed species and their habitat require a Florida Fish and Wildlife Conservation Commission Gopher Tortoise Relocation Permit. The projects under this category are categorically excluded except for the Runway 11-29 extension which may require an EA per FAA Order 1050.1F.

Projects with Potential Wetland Impacts

Projects that are located in areas that contain wetlands or are near wetlands are required to have an ERP permit. In the State of Florida there is a memorandum of agreement between the State and COE for Joint Application such that the ERP also serves as the application for a Section 404 or COE Dredge and Fill Permit. Projects with wetland impacts that require a Section 404 Individual permit are also required to have EA NEPA documentation. Projects with wetland impacts that can be permitted with a Section 404 Nationwide or General Permit would most likely be categorically excluded. The south apron expansion has the potential to impact a drainage ditch. If the ditch is State Surface Waters and is not a Waters of U.S., it will not require a Section 404 permit. If the ditch is a Waters of the U.S. wetland, a Section 404 permit may be required. Potential future road projects associated have the potential to impact wetlands and may require a Section 404 permit dependent on the total area of wetlands that would be impacted and therefore may require an EA to meet NEPA requirements.

In Florida, the Native American Tribes requires a Phase I Cultural Resources Assessment Survey (CRAS) for any development project located at an airport. The cost of a Phase I is included in the estimated fee for the NEPA document for each proposed project. Additionally, an EA may be documented using a Short Form EA or a full EA. For planning purposes, the cost of the EA was based on the assumption that it would be a full EA.

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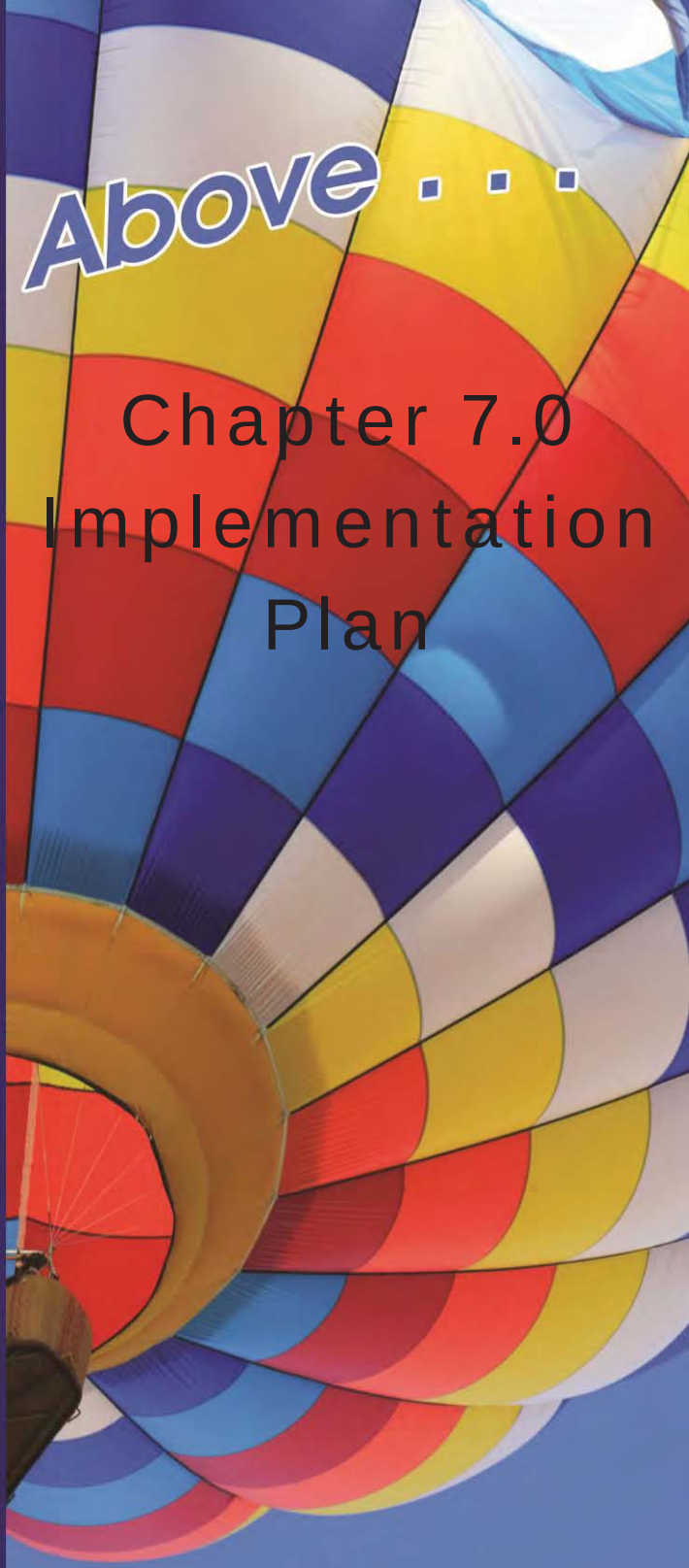
Table 6-4
Environmental Review of Preferred Alternative

Figure 6-2 Reference	Project	Disturbed Area (Acres)	Property Acquisition (Acres)	Potential Impact (Y or N)					Potential NEPA Documentation	FAA Order 1050.1F Reference	Potential State Permit	Potential Federal Permit	Comments
				Noise	Air Quality	Wetlands	Upland Forested	Protected Species					
Projects With No Environmental Impacts													
L1	Terminal Apron Infill & T-Hangar Removal	2.62		N	N	N	N	N	CatEx	5-6.4 e.	NPDES	None	
P1	Property Acquisition 1	0	3.3*	N	N	N	N	N	EA	3-1.2.b.(1)	None	None	Property Acquisition: 3.3 acres
P2	Property Acquisition 2	0	1.6	N	N	N	N	N	CatEx	5-6.4 r.	None	None	Property Acquisition: 1.6 acres
P3	Property Acquisition 3	0	5.8*	N	N	N	N	N	EA	3-1.2.b.(1)	None	None	Property Acquisition: 5.8 acres
P4	Property Acquisition 4	0	3.8*	N	N	N	N	N	EA	3-1.2.b.(1)	None	None	Property Acquisition: 3.8 acres
P5	Property Acquisition 5	0	0.50	N	N	N	N	N	CatEx	5-6.4 r.	None	None	Property Acquisition: 0.5 acres
Projects With Potential Protected Species Impacts													
A1	Design Standards Corrections & Runway 29 Extension (Pavement Removal & Addition)	3.92		Y	Y	N	N	Y	EA or CatEx	3-1.2 b 10 (c) or 5-6.4 e.	NPDES, ERP, GTRP	None	May contain gopher tortoise
A2	Runway 11 Extension & Parallel Taxiway	5.56		Y	Y	N	N	Y	EA or CatEx	3-1.2 b 10 (c) or 5-6.4 e.	NPDES, ERP, GTRP	None	May contain gopher tortoise
A3	Compass Calibration Pad	0.6		N	N	N	N	Y	CatEx	5-6.4 f.	GTRP	None	May contain gopher tortoise
L2	Terminal Apron Expansion	2.88		N	N	N	N	Y	CatEx	5-6.4 e.	NPDES, ERP, GTRP	None	May contain gopher tortoise
L3	4,030 SF Hangars (4) & 1,386 SF Hangars (6)	1.70		N	N	N	N	Y	CatEx	5-6.4 f.	NPDES, ERP, GTRP	None	May contain gopher tortoise
L4	10,000 SF Hangar	0.23		N	N	N	N	Y	CatEx	5-6.4 f.	GTRP	None	May contain gopher tortoise
L5	Potential Admin & Maintenance Facility	0.51		N	N	N	N	Y	CatEx	5-6.4 f.	GTRP	None	May contain gopher tortoise
L6	Parking Lot Improvements (Phase 1)	0.85		N	N	N	N	Y	CatEx	5-6.4 f.	GTRP	None	May contain gopher tortoise
L7	Potential Terminal Building	0.30		N	N	N	N	Y	CatEx	5-6.4 h.	GTRP	None	May contain gopher tortoise
L8	Parking Lot Improvements (Phase 2)	1.32		N	N	N	N	Y	CatEx	5-6.4 f.	NPDES, ERP, GTRP	None	May contain gopher tortoise
L9	12,000 SF Hangar	0.97		N	N	N	N	Y	CatEx	5-6.4 f.	GTRP	None	May contain gopher tortoise
L10	12,000 SF Hangar	0.97		N	N	N	N	Y	CatEx	5-6.4 f.	GTRP	None	May contain gopher tortoise
L11	12,000 SF Hangar	0.97		N	N	N	N	Y	CatEx	5-6.4 f.	GTRP	None	May contain gopher tortoise
L12	12,000 SF Hangar	0.97		N	N	N	N	Y	CatEx	5-6.4 f.	GTRP	None	May contain gopher tortoise
L13	18,750 SF Hangar	1.02		N	N	N	N	Y	CatEx	5-6.4 f.	NPDES, ERP, GTRP	None	May contain gopher tortoise
L14	18,750 SF Hangar	1.02		N	N	N	N	Y	CatEx	5-6.4 f.	NPDES, ERP, GTRP	None	May contain gopher tortoise
L15	18,750 SF Hangar	1.02		N	N	N	N	Y	CatEx	5-6.4 f.	NPDES, ERP, GTRP	None	May contain gopher tortoise
L16	18,750 SF Hangar	1.02		N	N	N	N	Y	CatEx	5-6.4 f.	NPDES, ERP, GTRP	None	May contain gopher tortoise
L17	18,750 SF Hangar	1.02		N	N	N	N	Y	CatEx	5-6.4 f.	NPDES, ERP, GTRP	None	May contain gopher tortoise
L18	18,750 SF Hangar	1.02		N	N	N	N	Y	CatEx	5-6.4 f.	NPDES, ERP, GTRP	None	May contain gopher tortoise
L19	18,750 SF Hangar	1.02		N	N	N	N	Y	CatEx	5-6.4 f.	NPDES, ERP, GTRP	None	May contain gopher tortoise
L20	13-Unit T-Hangar	0.91		N	N	N	N	Y	CatEx	5-6.4 f.	GTRP	None	May contain gopher tortoise
L21	13-Unit T-Hangar	0.91		N	N	N	N	Y	CatEx	5-6.4 f.	GTRP	None	May contain gopher tortoise
L22	13-Unit T-Hangar	0.91		N	N	N	N	Y	CatEx	5-6.4 f.	GTRP	None	May contain gopher tortoise
L23	13-Unit T-Hangar	1.17		N	N	N	N	Y	CatEx	5-6.4 f.	NPDES, ERP, GTRP	None	May contain gopher tortoise
L24	13-Unit T-Hangar	1.17		N	N	N	N	Y	CatEx	5-6.4 f.	NPDES, ERP, GTRP	None	May contain gopher tortoise
L25	13-Unit T-Hangar	1.17		N	N	N	N	Y	CatEx	5-6.4 f.	NPDES, ERP, GTRP	None	May contain gopher tortoise
Projects With Potential Wetland Impacts													
L26	South Apron Expansion	1.68		N	N	Y	N	Y	EA	5-6.4 e.	NPDES, ERP, GTRP	Section 404	Located in a jurisdictional wetland & may contain gopher tortoise

Source: Michael Baker International, Inc., 2017.
ERP – Environmental Resource Permit
FDEP IWP – FDEP Industrial Wastewater Permit
GTRP – Gopher Tortoise Relocation Permit
NPDES – National Pollutant Discharge Elimination System Permit for Construction Activity
*FAA Order 1050.1F indicates that an EA is required for property acquisitions over three acres
Section 404 – COE Dredge and Fill Permit

Rising Above . . .

Chapter 7.0 Implementation Plan



New Smyrna Beach Municipal Airport

MASTER PLAN UPDATE

7.0 IMPLEMENTATION PLAN

7.1 Introduction

The primary objective of this chapter is to analyze the financial feasibility of developing the projects included in the Capital Improvement Program (CIP) for the New Smyrna Beach Municipal Airport (EVB). The proposed financial plan was developed after evaluating the financial structure of EVB and identifying potential sources of revenue that may be available to fund capital improvement projects. The funding sources were then matched with projects over an estimated phasing schedule to determine the financial implications of undertaking the recommended capital improvements. The implementation plan presented herein describes the staging of proposed improvements and identifies various means of funding the improvements. It is the intent of this implementation plan to provide general financial guidance to airport management and the City of New Smyrna Beach (the airport sponsor) for making policy decisions regarding the recommended development of the airport over the 20-year planning period. The information in this chapter presents a preliminary review of the CIP and financial structure of EVB.

7.2 Federal & State Funding Eligibility

The CIP identifies recommended projects and associated cost estimates for the 20-year planning period at EVB. FAA Order 5100.38D, Airport Improvement Program (AIP) Handbook, sets forth the official policy and procedures to be used in the administration of AIP grants. **Table 7-1** lists typical examples of eligible and ineligible AIP projects. Projects eligible for AIP funding may receive up to 90 percent of the project cost to be covered by the FAA. For general aviation airports, the Florida Department of Transportation covers up to 80 percent of the non-federal share and the airport is responsible for up to 20 percent of the remaining non-federal share. For example, for an AIP-eligible project that costs $100,000, the FAA would pay $90,000, FDOT would pay $8,000, and the airport would be responsible for $2,000. The airport receives $150,000 in entitlement funds from the FAA each year, which are spent on projects at EVB. Those funds are mostly used for safety, pavement, lighting, and planning/design/environmental projects. If the airport is conducting a larger project that is more expensive, the FAA may provide additional discretionary funding.

FDOT also has special funding programs that typically cover up to either 80 percent of the project cost for non-revenue generating projects or 50 percent of the project cost for revenue-generating projects, of which EVB is currently eligible for. It is noted that these are typical funding shares, but the shares at EVB can widely based on the individual project, local commitment to conduct projects, and funding availability. Therefore, the shares in the airport's CIP do not necessarily follow a standard funding scenario.

Table 7-1
Examples of Eligible vs. Ineligible AIP Projects

Eligible Projects	Ineligible Projects
Runway construction/rehabilitation	Maintenance equipment and vehicles
Taxiway construction/rehabilitation	Office and office equipment
Apron construction/rehabilitation	Fuel farms*
Airfield lighting	Landscaping
Airfield signage	Artworks
Airfield drainage	Aircraft hangars*
Land acquisition	Industrial park development
Weather observation stations (AWOS)	Marketing plans
NAVAIDs such as REILs and PAPIs	Training
Planning studies	Improvements for commercial enterprises
Environmental studies	Maintenance or repairs of buildings
Safety area improvements	
Airport layout plans (ALPs)	
Access roads only located on airport property	
Removing, lowering, moving, marking, and lighting hazards	
Glycol Recovery Trucks/Glycol Vacuum Trucks**	

Source: FAA AIP Overview, FAA website.
*May be eligible. Contact your local Airport District or Regional Office for more information.
**To be eligible, the vehicles must be owned and operated by the airport and meet the Buy American Preference specified in the AIP grant. Contact your local Airport District or Regional Office for more information.

In addition, the following must also apply for FAA to consider a project for AIP funding:
The project sponsorship requirements have been met.
The project is reasonably consistent with the plans of planning agencies for the development of the area in which the airport is located.
Sufficient funds are available for the portion of the project not paid for by the Federal Government.
The project will be completed without undue delay.
The airport location is included in the current version of the NPIAS.
The project involves more than $25,000 in AIP funds.
The project is depicted on a current airport layout plan approved by FAA.

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7.3 Project Costs & Phasing

As shown in **Table 7-2**, a CIP and phasing plan were identified for the 20-year planning period that includes a mixture of the master plan recommendations and routine maintenance of existing facilities. The CIP planning period is defined as 2017 through 2035+. Each project within the CIP was assigned to a particular planning period or development phase (i.e., Phase 1, Phase 2, or Phase 3). The Phase 1 time period extends from 2017 to 2022, the Phase 2 period extends from 2023 to 2028, and the Phase 3 period spans from 2029 to 2035+. A detailed breakdown of costs and phasing was produced for Phase 1 projects; however, the Phase 2 and 3 projects are listed in a more generalized order that should remain flexible. Although this study charts a course for planned development, it must be emphasized that the planning and development of an airport is a continuous process. The rehabilitation of existing facilities and development of new facilities must be predicated on sustained demand, which justifies the costs of improvements. As aviation demand may change at EVB and also specific project requirements and funding mechanisms may change, the airport should consider the impact on the CIP and the potential need to modify certain elements of the Airport Layout Plan (ALP).

The estimated cost for each of the recommended airport improvements reflects a preliminary opinion of the probable implementation cost for the project. In addition to the estimated construction costs, anticipated fees for design, inspection, permitting, surveying, testing and administration were also included in the overall estimate where applicable. Each project cost is presented in the base year dollar value and therefore does not reflect unanticipated increases in labor and material costs or changes in environmental legislation. This is done for master planning purposes because the dates of project are generally identified in phases as opposed to specific years. In addition, a contingency was added to the overall costs of some projects to account for unforeseen variables. A detailed environmental analysis may be required to recognize the full scope of environmental and budgetary impacts associated with the proposed development. Some projects may also require mitigation measures to offset impacts to environmentally sensitive areas whereas others may require some level of environmental remediation based on conditions that may or may not have been identified as part of this study. For those reasons, it is important to note that the estimates shown are accurate based on the costs of labor, materials, and anticipated impacts calculated at the time of this writing. As such, it is important to revisit and update costs regularly to ensure that an accurate CIP is maintained.

Project Phasing

Since the airport's actual versus forecast activity levels may vary, it is important for the staging of proposed improvement projects remain sensitive to such variations. Some projects may take precedence over others, depending on their level of priority or due to the availability of funding. Thus, a list of prioritized improvements was established based upon the urgency of need, ease of implementation, and logic of project sequencing. The objective was to establish an efficient order for project development and implementation that meets or exceeds the forecasted aviation demands at EVB.

The total cost of the 20-year CIP is estimated at $61,940,000 million including $24,453,000 in FAA investment, $19,257,600 million in FDOT investment, $6,814,400 million in city investment, and $11,415,000 in private investment. Those figures include all studies, infrastructure

improvements, and proposed construction costs necessary to achieve the developments shown in the CIP. The CIP for each period presents the improvements slated for implementation during the period, but it does not assume how financially feasible it will be for the City to undertake the projects or whether or not funding will be available.

Much of the funding for the projects in Phase 1 has been pre-determined between the airport, FAA, and FDOT, but can be subject to change on a case-by-case and annual basis (particularly to align with the updated master plan recommendations). The Phase 2 projects include items that will be necessary based on the forecast demand and to provide anticipated maintenance activities. Many of the Phase 3 projects include routine maintenance and higher price private developments that would likely only be implemented as required by demand at the time. This CIP relies heavily on private investment to construct future hangars with the overall goal of reducing the airport's maintenance and development costs by encouraging private facility development.

Consumer Price Index (CPI) Adjustment

The improvements shown in previous tables illustrate the facilities needed at EVB to meet the forecast demands through the end of the 20-year planning period and likely beyond as well. The cost estimates were determined in year 2017 dollars, so as time goes by the values should be reviewed to determine if any project cost adjustments have occurred. Although the costs for construction projects is highly variable due to the fluctuating cost of materials (e.g., asphalt, steel, and energy production), a reasonable estimate of future costs can be calculated by adjusting the 2017 costs by the appropriate Consumer Price Index (CPI) inflation factor. The Bureau of Labor Statistics (BLS) provides an online CPI inflation calculator that may be used to compare historical costs to present day cost and is available on this website (http://www.bls.gov/data/inflation_calculator.htm).

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Table 7-2
Capital Improvement Program (2017-2035+)

Phase	Year	Figure 6-2 ID	Project Title	Estimated Cost	FAA Grants	FDOT Grants	EVB Funds	Private Funds	FAA %	FDOT %	EVB %	Private %
1	2017	L5	Potential Admin & Maintenance Facility	$780,000	$0	$624,000	$156,000	$0	0.00%	80.00%	20.00%	0.00%
1	2017	L6	Parking Lot Improvements (Phase 1)	$410,000	$0	$328,000	$82,000	$0	0.00%	80.00%	20.00%	0.00%
1	2017	P5	Property Acquisition 5	$70,000	$0	$56,000	$14,000	$0	0.00%	80.00%	20.00%	0.00%
1	2017	N/A	Install Runway 7-25 REILs	$90,000	$81,000	$7,200	$1,800	$0	90.00%	8.00%	2.00%	0.00%
1	2017	N/A	Land Acquisitions (Phase 1)	$2,000,000	$0	$1,600,000	$400,000	$0	0.00%	80.00%	20.00%	0.00%
1	2018	L4	10,000 SF Hangar	$620,000	$0	$496,000	$124,000	$0	0.00%	80.00%	20.00%	0.00%
1	2018	L22	13-Unit T-Hangar	$890,000	$0	$712,000	$178,000	$0	0.00%	80.00%	20.00%	0.00%
1	2018	L26	South Apron Expansion	$1,120,000	$0	$896,000	$224,000	$0	0.00%	80.00%	20.00%	0.00%
1	2018	N/A	Land Acquisitions (Phase 2)	$2,000,000	$0	$1,600,000	$400,000	$0	0.00%	80.00%	20.00%	0.00%
1	2018	N/A	Fuel Farm Improvements	$200,000	$0	$160,000	$40,000	$0	0.00%	80.00%	20.00%	0.00%
1	2019	A1	Design Standards Corrections & Runway 29 Extension	$2,780,000	$2,502,000	$222,400	$55,600	$0	90.00%	8.00%	2.00%	0.00%
1	2019	L3	4,030 SF Hangars (4) & 1,386 SF Hangars (6)	$1,500,000	$0	$1,200,000	$300,000	$0	0.00%	80.00%	20.00%	0.00%
1	2019	N/A	Rehabilitate Runway 2-20	$1,200,000	$0	$960,000	$240,000	$0	0.00%	80.00%	20.00%	0.00%
1	2019	N/A	Miscellaneous Airfield Lighting/Electrical	$350,000	$315,000	$28,000	$7,000	$0	90.00%	8.00%	2.00%	0.00%
1	2020	L1	Terminal Apron Infill & T-Hangar Removal	$1,800,000	$1,620,000	$144,000	$36,000	$0	90.00%	8.00%	2.00%	0.00%
1	2020	L21	13-Unit T-Hangar	$890,000	$0	$712,000	$178,000	$0	0.00%	80.00%	20.00%	0.00%
1	2020	N/A	Acquire ARFF Vehicle	$130,000	$117,000	$10,400	$2,600	$0	90.00%	8.00%	2.00%	0.00%
1	2020	N/A	Miscellaneous Obstruction Removal	$300,000	$270,000	$24,000	$6,000	$0	90.00%	8.00%	2.00%	0.00%
1	2021	N/A	Taxiway C Rehab	$550,000	$495,000	$44,000	$11,000	$0	90.00%	8.00%	2.00%	0.00%
1	2022	L20	13-Unit T-Hangar	$890,000	$0	$712,000	$178,000	$0	0.00%	80.00%	20.00%	0.00%
1	2022	N/A	Constructed Lighted Helipad	$150,000	$135,000	$12,000	$3,000	$0	90.00%	8.00%	2.00%	0.00%
1	2022	N/A	Taxiway A Rehab	$570,000	$513,000	$45,600	$11,400	$0	90.00%	8.00%	2.00%	0.00%
1	2022	N/A	Miscellaneous Industrial Park Improvements	$1,000,000	$0	$0	$1,000,000	$0	0.00%	0.00%	100.00%	0.00%
2	2023	N/A	Miscellaneous Airport Fencing	$600,000	$540,000	$48,000	$12,000	$0	90.00%	8.00%	2.00%	0.00%
2	2024	A2	Runway 11 Extension & Parallel Taxiway	$3,670,000	$3,303,000	$293,600	$73,400	$0	90.00%	8.00%	2.00%	0.00%
2	2024	L25	13-Unit T-Hangar	$1,010,000	$0	$808,000	$202,000	$0	0.00%	80.00%	20.00%	0.00%
2	2024	N/A	Miscellaneous Airfield Lighting/Electrical	$350,000	$315,000	$28,000	$7,000	$0	90.00%	8.00%	2.00%	0.00%
2	2025	A3	Compass Calibration Pad	$410,000	$369,000	$32,800	$8,200	$0	90.00%	8.00%	2.00%	0.00%
2	2025	L2	Terminal Apron Expansion	$1,900,000	$1,710,000	$152,000	$38,000	$0	90.00%	8.00%	2.00%	0.00%
2	2025	L7	Potential Terminal Building	$810,000	$0	$648,000	$162,000	$0	0.00%	80.00%	20.00%	0.00%
2	2025	L8	Parking Lot Improvements (Phase 2)	$640,000	$0	$512,000	$128,000	$0	0.00%	80.00%	20.00%	0.00%
2	2025	L9	12,000 SF Hangar	$1,180,000	$0	$236,000	$59,000	$885,000	0.00%	20.00%	5.00%	75.00%
2	2025	N/A	Miscellaneous Obstruction Removal	$300,000	$270,000	$24,000	$6,000	$0	90.00%	8.00%	2.00%	0.00%
2	2026	L10	12,000 SF Hangar	$1,180,000	$0	$236,000	$59,000	$885,000	0.00%	20.00%	5.00%	75.00%
2	2027	L11	12,000 SF Hangar	$1,180,000	$0	$236,000	$59,000	$885,000	0.00%	20.00%	5.00%	75.00%
2	2028	L12	12,000 SF Hangar	$1,180,000	$0	$236,000	$59,000	$885,000	0.00%	20.00%	5.00%	75.00%
2	2028	N/A	Master Plan Update	$400,000	$360,000	$32,000	$8,000	$0	90.00%	8.00%	2.00%	0.00%
2	2028	N/A	Miscellaneous Fuel Farm Improvements	$500,000	$0	$400,000	$100,000	$0	0.00%	80.00%	20.00%	0.00%
3	2029	L19	18,750 SF Hangar	$1,500,000	$0	$300,000	$75,000	$1,125,000	0.00%	20.00%	5.00%	75.00%
3	2029	P4	Property Acquisition 4	$1,350,000	$1,215,000	$108,000	$27,000	$0	90.00%	8.00%	2.00%	0.00%
3	2029	N/A	Miscellaneous Airfield Lighting/Electrical	$350,000	$315,000	$28,000	$7,000	$0	90.00%	8.00%	2.00%	0.00%
3	2030	L18	18,750 SF Hangar	$1,500,000	$0	$300,000	$75,000	$1,125,000	0.00%	20.00%	5.00%	75.00%
3	2030	P3	Property Acquisition 3	$150,000	$135,000	$12,000	$3,000	$0	90.00%	8.00%	2.00%	0.00%
3	2030	N/A	Taxiway D Rehab	$1,230,000	$1,107,000	$98,400	$24,600	$0	90.00%	8.00%	2.00%	0.00%
3	2030	N/A	Miscellaneous Obstruction Removal	$300,000	$270,000	$24,000	$6,000	$0	90.00%	8.00%	2.00%	0.00%
3	2031	L17	18,750 SF Hangar	$1,500,000	$0	$300,000	$75,000	$1,125,000	0.00%	20.00%	5.00%	75.00%
3	2031	P1	Property Acquisition 1	$2,860,000	$2,574,000	$228,800	$57,200	$0	90.00%	8.00%	2.00%	0.00%
3	2031	P2	Property Acquisition 2	$2,430,000	$2,187,000	$194,400	$48,600	$0	90.00%	8.00%	2.00%	0.00%
3	2031	N/A	Runway 7-25 & Taxiway B Rehab	$2,900,000	$2,610,000	$232,000	$58,000	$0	90.00%	8.00%	2.00%	0.00%
3	2032	L16	18,750 SF Hangar	$1,500,000	$0	$300,000	$75,000	$1,125,000	0.00%	20.00%	5.00%	75.00%
3	2032	N/A	Miscellaneous Industrial Park Improvements	$1,000,000	$0	$0	$1,000,000	$0	0.00%	0.00%	100.00%	0.00%
3	2033	L15	18,750 SF Hangar	$1,500,000	$0	$300,000	$75,000	$1,125,000	0.00%	20.00%	5.00%	75.00%
3	2033	N/A	Miscellaneous Airport Fencing	$600,000	$540,000	$48,000	$12,000	$0	90.00%	8.00%	2.00%	0.00%

3	2034	L14	18,750 SF Hangar	$1,500,000	$0	$300,000	$75,000	$1,125,000	0.00%	20.00%	5.00%	75.00%
3	2034	N/A	Miscellaneous Airfield Lighting/Electrical	$350,000	$315,000	$28,000	$7,000	$0	90.00%	8.00%	2.00%	0.00%
3	2035	L13	18,750 SF Hangar	$1,500,000	$0	$300,000	$75,000	$1,125,000	0.00%	20.00%	5.00%	75.00%
3	2035	L23	13-Unit T-Hangar	$1,010,000	$0	$808,000	$202,000	$0	0.00%	80.00%	20.00%	0.00%
3	2035	L24	13-Unit T-Hangar	$1,010,000	$0	$808,000	$202,000	$0	0.00%	80.00%	20.00%	0.00%
3	2035	N/A	Miscellaneous Obstruction Removal	$300,000	$270,000	$24,000	$6,000	$0	90.00%	8.00%	2.00%	0.00%

Total All	**$61,940,000**	**$24,453,000**	**$19,257,600**	**$6,814,400**	**$11,415,000**	
Total Phase 1 (2017-2022)	**$20,290,000**	**$6,048,000**	**$10,593,600**	**$3,648,400**	**$0**	
Total Phase 2 (2023-2028)	**$15,310,000**	**$6,867,000**	**$3,922,400**	**$980,600**	**$3,540,000**	
Total Phase 3 (2029-2035+)	**$26,340,000**	**$11,538,000**	**$4,741,600**	**$2,185,400**	**$7,875,000**	
Average Per Year (2017-2035)	**$3,441,111.11**	**$1,358,500.00**	**$1,069,866.67**	**$378,577.78**	**$634,166.67**	
FAA Entitlement Balance (2017)		**$150,000.00**				
FAA Entitlements (2018-2035)		**$2,550,000.00**				
Anticipated FAA Discretionary Funding (2017-2035)		**$21,753,000.00**				

Source: Michael Baker International, Inc., 2017.

7.4 Airport Financial Structure

This section presents the historical revenues and expenses that were generated from the airport's operation, as well as a forecast of revenues and expenses and a projection of annual cash outlays that will be required by the airport after capital improvements are accounted for.

The sources of revenue from EVB primarily include the following items:

- Fuel Charges
- Land/Ramp Leases
- Hangar Leases
- Non-Aviation Leases
- Miscellaneous Revenues
- FAA and FDOT Grants

Those revenues are collected by the airport and are accounted for in the City of New Smyrna Beach's Airport Industrial Fund. As part of this Master Plan Update, a more detailed analysis of the airport's financial structure was undertaken following the acceptance of the CIP by the TAC. The airport's historical revenues and expenses for 2013 through 2016 are summarized in **Table 7-3**. This is presented by fiscal year with a year end date of September 30. Therefore, the 2016 finances do not illustrate any financial impacts the airport may have experienced as a result of Hurricane Matthew that hit New Smyrna Beach on October 7, 2016. As mentioned in earlier sections of this report, it was assumed that damaged facilities would essentially be replaced at minimal cost to the airport (by insurance company payouts, special grants, etc.). For that reason, the revenues and expenses in fiscal year 2017 were held at 2016 levels based on the assumption that the airport would be made whole on any losses incurred due to Hurricane Matthew. The airport has made a profit in all years shown in Table 7-3 and is considered a financially self-sustainable entity. The Airport Industrial Park Fund also had a positive balance of $1,505,069 at the end of 2016, which are considered the reserves that can be applied year-to-year to cover the cost of capital projects.

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Table 7-3
Historical Revenues and Expenses (2013-2016)

Item	FY 2013	FY 2014	FY 2015	FY 2016
Revenues				
Fuel	$2,051,892	$2,019,517	$1,973,871	$1,642,944
Land/Ramp Leases	$32,908	$42,376	$76,887	$98,900
Hangar Leases	$460,929	$476,692	$462,010	$478,843
Non-Aviation Leases	$254,705	$273,306	$258,911	$255,973
Miscellaneous Revenues	$39,041	$64,865	$41,616	$33,410
FAA/FDOT Grants (Capital Projects)	$279,157	$1,727,693	$935,011	$1,605,137
Total Revenues	**$3,118,633**	**$4,604,449**	**$3,748,306**	**$4,115,207**
Expenses				
Personnel	$184,800	$194,851	$188,094	$222,556
Fuel	$1,932,879	$1,899,211	$1,835,869	$1,507,563
Maintenance	$283,908	$326,510	$798,624	$198,473
Utilities	$49,501	$53,857	$49,856	$54,810
Professional Services	$26,298	$11,803	$87,676	$172,610
Miscellaneous Expenses	$236,703	$160,577	-$12,677	$51,236
Other Operating Expenses	$224,848	$213,956	$237,540	$237,540
Capital Projects	$129,843	$1,716,429	$191,197	$1,400,044
15-Year Loan (3.50%)	N/A	N/A	N/A	N/A
Total Expenses	**$3,068,779**	**$4,577,194**	**$3,376,180**	**$3,844,831**
Annual Profit				
Revenues - Expenses	**$49,853**	**$27,255**	**$372,126**	**$270,376**
Fund Balance (Reserves)				
End of Year Balance	**$835,312**	**$862,565**	**$1,234,691**	**$1,505,069**

Source: City of New Smyrna Beach financial records.

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7.5 Cash Flow Analysis

Table 7-2 presented the CIP for the airport over the course of the 20-year planning period. Because of many of the lasting impacts of Hurricane Matthew, many of the projects slated for 2017 were not conducted. Therefore, as part of the cash flow analysis, all projects slated for the five-year timeframe between 2017 and 2021 were pushed to the following year (in the 2018 to 2022 timeframe). A summary of those projects is presented in **Table 7-4**. In that table, four hangar projects are highlighted that show a combination of FDOT and airport funds used for their payment. If those hangars were paid for in whole by the airport in the years shown, the Airport Industrial Park Fund would have a negative annual balance and reserve balance within the five-year period shown even when additional lease/rental revenues are factored in. For that reason, it was necessary to develop a potential cash flow analysis that allowed the airport to implement the capital improvements shown while maintaining a positive reserve balance in all years. Although not preferred, it is recognized that the Airport Industrial Park Fund can have a negative annual profit, particularly in years when there are several expensive capital projects occurring, but the overall fund balance should not be negative.

Table 7-5 presents the results of a potential cash flow analysis between 2017 and 2021 for EVB. Again, fiscal year 2017 was held at 2016 revenue and expense levels based on the assumption that the airport would be made whole on any losses incurred due to Hurricane Matthew. The FAA, FDOT, and local cost for the capital projects shown in Table 7-4 were incorporated into the cash flow analysis, with the exception of the local cost for the four hangar development projects highlighted in Table 7-4. Those hangar development projects were counted as additional revenues in the 'Hangar Leases' line and as expenses in the '15-Year Loan (3.50%)' line and were calculated as follows:

- **Hangar Revenues** – Wells Fargo identified a November 2017 government loan rate of 3.50 percent for a 15-year fixed rate loan. That percentage was used to calculate what the full payment of a 30-year loan would be for each hangar (for the total cost of the hangar). The lease rate was then calculated as 110.00 percent of the annual payment towards a 30-year loan cost.
    - **Example:** The total cost of a new 10,000 square foot hangar is $620,000. The full payment of a 30-year loan at 3.5 percent would be $1,002,268 or $33,409 per year. Therefore, the annual lease rate was calculated as 110.00 percent of $33,409 or $36,750.

- **Hangar Expenses** – Because the airport is only slated to pay for 20.00 percent of the cost of those hangars, it was assumed that a loan could be repaid within a 15-year timeframe. The hangar expenses were calculated based on the annual cost of a 15-year loan at 3.50 percent only for the airport's share of the project cost.
    - **Example:** The airport's cost of a new 10,000 square foot hangar is $124,000. The full payment of a 15-year loan at 3.5 percent would be $159,562 or $10,637 (which was applied as the annual hangar expense).

Under this scenario, the airport is calculating the lease rate based on a 30-year loan calculation against the total cost of the facility, while the hangar expenses are calculated based on a 15-year

loan calculation of the airport's share of the project cost. Such a scenario would allow the airport to continue to construct new hangar facilities without utilizing the reserves in the Airport Industrial Park Fund. Another scenario could include having the hangars developed and managed privately via a land lease, which would be prudent for many of the larger hangar developments shown later in the planning period. Many of the projects in the 2017 to 2022 timeframe have been previously coordinated with FAA and FDOT, and as a result, the airport may have to find additional financing (via a loan, additional grant, city, etc.) in order to pay for the projects shown while maintaining a positive balance for the Airport Industrial Park Fund.

The resulting cash flow analysis in Table 7-5 shows three years of negative annual profit, but overall the reserves are utilized to cover the difference in those years and the Airport Industrial Park Fund balance is positive at $722,681 at the end of 2022. With the exception of the hangar revenues and expenses, all other values were increased at an Average Annual Growth Rate (AAGR) of 1.51 percent, which represents the forecast growth in based aircraft from 2015 to 2035 that was determined as part of this study. In summary, this Master Plan Update has shown a scenario that would allow the airport to remain financially self-sustainable while implementing the capital projects in the short-term planning period.

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Table 7-4
Capital Improvement Program (2018-2022)

Year (Adjusted)	Project Title	Estimated Cost	AIP Grants	FDOT	EVB Funds	Private Funds
2018	Potential Admin & Maintenance Facility	$780,000	$0	$624,000	$156,000	$0
2018	Parking Lot Improvements (Phase 1)	$410,000	$0	$328,000	$82,000	$0
2018	Property Acquisition 5	$70,000	$0	$56,000	$14,000	$0
2018	Install Runway 7-25 REILs	$90,000	$81,000	$7,200	$1,800	$0
2018	Land Acquisitions (Phase 1)	$2,000,000	$0	$1,600,000	$400,000	$0
2019	10,000 SF Hangar	$620,000	$0	$496,000	$124,000	$0
2019	13-Unit T-Hangar	$890,000	$0	$712,000	$178,000	$0
2019	South Apron Expansion	$1,120,000	$0	$896,000	$224,000	$0
2019	Land Acquisitions (Phase 2)	$2,000,000	$0	$1,600,000	$400,000	$0
2019	Fuel Farm Improvements	$200,000	$0	$160,000	$40,000	$0
2020	Design Standards Corrections & Runway 29 Extension	$2,780,000	$2,502,000	$222,400	$55,600	$0
2020	4,030 SF Hangars (4) & 1,386 SF Hangars (6)	$1,500,000	$0	$1,200,000	$300,000	$0
2020	Rehabilitate Runway 2-20	$1,200,000	$0	$960,000	$240,000	$0
2020	Miscellaneous Airfield Lighting/Electrical	$350,000	$315,000	$28,000	$7,000	$0
2021	Terminal Apron Infill & T-Hangar Removal	$1,800,000	$1,620,000	$144,000	$36,000	$0
2021	13-Unit T-Hangar	$890,000	$0	$712,000	$178,000	$0
2021	Acquire ARFF Vehicle	$130,000	$117,000	$10,400	$2,600	$0
2021	Miscellaneous Obstruction Removal	$300,000	$270,000	$24,000	$6,000	$0
2022	Taxiway C Rehab	$550,000	$495,000	$44,000	$11,000	$0
Total Project Costs		**$17,680,000**	**$5,400,000**	**$9,824,000**	**$2,456,000**	**$0**

Source: Michael Baker International, Inc., 2017.

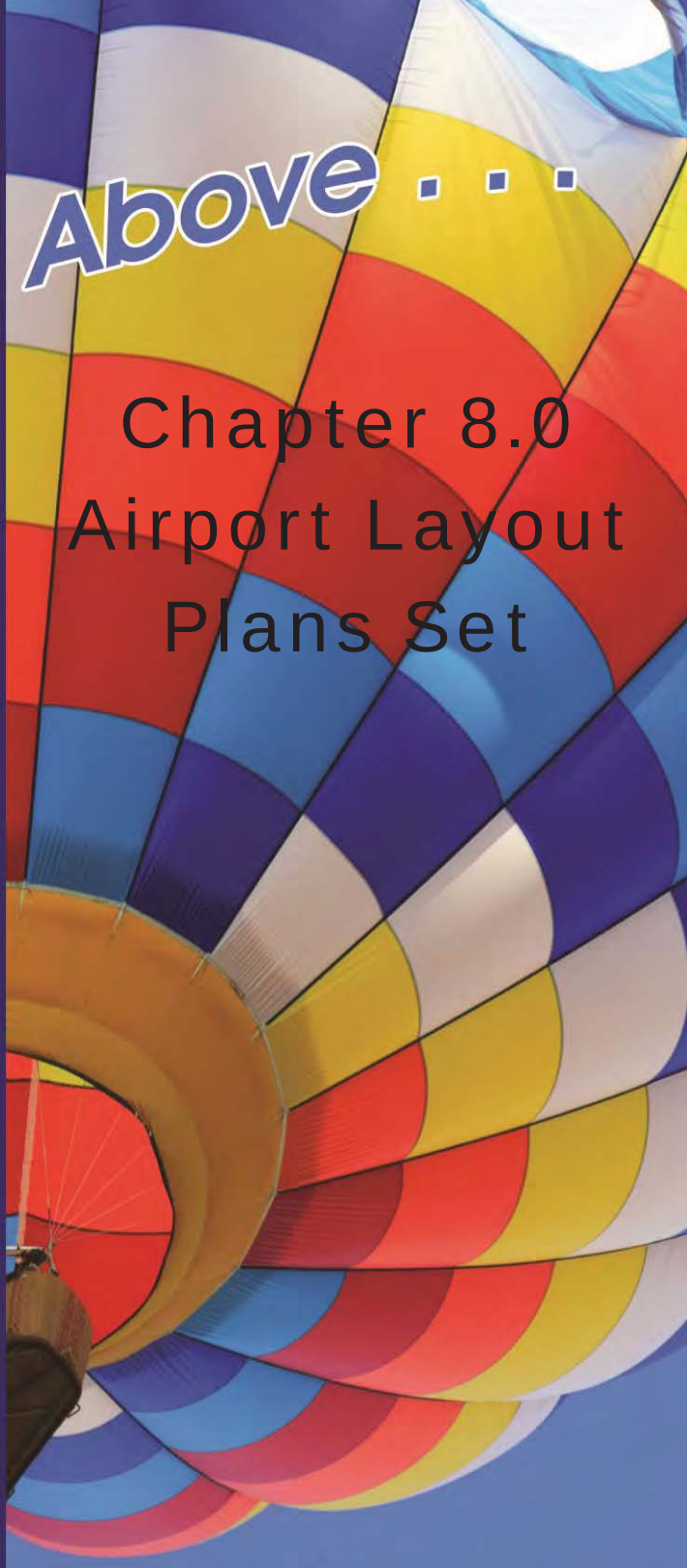
Table 7-5
Cash Flow Analysis (2017-2022)

Item	2017	2018	2019	2020	2021	2022
Revenues						
Fuel	$1,642,944	$1,667,752	$1,692,935	$1,718,499	$1,744,448	$1,770,789
Land/Ramp Leases	$98,900	$100,394	$101,910	$103,449	$105,011	$106,596
Hangar Leases	$478,843	$486,073	$575,577	$690,223	$758,247	$758,247
Non-Aviation Leases	$255,973	$259,838	$263,762	$267,745	$271,788	$275,892
Miscellaneous Revenues	$33,410	$33,914	$34,426	$34,946	$35,474	$36,010
FAA/FDOT Grants (Capital Projects)	$1,605,137	$2,696,200	$2,656,000	$4,027,400	$2,185,400	$539,000
Total Revenues	**$4,115,207**	**$5,244,172**	**$5,324,610**	**$6,842,262**	**$5,100,367**	**$3,486,534**
Expenses						
Personnel	$222,556	$225,916	$229,328	$232,790	$236,306	$239,874
Fuel	$1,507,563	$1,530,327	$1,553,435	$1,576,892	$1,600,703	$1,624,874
Maintenance	$198,473	$201,470	$204,512	$207,600	$210,735	$213,917
Utilities	$54,810	$55,637	$56,478	$57,330	$58,196	$59,075
Professional Services	$172,610	$175,216	$177,862	$180,548	$183,274	$186,041
Miscellaneous Expenses	$51,236	$52,010	$52,795	$53,592	$54,402	$55,223
Other Operating Expenses	$237,540	$241,127	$244,768	$248,464	$252,216	$256,024
Capital Projects	$1,400,044	$3,350,000	$3,320,000	$4,330,000	$2,230,000	$550,000
15-Year Loan (3.50%)	N/A	N/A	$25,907	$51,643	$66,913	$66,913
Total Expenses	**$3,844,831**	**$5,831,703**	**$5,865,085**	**$6,938,860**	**$4,892,744**	**$3,251,941**
Annual Profit						
Revenues - Expenses	**$270,376**	**-$587,532**	**-$540,474**	**-$96,598**	**$207,624**	**$234,593**
Fund Balance (Reserves)						
End of Year Balance	**$1,505,069**	**$917,537**	**$377,063**	**$280,465**	**$488,088**	**$722,681**

Source: Michael Baker International, Inc., 2017.

Rising Above . . .

Chapter 8.0
Airport Layout Plans Set



New Smyrna Beach Municipal Airport

MASTER PLAN UPDATE

8.0 AIRPORT LAYOUT PLANS

8.1 Introduction

The purpose of an approved Airport Layout Plan (ALP) is to serve as the blueprint for future airport development. One condition of accepting and utilizing grant funding for airport improvement projects is to maintain an updated ALP. For the New Smyrna Beach Municipal Airport (EVB), the updated development recommendations presented in this study are pictorially summarized in the ALP drawing set and include the preferred concepts for airfield development, landside facility development, and other reserved areas for non-aviation use. The ALP drawing set represents a scaled, graphic presentation of the airport's 20-year development program, thereby providing the airport with a feasible improvement plan that would increase the capability and safety of aircraft operations, promote compatibility with existing and proposed developments, and further upgrade the airport to effectively serve the anticipated demands of general aviation, corporate, and potentially commercial aircraft traffic. The drawings depict the recommendations of this study with regard to aviation development for the short, intermediate, and long-term planning periods.

The dimensional information provided in the drawings demonstrates compliance with minimum airport design standards established by federal, state, and local authorities. The ALP Drawing Set was developed in accordance with the guidance outlined in Federal Aviation Administration (FAA) Advisory Circular (AC) 150/5070-6, Airport Master Plans, AC 150/5300-13A, Airport Design, FAA ARP Standard Operating Procedure (SOP) 2.0, Standard Operating Procedure for FAA Review and Approval of Airport Layout Plans and other supporting circulars and orders.
The ALP drawing set includes the following individual drawing sheets:

- Title Sheet (Sheet 1)
- Airport Data Sheet (Sheet 2)
- Airport Layout Plan Drawing (Sheet 3)
- Airport Airspace Drawings (Sheets 4 through 6)
- Inner Portion of the Approach Surface Drawings (Sheets 7 through 11)
- Runway Departure Surface Drawings (Sheets 12 through 14)
- Terminal Area Drawing (Sheet 15)
- Land Use Drawing (Sheet 16)
- Airport Property Map (Sheet 17)

8.2 Title Sheet (Sheet 1)

The Title Sheet serves as the introduction to the ALP drawing set. It includes the airport name, a location map, vicinity map, and an index of drawings included in the ALP drawing set. Also highlighted on the Title Sheet are the project name, sponsor's name, and the FAA grant number.

8.3 Airport Data Sheet (Sheet 2)

The Airport Data Sheet summarizes key elements that are depicted on the Airport Layout Plan Drawing such as airport coordinates, runway end elevations, runway high and low points, and true

azimuths for each runway. Supplemental tables, as required by the FAA ALP Review Checklist, are depicted on the Airport Data Sheet including the airport data table and runway data table.

8.4 Airport Layout Plan Drawing (Sheet 3)

The Airport Layout Plan Drawing, also referred to as the ALP, depicts all existing facilities and proposed developments planned over the 20-year planning period at EVB. These plans are reviewed by and must be approved by the FAA prior to authorizing federal funding for future improvement projects. The ALP provides clearance and dimensional information required to show conformance with applicable FAA design standards as outlined in FAA AC 150/5300-13A, Airport Design. The ALP also reflects planned changes to physical features on the airport property and critical land use changes near the airport property that may impact navigable airspace or the ability of the airport to operate. The features of the ALP include, but are not limited to: the runway, taxiways, lighting, navigational aids, terminal facilities, hangars, other airport buildings, aircraft parking areas, automobile parking, and airport access elements.

Key dimensional criteria for Runways 2-20, 7-25, and 11-29 are based on Runway Design Code (RDC) B-II. The RDC and other runway approach factors are used to determine the physical characteristics of the runways (e.g., length, width, and strength), taxiway widths, and dimensions for the Runway Safety Area (RSA), Runway Object Free Area (ROFA), Building Restriction Line (BRL), clearance areas around navigational aids, etc.

8.5 Airport Airspace Drawings (Sheets 4 through 6)

Federal Aviation Regulations (FAR) Part 77, Safe, Efficient Use, and Preservation of the Navigable Airspace, prescribes airspace standards, which establish criteria for evaluating navigable airspace. Airport imaginary surfaces are established relative to the airport runways and types of approaches they provide. The size of each imaginary surface is based on the runway category with respect to the existing and proposed visual, non-precision, or precision approaches for that runway. The slope and dimensions of the respective approach surfaces are determined by the most demanding, existing or proposed, approach for each runway. For Runway 7-25 at EVB, the dimensions of the imaginary surfaces are applicable to the non-precision GPS approach to each runway end with one mile horizontal visibility minimums. For Runway 11-29, the dimensions of the imaginary surfaces are applicable to the visual approach to the Runway 11 end and the non-precision GPS approach to Runway 29 end with one mile horizontal visibility minimums. For Runway 2-20, the dimensions of the imaginary surfaces are applicable to the visual approach on the Runway 2 end and non-precision GPS approach to the Runway 20 end with one mile horizontal visibility minimums.

- Primary Surface – A rectangular area symmetrically located about the runway centerline and extending a distance of 200 feet beyond each runway end. Its elevation is the same as the nearest point along the runway edge. The primary surface for all three runways is 500 feet wide.

- Horizontal Surface – An oval shaped, flat area situated 150 feet above the published airport elevation of 10.8 feet Above Mean Sea Level (AMSL) at EVB. Its dimensions are

determined by connecting 10,000-foot arcs starting 200 feet beyond the future runway ends. The horizontal surface elevation for EVB is 160.8 feet AMSL.

- Conical Surface – A sloping area whose inner perimeter conforms to the shape of the horizontal surface. It extends outward for a distance of 4,000 feet measured horizontally, and slopes upward at a 20:1 ratio. At EVB, the conical surface extends upward to an elevation of 360.8 feet AMSL.

- Transitional Surface – A sloping area beginning at the edges of the primary and approach surfaces and sloping upward and outward at a ratio of 7:1.

- Approach Surface – This surface begins at the ends of the primary surface and slopes upward at a predetermined ratio while at the same time flaring out horizontally. The width and elevation of the inner ends conform to that of the primary surface, while the slope, length, and outer width are determined by the runway service category and existing or proposed instrument approach procedures.

8.6 Inner Portion of the Approach Surface Drawings (Sheets 7 through 11)

The Inner Portion of the Approach Surface Drawings show both plan and profile views of the approach surfaces beyond each runway end. The purpose of these drawings is to locate and document existing objects which represent obstructions to navigable airspace within the existing and proposed approach slopes for each runway. Additionally, the drawings show the ground profile and terrain features along the extended centerline of each runway end.

Any controlling structures, such as roadways, natural ground elevations, and trees, are also shown on the Inner Portion of the Approach Surface Drawings, if applicable. Additionally, fixed objects located along the extended runway centerlines are also illustrated on the sheets to provide an indication of the relative distance to the approach surfaces. As applicable, obstructions to navigable airspace are listed in an obstruction data table along with a recommended action for each obstruction.

8.7 Runway Departure Surface Drawings (Sheets 12 through 14)

The Runway Departure Surfaces Drawing consists of large scale plan views of departure surfaces for all runway ends at EVB. The Departure Surfaces Drawing depicts the ground contour along the extended runway centerline plus any significant natural or non-natural objects located along the extended runway centerline and also provides a top elevation for those objects. Commonly shown objects include buildings, roads, ditches, and trees. Surface penetration and disposition information is included in the associated obstruction data tables.

8.8 Terminal Area Drawing (Sheet 15)

The Terminal Area Drawing presents an enlarged view of the Fixed Base Operator (FBO) area at EVB and therefore provides additional dimensional details such as apron areas (existing and proposed) that are not easily visible on the ALP. This drawing denotes the short and long-term

developments and improvements within the vicinity of the FBO complex at EVB and illustrates many of the surrounding landside development recommendations. Existing and proposed automobile access and parking improvements are also included.

8.9 Land Use Drawing (Sheet 16)

The Land Use Drawing designates various sectors of the property for specific uses and shows an aerial view of the land surrounding EVB. Additionally, the 2009 and 2014 noise contours developed as a component of the 2009 FAR Part 150 Study have been superimposed on the drawing to ensure that appropriate aviation-compatible zoning is maintained. The FAA has established national guidelines for land use compatibility related to airport-generated noise impacts. In most cases, noise sensitive land uses are considered incompatible if they are exposed to Day-Night Average Sound Levels (DNL) of 65 decibels or higher, unless noise mitigation measures are undertaken.

8.10 Airport Property Map (Sheet 17)

The Airport Property Map defines the existing and proposed airport boundaries in a graphical form. The purpose of the drawing and associated tables is to identify how property and easements have been acquired in the past as well as to illustrate properties and easements that should be obtained in the future as necessary to accommodate the proposed development plan. In order to promote compatible development, the purchase of easements is shown in the portions of the RPZ that extend beyond Runways 2, 7, 11, 25, and 29.

8.11 Summary

The ALP Drawing Set is intended to depict EVB's capital development program in graphical form. Prior to incorporating the developments herein, preliminary plans were presented to the Airport Advisory Board, City Commission, Master Plan Technical Advisory Committee, and to the public for their review and approval. Thus, this plan set accurately reflects the goals and intentions of airport management and the adjacent community throughout the 20-year planning period.

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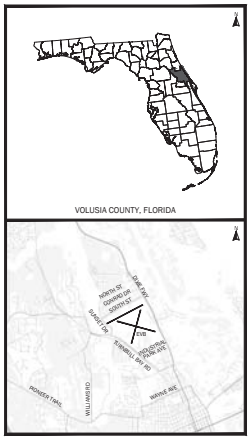
AIRPORT LAYOUT PLAN DRAWING SET

NEW SMYRNA BEACH MUNICIPAL AIRPORT

NEW SMYRNA BEACH, FLORIDA

FAA AIP #: 3-12-0054-018-2014

STATE GRANT #: 418297-1-94-01



LOCATION / VICINITY MAP

NOT TO SCALE

DRAWING INDEX		
DRAWING NO.	DESCRIPTION	REVISION DATE
1	TITLE SHEET	
2	AIRPORT DATA SHEET	
3	AIRPORT LAYOUT PLAN DRAWING	
4	AIRPORT AIRSPACE DRAWING - RUNWAY 2-20 (1 OF 3)	
5	AIRPORT AIRSPACE DRAWING - RUNWAY 7-25 (2 OF 3)	
6	AIRPORT AIRSPACE DRAWING - RUNWAY 11-29 (3 OF 3)	
7	INNER PORTION OF THE APPROACH SURFACE DRAWING - RUNWAY 2-20	
8	INNER PORTION OF THE APPROACH SURFACE DRAWING - RUNWAY 7	
9	INNER PORTION OF THE APPROACH SURFACE DRAWING - RUNWAY 25	
10	INNER PORTION OF THE APPROACH SURFACE DRAWING - RUNWAY 11	
11	INNER PORTION OF THE APPROACH SURFACE DRAWING - RUNWAY 29	
12	RUNWAY DEPARTURE SURFACE DRAWING - RUNWAY 2-20	
13	RUNWAY DEPARTURE SURFACE DRAWING - RUNWAY 7-25	
14	RUNWAY DEPARTURE SURFACE DRAWING - RUNWAY 11-29	
15	TERMINAL AREA DRAWING	
16	LAND USE DRAWING	
17	AIRPORT PROPERTY MAP	

NOVEMBER 2017

PREPARED FOR:

THE CITY OF NEW SMYRNA BEACH, FLORIDA

PREPARED BY:

MICHAEL BAKER INTERNATIONAL, INC.

Michael Baker INTERNATIONAL

AIRPORT SPONSOR APPROVAL
THIS AIRPORT DRAWING IS APPROVED BY:
(SIGNATURE) _____ DATE: _____
NAME: _____
TITLE: _____

STATE AERONAUTICS AGENCY APPROVAL
THIS AIRPORT DRAWING IS APPROVED BY:
(SIGNATURE) _____ DATE: _____
NAME: _____
TITLE: _____

REVISIONS

NO.	DESCRIPTION	DATE	BY

DRAFT

PROJECT NAME: AIRPORT MASTER PLAN UPDATE

DRAWING NAME: TITLE SHEET

FAA AIP # / STATE GRANT #: 3-12-0054-018-2014 / 418297-1-94-01

DIVISION: PLANNING

DATE: NOVEMBER 2017

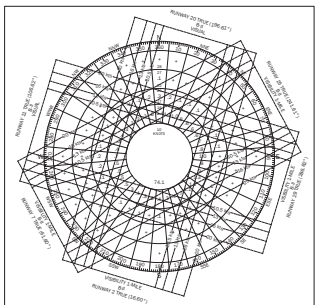
DRAWING NUMBER: 1

EXISTING BUILDING TABLE		
ID	DESCRIPTION	TOP EL.
1	ATCT & ROTATING BEACON	68.6'
2	ELECTRICAL VAULT	18.5'
3	EXECUTIVE HANGARS	26.6'
4	PORTABLE HANGAR	16.8'
5	T-HANGAR (10 UNITS) (SEE NOTE 2)	22.2'
6	T-HANGAR (10 UNITS) (SEE NOTE 2)	22.3'
7	T-HANGAR (10 UNITS)	24.1'
8	HANGAR / RESTAURANT	31.9'
9	HANGAR / TERMINAL	32.3'
10	RESTAURANT	20.1'
11	AIRPORT ADMINISTRATION	17.8'
12	FLIGHT SCHOOL	22.3'
13	FLIGHT SCHOOL	28.1'
14	HANGAR	25.6'
15	HANGAR	31.7'
16	T-HANGAR (5 UNITS)	23.4'
17	T-HANGAR (10 UNITS)	23.6'
18	T-HANGAR (16 UNITS)	24.5'
19	SHED	17.9'
20	FUEL TANKS	20.7'
21	PUBLIC WORKS	27.1'
22	PUBLIC WORKS	18.6'
23	PUBLIC WORKS GARAGE	29.1'
24	STORAGE	19.2'
25	CITY FIRE STATION	27.4'
26	STORAGE	25.6'
27	CITY POLICE DEPARTMENT	23.7'
28	POLICE TRAINING CENTER (SEE NOTE 2)	18.3'
29	INDUSTRIAL	27.7'
30	INDUSTRIAL	32.2'
31	INDUSTRIAL	18.0'
32	INDUSTRIAL	20.0'
33	INDUSTRIAL	29.5'
34	INDUSTRIAL	28.1'
35	INDUSTRIAL	22.8'
36	INDUSTRIAL	25.2'
37	INDUSTRIAL	24.1'
38	INDUSTRIAL	23.1'
39	INDUSTRIAL	25.7'
40	INDUSTRIAL	30.4'
41	INDUSTRIAL	22.6'
42	HANGAR	31.5'
43	HANGAR	31.7'
44	HANGAR	29.9'
45	HANGAR	29.9'
46	HANGAR	30.2'
47	INDUSTRIAL	25.9'
48	INDUSTRIAL	25.6'
49	INDUSTRIAL	15.5'
50	INDUSTRIAL	23.7'
51	INDUSTRIAL	35.2'
52	INDUSTRIAL	31.3'
53	CITY STORAGE BUILDING	14.9'
54	CITY STORAGE BUILDING	21.7'
55	SCHOOL BOARD	25.6'
56	PUBLIC WORKS STORAGE	21.8'
57	SOUTHWIND'S RECYCLING	18.7'
58	REC SERVICES	21.5'
59	REC SERVICES	28.6'
60	REC SERVICES	17.9'
61	CONCESSION STAND / SCORE KEEPER	16.9'
62	GARDEN CLUB	16.9'
63	SPORTS COMPLEX	56.6'
64	SEVA BUILDING	14.5'
65	LIONS CLUB	12.2'
66	VFW	13.8'
67	PARK / RESTROOMS	16.1'
68	VOLUSIA COUNTY MOSQUITO CONTROL	22.8'
69	VOLUSIA COUNTY MOSQUITO CONTROL	22.9'
70	VOLUSIA COUNTY MOSQUITO CONTROL	14.8'
71	VOLUSIA COUNTY MOSQUITO CONTROL	23.5'
72	VOLUSIA COUNTY MOSQUITO CONTROL	23.5'
73	VOLUSIA COUNTY MOSQUITO CONTROL	25.9'
74	VOLUSIA COUNTY MOSQUITO CONTROL	30.0'
75	GOSS STORAGE	15.2'
76	CITY STORAGE BUILDING	21.7'
77	UTILITIES COMMISSION SUBSTATION	16.7'
78	AMERICAN AERO SERVICES	17.0'
79	GEORGE BAKER AVIATION (F. INC.	17.3'
80	NEW SMYRNA BEACH SKATEPARK	18.3'

1. EXISTING BUILDING ELEVATIONS WERE OBTAINED FROM A COMBINATION OF THE APPROVED 2005 AIRPORT LAYOUT PLAN DRAWING AND QUANTUM SPATIAL SURVEY, FLOWN NOVEMBER 2015.
2. BUILDINGS TO BE REMOVED OR RELOCATED.

FUTURE BUILDING TABLE		
ID	DESCRIPTION	TOP EL.
A	62' x 65' HANGAR	30.0'
B	62' x 65' HANGAR	30.0'
C	62' x 65' HANGAR	30.0'
D	62' x 65' HANGAR	30.0'
E	33' x 42' HANGAR (3)	20.0'
F	33' x 42' HANGAR (3)	20.0'
G	200' x 200' HANGAR	35.0'
H	80' x 130' POTENTIAL ADMIN & MAINTENANCE FACILITY	35.0'
I	100' X 130' TERMINAL BUILDING	40.0'
J	100' x 120' HANGAR	40.0'
K	100' x 120' HANGAR	40.0'
L	100' x 120' HANGAR	40.0'
M	52' x 368' T-HANGAR (13-UNIT)	20.0'
N	52' x 368' T-HANGAR (13-UNIT)	20.0'
O	52' x 368' T-HANGAR (13-UNIT)	20.0'
P	52' x 368' T-HANGAR (13-UNIT)	20.0'
Q	52' x 368' T-HANGAR (13-UNIT)	20.0'
R	52' x 368' T-HANGAR (13-UNIT)	20.0'
S	52' x 368' T-HANGAR (13-UNIT)	20.0'
T	125' x 150' HANGAR	40.0'
U	125' x 150' HANGAR	40.0'
V	125' x 150' HANGAR	40.0'
W	125' x 150' HANGAR	40.0'
X	125' x 150' HANGAR	40.0'
Y	125' x 150' HANGAR	40.0'
Z	125' x 150' HANGAR	40.0'

1. FUTURE BUILDING ELEVATIONS WERE CALCULATED BASED UPON THEIR ASSUMED FUTURE HEIGHT ABOVE GROUND LEVEL.



WIND COVERAGE %				
CROSSWIND COMPONENT (KTS) MPH)	RUNWAY 2-20	RUNWAY 7-25	RUNWAY 11-29	COMBINED
10.5 / 12	93.30	94.39	98.80	99.46
13 / 15	97.15	98.19	99.86	99.88
16 / 18	98.68	99.40	99.97	99.98
20 / 23	99.53	99.89	99.97	100.00

WIND DATA SOURCE:
NATIONAL CLIMATIC DATA CENTER
STATION: 722361 - NEW SMYRNA BEACH, FL
53,129 OBSERVATIONS
PERIOD OF RECORD: (2006-2016)

ALL WEATHER WINDROSE

WIND COVERAGE %				
CROSSWIND COMPONENT (KTS) MPH)	RUNWAY 2-20	RUNWAY 7-25	RUNWAY 11-29	COMBINED
10.5 / 12	93.30	94.39	98.80	99.46
13 / 15	97.15	98.19	99.86	99.88
16 / 18	98.68	99.40	99.97	99.98
20 / 23	99.53	99.89	99.97	100.00

WIND DATA SOURCE:
NATIONAL CLIMATIC DATA CENTER
STATION: 722361 - NEW SMYRNA BEACH, FL
2,674 OBSERVATIONS
PERIOD OF RECORD: (2006-2016)

IFR WINDROSE

AIRPORT DATA		
DESCRIPTION	EXISTING	FUTURE
TIPAS SERVICE LEVEL (ASSET)	RELIEVER / REGIONAL	SAME
STATE EQUIVALENT SERVICE ROLE	GENERAL AVIATION	SAME
AIRPORT REFERENCE CODE (ARC)	B-II	SAME
AIRPORT CRITICAL AIRCRAFT	CESSNA CITATION 560XL	SAME
AIRPORT ELEVATION (AMSL) (NAVD88)	10.8	SAME
MEAN MAX. TEMP. (HOTTEST MONTH)	89.5° (JULY)	SAME
AIRPORT REFERENCE POINT (ARP/RP) LATITUDE	N 29° 03' 20.50"	N 29° 03' 20.50"
LONGITUDE	W 80° 56' 56.08"	W 80° 56' 57.15"
MAGNETIC DECLINATION (MAY 2017)	6° 40' 0" W, ± 0° 10'	0° 0' N (0 FEB YEAR
AIRPORT NAVIGATIONAL AIDS	BEACON	SAME
MISCELLANEOUS FACILITIES	PAPI-4, SEGMENTED CIRCLE, LIGHTED WIND CONE, AWOS, M/T,	PAPI-4, SEGMENTED CIRCLE, LIGHTED WIND CONE, AWOS, M/T,

MODIFICATION TO FAA DESIGN STANDARDS			
FAA APPROVAL DATE	AIRSPACE CASE NUMBER	STANDARD TO BE MODIFIED	DESCRIPTION
		NONE	

TAXIWAY / TAXILANE DATA TABLE (ADG II / TDG II)		
	EXISTING	FUTURE
TAXIWAY WIDTH	35'	SAME
TAXIWAY EDGE SAFETY MARGIN	7.5'	SAME
TAXIWAY SHOULDER WIDTH	10'	SAME
TAXIWAY SAFETY AREA WIDTH	79'	SAME
TAXIWAY OBJECT FREE AREA WIDTH	131'	SAME
TAXIWAY SEPARATION TO FIXED OR MOVABLE OBJECT	65.5'	SAME
TAXIWAY LIGHTING	MIRL	SAME
TAXILANE WIDTH	79'	SAME
TAXILANE SAFETY AREA WIDTH	79'	SAME
TAXILANE OBJECT FREE AREA WIDTH	129'	SAME
TAXILANE SEPARATION TO FIXED OR MOVABLE OBJECT	97.5'	SAME

EXISTING / FUTURE DECLARED DISTANCES TABLE												
	RUNWAY 2		RUNWAY 20		RUNWAY 7		RUNWAY 25		RUNWAY 11		RUNWAY 29	
DISTANCES	EXISTING	FUTURE	EXISTING	FUTURE	EXISTING	FUTURE	EXISTING	FUTURE	EXISTING	FUTURE	EXISTING	FUTURE
TORA	4,000'	4,000'	4,000'	4,000'	5,000'	5,000'	5,000'	5,000'	4,319'	5,299'	4,319'	5,299'
TODA	4,000'	4,000'	4,000'	4,000'	5,000'	5,000'	5,000'	5,000'	4,319'	5,299'	4,319'	5,299'
ASDA	4,000'	4,000'	4,000'	4,000'	4,853.5'	5,000'	4,703.5'	5,000'	4,319'	5,299'	4,319'	5,299'
LDA	3,215'	3,215'	4,000'	3,950'	4,000'	4,145'	4,703.5'	4,703.5'	4,319'	4,964'	4,319'	5,233'

RUNWAY DATA TABLE												
	RUNWAY 2-20				RUNWAY 7-25				RUNWAY 11-29			
	EXISTING		FUTURE		EXISTING		FUTURE		EXISTING		FUTURE	
RUNWAY LENGTH	4,000'		SAME		5,000'		SAME		4,319'		5,299'	
RUNWAY WIDTH	75'		SAME		75'		SAME		75'		SAME	
RUNWAY WIND COVERAGE % (ALL WEATHER):												
10.5 KNOTS / 12MPH	98.30		SAME		98.58		SAME		98.67		SAME	
13 KNOTS / 15MPH	93.78		SAME		94.18		SAME		93.56		SAME	
16KTS / 18MPH	98.68		SAME		98.57		SAME		98.11		SAME	
20KTS / 23MPH	99.53		SAME		99.69		SAME		99.67		SAME	
RUNWAY DESIGN CODE (RDC)	B-II		SAME		B-II		SAME		B-II		SAME	
APPROACH REFERENCE CODE (APRC)	D / V / 5000		SAME		D / V / 5000		SAME		D / V / 5000		SAME	
DEPARTURE REFERENCE CODE (DPRC)	D / V		SAME		D / V		SAME		D / V		SAME	
CRITICAL AIRCRAFT	CESSNA CITATION 560XL		SAME		CESSNA CITATION 560XL		SAME		CESSNA CITATION 560XL		SAME	
EFFECTIVE GRADIENT (%)	0.018% / 0.018% (SEE NOTE 2)		SAME		0.048% / 0.048% (SEE NOTE 2)		SAME		0.065% / 0.065% (SEE NOTE 2)		0.048% / 0.048%	
RSA DIMENSIONS (RUNWAY END) (ACTUAL / STANDARD)	2 (252.7' x 150') / (300' x 150') 2 (300' x 150') / (300' x 150')	PUBLISH DECLARED DISTANCES			7 (83.5' x 150') / (300' x 150') 25 (153.5' x 150') / (300' x 150')	PUBLISH DECLARED DISTANCES			11 (300' x 150') / (300' x 150') 29 (300' x 150') / (300' x 150')	PUBLISH DECLARED DISTANCES		
ROFA DIMENSIONS (RUNWAY END) (ACTUAL / STANDARD)	2 (252.7' x 800') / (300' x 800') 20 (300' x 800') / (300' x 800')	PUBLISH DECLARED DISTANCES			7 (83.5' x 800') / (300' x 800') 25 (153.5' x 800') / (300' x 800')	PUBLISH DECLARED DISTANCES			11 (300' x 800') / (300' x 800') 29 (300' x 800') / (300' x 800')	PUBLISH DECLARED DISTANCES		
RUNWAY OFZ DIMENSIONS (RUNWAY END)	2 (200' X 400') / 200' X 400') 20 (200' X 400' / 200' X 400')	SAME			7 (800' x 400') / (200' x 400') 25 (153.5' x 400') / (200' x 400')	PUBLISH DECLARED DISTANCES			11 (200' x 400') / (200' x 400') 29 (200' x 400') / (200' x 400')	PUBLISH DECLARED DISTANCES		
INNER APPROACH OFZ	N/A	SAME			N/A	SAME			N/A	SAME		
INNER TRANSITIONAL OFZ	N/A	SAME			N/A	SAME			N/A	SAME		
PRECISION OFZ	N/A	SAME			N/A	SAME			N/A	SAME		
RUNWAY LIGHTING	NONE	SAME			MIRL	SAME			MIRL	SAME		
PAVEMENT STRENGTH:												
SINGLE WHEEL GEAR (LBS)	55,000	SAME			55,000	SAME			55,000	SAME		
DUAL WHEEL GEAR (LBS)	N/A	SAME			N/A	SAME			N/A	SAME		
DUAL TANDEM WHEEL GEAR (LBS)	N/A	SAME			N/A	SAME			N/A	SAME		
PCN	UNKNOWN	TBD			UNKNOWN	TBD			UNKNOWN	TBD		
SURFACE COMPOSITION	ASPHALT	SAME			ASPHALT	SAME			ASPHALT	SAME		
SURFACE TREATMENT	NONE	SAME			NONE	SAME			NONE	SAME		
FAR PART 77 PRIMARY SURFACE (WIDTH)	500'	SAME			500'	SAME			500'	SAME		
	RUNWAY 2		RUNWAY 20		RUNWAY 7		RUNWAY 25		RUNWAY 11		RUNWAY 29	
	EXISTING	FUTURE	EXISTING	FUTURE	EXISTING	FUTURE	EXISTING	FUTURE	EXISTING	FUTURE	EXISTING	FUTURE
FAR PART 77 APPROACH TYPE	NPI	SAME	VISUAL	SAME	NPI	SAME	NPI	SAME	VISUAL	SAME	NPI	SAME
FAR PART 77 APPROACH SURFACE SLOPE	34:1	SAME	20:1	SAME	34:1	SAME	34:1	SAME	20:1	SAME	34:1	SAME
THRESHOLD SITING SURFACE (TSS) SLOPE	20:1 (TYPE A)	SAME	20:1 (TYPE B)	SAME	20:1 (TYPE A)	SAME	20:1 (TYPE A)	SAME	20:1 (TYPE B)	SAME	20:1 (TYPE A)	SAME
OBSTACLE FREE ZONE (OFZ)	YES	SAME	YES	SAME	YES	SAME	YES	SAME	YES	SAME	YES	SAME
VISIBILITY MINIMUMS	1 1/4 MILE	SAME	VISUAL	SAME	1 MILE	SAME	1 MILE	SAME	VISUAL	SAME	1 MILE	SAME
TYPE OF AERONAUTICAL SURVEY REQUIRED	COMBINATION	SAME	NON-VERTICALLY GUIDED	SAME	NON-VERTICALLY GUIDED	SAME	COMBINATION	SAME	NON-VERTICALLY GUIDED	SAME	COMBINATION	SAME
LATITUDE (NAD 83)	N 29° 03' 56.2900"	SAME	N 29° 03' 34.2305"	SAME	N 29° 03' 17.9580"	SAME	N 29° 03' 41.0998"	SAME	N 29° 03' 21.2573"	N 29° 03' 23.8442"	N 29° 03' 09.0293"	N 29° 03' 06.5621"
LONGITUDE (NAD 83)	W 80° 56' 59.0281"	SAME	W 80° 56' 46.1369"	SAME	W 80° 57' 38.7839"	SAME	W 80° 56' 39.2327"	SAME	W 80° 57' 13.4616"	W 80° 57' 23.3300"	W 80° 56' 26.8287"	W 80° 56' 25.0452"
RUNWAY END ELEVATION (NAVD 88)	8.3'	SAME	8.8'	SAME	7.9'	SAME	9.8'	SAME	7.8'	SAME	10.4'	SAME
TOUCHDOWN ZONE EL. (NAVD 88)	8.8'	SAME	8.8'	SAME	8.3'	SAME	10.1'	SAME	10.5'	8.9'	10.8'	SAME
RUNWAY MARKINGS	BASIC	NON-PRECISION	BASIC	SAME	BASIC	NON-PRECISION	BASIC	NON-PRECISION	NON-PRECISION	SAME	NON-PRECISION	SAME
VISUAL AND INSTRUMENT NAVAIDS	NONE	PAPI-4, REIL	VISUAL	VISUAL, PAPI-4	PAPI-4	PAPI-4, REIL	PAPI-4	PAPI-4, REIL	VISUAL, PAPI-4	SAME	PAPI-4	PAPI-4, REIL
RUNWAY PROTECTION ZONE:												
LENGTH	1,000'	SAME	1,000'	SAME	1,000'	SAME	1,000'	SAME	1,000'	SAME	1,000'	SAME
INNER WIDTH	500'	SAME	500'	SAME	500'	SAME	500'	SAME	500'	SAME	500'	SAME
OUTER WIDTH	700'	SAME	700'	SAME	700'	SAME	700'	SAME	700'	SAME	700'	SAME
ACRES	13.770	SAME	13.770	SAME	13.770	SAME	13.770	SAME	13.770	SAME	13.770	SAME
DISPLACED THRESHOLD COORDINATES:												
LATITUDE (NAD 83)	N 29° 03' 03.7308"	SAME	N/A	SAME	N 29° 03' 19.1370"	SAME	N 29° 03' 39.6880"	SAME	N/A	N 29° 03' 21.2573"	N/A	N 29° 03' 09.0293"
LONGITUDE (NAD 83)	W 80° 56' 56.4899"	SAME	N/A	SAME	W 80° 57' 29.4699"	SAME	W 80° 56' 42.2060"	SAME	N/A	W 80° 57' 13.4616"	N/A	W 80° 56' 26.8287"
DISPLACED THRESHOLD ELEVATION	8.3'	SAME	N/A	SAME	7.9'	SAME	9.9'	SAME	N/A	7.8'	N/A	10.4'
DISPLACED THRESHOLD DISTANCE	765'	SAME	N/A	SAME	335'	SAME	300'	SAME	N/A	914'	N/A	165'

NEW SMYRNA BEACH
MUNICIPAL AIRPORT
NEW SMYRNA BEACH, FLORIDA

Michael Baker INTERNATIONAL

DESIGNED BY:	CHECKED BY:
APN	MJK
TECHNICIAN:	PROJECT NUMBER:
APN	146328

GENERAL NOTES:

1. EXISTING ELEVATIONS, AND COORDINATES WERE OBTAINED FROM A SURVEY, FLOWN NOVEMBER 2015.
2. RUNWAY MEETS LINE OF SIGHT REQUIREMENTS.

FAA DISCLAIMER

THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICIES OF THE FAA. THE ACCEPTANCE OF THIS PLAN BY THE FAA DOES NOT IN ANY WAY COMMIT THE FAA, COMPARTMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED HEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ECONOMICALLY JUSTIFIED OR IN ACCORDANCE WITH PUBLIC LAWS.

CONSTRUCTION NOTICE REQUIREMENT

TO PROTECT OPERATIONAL SAFETY AND ULTIMATE DEVELOPMENT, ALL PROPOSED CONSTRUCTION ON THE AIRPORT MUST BE COORDINATED BY THE AIRPORT OWNER WITH THE FAA AT LEAST 30 DAYS PRIOR PRIOR TO CONSTRUCTION. FAA'S REVIEW TAKES APPROXIMATELY 60 DAYS.

REVISIONS

NO.	DESCRIPTION	DATE	BY

DRAFT

PROJECT NAME:

AIRPORT
MASTER PLAN UPDATE

DRAWING NAME:

AIRPORT DATA SHEET

FAA AIP # / STATE GRANT #

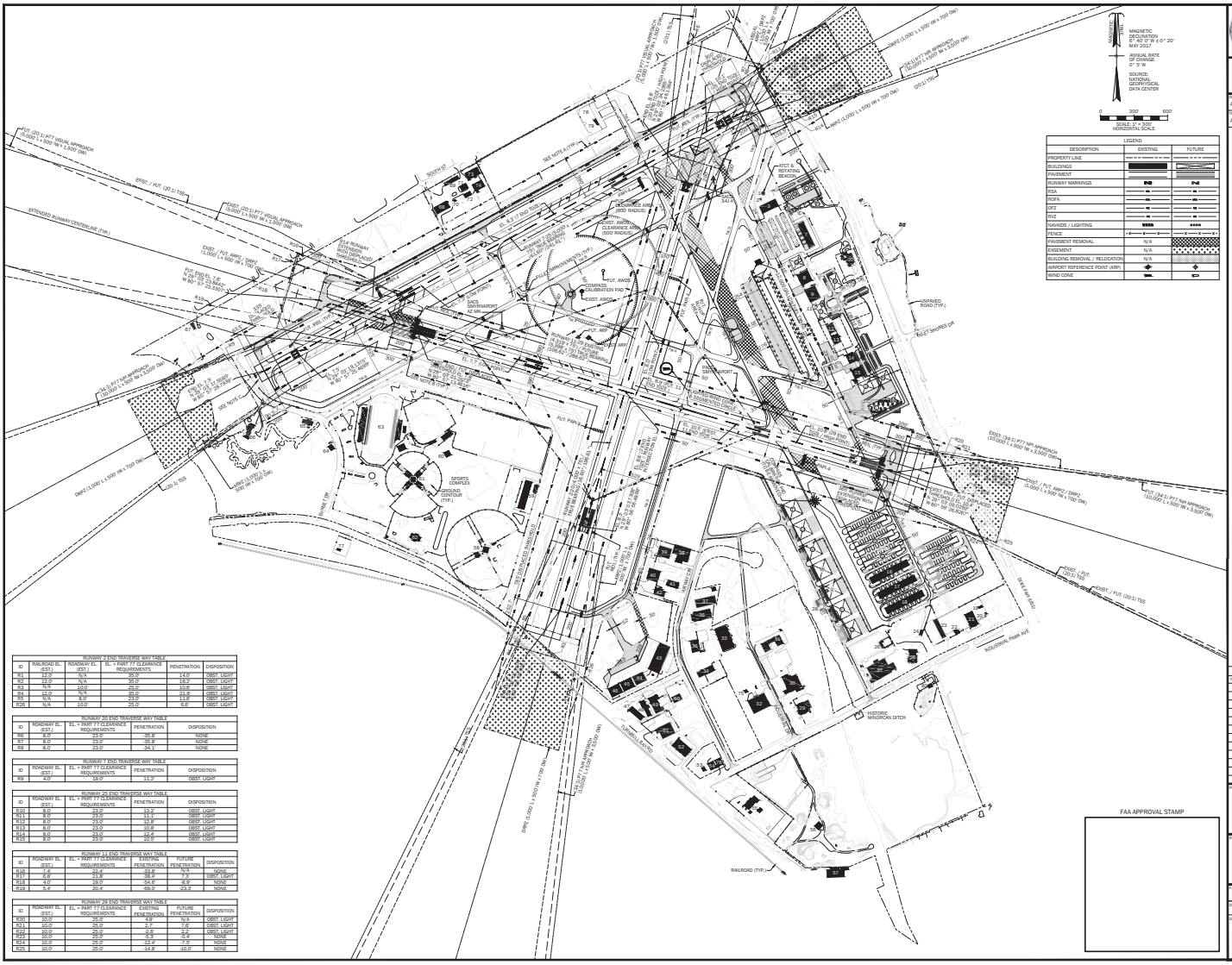
3-12-0054-018-2014 / 418297-1-94-01

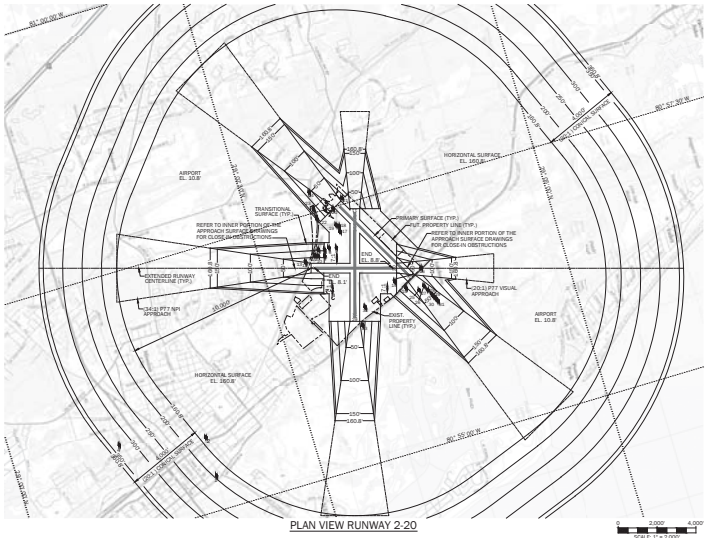
DIVISION:

PLANNING

DATE:	DRAWING NUMBER:
NOVEMBER 2017	2

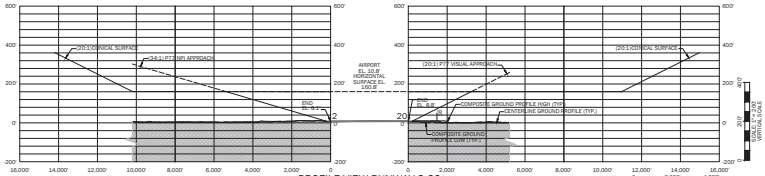
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MAGNETIC VARIATION 07° 40' 0" W ± 0° 20' MAY 2017
ANNUAL RATE 0° 5' W
SOURCE: NATIONAL GEOPHYSICAL DATA CENTER
SCALE: 1" = 300' HORIZONTAL SCALE
LEGEND
DESCRIPTION | EXISTING | FUTURE
PROPERTY LINE
BUILDINGS
PAVEMENT
RUNWAY MARKINGS
RSA
ROFA
OFZ
RVZ
NAVAIDS / LIGHTING
FENCE
PAVEMENT REMOVAL
EASEMENT
BUILDING REMOVAL / RELOCATION
AIRPORT REFERENCE POINT (ARP)
WIND CONE
RUNWAY 2 END TRAVERSE WAY TABLE
ID | RAILROAD EL. (EST.) | ROADWAY EL. (EST.) | EL. + PART 77 CLEARANCE REQUIREMENTS | PENETRATION | DISPOSITION
R1 | 12.0' | N/A | 35.0' | 14.0' | OBST. LIGHT
R2 | 12.0' | N/A | 35.0' | 18.2' | OBST. LIGHT
R3 | N/A | 10.0' | 25.0' | 10.6' | OBST. LIGHT
R4 | 12.0' | N/A | 35.0' | 21.6' | OBST. LIGHT
R5 | N/A | 8.0' | 23.0' | 11.6' | OBST. LIGHT
R26 | N/A | 10.0' | 25.0' | 6.6' | OBST. LIGHT
RUNWAY 20 END TRAVERSE WAY TABLE
ID | ROADWAY EL. (EST.) | EL. + PART 77 CLEARANCE REQUIREMENTS | PENETRATION | DISPOSITION
R6 | 8.0' | 23.0' | -35.9' | NONE
R7 | 8.0' | 23.0' | -35.0' | NONE
R8 | 8.0' | 23.0' | -34.1' | NONE
RUNWAY 7 END TRAVERSE WAY TABLE
ID | ROADWAY EL. (EST.) | EL. + PART 77 CLEARANCE REQUIREMENTS | PENETRATION | DISPOSITION
R9 | 4.0' | 19.0' | 11.2' | OBST. LIGHT
RUNWAY 25 END TRAVERSE WAY TABLE
ID | ROADWAY EL. (EST.) | EL. + PART 77 CLEARANCE REQUIREMENTS | PENETRATION | DISPOSITION
R10 | 8.0' | 23.0' | 13.2' | OBST. LIGHT
R11 | 8.0' | 23.0' | 11.1' | OBST. LIGHT
R12 | 8.0' | 23.0' | 12.9' | OBST. LIGHT
R13 | 8.0' | 23.0' | 10.8' | OBST. LIGHT
R14 | 8.0' | 23.0' | 10.4' | OBST. LIGHT
R15 | 8.0' | 23.0' | 10.9' | OBST. LIGHT
RUNWAY 11 END TRAVERSE WAY TABLE
ID | ROADWAY EL. (EST.) | EL. + PART 77 CLEARANCE REQUIREMENTS | EXISTING PENETRATION | FUTURE PENETRATION | DISPOSITION
R16 | 7.4' | 22.4' | 33.8' | N/A | NONE
R17 | 6.8' | 21.8' | -38.4' | 7.3' | OBST. LIGHT
R18 | 4.0' | 19.0' | -54.0' | 4.9' | NONE
R19 | 5.4' | 20.4' | -69.0' | -23.3' | NONE
RUNWAY 29 END TRAVERSE WAY TABLE
ID | ROADWAY EL. (EST.) | EL. + PART 77 CLEARANCE REQUIREMENTS | EXISTING PENETRATION | FUTURE PENETRATION | DISPOSITION
R20 | 10.0' | 26.0' | 4.8' | N/A | OBST. LIGHT
R21 | 10.0' | 25.0' | 2.7' | 7.8' | OBST. LIGHT
R22 | 10.0' | 25.0' | -2.6' | 2.2' | OBST. LIGHT
R23 | 10.0' | 25.0' | 5.3' | 5.9' | NONE
R24 | 10.0' | 25.0' | -12.4' | -7.5' | NONE
R25 | 10.0' | 25.0' | -14.9' | -10.0' | NONE
FAA APPROVAL STAMP
NEW SMYRNA BEACH MUNICIPAL AIRPORT NEW SMYRNA BEACH, FLORIDA
Michael Baker INTERNATIONAL
DESIGNED: APN
DRAWN BY: MJK
TECHNICIAN: APN
PROJECT NUMBER: 146328
GENERAL NOTES:
1. EXISTING BASE MAPPING AND ELEVATIONS WERE OBTAINED FROM A SURVEY, FLOWN NOVEMBER 2015.
PLAN REFERENCED NOTES:
A. THE BUILDING RESTRICTION LINE (BRL) IS BASED ON 20' ABOVE THE NEAREST RUNWAY ELEVATION OR THE MOST CRITICAL SURFACE IN THE VICINITY.
B. EXISTING HOLDING POSITION MARKINGS ARE LOCATED 125' FROM RUNWAY 11-29 RUNWAY CENTERLINE. FUTURE HOLDING POSITION MARKINGS ARE LOCATED 200' FROM RUNWAY CENTERLINE.
C. ASSUMING THAT OFZS BEGIN AT THE RUNWAY THRESHOLDS, THERE ARE NO OFZ PENETRATIONS AT EVB.
FAA DISCLAIMER
THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICIES OF THE FAA. THE ACCEPTANCE OF THIS PLAN BY THE FAA DOES NOT IN ANY WAY COMMIT THE FAA, COMPARTMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED HEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ECONOMICALLY JUSTIFIED OR IN ACCORDANCE WITH PUBLIC LAWS.
CONSTRUCTION NOTICE REQUIREMENT
TO PROTECT OPERATIONAL SAFETY AND ULTIMATE DEVELOPMENT, ALL PROPOSED CONSTRUCTION ON THE AIRPORT MUST BE SUBMITTED BY THE PROPERTY OWNER WITH FAA FORM 7460-1 (NOTICE OF INTENT) PRIOR TO CONSTRUCTION. FAA'S REVIEW TAKES APPROXIMATELY 60 DAYS.
REVISIONS
NO. | DESCRIPTION | DATE | BY
DRAFT
PROJECT NAME: AIRPORT MASTER PLAN UPDATE
DRAWING NAME: AIRPORT LAYOUT PLAN DRAWING
FAA AIP # / STATE GRANT #: 3-12-0054-018-2014 / 418297-1-94-01
DIVISION: PLANNING
DATE: NOVEMBER 2017
DRAWING NUMBER: 3



PLAN VIEW RUNWAY 2-20

SCALE: 1" = 2,000'
HORIZONTAL SCALE



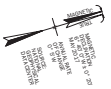
PROFILE VIEW RUNWAY 2-20

SCALE: 1" = 2,000'
HORIZONTAL SCALE

DIGITAL OBSTACLE FILE (DOF) OBSTRUCTION DATA TABLE

ID	CITY	TYPE	GROUND SURFACE EL	AGL	AMSL	SURFACE	PENETRATION	LIGHTING	MARKING	FAA STUDY #	OA_DATE	DISPOSITION
1	NEW SMYRNA BCH	TANK	5.0'	190.0'	195.0'	CONICAL	5.9'	RED	NONE		2014152	NONE
2	NEW SMYRNA BCH	TOWER	9.0'	195.0'	204.0'	HORIZONTAL	43.2'	MEDIUM INTENSITY WHITE STROBE & RED	UNKNOWN	2003ASO02432OE	2004116	NONE
3	PORT ORANGE	TOWER	31.0'	248.0'	279.0'	CONICAL	53.1	MEDIUM INTENSITY WHITE STROBE & RED	UNKNOWN	2003ASO05372OE	2004081	NONE
4	NEW SMYRNA BCH	TOWER	9.0'	190.0'	199.0'	CONICAL	132.9	MEDIUM INTENSITY WHITE STROBE & RED	UNKNOWN	2003ASO05174OE	2003085	NONE
5	NEW SMYRNA BEACH	POLE	8.0'	81.0'	89.0'	TRANSITIONAL	33.5'	UNKNOWN	UNKNOWN		2012089	NONE
6	NEW SMYRNA BEACH	POLE	9.0'	80.0'	89.0'	TRANSITIONAL	34.3'	UNKNOWN	UNKNOWN		2012089	NONE
7	NEW SMYRNA BEACH	POLE	9.0'	70.0'	79.0'	TRANSITIONAL	16.6'	RED	UNKNOWN		2012089	NONE
8	NEW SMYRNA BEACH	POLE	9.0'	81.0'	90.0'	TRANSITIONAL	18.3'	UNKNOWN	UNKNOWN		2012089	NONE
9	NEW SMYRNA BEACH	POLE	9.0'	81.0'	90.0'	TRANSITIONAL	17.8'	UNKNOWN	UNKNOWN		2012089	NONE
10	NEW SMYRNA BEACH	POLE	9.0'	70.0'	79.0'	TRANSITIONAL	17.1	RED	UNKNOWN		2012089	NONE
11	NEW SMYRNA BEACH	POLE	8.0'	71.0'	79.0'	TRANSITIONAL	16.1	UNKNOWN	UNKNOWN		2012089	OBST_LIGHT
12	NEW SMYRNA BEACH	POLE	8.0'	34.0'	42.0'	TRANSITIONAL	23.2'	UNKNOWN	UNKNOWN		2012089	OBST_LIGHT
13	NEW SMYRNA BEACH	POLE	9.0'	33.0'	42.0'	TRANSITIONAL	23.2'	UNKNOWN	UNKNOWN		2012089	OBST_LIGHT
14	NEW SMYRNA BEACH	CELL TWR	13.0'	80.0'	93.0'	TRANSITIONAL	23.2'	RED	UNKNOWN		2012089	NONE
15	NEW SMYRNA BEACH	CELL TWR	13.0'	80.0'	93.0'	TRANSITIONAL	23.2'	RED	UNKNOWN		2012089	NONE
16	NEW SMYRNA BEACH	POLE	10.0'	39.0'	49.0'	APPROACH	23.3'	UNKNOWN	UNKNOWN		2012089	NONE
17	NEW SMYRNA BEACH	POLE	8.0'	82.0'	90.0'	TRANSITIONAL	11.5'	RED	UNKNOWN		2012089	NONE
18	NEW SMYRNA BEACH	POLE	8.0'	82.0'	90.0'	TRANSITIONAL	13.7'	RED	UNKNOWN		2012089	NONE
19	NEW SMYRNA BEACH	POLE	7.0'	82.0'	89.0'	TRANSITIONAL	6.8'	RED	UNKNOWN		2012089	NONE
20	NEW SMYRNA BEACH	POLE	3.0'	34.0'	37.0'	TRANSITIONAL	20.0'	UNKNOWN	UNKNOWN		2012089	OBST_LIGHT
21	NEW SMYRNA BEACH	POLE	4.0'	40.0'	44.0'	TRANSITIONAL	15.9'	UNKNOWN	UNKNOWN		2012089	OBST_LIGHT
22	NEW SMYRNA BEACH	T-L TWR	2.0'	72.0'	74.0'	TRANSITIONAL	8.6'	UNKNOWN	UNKNOWN		2012089	NONE
23	NEW SMYRNA BEACH	T-L TWR	1.0'	71.0'	72.0'	TRANSITIONAL	5.8'	UNKNOWN	UNKNOWN		2012089	NONE
24	NEW SMYRNA BEACH	POLE	4.0'	62.0'	66.0'	TRANSITIONAL	3.1'	UNKNOWN	UNKNOWN		2012089	NONE
25	NEW SMYRNA BEACH	T-L TWR	2.0'	56.0'	58.0'	APPROACH	27.9'	UNKNOWN	UNKNOWN		2012089	OBST_LIGHT
26	NEW SMYRNA BEACH	T-L TWR	3.0'	45.0'	48.0'	APPROACH	17.7'	UNKNOWN	UNKNOWN		2012089	OBST_LIGHT
27	NEW SMYRNA BEACH	T-L TWR	2.0'	55.0'	57.0'	APPROACH	17.8'	UNKNOWN	UNKNOWN		2012089	OBST_LIGHT
28	NEW SMYRNA BEACH	T-L TWR	2.0'	58.0'	60.0'	APPROACH	12.6'	UNKNOWN	UNKNOWN		2012089	OBST_LIGHT
29	NEW SMYRNA BEACH	T-L TWR	2.0'	56.0'	58.0'	APPROACH	5.5'	UNKNOWN	UNKNOWN		2012089	OBST_LIGHT
30	NEW SMYRNA BEACH	T-L TWR	7.0'	54.0'	61.0'	APPROACH	3.2'	UNKNOWN	UNKNOWN		2012089	OBST_LIGHT
31	NEW SMYRNA BEACH	POLE	7.0'	53.0'	60.0'	APPROACH	1.9'	UNKNOWN	UNKNOWN		2012089	OBST_LIGHT
32	NEW SMYRNA BEACH	MAND	9.0'	49.0'	58.0'	TRANSITIONAL	7.2'	UNKNOWN	UNKNOWN		2012089	NONE
33	NEW SMYRNA BEACH	POLE	10.0'	40.0'	50.0'	TRANSITIONAL	16.1'	UNKNOWN	UNKNOWN		2012089	OBST_LIGHT
34	NEW SMYRNA BEACH	T-L TWR	10.0'	180.0'	190.0'	CONICAL	13.5'	NONE	NONE	2012450083706	2013131	NONE

1. OBSTRUCTION DATA SOURCE: FAA DIGITAL OBSTACLE FILE (DOF), 7/19/2015.
2. OBSTRUCTIONS NUMBER 3 AND 34 NOT WITHIN VIEWPORT SHOWN.



NEW SMYRNA BEACH MUNICIPAL AIRPORT
NEW SMYRNA BEACH, FLORIDA

Michael Baker INTERNATIONAL

DESIGNED:	DRAWN BY:
APN	MJK
TECHNICIAN:	PROJECT NUMBER:
APN	146328

GENERAL NOTES:

1. EXISTING ELEVATIONS WERE OBTAINED FROM A SURVEY FLOWN NOVEMBER 2015.
2. FEDERAL AVIATION REGULATIONS (FAR) PART 77 SPECIFIES CLEARANCE REQUIREMENTS FOR ROADS, RAILROADS, AND WATERWAYS. SPECIFICALLY, A) 15 FEET FOR AN INTERSTATE HIGHWAY, B) 23 FEET FOR ANY OTHER PUBLIC ROADWAY, C) 10 FEET OR THE HEIGHT OF THE HIGHEST MOBILE OBJECT THAT WOULD NORMALLY TRAVERSE THE ROAD, WHICHEVER IS GREATER FOR A PRIVATE ROAD, D) 23 FEET FOR A RAILROAD, AND E) FOR A WATERWAY OR ANY OTHER TRAVERSE WAY NOT PREVIOUSLY MENTIONED, AN AMOUNT EQUAL TO THE HEIGHT OF THE HIGHEST MOBILE OBJECT THAT WOULD NORMALLY TRAVERSE IT.
3. CHAPTER 22 OF THE CITY OF NEW SMYRNA BEACH CODE OF ORDINANCES (SECTIONS 22-82 AND 22-83) ESTABLISHES FOUR "AIRPORT OVERLAY ZONES OF CONTROL" WHICH ESTABLISH AND ALSO DESCRIBES, SUPPLEMENTS AND REFERENCES THE AIRPORT ZONING HAZARD REQUIREMENTS, TO PROVIDE FOR AIRPORT COMPATIBILITY, AND NOISE EXPOSURE.

REVISIONS

NO.	DESCRIPTION	DATE	BY

DRAFT

PROJECT NAME:

AIRPORT
MASTER PLAN UPDATE

DRAWING NAME:

AIRPORT AIRSPACE
DRAWING - RUNWAY
2-20 (1 OF 3)

FAA AIP # / SPON SORS #:

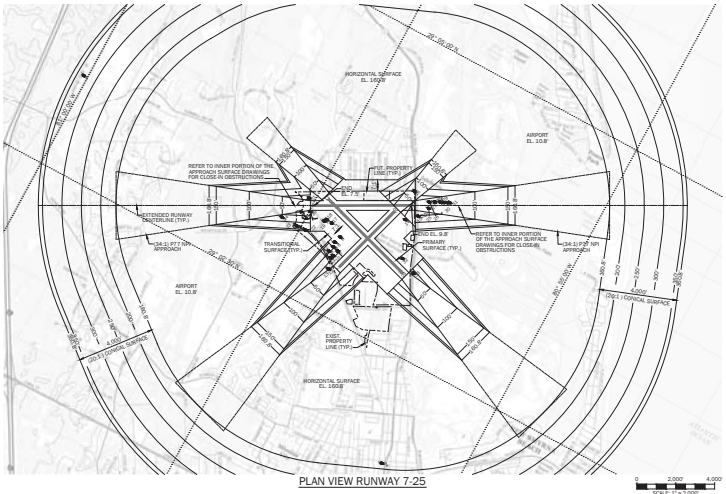
3-12-0054-018-2014 / 418297-1-94-01

DIVISION:

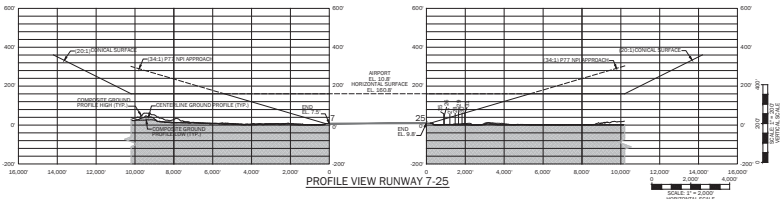
PLANNING

DATE:	DRAWING NUMBER:
NOVEMBER 2017	4

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PLAN VIEW RUNWAY 7-25



PROFILE VIEW RUNWAY 7-25

DIGITAL OBSTACLE FILE (DOF) OBSTRUCTION DATA TABLE

ID	CITY	TYPE	GROUND SURFACE EL	AGL	AMSL	SURFACE	PENETRATION	LIGHTING	MARKING	FAA STUDY #	ORI_DATE	DISPOSITION
1	NEW SMYRNA BCH	TANK	5.0'	190.0'	195.0'	CONICAL	0.9'	RED	NONE		2014152	NONE
2	NEW SMYRNA BCH	TOWER	9.0'	195.0'	204.0'	HORIZONTAL	43.2'	MEDIUM INTENSITY WHITE STROBE & RED	UNKNOWN	2003ASO02400E	2004116	NONE
3	PORT ORANGE	TOWER	31.0'	248.0'	279.0'	CONICAL	54.1'	MEDIUM INTENSITY WHITE STROBE & RED	UNKNOWN	2003ASO04377OE	2004081	NONE
4	NEW SMYRNA BCH	TOWER	9.0'	190.0'	199.0'	CONICAL	132.2'	MEDIUM INTENSITY WHITE STROBE & RED	UNKNOWN	2003ASO03175OE	2003285	NONE
5	NEW SMYRNA BEACH	POLE	8.0'	81.0'	89.0'	TRANSITIONAL	3.5'	UNKNOWN	UNKNOWN		2012089	NONE
6	NEW SMYRNA BEACH	POLE	9.0'	80.0'	89.0'	TRANSITIONAL	34.7'	UNKNOWN	UNKNOWN		2012089	NONE
7	NEW SMYRNA BEACH	POLE	9.0'	70.0'	79.0'	TRANSITIONAL	16.8'	RED	UNKNOWN		2012089	NONE
8	NEW SMYRNA BEACH	POLE	9.0'	81.0'	90.0'	TRANSITIONAL	19.7'	UNKNOWN	UNKNOWN		2012089	NONE
9	NEW SMYRNA BEACH	POLE	9.0'	81.0'	90.0'	TRANSITIONAL	19.7'	UNKNOWN	UNKNOWN		2012089	NONE
10	NEW SMYRNA BEACH	POLE	9.0'	70.0'	79.0'	TRANSITIONAL	17.1'	RED	UNKNOWN		2012089	NONE
11	NEW SMYRNA BEACH	POLE	7.0'	74.0'	81.0'	TRANSITIONAL	11.1'	UNKNOWN	UNKNOWN		2012089	OBST. LIGHT
12	NEW SMYRNA BEACH	POLE	8.0'	74.0'	82.0'	TRANSITIONAL	13.5'	UNKNOWN	UNKNOWN		2012089	OBST. LIGHT
13	NEW SMYRNA BEACH	POLE	9.0'	33.0'	42.0'	TRANSITIONAL	20.2'	UNKNOWN	UNKNOWN		2012089	OBST. LIGHT
14	NEW SMYRNA BEACH	CTRL TWR	13.5'	80.0'	93.5'	TRANSITIONAL	23.3'	RED	UNKNOWN		2012089	NONE
15	NEW SMYRNA BEACH	T-L TWR	6.0'	45.0'	51.0'	TRANSITIONAL	3.3'	UNKNOWN	UNKNOWN		2012089	NONE
16	NEW SMYRNA BEACH	POLE	10.0'	39.0'	49.0'	APPROACH	23.3'	UNKNOWN	UNKNOWN		2012089	NONE
17	NEW SMYRNA BEACH	POLE	8.0'	82.0'	90.0'	TRANSITIONAL	13.5'	RED	UNKNOWN		2012089	NONE
18	NEW SMYRNA BEACH	POLE	8.0'	82.0'	90.0'	TRANSITIONAL	13.7'	RED	UNKNOWN		2012089	NONE
19	NEW SMYRNA BEACH	POLE	7.0'	82.0'	89.0'	TRANSITIONAL	9.8'	RED	UNKNOWN		2012089	NONE
20	NEW SMYRNA BEACH	POLE	3.0'	34.0'	37.0'	TRANSITIONAL	20.0'	UNKNOWN	UNKNOWN		2012089	OBST. LIGHT
21	NEW SMYRNA BEACH	POLE	4.0'	40.0'	44.0'	TRANSITIONAL	15.9'	UNKNOWN	UNKNOWN		2012089	OBST. LIGHT
22	NEW SMYRNA BEACH	T-L TWR	2.0'	72.0'	74.0'	TRANSITIONAL	8.6'	UNKNOWN	UNKNOWN		2012089	NONE
23	NEW SMYRNA BEACH	T-L TWR	1.0'	71.0'	72.0'	TRANSITIONAL	0.6'	UNKNOWN	UNKNOWN		2012089	NONE
24	NEW SMYRNA BEACH	POLE	4.0'	62.0'	66.0'	TRANSITIONAL	3.1'	UNKNOWN	UNKNOWN		2012089	NONE
25	NEW SMYRNA BEACH	T-L TWR	2.0'	56.0'	58.0'	APPROACH	27.9'	UNKNOWN	UNKNOWN		2012089	OBST. LIGHT
26	NEW SMYRNA BEACH	T-L TWR	3.0'	45.0'	48.0'	APPROACH	17.2'	UNKNOWN	UNKNOWN		2012089	OBST. LIGHT
27	NEW SMYRNA BEACH	T-L TWR	2.0'	55.0'	57.0'	APPROACH	17.8'	UNKNOWN	UNKNOWN		2012089	OBST. LIGHT
28	NEW SMYRNA BEACH	T-L TWR	2.0'	58.0'	60.0'	APPROACH	13.6'	UNKNOWN	UNKNOWN		2012089	OBST. LIGHT
29	NEW SMYRNA BEACH	T-L TWR	2.0'	56.0'	58.0'	APPROACH	3.5'	UNKNOWN	UNKNOWN		2012089	OBST. LIGHT
30	NEW SMYRNA BEACH	T-L TWR	7.0'	54.0'	61.0'	APPROACH	3.9'	UNKNOWN	UNKNOWN		2012089	OBST. LIGHT
31	NEW SMYRNA BEACH	POLE	7.0'	53.0'	60.0'	APPROACH	1.9'	UNKNOWN	UNKNOWN		2012089	OBST. LIGHT
32	NEW SMYRNA BEACH	RADIO	9.0'	49.0'	58.0'	TRANSITIONAL	7.2'	UNKNOWN	UNKNOWN		2012089	NONE
33	NEW SMYRNA BEACH	POLE	10.0'	40.0'	50.0'	TRANSITIONAL	16.1'	UNKNOWN	UNKNOWN		2012089	OBST. LIGHT
34	NEW SMYRNA BEACH	T-L TWR	10.0'	180.0'	190.0'	CONICAL	131.9'	NONE	NONE	2012ASO08537OE	2013331	NONE

1. OBSTRUCTION DATA SOURCE: FAA DIGITAL OBSTACLE FILE (DOF), 7/19/2015.
2. OBSTRUCTION NUMBERS 1-4 AND 34 ARE NOT WITHIN VIEWPORT SHOWN.



NEW SMYRNA BEACH MUNICIPAL AIRPORT
NEW SMYRNA BEACH, FLORIDA

Michael Baker INTERNATIONAL

DESIGNED:	DRAWN BY:
APN	MJK
TECHNICIAN:	PROJECT NUMBER:
APN	146328

GENERAL NOTES:

1. EXISTING ELEVATIONS WERE OBTAINED FROM A SURVEY FLOWN NOVEMBER 2015.
2. FEDERAL AVIATION REGULATIONS (FAR) PART 77 SPECIFIES CLEARANCE REQUIREMENTS FOR ROADS, RAILROADS, AND WATERWAYS TRAVERSING AIRPORTS. A) 15 FEET FOR AN INTERSTATE HIGHWAY, B) 10 FEET FOR ANY OTHER PUBLIC ROADWAY, C) 10 FEET OR THE HEIGHT OF THE HIGHEST MOBILE OBJECT THAT WOULD NORMALLY TRAVERSE THE ROAD, WHICHEVER IS GREATER FOR A PRIVATE ROAD, D) 23 FEET FOR A RAILROAD, AND E) FOR A WATERWAY OR ANY OTHER TRAVERSE WAY NOT PREVIOUSLY MENTIONED, AN AMOUNT EQUAL TO THE HEIGHT OF THE HIGHEST MOBILE OBJECT THAT WOULD NORMALLY TRAVERSE IT.
3. CHAPTER 22 OF THE CITY OF NEW SMYRNA BEACH CODE OF ORDINANCES (SECTIONS 22-92 AND 22-93) ESTABLISHES FOUR "AIRPORT OVERLAY ZONES OF CONTROL" WHICH ESTABLISH AND ALSO DESCRIBES SURFACE HEIGHT RESTRICTIONS, TO THE EXTENT NECESSARY FOR PROTECTING THE AIRPORT'S COMPATIBILITY, AND NOISE EXPOSURE.

REVISIONS

NO.	DESCRIPTION	DATE	BY

DRAFT

PROJECT NAME:

AIRPORT MASTER PLAN UPDATE

DRAWING NAME:

AIRPORT AIRSPACE DRAWING - RUNWAY 7-25 (2 OF 3)

FAA AIP # / SPON SORS #:

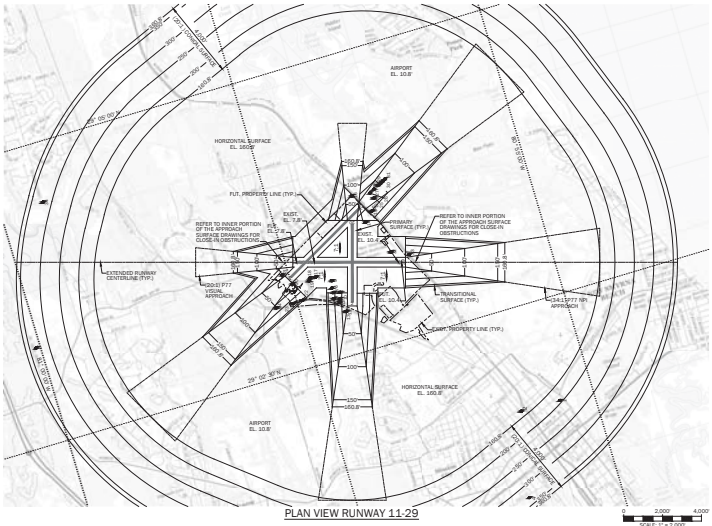
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DIVISION:

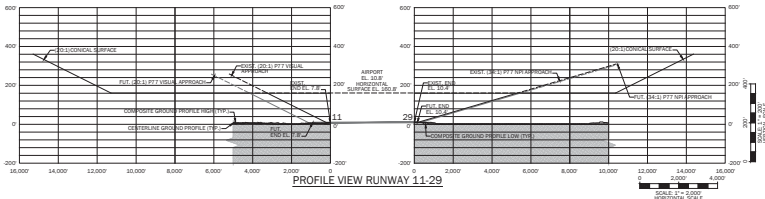
PLANNING

DATE:	DRAWING NUMBER:
NOVEMBER 2017	5

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PLAN VIEW RUNWAY 11-29

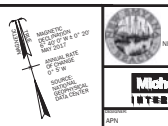


PROFILE VIEW RUNWAY 11-29

DIGITAL OBSTACLE FILE (DOF) OBSTRUCTION DATA TABLE

ID	CITY	TYPE	GROUND SURFACE EL	AGL	AMSL	SURFACE	PENETRATION	LIGHTING	MARKING	FAA STUDY #	ON_DATE	DISPOSITION
1	NEW SMYRNA BCH	CRANE	9.0	190.0	199.0	CONICAL	5.9	RED	NONE		2014152	NONE
2	NEW SMYRNA BCH	TOWER	9.0	195.0	204.0	HORIZONTAL	43.2	MEDIUM INTENSITY WHITE STROBE & RED	UNKNOWN	2003ASO02410OE	2004116	NONE
3	POINT ORANGE	TOWER	31.0	248.0	279.0	CONICAL	54.1	MEDIUM INTENSITY WHITE STROBE & RED	UNKNOWN	2003ASO03770OE	2004361	NONE
4	NEW SMYRNA BCH	TOWER	9.0	190.0	199.0	CONICAL	132.9	MEDIUM INTENSITY WHITE STROBE & RED	UNKNOWN	2003ASO03174OE	2003285	NONE
5	NEW SMYRNA BEACH	POLE	8.0	81.0	89.0	TRANSITIONAL	33.9	UNKNOWN	UNKNOWN		2012089	NONE
6	NEW SMYRNA BEACH	POLE	9.0	80.0	89.0	TRANSITIONAL	34.9	UNKNOWN	UNKNOWN		2012089	NONE
7	NEW SMYRNA BEACH	POLE	9.0	70.0	79.0	TRANSITIONAL	16.8'	RED	UNKNOWN		2012089	NONE
8	NEW SMYRNA BEACH	POLE	9.0'	81.0'	90.0'	TRANSITIONAL	-18.2'	UNKNOWN	UNKNOWN		2012089	NONE
9	NEW SMYRNA BEACH	POLE	9.0	81.0	90.0	TRANSITIONAL	-17.8'	UNKNOWN	UNKNOWN		2012089	NONE
10	NEW SMYRNA BEACH	POLE	9.0	70.0	79.0	TRANSITIONAL	17.1	RED	UNKNOWN		2012089	NONE
11	NEW SMYRNA BEACH	POLE	7.0	71.0	78.0	TRANSITIONAL	13.1	UNKNOWN	UNKNOWN		2012089	OBST. LIGHT
12	NEW SMYRNA BEACH	POLE	8.0	24.0	32.0	TRANSITIONAL	13.0	UNKNOWN	UNKNOWN		2012089	OBST. LIGHT
13	NEW SMYRNA BEACH	POLE	9.0	33.0	42.0	TRANSITIONAL	20.2	UNKNOWN	UNKNOWN		2012089	OBST. LIGHT
14	NEW SMYRNA BEACH	WATER TANK	8.0	85.0	93.0	TRANSITIONAL	23.1	UNKNOWN	UNKNOWN		2012089	NONE
15	NEW SMYRNA BEACH	TL TWR	6.0	35.0	41.0	TRANSITIONAL	-3.3'	UNKNOWN	UNKNOWN		2012089	NONE
16	NEW SMYRNA BEACH	POLE	8.0	29.0	37.0	APPROACH	-13.2	UNKNOWN	UNKNOWN		2012089	NONE
17	NEW SMYRNA BEACH	POLE	8.0	34.0	42.0	TRANSITIONAL	13.9	RED	UNKNOWN		2012089	NONE
18	NEW SMYRNA BEACH	POLE	8.0	82.0	90.0	TRANSITIONAL	13.7'	RED	UNKNOWN		2012089	NONE
19	NEW SMYRNA BEACH	POLE	7.0	82.0	89.0	TRANSITIONAL	9.8'	RED	UNKNOWN		2012089	NONE
20	NEW SMYRNA BEACH	POLE	3.0	34.0	37.0	TRANSITIONAL	20.0	UNKNOWN	UNKNOWN		2012089	OBST. LIGHT
21	NEW SMYRNA BEACH	POLE	4.0	40.0	44.0	TRANSITIONAL	18.9'	UNKNOWN	UNKNOWN		2012089	OBST. LIGHT
22	NEW SMYRNA BEACH	TL TWR	2.0	72.0	74.0	TRANSITIONAL	8.0'	UNKNOWN	UNKNOWN		2012089	NONE
23	NEW SMYRNA BEACH	TL TWR	1.0	71.0	72.0	TRANSITIONAL	55.8'	UNKNOWN	UNKNOWN		2012089	NONE
24	NEW SMYRNA BEACH	POLE	4.0	62.0	66.0	TRANSITIONAL	-3.1	UNKNOWN	UNKNOWN		2012089	NONE
25	NEW SMYRNA BEACH	TL TWR	2.0	56.0	58.0	APPROACH	27.9'	UNKNOWN	UNKNOWN		2012089	OBST. LIGHT
26	NEW SMYRNA BEACH	TL TWR	3.0	45.0	48.0	APPROACH	17.2'	UNKNOWN	UNKNOWN		2012089	OBST. LIGHT
27	NEW SMYRNA BEACH	TL TWR	2.0	55.0	57.0	APPROACH	17.8'	UNKNOWN	UNKNOWN		2012089	OBST. LIGHT
28	NEW SMYRNA BEACH	TL TWR	2.0	58.0	60.0	APPROACH	10.6'	UNKNOWN	UNKNOWN		2012089	OBST. LIGHT
29	NEW SMYRNA BEACH	TL TWR	2.0	56.0	58.0	APPROACH	5.5'	UNKNOWN	UNKNOWN		2012089	OBST. LIGHT
30	NEW SMYRNA BEACH	TL TWR	7.0	54.0	61.0	APPROACH	3.2'	UNKNOWN	UNKNOWN		2012089	OBST. LIGHT
31	NEW SMYRNA BEACH	POLE	7.0	53.0	60.0	APPROACH	1.9'	UNKNOWN	UNKNOWN		2012089	OBST. LIGHT
32	NEW SMYRNA BEACH	WIND	9.0	49.0	58.0	TRANSITIONAL	7.2'	UNKNOWN	UNKNOWN		2012089	NONE
33	NEW SMYRNA BEACH	POLE	10.0	40.0	50.0	TRANSITIONAL	16.1	UNKNOWN	UNKNOWN		2012089	OBST. LIGHT
34	NEW SMYRNA BEACH	TL TWR	10.0	180.0	190.0	CONICAL	131.9	NONE	NONE	2012ASO08537OE	2013331	NONE

1. OBSTRUCTION DATA SOURCE: FAA DIGITAL OBSTACLE FILE (DOF), 7/19/2015.
2. OBSTRUCTION NUMBER 4 IS NOT WITHIN VIEWPORT SHOWN.



NEW SMYRNA BEACH
MUNICIPAL AIRPORT
NEW SMYRNA BEACH, FLORIDA

Michael Baker INTERNATIONAL

DESIGNED: APN	DRAWN BY: MJK
TECHNICIAN: APN	PROJECT NUMBER: 146328

GENERAL NOTES:

1. EXISTING ELEVATIONS WERE OBTAINED FROM A SURVEY FLOWN NOVEMBER 2015.
2. FEDERAL AVIATION REGULATIONS (FAR) PART 77 SPECIFIES CLEARANCE REQUIREMENTS FOR ROADS, RAILROADS, AND HIGHWAYS. SPECIFICALLY, A) 17 FEET FOR AN INTERSTATE HIGHWAY, B) 15 FEET FOR ANY OTHER PUBLIC ROADWAY, C) 10 FEET OR THE HEIGHT OF THE HIGHEST MOBILE OBJECT THAT WOULD NORMALLY TRAVERSE THE ROAD, WHICHEVER IS GREATER FOR A PRIVATE ROAD, D) 23 FEET FOR A RAILROAD, AND E) FOR A WATERWAY OR ANY OTHER TRAVERSE WAY NOT PREVIOUSLY MENTIONED, AN AMOUNT EQUAL TO THE HEIGHT OF THE HIGHEST MOBILE OBJECT THAT WOULD NORMALLY TRAVERSE IT.
3. CHAPTER 22 OF THE CITY OF NEW SMYRNA BEACH CODE OF ORDINANCES (SECTIONS 22-92 AND 22-93) ESTABLISHES FOUR "AIRPORT OVERLAY ZONES OF CONTROL" WHICH ESTABLISH AND ALSO DESCRIBES, SUPPLEMENTS AND REINFORCES THE HEIGHT AVOIDANCE HAZARD REQUIREMENTS, BUT COMPATIBILITY, AND NOISE EXPOSURE.

REVISIONS

NO.	DESCRIPTION	DATE	BY

DRAFT

PROJECT NAME:

AIRPORT
MASTER PLAN UPDATE

DRAWING NAME:

AIRPORT AIRSPACE
DRAWING - RUNWAY
11-29 (3 OF 3)

FAA AIP # / STATE GRANT #:

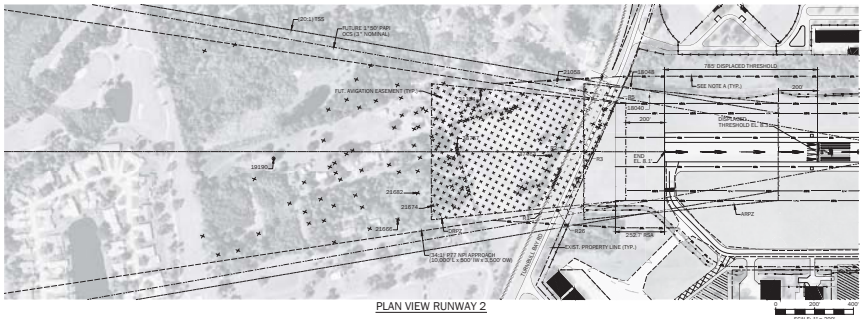
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DIVISION:

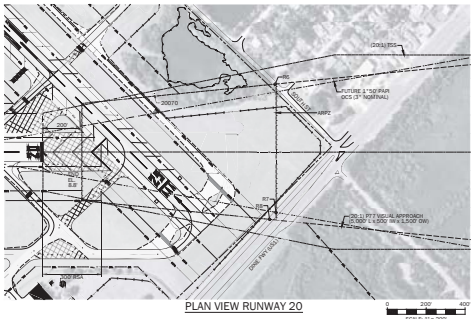
PLANNING

DATE:	DRAWING NUMBER:
NOVEMBER 2017	6

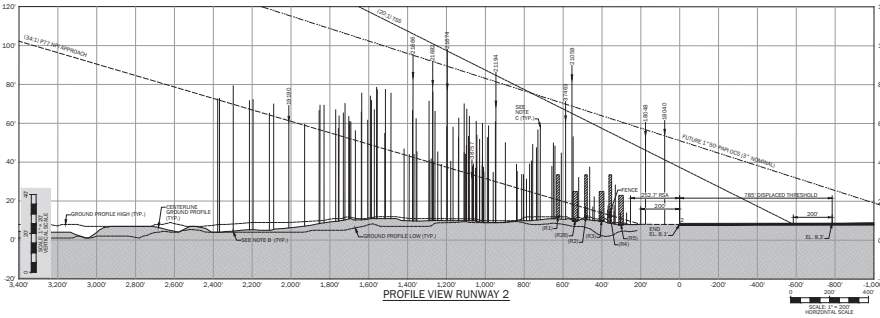
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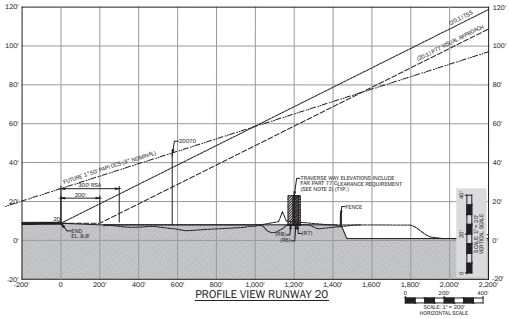
PLAN VIEW RUNWAY 2



PLAN VIEW RUNWAY 20



PROFILE VIEW RUNWAY 2



PROFILE VIEW RUNWAY 20

RUNWAY 2 END TRAVERSE WAY TABLE

ID	RAILROAD EL. (EST.)	ROADWAY EL. (EST.)	EL. + PART 77 CLEARANCE REQUIREMENTS	PENETRATION	DISPOSITION
R1	12.2	N/A	35.0'	14.9'	OBST. LIGHT
R2	12.0'	N/A	35.0'	16.5'	OBST. LIGHT
R3	N/A	10.0'	35.0'	10.8'	OBST. LIGHT
R4	12.0'	N/A	35.0'	21.9'	OBST. LIGHT
R5	N/A	8.0'	33.0'	11.6'	OBST. LIGHT
R6	N/A	10.9'	35.0'	6.8'	OBST. LIGHT

RUNWAY 2 (34:1) P77 NPI APPROACH OBSTRUCTION DATA TABLE

ID	DESCRIPTION	TRIGGERING EVENT	OBJECT TOP EL.	ALLOWABLE SURFACE EL.	PENETRATION	DISPOSITION
19199	TREE	EXISTING	61.0'	52.0'	9.0'	MONITOR
21682	TREE	EXISTING	69.6'	59.5'	10.1'	TRIM / REMOVE
21656	TREE	EXISTING	63.8'	42.6'	21.2'	TRIM / REMOVE
21674	TREE	EXISTING	77.9'	37.4'	40.5'	TRIM / REMOVE
21682	TREE	EXISTING	78.7'	39.6'	40.1'	TRIM / REMOVE
374B9	TREE	EXISTING	61.5'	19.5'	42.0'	TRIM / REMOVE
38757	TREE	EXISTING	32.4'	33.7'	-1.3'	MONITOR

RUNWAY 2 (20:1) TSS OBSTRUCTION DATA TABLE

ID	DESCRIPTION	TRIGGERING EVENT	OBJECT TOP EL.	ALLOWABLE SURFACE EL.	PENETRATION	DISPOSITION
19040	TREE	EXISTING	54.6'	41.3'	13.3'	TRIM / REMOVE
19043	TREE	EXISTING	53.6'	46.2'	7.4'	TRIM / REMOVE
21058	TREE	EXISTING	82.6'	65.1	17.5'	TRIM / REMOVE

RUNWAY 20 END TRAVERSE WAY TABLE

ID	ROADWAY EL. (EST.)	EL. + PART 77 CLEARANCE REQUIREMENTS	PENETRATION	DISPOSITION
R7	8.0'	23.0'	15.8'	NONE
R8	8.0'	23.0'	10.8'	NONE
R9	8.0'	23.0'	34.1'	NONE

RUNWAY 20 (20:1) P77 VISUAL APPROACH OBSTRUCTION DATA TABLE

ID	DESCRIPTION	TRIGGERING EVENT	OBJECT TOP EL.	ALLOWABLE SURFACE EL.	PENETRATION	DISPOSITION
				NONE		

RUNWAY 20 (20:1) TSS OBSTRUCTION DATA TABLE

ID	DESCRIPTION	TRIGGERING EVENT	OBJECT TOP EL.	ALLOWABLE SURFACE EL.	PENETRATION	DISPOSITION
20070	TREE	EXISTING	44.2	37.4'	6.8'	TRIM / REMOVE

LEGEND
- APPROACH OBSTRUCTION
- TSS OBSTRUCTION
- OBSTRUCTION WITHIN 5' OF SURFACE

MAGNETIC DECLINATION 7° 30' W (2017)

GENERAL NOTES:

1. EXISTING BASE MAPPING, ELEVATIONS, AND OBSTRUCTION DATA WERE OBTAINED FROM A SURVEY, FLOWN NOVEMBER 2015.
2. FEDERAL AVIATION REGULATIONS (FAR) PART 77 DEFINES A PUBLIC ROADWAY AS A NATIONAL OR STATE ROADS, RAILROADS, AND WATERWAYS AS FOLLOWS A) 17 FEET FOR AN INTERSTATE HIGHWAY, B) 15 FEET FOR ANY OTHER PUBLIC ROADWAY, C) 10 FEET OR THE HEIGHT OF THE HIGHEST MOBILE OBJECT THAT NORMALLY TRAVERSES THE ROAD, WHICHEVER IS GREATER, FOR A PRIVATE ROAD, D) 23 FEET FOR A RAILROAD, AND E) FOR A WATERWAY OR ANY OTHER TRAVERSE WAY NOT PREVIOUSLY MENTIONED, AN AMOUNT EQUAL TO THE HEIGHT OF THE HIGHEST MOBILE OBJECT THAT WOULD NORMALLY TRAVERSE IT.

PLAN REFERENCED NOTES:

A. THE BUILDING RESTRICTION LINE (BRL) IS BASED ON 20' ABOVE THE NEAREST RUNWAY ELEVATION OR THE MOST CRITICAL SURFACE IN THE VICINITY.

B. THE BASE ELEVATIONS OF ALL OBJECTS ARE ROUNDED UP TO THE NEAREST FOOT AND ARE TRIMMED AT THE COMPOSITE PROFILE HIGH.

C. ONLY A SAMPLING OF OBSTRUCTIONS ARE SHOWN IN THE TABLES DUE TO DENSITY.

NEW SMYRNA BEACH MUNICIPAL AIRPORT
NEW SMYRNA BEACH, FLORIDA

Michael Baker INTERNATIONAL

DESIGNED:	DRAWN BY:
APN	MJK
TECHNICIAN:	PROJECT NUMBER:
APN	146328

REVISIONS

NO.	DESCRIPTION	DATE	BY

DRAFT

PROJECT NAME:

AIRPORT MASTER PLAN UPDATE

DRAWING NAME:

INNER PORTION OF THE APPROACH SURFACE DRAWING - RUNWAY 2-20

FAA AIP # / SGN # SHEET #

3-12-0054-018-2014 / 418297-1-94-01

DIVISION:

PLANNING

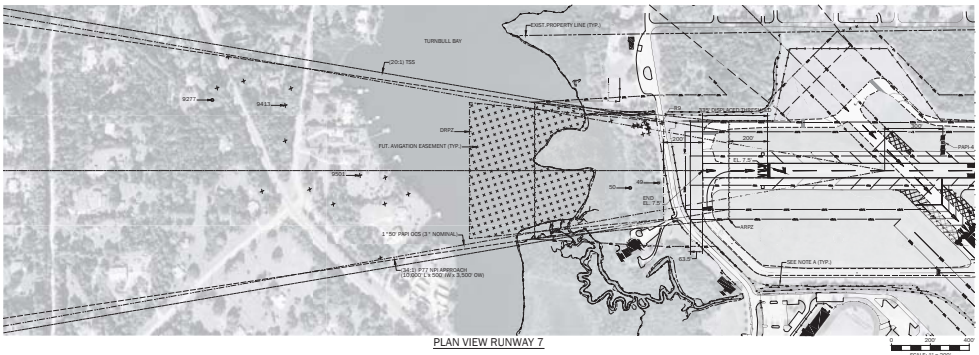
DATE:	DRAWING NUMBER:
NOVEMBER 2017	7

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LEGEND

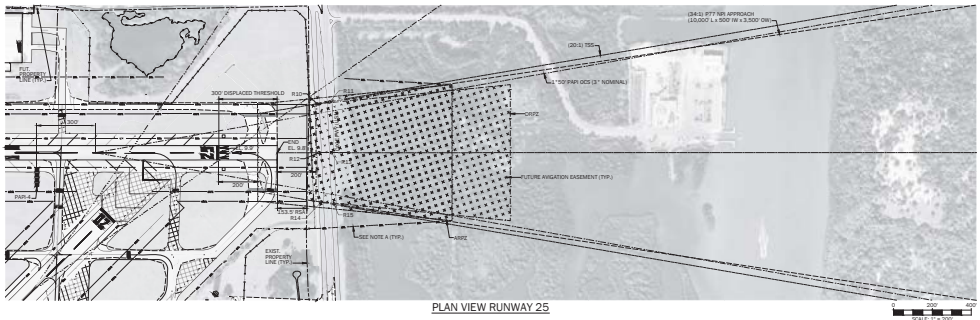
- APPROACH OBSTRUCTION
- TSS OBSTRUCTION
- OBSTRUCTION WITHIN 5' OF SURFACE



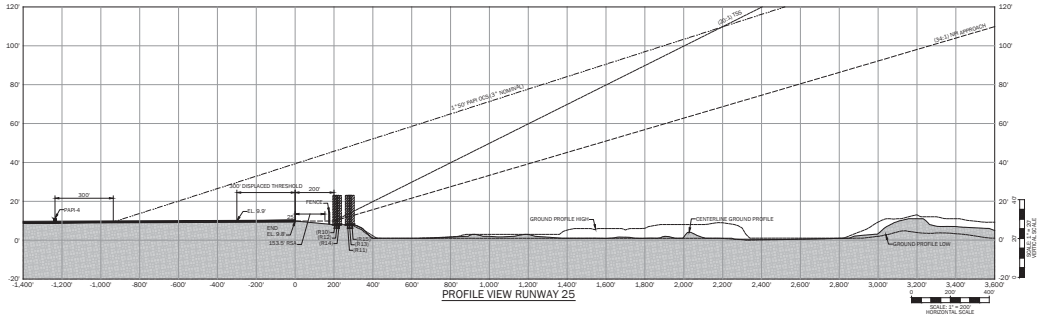

TURNBULL BAY
DIST. PROPERTY LINE (TYP.)
(20:1) TSS
9277
9413
DRP2
FUT. AVIGATION EASEMENT (TYP.)
9503
1:50 PAPI GDS (3° NOMINAL)
34:1) 7'77 NPI APPROACH
(10,000' L x 500 IW x 3,500' OW)
EXIST. GDS (3° NOMINAL)
EXIST. GDS
EXIST. RSA
EXIST. OSA
EXIST. RPZ
EXIST. PAPI-4
EXIST. MIRL
EXIST. REIL
EXIST. THRESHOLD
EXIST. RUNWAY 7-25
EXIST. RUNWAY MARKING
EXIST. RUNWAY LIGHTING
EXIST. TAXIWAY
EXIST. TAXIWAY MARKING
EXIST. TAXIWAY LIGHTING
EXIST. APRON
EXIST. APRON MARKING
EXIST. APRON LIGHTING
EXIST. HOLD LINE
EXIST. ROTATING BEACON
EXIST. WIND CONE
EXIST. SEGMENTED CIRCLE
EXIST. WINDSOCK
EXIST. LOCALIZER
EXIST. GLIDESLOPE
EXIST. MALSR
EXIST. ILS
EXIST. MALSF
EXIST. SSALR
EXIST. SSALF
EXIST. SSALS
EXIST. RAIL ROAD
EXIST. ROAD
EXIST. FENCE
EXIST. BUILDING
EXIST. TREE
EXIST. POWER POLE
EXIST. POWER LINE
EXIST. TELEPHONE POLE
EXIST. TELEPHONE LINE
EXIST. GUY WIRE
EXIST. GUY ANCHOR
EXIST. ELECTRIC MANHOLE
EXIST. ELECTRIC VAULT
EXIST. ELECTRIC BOX
EXIST. ELECTRIC TRANSFORMER
EXIST. ELECTRIC METER
EXIST. ELECTRIC LINE
EXIST. TELEPHONE MANHOLE
EXIST. TELEPHONE VAULT
EXIST. TELEPHONE BOX
EXIST. TELEPHONE LINE
EXIST. FIBER OPTIC MANHOLE
EXIST. FIBER OPTIC VAULT
EXIST. FIBER OPTIC BOX
EXIST. FIBER OPTIC LINE
EXIST. GAS MANHOLE
EXIST. GAS VAULT
EXIST. GAS BOX
EXIST. GAS LINE
EXIST. WATER MANHOLE
EXIST. WATER VAULT
EXIST. WATER BOX
EXIST. WATER LINE
EXIST. SEWER MANHOLE
EXIST. SEWER VAULT
EXIST. SEWER BOX
EXIST. SEWER LINE
EXIST. STORM MANHOLE
EXIST. STORM VAULT
EXIST. STORM BOX
EXIST. STORM LINE
EXIST. CONTOUR
EXIST. SPOT ELEVATION
EXIST. BENCHMARK
EXIST. MONUMENT
EXIST. CONTROL POINT
EXIST. SURVEY POINT
EXIST. SURVEY LINE
EXIST. SURVEY BOUNDARY
EXIST. SURVEY EASEMENT
EXIST. SURVEY RIGHT-OF-WAY
EXIST. SURVEY LOT
EXIST. SURVEY BLOCK
EXIST. SURVEY SECTION
EXIST. SURVEY TOWNSHIP
EXIST. SURVEY RANGE
EXIST. SURVEY MERIDIAN
EXIST. SURVEY BASELINE
EXIST. SURVEY OFFSET
EXIST. SURVEY TIE
EXIST. SURVEY CONTROL
EXIST. SURVEY MONUMENT
EXIST. SURVEY BENCHMARK
EXIST. SURVEY SPOT ELEVATION
EXIST. SURVEY CONTOUR

LEGEND
- APPROACH OBSTRUCTION
- TSS OBSTRUCTION
- OBSTRUCTION WITHIN 5' OF SURFACE





PLAN VIEW RUNWAY 25



PROFILE VIEW RUNWAY 25

RUNWAY 25 END TRAVERSE WAY TABLE

ID	ROADWAY EL. (ESS.)	EL. + PART 77 CLEARANCE REQUIREMENTS	PENETRATION	DISPOSITION
R10	8.0'	23.0'	13.2'	OBST. LIGHT
R11	8.0'	23.0'	11.1'	OBST. LIGHT
R12	8.0'	23.0'	12.5'	OBST. LIGHT
R13	8.0'	23.0'	10.9'	OBST. LIGHT
R14	8.0'	23.0'	12.4'	OBST. LIGHT
R15	8.0'	23.0'	10.5'	OBST. LIGHT

RUNWAY 25 (34:1) PT7 NPI APPROACH OBSTRUCTION DATA TABLE

ID	DESCRIPTION	TRIGGERING EVENT	OBJECT TOP EL.	ALLOWABLE SURFACE EL.	PENETRATION	DISPOSITION
TRAVERSE WAY OBSTRUCTIONS ONLY (SEE TRAVERSE WAY TABLE ABOVE)						

RUNWAY 25 (20:1) TSS OBSTRUCTION DATA TABLE

ID	DESCRIPTION	TRIGGERING EVENT	OBJECT TOP EL.	ALLOWABLE SURFACE EL.	PENETRATION	DISPOSITION
NONE						

RUNWAY 25 2° PAPI OCS OBSTRUCTION DATA TABLE

ID	DESCRIPTION	TRIGGERING EVENT	OBJECT TOP EL.	ALLOWABLE SURFACE EL.	PENETRATION	DISPOSITION
NONE						

NEW SMYRNA BEACH MUNICIPAL AIRPORT
NEW SMYRNA BEACH, FLORIDA

Michael Baker INTERNATIONAL

DESIGNED:	DRAWN BY:
APN	MJK
TECHNICIAN:	PROJECT NUMBER:
APN	146328

GENERAL NOTES:

1. EXISTING BASE MAPPING, ELEVATIONS, AND OBSTRUCTION DATA WERE OBTAINED FROM A SURVEY, FLOWN NOVEMBER 2015.
2. FEDERAL AVIATION REGULATIONS (FAR) PART 77 SAFE, EFFICIENT USE, AND PRESERVATION OF ROADS, RAILROADS, AND WATERWAYS AS FOLLOWS A) 17 FEET FOR AN INTERSTATE HIGHWAY, B) 15 FEET FOR ANY OTHER PUBLIC ROADWAY, C) 10 FEET OR THE HEIGHT OF THE HIGHEST MOBILE OBJECT THAT WOULD NORMALLY TRAVERSE IT, WHICHEVER IS GREATER, FOR A PRIVATE ROAD, D) 23 FEET FOR A RAILROAD, AND E) FOR A WATERWAY OR ANY OTHER TRAVERSE WAY NOT PREVIOUSLY MENTIONED, AN AMOUNT EQUAL TO THE HEIGHT OF THE HIGHEST MOBILE OBJECT THAT WOULD NORMALLY TRAVERSE IT.

PLAN REFERENCED NOTES:

A. THE BUILDING RESTRICTION LINE (BRL) IS BASED ON 20' ABOVE THE NEAREST RUNWAY ELEVATION OR THE MOST CRITICAL SURFACE IN THE VICINITY.

B. THE BASE ELEVATIONS OF ALL OBJECTS ARE ROUNDED UP TO THE NEAREST FOOT AND ARE TRIMMED AT THE COMPOSITE PROFILE HIGH.

C. ONLY A SAMPLING OF OBSTRUCTIONS ARE SHOWN IN THE TABLES DUE TO DENSITY.

REVISIONS

NO.	DESCRIPTION	DATE	BY

DRAFT

PROJECT NAME:

AIRPORT MASTER PLAN UPDATE

DRAWING NAME:

INNER PORTION OF THE APPROACH SURFACE DRAWING - RUNWAY 25

FAA AIP # / STATE GRANT #:

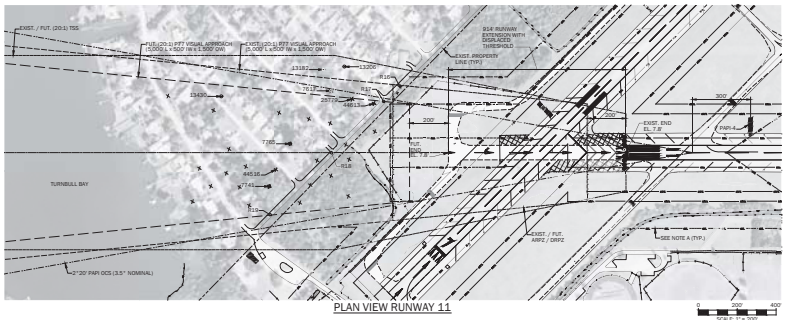
3-12-0054-018-2014 / 418297-1-94-01

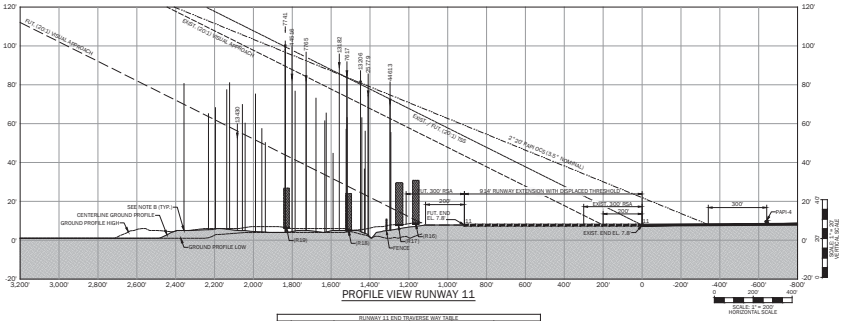
DIVISION:

PLANNING

DATE:	DRAWING NUMBER:
NOVEMBER 2017	9

Y:\Planning\Pln-Ver\Airports\Saad Internal Airport\Master Plan Update\Drawings\1-Plan\Dwg\Modified_Nov 09, 2017 v2\Inner Portion_Nov 09, 2017 v2 (Inner Portion of the approach).dwg





RUNWAY 11 END TRAVERSE WAY TABLE

ID	ROADWAY EL. (EST.)	EL. + PART 77 CLEARANCE REQUIREMENTS	EXISTING PENETRATION	FUTURE PENETRATION	DISPOSITION
R16	7.4'	22.4'	-33.8'	N/A	NONE
R17	6.8'	21.8'	-36.4'	7.0'	OBST. LIGHT
R18	4.0'	19.0'	-54.6'	-8.9'	NONE
R19	5.4'	20.4'	-69.0'	-23.3'	NONE

RUNWAY 11 (20:1) PTT VISUAL APPROACH OBSTRUCTION DATA TABLE

ID	DESCRIPTION	TRIGGERING EVENT	OBJECT TOP EL.	ALLOWABLE EXISTING SURFACE EL.	EXISTING PENETRATION	ALLOWABLE FUTURE SURFACE EL.	FUTURE PENETRATION	DISPOSITION
7617	TREE	EXISTING	64.8'	73.7'	11.1'	N / A	N / A	TRIM / REMOVE
7741	TREE	EXISTING	98.1	89.6'	8.5'	43.9'	54.2'	TRIM / REMOVE
7765	TREE	EXISTING	83.2	84.2'	-1.9'	39.5'	43.8'	TRIM / REMOVE
13430	TREE	EXISTING	52.8	101.9'	48.1'	55.2'	-3.2'	MONITOR
25179	TREE	EXISTING	74.7	68.3'	6.3'	22.6'	51.9'	TRIM / REMOVE
44536	TREE	EXISTING	63.1	81.6'	-4.8'	22.6'	40.5'	TRIM / REMOVE
44615	TREE	EXISTING	70.2	62.6'	7.6'	16.9'	53.3'	TRIM / REMOVE

EXISTING / FUTURE RUNWAY 11 (20:1) TSS OBSTRUCTION DATA TABLE

ID	DESCRIPTION	TRIGGERING EVENT	OBJECT TOP EL.	ALLOWABLE SURFACE EL.	PENETRATION	DISPOSITION
7617	TREE	EXISTING	64.8'	83.7'	1.1'	TRIM / REMOVE
7741	TREE	EXISTING	98.1	89.6'	1.5	MONITOR
13182	TREE	EXISTING	89.0'	85.7'	3.3'	TRIM / REMOVE
13206	TREE	EXISTING	79.5	80.2'	-0.7'	MONITOR

RUNWAY 11 2.5° PAPI OCS OBSTRUCTION DATA TABLE

ID	DESCRIPTION	TRIGGERING EVENT	OBJECT TOP EL.	ALLOWABLE SURFACE EL.	PENETRATION	DISPOSITION
			NONE			

LEGEND
- APPROACH OBSTRUCTION
- TSS OBSTRUCTION
- OBSTRUCTION WITHIN 5' OF SURFACE

MAGNETIC DECLINATION 6° 20' W ± 0° 12' W/Y AS OF 2017

ANNUAL RATE OF CHANGE 0° 12' W

SOURCE: NATIONAL GEOSPATIAL-INTELLIGENCE DATA CENTER

NEW SMYRNA BEACH MUNICIPAL AIRPORT
NEW SMYRNA BEACH, FLORIDA

Michael Baker INTERNATIONAL

DESIGNED:	DRAWN BY:
APN	MJK
TECHNICIAN:	PROJECT NUMBER:
APN	146328

GENERAL NOTES:

1. EXISTING BASE MAPPING, ELEVATIONS, AND OBSTRUCTION DATA WERE OBTAINED FROM A SURVEY, FLOWN NOVEMBER 2015.
2. FEDERAL AVIATION REGULATIONS (FAR) PART 77 SAFE, EFFICIENT USE, AND PRESERVATION OF NAVIGABLE AIRSPACE, STATES THAT A) FOR INTERSTATE HIGHWAYS, NATIONAL ROADS, RAILROADS, AND WATERWAYS AS FOLLOWS A) 17 FEET FOR AN INTERSTATE HIGHWAY, B) 15 FEET FOR ANY OTHER PUBLIC ROADWAY, C) 10 FEET OR THE HEIGHT OF THE HIGHEST MOBILE OBJECT THAT WOULD NORMALLY TRAVERSE THE ROAD, WHICHEVER IS GREATER, FOR A PRIVATE ROAD, D) 23 FEET FOR A RAILROAD, AND E) FOR A WATERWAY OR ANY OTHER TRAVERSE WAY NOT PREVIOUSLY MENTIONED, AN AMOUNT EQUAL TO THE HEIGHT OF THE HIGHEST MOBILE OBJECT THAT WOULD NORMALLY TRAVERSE IT.

PLAN REFERENCED NOTES:

A. THE BUILDING RESTRICTION LINE (BRL) IS BASED ON 20' ABOVE THE NEAREST RUNWAY ELEVATION OR THE MOST CRITICAL SURFACE IN THE VICINITY.

B. THE BASE ELEVATIONS OF ALL OBJECTS ARE ROUNDED UP TO THE NEAREST FOOT. TREE TRIMMED AT THE CONTROLLING PROFILE HIGH.

C. ONLY A SAMPLING OF OBSTRUCTIONS ARE SHOWN IN THE TABLES DUE TO DENSITY.

REVISIONS

NO.	DESCRIPTION	DATE	BY

DRAFT

PROJECT NAME:

AIRPORT MASTER PLAN UPDATE

DRAWING NAME:

INNER PORTION OF THE APPROACH SURFACE DRAWING - RUNWAY 11

FAA AIP # / STATE GRANT #

3-12-0054-018-2014 / 418297-1-94-01

DIVISION:

PLANNING

DATE:	DRAWING NUMBER:
NOVEMBER 2017	10

Y:\Planning\Projects\New Smyrna Beach Municipal Airport\Master Plan Update\Graphics\11 Runway 11 Approach Surface.dwg, Nov 28, 2017 - 2:12pm, Plotted: Nov 28, 2017 - 2:12pm, By: ANDREW.PEARSON

LEGEND

- APPROACH OBSTRUCTION
- TSS OBSTRUCTION
- OBSTRUCTION WITHIN 5' OF SURFACE



NEW SMYRNA BEACH MUNICIPAL AIRPORT
NEW SMYRNA BEACH, FLORIDA

Michael Baker INTERNATIONAL

DESIGNED:	DRAWN BY:
APN	MJK
TECHNICIAN:	PROJECT NUMBER:
APN	146328

GENERAL NOTES:

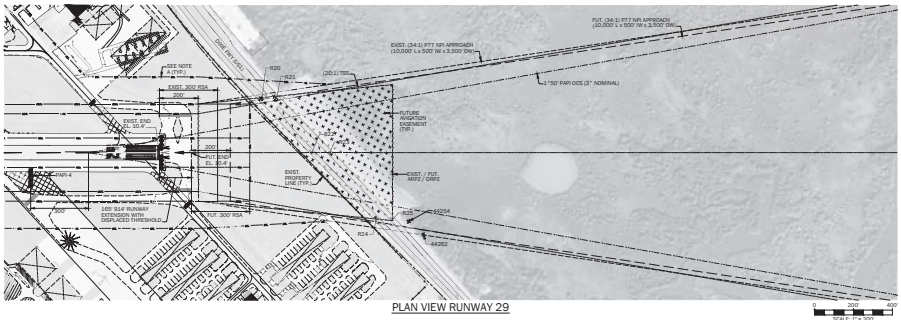
1. EXISTING BASE MAPPING, ELEVATIONS, AND OBSTRUCTION DATA WERE OBTAINED FROM A SURVEY, FLOWN NOVEMBER 2015.
2. FEDERAL AVIATION REGULATIONS (FAR) PART 77 SURFACES ARE MEASURED PERPENDICULAR TO ROADS, RAILROADS, AND WATERWAYS AS FOLLOWS A) 17 FEET FOR AN INTERSTATE HIGHWAY, B) 15 FEET FOR ANY OTHER PUBLIC ROADWAY, C) 10 FEET OR THE HEIGHT OF THE HIGHEST MOBILE OBJECT THAT NORMALLY TRAVERSES THE ROAD, WHICHEVER IS GREATER, FOR A PRIVATE ROAD, D) 23 FEET FOR A RAILROAD, AND E) FOR A WATERWAY OR ANY OTHER TRAVERSE WAY NOT PREVIOUSLY MENTIONED, AN AMOUNT EQUAL TO THE HEIGHT OF THE HIGHEST MOBILE OBJECT THAT WOULD NORMALLY TRAVERSE IT.

PLAN REFERENCED NOTES:

A. THE BUILDING RESTRICTION LINE (BRL) IS BASED ON 20' ABOVE THE NEAREST RUNWAY ELEVATION OR THE MOST CRITICAL SURFACE IN THE VICINITY.

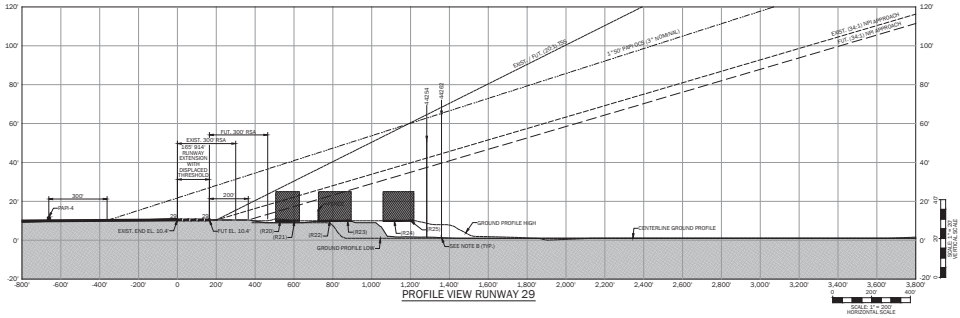
B. THE BASE ELEVATIONS OF ALL OBJECTS ARE ROUNDED UP TO THE NEAREST FOOT. TREE TRIMMED AT THE COMPOSITE PROFILE HIGH.

C. ONLY A SAMPLING OF OBSTRUCTIONS ARE SHOWN IN THE TABLES DUE TO DENSITY.



PLAN VIEW RUNWAY 29

SCALE: 1" = 200'
HORIZONTAL SCALE



PROFILE VIEW RUNWAY 29

SCALE: 1" = 200'
HORIZONTAL SCALE

SCALE: 1" = 200'
VERTICAL SCALE

RUNWAY 29 END TRAVERSE WAY TABLE

ID	ROADWAY EL. (EST.)	EL. + PART 77 CLEARANCE REQUIREMENTS	EXISTING PENETRATION	FUTURE PENETRATION	DISPOSITION
R20	10.0'	25.0'	4.9'	N/A	OBST. LIGHT
R21	10.0'	25.0'	2.7'	7.6'	OBST. LIGHT
R22	10.0'	25.0'	5.2'	10.0'	OBST. LIGHT
R23	10.0'	25.0'	6.3'	6.4'	NONE
R24	10.0'	25.0'	12.4'	12.5'	NONE
R25	10.0'	25.0'	14.8'	10.0'	NONE

RUNWAY 29 (34:1) PT77 NPI APPROACH OBSTRUCTION DATA TABLE

ID	DESCRIPTION	TRIGGERING EVENT	OBJECT TOP EL.	ALLOWABLE EXISTING SURFACE EL.	EXISTING PENETRATION	ALLOWABLE FUTURE SURFACE EL.	FUTURE PENETRATION	DISPOSITION
44254	TREE	EXISTING	51.1'	42.3'	8.8'	37.4'	13.7'	TRIM / REMOVE
44262	TREE	EXISTING	64.1'	44.5'	19.6'	N / A	N / A	TRIM / REMOVE

EXISTING / FUTURE RUNWAY 29 (20:1) TSS OBSTRUCTION DATA TABLE

ID	DESCRIPTION	TRIGGERING EVENT	OBJECT TOP EL.	ALLOWABLE SURFACE EL.	PENETRATION	DISPOSITION
			NONE			

RUNWAY 29 2° PAPI OCS OBSTRUCTION DATA TABLE

ID	DESCRIPTION	TRIGGERING EVENT	OBJECT TOP EL.	ALLOWABLE SURFACE EL.	PENETRATION	DISPOSITION
			NONE			

REVISIONS

NO.	DESCRIPTION	DATE	BY

DRAFT

PROJECT NAME:

AIRPORT MASTER PLAN UPDATE

DRAWING NAME:

INNER PORTION OF THE APPROACH SURFACE DRAWING - RUNWAY 29

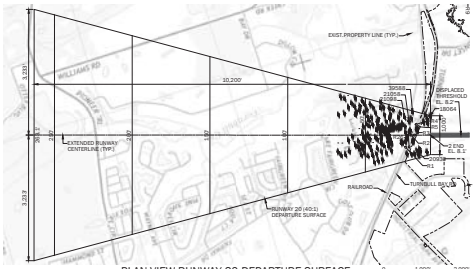
FAA AIP # / STATE GRANT #:

3-12-0054-018-2014 / 418297-1-94-01

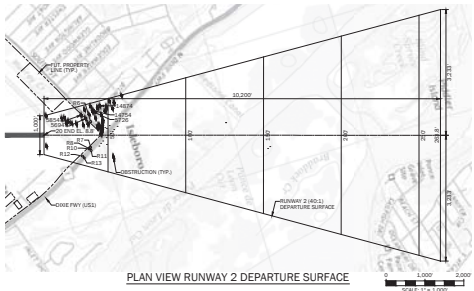
DIVISION:	
0	PLANNING

DATE:	DRAWING NUMBER:
NOVEMBER 2017	11

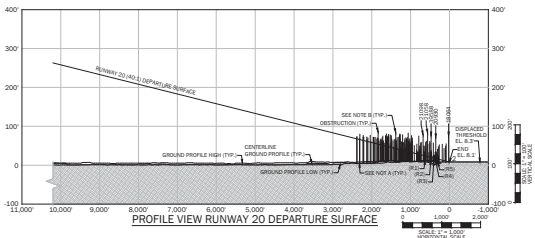
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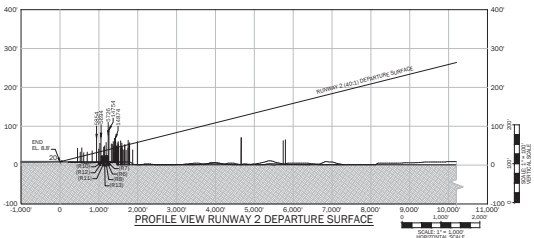
PLAN VIEW RUNWAY 20 DEPARTURE SURFACE



PLAN VIEW RUNWAY 2 DEPARTURE SURFACE



PROFILE VIEW RUNWAY 20 DEPARTURE SURFACE



PROFILE VIEW RUNWAY 2 DEPARTURE SURFACE

RUNWAY 20 DEPARTURE SURFACE TRAVERSE WAY TABLE

ID	ROADWAY EL (EST.)	RAILROAD EL (EST.)	EL. + PART 77 CLEARANCE REQUIREMENTS	PENETRATION	DISPOSITION
R1	10.9	12.0	33.9'	10.9	OBST. LIGHT
R2	N/A	12.0'	33.9'	14.5	OBST. LIGHT
R3	10.0'	11.4	33.9'	6.6	OBST. LIGHT
R4	N/A	12.0'	33.9'	12.2	OBST. LIGHT
R5	8.0'	N/A	23.9'	7.1	OBST. LIGHT

RUNWAY 20 (40:1) DEPARTURE SURFACE OBSTRUCTION TABLE

ID	DESCRIPTION	OBJECT TOP EL.	SURFACE EL.	PENETRATION	DISPOSITION
18064	TREE	70.4	8.4	66.7	TRIM / REMOVE
21058	TREE	72.8	21.9	53.7	TRIM / REMOVE
21059	TREE	82.6'	21.9'	63.7'	TRIM / REMOVE
21068	TREE	78.0'	24.8'	53.2'	TRIM / REMOVE
29588	TREE	75.9	19.7	55.6'	TRIM / REMOVE

RUNWAY 2 DEPARTURE SURFACE TRAVERSE WAY TABLE

ID	ROADWAY EL. (EST.)	EL. + PART 77 CLEARANCE REQUIREMENTS	PENETRATION	DISPOSITION
R6	8.0'	23.0'	-15.8	NONE
R7	8.0'	23.0'	-15.8	NONE
R8	8.0'	23.0'	-15.0	NONE
R10	8.0'	23.0'	-14.7	NONE
R11	8.0'	23.0'	-16.2	NONE
R12	8.0'	23.0'	-10.6	NONE
R13	8.0'	23.0'	-11.7	NONE

RUNWAY 2 (40:1) DEPARTURE SURFACE OBSTRUCTION TABLE

ID	DESCRIPTION	OBJECT TOP EL.	SURFACE EL.	PENETRATION	DISPOSITION
5084	TREE	72.3	35.3	37.0	TRIM / REMOVE
5085	TREE	78.9	40.3	38.6	TRIM / REMOVE
5086	TREE	69.4'	32.6'	36.8'	TRIM / REMOVE
14754	TREE	91.3	40.6'	50.7'	TRIM / REMOVE
14874	TREE	69.0'	44.8'	24.7'	TRIM / REMOVE

NEW SMYRNA BEACH MUNICIPAL AIRPORT
NEW SMYRNA BEACH, FLORIDA

Michael Baker INTERNATIONAL

DESIGNED: APN	DRAWN BY: MJK
TECHNICIAN: APN	PROJECT NUMBER: 146328

GENERAL NOTES:

1. EXISTING BASE MAPPING WAS OBTAINED FROM A SURVEY, FLOWN NOVEMBER 2015.
2. NO INSTRUMENT DEPARTURE PROCEDURES ARE CURRENTLY PUBLISHED FOR THE RUNWAYS AT EVB. THE DEPARTURE SURFACES SHOWN ON THIS DEPARTURE SURFACES DRAWING IS PROVIDED FOR INFORMATIONAL PURPOSES ONLY. THE ILLUSTRATED DEPARTURE SURFACES EXTEND OUT AT A SLOPE OF 40:1 FROM THE RUNWAY END ELEVATION AND ARE CONSISTENT WITH THE STRICTEST FAA EVALUATION CRITERIA FOR DEPARTURE FROM NON-COMMERCIAL RUNWAYS. OVERALL, THE INFORMATION PRESENTED IN THIS DRAWING SHOULD BE CONSIDERED FOR LAND USE PLANNING PURPOSES.

PLAN REFERENCED NOTES:

A. THE BASE ELEVATIONS OF ALL OBJECTS ARE CONSERVATIVELY ROUNDED UP TO THE NEXT FOOT TRIMMED AT THE COMPOSITE PROFILE HIGH.

B. ONLY A SAMPLING OF OBSTRUCTIONS ARE SHOWN IN THE TABLES DUE TO DENSITY.

REVISIONS

NO.	DESCRIPTION	DATE	BY

DRAFT

PROJECT NAME:

AIRPORT MASTER PLAN UPDATE

DRAWING NAME:

RUNWAY DEPARTURE SURFACE DRAWING - RUNWAY 2-20

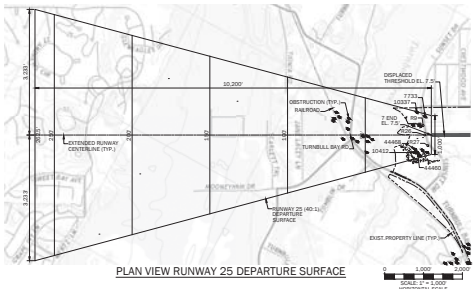
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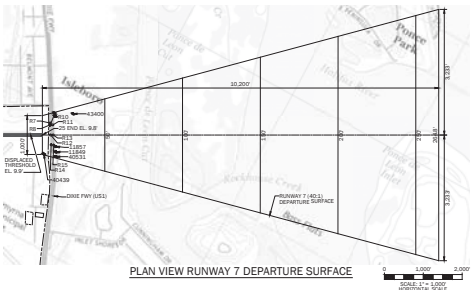
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DATE:	DRAWING NUMBER:
NOVEMBER 2017	12

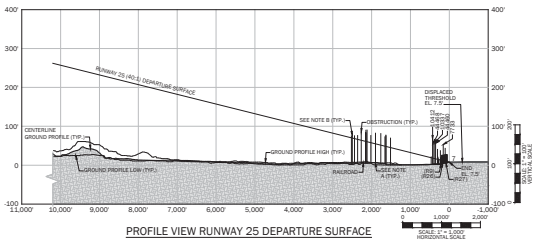
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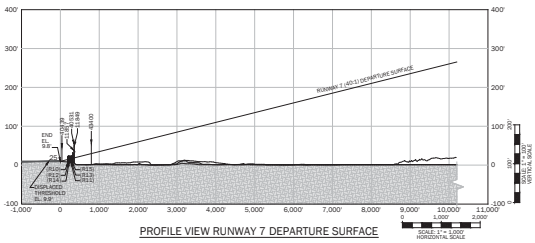
PLAN VIEW RUNWAY 25 DEPARTURE SURFACE



PLAN VIEW RUNWAY 7 DEPARTURE SURFACE



PROFILE VIEW RUNWAY 25 DEPARTURE SURFACE



PROFILE VIEW RUNWAY 7 DEPARTURE SURFACE

RUNWAY 25 DEPARTURE SURFACE TRAVERSE WAY TABLE

ID	ROADWAY EL. (ESY.)	EL. + PART 77 CLEARANCE REQUIREMENTS	PENETRATION	DISPOSITION
R9	6.0'	35.0'	6.3'	OBST. LIGHT
R26	6.0'	20.0'	8.2'	OBST. LIGHT
R27	6.0'	21.0'	11.2'	OBST. LIGHT

RUNWAY 25 (40:1) DEPARTURE SURFACE OBSTRUCTION TABLE

ID	DESCRIPTION	OBJECT TOP EL.	SURFACE EL.	PENETRATION	DISPOSITION
7733	TREE	53.1'	11.5'	41.6'	TRIM / REMOVE
10037	TREE	57.8'	16.9'	40.9'	TRIM / REMOVE
44412	TREE	55.2'	16.3'	38.9'	TRIM / REMOVE
44480	TREE	56.4'	16.4'	40.0'	TRIM / REMOVE
44488	TREE	56.7'	18.0'	38.7'	TRIM / REMOVE

RUNWAY 7 DEPARTURE SURFACE TRAVERSE WAY TABLE

ID	ROADWAY EL. (ESY.)	EL. + PART 77 CLEARANCE REQUIREMENTS	PENETRATION	DISPOSITION
R7	6.0'	23.0'	8.3'	OBST. LIGHT
R8	6.0'	23.0'	8.2'	OBST. LIGHT
R10	6.0'	23.0'	8.2'	OBST. LIGHT
R11	6.0'	23.0'	8.4'	OBST. LIGHT
R12	6.0'	23.0'	7.8'	OBST. LIGHT
R13	6.0'	23.0'	6.2'	OBST. LIGHT
R14	6.0'	23.0'	7.0'	OBST. LIGHT
R15	6.0'	23.0'	5.9'	OBST. LIGHT

RUNWAY 7 (40:1) DEPARTURE SURFACE OBSTRUCTION TABLE

ID	DESCRIPTION	OBJECT TOP EL.	SURFACE EL.	PENETRATION	DISPOSITION
11849	TREE	49.7'	18.6'	31.1'	TRIM / REMOVE
11862	TREE	37.2'	13.5'	23.4'	TRIM / REMOVE
40439	TREE	42.5'	19.9'	22.5'	TRIM / REMOVE
40531	POLE	54.6'	18.5'	36.1'	TRIM / REMOVE
43400	TREE	55.2'	29.6'	25.6'	TRIM / REMOVE



NEW SMYRNA BEACH MUNICIPAL AIRPORT
NEW SMYRNA BEACH, FLORIDA

Michael Baker INTERNATIONAL

DESIGNED: APN	DRAWN BY: MJK
TECHNICIAN: APN	PROJECT NUMBER: 146328

GENERAL NOTES:

1. EXISTING BASE MAPPING WAS OBTAINED FROM A SURVEY, FLOWN NOVEMBER 2015.
2. NO INSTRUMENT DEPARTURE PROCEDURES ARE CURRENTLY PUBLISHED FOR THE RUNWAYS AT EVB. THE DEPARTURE SURFACES SHOWN ON THIS DEPARTURE SURFACES DRAWING IS PROVIDED FOR INFORMATIONAL PURPOSES ONLY. THE ILLUSTRATED DEPARTURE SURFACES EXTEND OUT AT A SLOPE OF 40:1 FROM THE RUNWAY END PERPENDICULAR TO THE RUNWAY AND ARE THE STRICTEST FAA EVALUATION CRITERIA FOR DEPARTURE FROM NON-COMMERCIAL RUNWAYS. OVERALL, THE INFORMATION PRESENTED IN THIS DRAWING SHOULD BE CONSIDERED FOR LAND USE PLANNING PURPOSES.

PLAN REFERENCED NOTES:

A. THE BASE ELEVATIONS OF ALL OBJECTS ARE CONSIDERED TO BE THE HIGHEST POINT BEFORE TRIMMED AT THE COMPOSITE PROFILE HIGH.

B. ONLY A SAMPLING OF OBSTRUCTIONS ARE SHOWN IN THE TABLES DUE TO DENSITY.

REVISIONS

NO.	DESCRIPTION	DATE	BY

DRAFT

PROJECT NAME:
AIRPORT MASTER PLAN UPDATE

DRAWING NAME:
RUNWAY DEPARTURE SURFACE DRAWING - RUNWAY 7-25

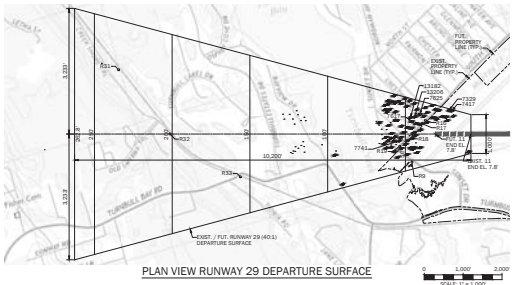
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3-12-0054-018-2014 / 418297-1-94-01

DIVISION: PLANNING

DATE: NOVEMBER 2017

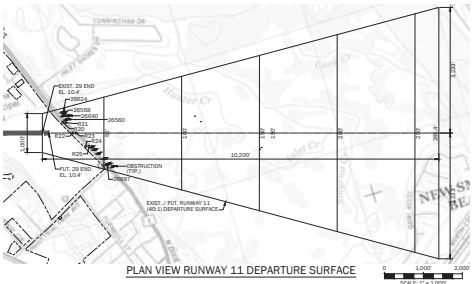
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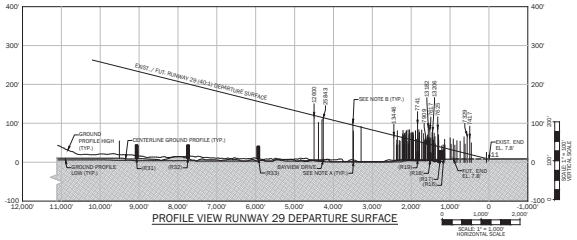
PLAN VIEW RUNWAY 29 DEPARTURE SURFACE

SCALE: 1" = 1,000' HORIZONTAL SCALE



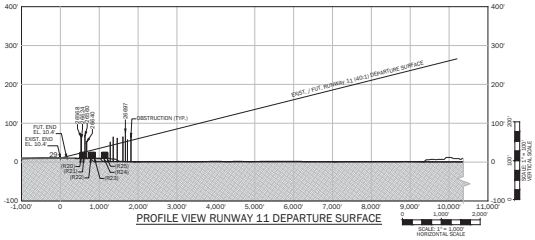
PLAN VIEW RUNWAY 11 DEPARTURE SURFACE

SCALE: 1" = 1,000' HORIZONTAL SCALE



PROFILE VIEW RUNWAY 29 DEPARTURE SURFACE

SCALE: 1" = 1,000' HORIZONTAL SCALE



PROFILE VIEW RUNWAY 11 DEPARTURE SURFACE

SCALE: 1" = 1,000' HORIZONTAL SCALE

EXISTING / FUTURE RUNWAY 29 DEPARTURE SURFACE TRAVERSE WAY TABLE

ID	ROADWAY EL. (EST.)	RAILROAD EL. (EST.)	EL. + PART 77 CLEARANCE REQUIREMENTS	PENETRATION	DISPOSITION
R9	4.0	N/A	22.0	-26.7	NONE
R10	4.0	N/A	22.0	-14.6	NONE
R11	6.6	N/A	22.6	-17.0	NONE
R12	4.0	N/A	18.0	-36.7	NONE
R13	5.4	N/A	20.4	-33.2	NONE
R31	N/A	10.5	33.5	-201.0	NONE
R32	N/A	10.4	33.4	-167.9	NONE
R33	N/A	8.9	31.9	-124.1	NONE

EXIST. / FUT. RUNWAY 29 (40:1) DEPARTURE SURFACE OBSTRUCTION TABLE

ID	DESCRIPTION	OBJECT TOP EL.	SURFACE EL.	PENETRATION	DISPOSITION
7629	TREE	68.0*	26.2	41.8	TRIM / REMOVE
7417	TREE	62.0*	20.3	41.8	TRIM / REMOVE
7617	TREE	64.8*	45.8	19.0	TRIM / REMOVE
7627	TREE	66.0*	43.8	22.2	TRIM / REMOVE
7741	TREE	68.1*	23.7	44.4	TRIM / REMOVE
13182	TREE	69.0*	46.7	42.3	TRIM / REMOVE
13306	TREE	79.0	44.0	35.5	TRIM / REMOVE

EXISTING / FUTURE RUNWAY 11 DEPARTURE SURFACE TRAVERSE WAY TABLE

ID	RUNWAY EL. (EST.)	EL. + PART 77 CLEARANCE REQUIREMENTS	PENETRATION	DISPOSITION
R30	10.0	25.0	1.4	OBST. LIGHT
R21	10.0	25.0	0.5	NONE
R22	10.0	25.0	-3.0	NONE
R23	10.0	25.0	-7.1	NONE
R24	10.0	25.0	-13.3	NONE
R25	10.0	25.0	-15.4	NONE

EXIST. / FUT. RUNWAY 11 (40:1) DEPARTURE SURFACE OBSTRUCTION TABLE

ID	DESCRIPTION	OBJECT TOP EL.	SURFACE EL.	PENETRATION	DISPOSITION
26560	TREE	68.1	26.2	41.9	TRIM / REMOVE
26598	TREE	69.9	44.2	25.7	TRIM / REMOVE
26624	TREE	64.9	41.0	23.9	TRIM / REMOVE
26640	TREE	62.3	27.3	34.9	TRIM / REMOVE
26597	POLE	75.3	52.2	23.1	TRIM / REMOVE



NEW SMYRNA BEACH MUNICIPAL AIRPORT
NEW SMYRNA BEACH, FLORIDA

Michael Baker INTERNATIONAL

DESIGNED:	DRAWN BY:
APN	MJK
TECHNICIAN:	PROJECT NUMBER:
APN	146328

GENERAL NOTES:

1. EXISTING BASE MAPPING WAS OBTAINED FROM A SURVEY, FLOWN NOVEMBER 2015.
2. NO INSTRUMENT DEPARTURE PROCEDURES ARE CURRENTLY PUBLISHED FOR THE RUNWAYS AT EVB. THEREFORE, THE FAA HAS NOT REVIEWED OR APPROVED THIS DEPARTURE SURFACES DRAWING IS PROVIDED FOR INFORMATIONAL PURPOSES ONLY. THE ILLUSTRATED DEPARTURE SURFACES EXTEND OUT AT A SLOPE OF 40:1 FROM THE RUNWAY END. DEPARTURE SURFACES ARE DESIGNED TO THE STRICTEST FAA EVALUATION CRITERIA FOR DEPARTURE FROM NON-COMMERCIAL RUNWAYS. OVERALL, THE INFORMATION PRESENTED IN THIS DRAWING SHOULD BE CONSIDERED FOR LAND USE PLANNING PURPOSES.

PLAN REFERENCED NOTES:

A. THE BASE ELEVATIONS OF ALL OBJECTS ARE CONSERVATIVELY ASSUMED TO HAVE BEEN TRIMMED AT THE COMPOSITE PROFILE HIGH.

B. ONLY A SAMPLING OF OBSTRUCTIONS ARE SHOWN IN THE TABLES DUE TO DENSITY.

REVISIONS

NO.	DESCRIPTION	DATE	BY

DRAFT

PROJECT NAME:

AIRPORT MASTER PLAN UPDATE

DRAWING NAME:

RUNWAY DEPARTURE SURFACE DRAWING - RUNWAY 11-29

FAA AIP # / STATE GRANT #:

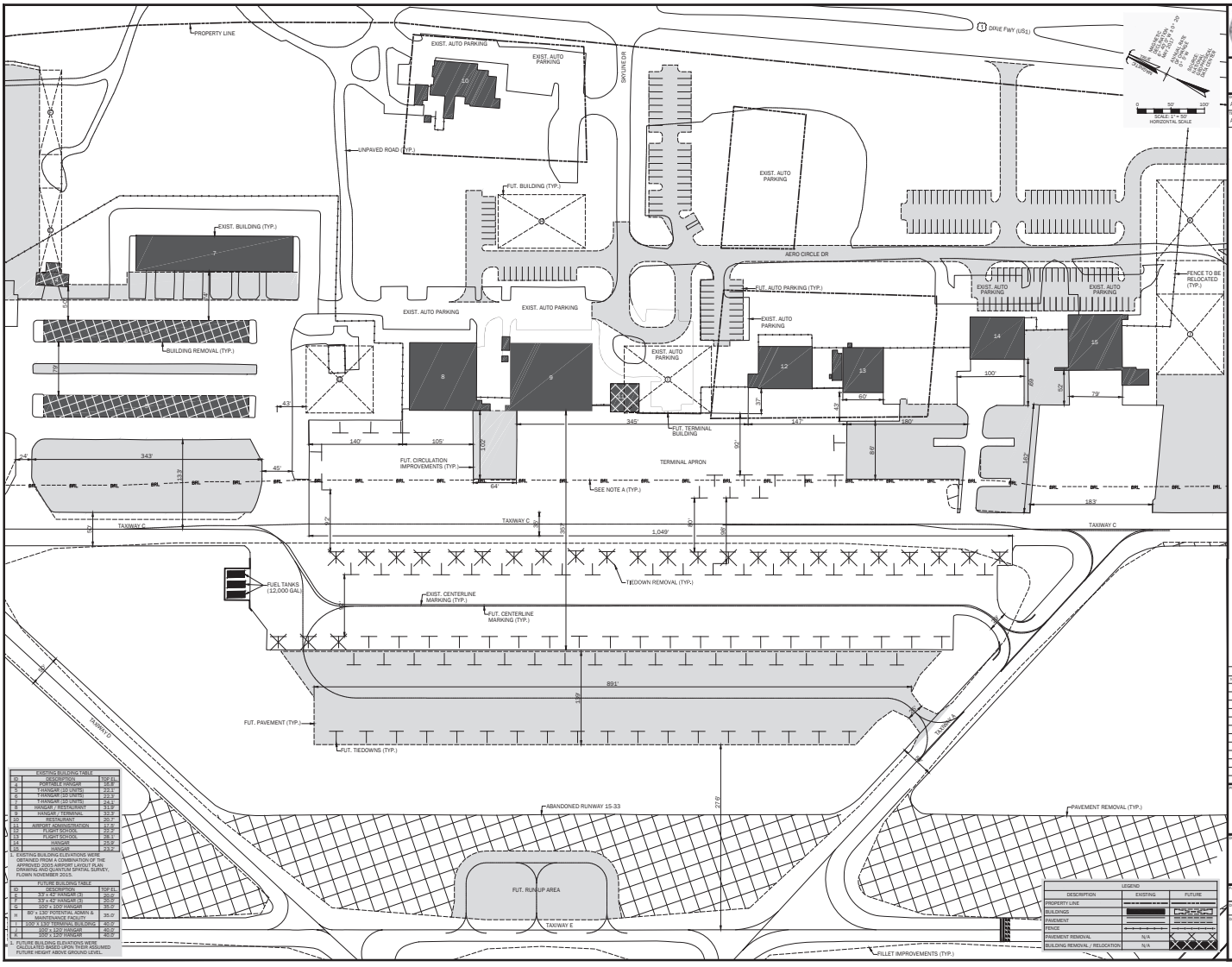
3-12-0054-018-2014 / 418297-1-94-01

DIVISION:

PLANNING

DATE:	DRAWING NUMBER:
NOVEMBER 2017	14

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EXISTING BUILDING TABLE		
ID	DESCRIPTION	TOP EL
4	PORTABLE HANGAR	16.8
5	T-HANGAR (10 UNITS)	22.1
6	T-HANGAR (20 UNITS)	22.3
7	T-HANGAR (20 UNITS)	24.2
8	HANGAR / RESTAURANT	31.9
9	HANGAR / TERMINAL	32.2
10	RESTAURANT	20.7
11	AIRPORT ADMINISTRATION	17.2
12	FLIGHT SCHOOL	22.2
13	FLIGHT SCHOOL	28.1
14	HANGAR	23.2
15	HANGAR	23.2

1. EXISTING BUILDING ELEVATIONS WERE OBTAINED FROM A COMBINATION OF THE APPROVED 2005 AIRPORT LAYOUT PLAN AND/OR AIRPORT AERIAL SURVEY, FLOWN NOVEMBER 2015.

FUTURE BUILDING TABLE		
ID	DESCRIPTION	TOP EL
E	33' x 42' HANGAR (3)	30.0
F	33' x 42' HANGAR (3)	30.0
G	100' x 100' HANGAR	35.0
H	80' x 130' POTENTIAL ADMIN & MAINTENANCE SUITE	35.0
I	100' X 130' TERMINAL BUILDING	40.0
J	100' x 120' HANGAR	40.0
K	100' x 120' HANGAR	40.0

1. FUTURE BUILDING ELEVATIONS ARE CALCULATED BASED UPON THEIR ASSUMED FUTURE HEIGHT ABOVE GROUND LEVEL.

LEGEND		
DESCRIPTION	EXISTING	FUTURE
PROPERTY LINE		
BUILDINGS		
PAVEMENT		
FENCE		
PAVEMENT REMOVAL	N/A	
BUILDING REMOVAL / RELOCATION	N/A	

NEW SMYRNA BEACH MUNICIPAL AIRPORT
NEW SMYRNA BEACH, FLORIDA

Michael Baker INTERNATIONAL

DESIGNED:	DRAWN BY:
APN	MJK
TECHNICIAN:	PROJECT NUMBER:
APN	146328

GENERAL NOTES:

1. EXISTING BASE MAPPING WAS OBTAINED FROM A SURVEY, FLOWN NOVEMBER 2015.

PLAN REFERENCED NOTES:

A. THE BUILDING RESTRICTION LINE (BRL) IS BASED ON 20' ABOVE THE NEAREST RUNWAY ELEVATION OR THE MOST CRITICAL SURFACE IN THE VICINITY.

REVISIONS

NO.	DESCRIPTION	DATE	BY

DRAFT

PROJECT NAME:
AIRPORT MASTER PLAN UPDATE

DRAWING NAME:
TERMINAL AREA DRAWING

FAA AIP # / SPON SORS #
3-12-0054-018-2014 / 418297-1-94-01

DIVISION:
PLANNING

DATE:
NOVEMBER 2017

DRAWING NUMBER:
15



NEW SMYRNA BEACH
MUNICIPAL AIRPORT
NEW SMYRNA BEACH, FLORIDA

Michael Baker
INTERNATIONAL

APN	MJH
APN	146328

GENERAL NOTES:

1. EXISTING BASE MAPPING WAS OBTAINED FROM A SURVEY, FLOWN NOVEMBER 2015.
2. CHAPTER 23 OF THE CITY OF NEW SMYRNA BEACH CODE OF ORDINANCES (SECTIONS 23-92 AND 23-93) ESTABLISHES FOUR "AIRPORT OVERLAY ZONES OF INFLUENCE" SURROUNDING EVF AND ALSO PRESCRIBES NOTIFICATION REQUIREMENTS, TALL OBJECTS AGAINST HEIGHT RESTRICTIONS, RPZ COMPATIBILITY, AND NOISE EXPOSURE.
3. LAND USE INFORMATION WAS OBTAINED FROM THE CITY OF NEW SMYRNA BEACH COMPREHENSIVE PLAN 2035 FUTURE LAND USE MAP. THE AOA, OPEN SPACE, INSTITUTIONAL, AND AVIATION RELATED WERE CREATED AS PART OF THIS ALP UPDATE.

REVISIONS

NO	DESCRIPTION	DATE	BY

DRAFT

PROJECT NAME
AIRPORT
MASTER PLAN UPDATE

DRAWING NAME
LAND USE DRAWING

FAA AIP & STATE GRANT
3-12-0054-018-2014 / 41829T-3 94-01

LOCATION
PLANNING

DATE	DRAWING NUMBER
NOVEMBER 2017	16



NEW SMYRNA BEACH MUNICIPAL AIRPORT
NEW SMYRNA BEACH, FLORIDA

Michael Baker INTERNATIONAL

DRAWN BY	DESIGNED BY
APN	MJH
REVIEWED	PROJECT NUMBER
APN	146328

GENERAL NOTES:

1. EXISTING BASE MAPPING WAS OBTAINED FROM A SURVEY, FLOWN NOVEMBER 2015.
2. THE INFORMATION ON THIS EXHIBIT WAS OBTAINED FROM A 2005 PROPERTY MAP (NO PARCEL DATA) FROM THE VOLUSIA COUNTY COUNTY PROPERTY APPRAISER. INFORMATION FROM THE PREVIOUS PROPERTY MAP COULD NOT BE VERIFIED AS PART OF THIS EXHIBIT. AN EXHIBIT W. PROPERTY MAP UPDATE IS RECOMMENDED.
3. CHAPTER 22 OF THE CITY OF NEW SMYRNA BEACH CODE OF ORDINANCES (SECTIONS 22-82 AND 22-83) ESTABLISHES FAA "AIRPORT IN THE VICINITY" INFLUENCE AREAS FOR THE AIRPORT AND ALSO ESTABLISHES NOTIFICATION REQUIREMENTS, TALL ZONES HEIGHTS, HEIGHT RESTRICTIONS, AND COMPATIBILITY AND NOISE EXPOSURE.
4. THE PARCEL DATA WAS SEPARATE FROM THE VOLUSIA COUNTY PROPERTY APPRAISER. THE LINES SHOWN DO NOT NECESSARILY REPRESENT THE ACTUAL PROPERTY TRANSACTIONS SHOWN IN THE TABLE, BUT IS ULTIMATE PARCEL BOUNDARIES AS OF NOVEMBER 2017.

REVISIONS

NO	DESCRIPTION	DATE	BY

DRAFT

PROJECT NAME
AIRPORT MASTER PLAN UPDATE

DRAWING NAME
AIRPORT PROPERTY MAP

FAA AIP & STATE GRANT
3-12-0054-018-2014 / 4182971-94-01

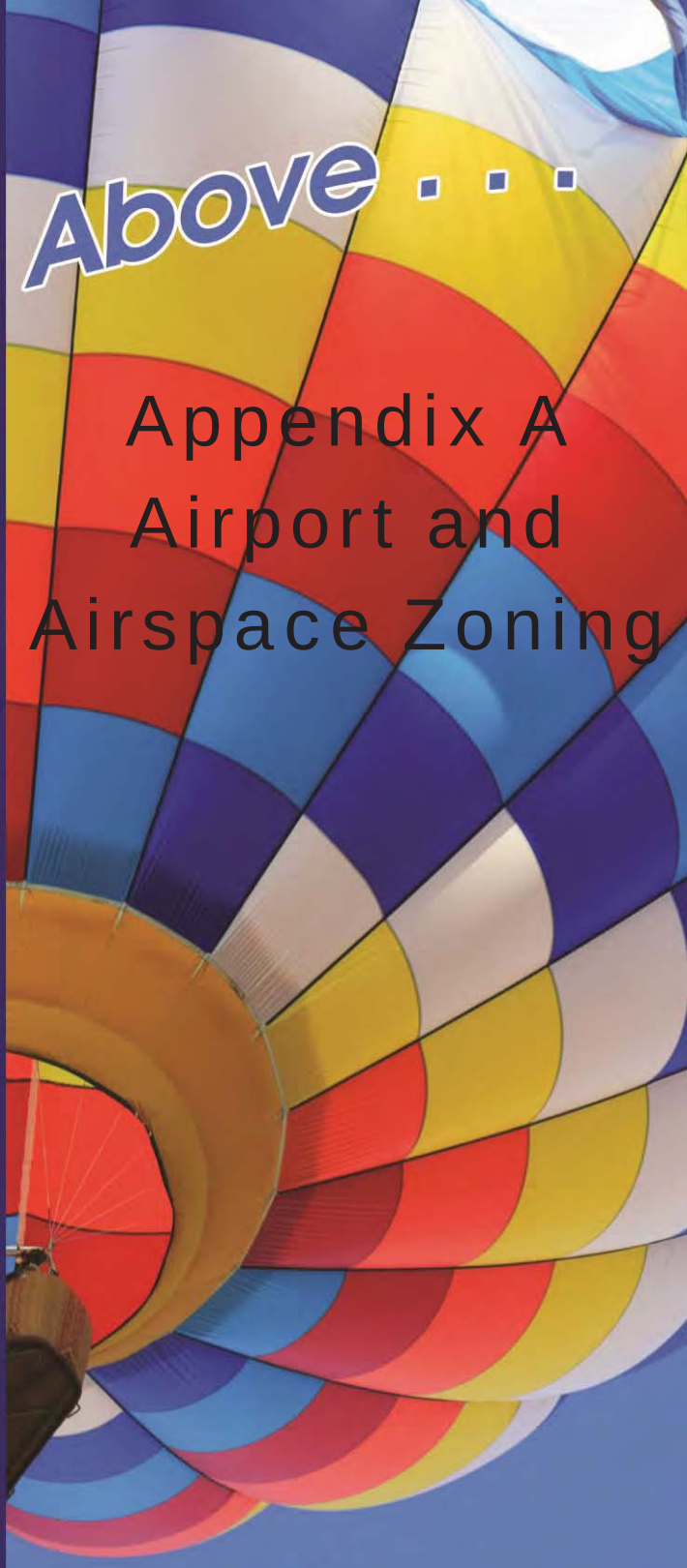
DISCIPLINE
PLANNING

DATE	DRAWING NUMBER
NOVEMBER 2017	17

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Rising Above . . .

Appendix A
Airport and Airspace Zoning



New Smyrna Beach Municipal Airport

MASTER PLAN UPDATE

APPENDIX A
AIRPORT AND AIRSPACE ZONING

The following is an excerpt from the City of New Smyrna Beach Code of Ordinances, dated December 16, 2016

(Source:https://library.municode.com/fl/new_smyrna_beach/codes/code_of_ordinances?nodeId=PTIICOOR_CH22AV_ARTIIIAIAIZO)

CHAPTER 22, ARTICLE III. - AIRPORT AND AIRSPACE ZONING

- **Sec. 22-91. - Definitions.**

The following words, terms and phrases, when used in this article, shall have the meanings ascribed to them in this section, except where the context clearly indicates a different meaning:

Airport height notification zone means the area within the municipal boundaries, underlying that area extending outward 20,000 feet from the ends and each side of all active runways of the airport.

Airport noise impact zone means an area contiguous to the airport measuring half the length of the longest active runway on either side of and at the end of each active runway centerline. For land use control purposes, this boundary shall be considered to be consistent with the 65 to 70 L_{dn} zone determined by an official 14 CFR 150 noise study.

Airport obstruction means any structure or object of natural growth or use of land that would exceed the federal obstruction standards as contained in 14 CFR 77 or obstructs the airspace required for the flight of aircraft in taking off, maneuvering or landing at an airport or may otherwise interfere with the taking off, maneuvering or landing of aircraft.

Airspace obstruction or *obstruction to navigable airspace* means any structure, existing or planned, or any object of natural growth that would exceed federal obstruction standards as contained in 14 CFR 77, 77.21, 77.23, 77.25, 77.28 or 77.29.

Avigation easement means the assignment of a right to an airport proprietor of a portion of the total benefits of the ownership of real property. The selected rights may be granted or may be purchased.

Building restriction line (BRL) means a line beyond which no aboveground structures may be constructed, erected, installed, assembled or placed on the airport property, or property that abuts the airport property.

Decision height means the height at which a pilot must decide, during a precision approach, to either continue the approach to landing or to execute a missed approach.

FDOT means the Florida Department of Transportation.

L_{dn} means a day/night 24-hour average sound level measurement, expressed in decibels, obtained after addition of ten decibels to sound levels occurring during the nighttime period from 10:00 p.m. to 7:00 a.m.

Minimum descent altitude (MDA) means the lowest altitude above mean sea level (AMSL) to which descent is authorized on final approach or during circling-to-land maneuvering in execution of a standard instrument approach procedure (SIAP) where electronic glide slope is not provided.

Noise reduction (NR) or *noise level reduction (NLR)* means reduction in sound level transmission between locations or rooms for the express purpose of lessening or mitigating the impact of noise in one of the locations. The term "sound level reduction (SLR)" has the same meaning as "noise level reduction (NLR)."

Nonconforming use means any structure, object of natural growth or use of land in existence as of February 28, 1995, that is inconsistent with the provisions of this article.

Runway protection zone means an area at ground level that begins at the end of a primary surface (as defined in 14 CFR 77) and extends with the width of each approach surface (as defined in 14 CFR 77) to terminate directly below each approach surface slope at the point where the slope reaches a height of 50 feet above the elevation of the runway. The term "runway protection zone" shall have the same meaning as "airport runway clear zone" as defined in the Florida Statutes, United States Code, the Code of Federal Regulations and otherwise.

Structure means any object constructed, erected, amassed or installed by man, including but not limited to antennas, buildings, cranes, overhead transmission lines, smokestacks, towers and utility poles.

(Ord. No. 10-95, § 1, 3-28-1995)

Cross reference - Definitions generally, § 1-2.

- **Sec. 22-92. - Airport zones of influence.**

(a) The city adopts four airport overlay zones of influence to be known as the airport height notification zone, runway protection zone, airport noise impact zone and building restriction line zone, which shall be depicted on the city's official zoning map. The location of these airport overlay zones of influence is established by this section.

(b) Airport overlay zones of influence are established for the purpose of regulating development in proximity to the airport. The boundaries of airport overlay zones of

influence may be changed only by way of an amendment to the city's official zoning map. (See New Smyrna Beach Land Development Regulations, § 502.00 et seq. (1991).) All development applications for land within the airport zones of influence shall comply with the provisions of this article and all underlying zoning district requirements of the city's land development regulations. The following are the four airport overlay zones:

(1) *Airport height notification zone.* See exhibit "A" attached to Ordinance No. 10-95 and incorporated by reference in this article.

(2) *Runway protection zone.* See exhibit "B" attached to Ordinance No. 10-95 and incorporated by reference in this article.

(3) *Airport noise impact zone.* See exhibit "C" attached to Ordinance No. 10-95 and incorporated by reference in this article.

(4) *Building restriction line zone.* See exhibit "D" attached to Ordinance No. 10-95 and incorporated by reference in this article.

Where an airport zone of influence overlays a portion of a property, only that portion within the airport zone of influence shall be affected by the provisions of this article. The provisions of this article relating to noise impact shall not be applicable to accessory open space, landscape and buffering areas, stormwater management areas, and driveway and parking uses.

(Ord. No. 10-95, § 2, 3-28-1995)

- **Sec. 22-93. - Airport height notification zone and regulations.**

(a) *Establishment of zone.*

(1) The airport height notification zone is established as an overlay zone on the city's official zoning map in New Smyrna Beach Land Development Regulations, § 502.00 et seq. (1991). This zone is to regulate the height of structures and natural vegetation for areas in proximity to the airport.

(2) The airport height notification zone is defined as the area within the municipal boundaries, underlying that area extending outward 20,000 feet from the ends and each side of all active runways of the airport.

(b) *Height notification regulations.* All development proposals determined to be potential airport obstructions shall be forwarded to the FAA to be reviewed for conformance with the obstructions standards detailed in 14 CFR 77 or as is otherwise required by federal or state law. A proposed development shall be determined to be a potential airport obstruction if the proposed development would result in a structure or natural vegetation having a height greater than an imaginary surface extending outward and upward from the ends and sides of a publicly licensed airport active runway at a slope of one foot vertical to 100 feet horizontal outward to 20,000 feet or 200 feet above ground level for areas beyond 20,000 feet. Applicants of any development proposal determined by the city to result in a structure that constitutes a potential airport obstruction shall be issued a notice of potential airport obstruction during the development proposal review process by the development services

department's director. No proposal for development will be approved for construction and no permit for construction will be issued for any proposal to construct any structure or installation of vegetation that is a potential airport obstruction until the proposed structure or installation of vegetation has been reviewed by the FAA and the FDOT and a variance (if one is required) is approved. Any proposed development not determined to be a potential airport obstruction shall be exempt from any airport height notification zone permitting regulations.

(Ord. No. 10-95, § 3, 3-28-1995)

- **Sec. 22-94. - Aviation approved construction permit procedures and criteria for approval.**

(a) *Notice of potential obstruction.* Applicants for development permits receiving a notice of potential obstruction shall apply to the development services director for an aviation approved construction permit from the development services department. If an aviation approved construction permit is required, the aviation approved construction permit must be obtained before an applicant for development may:

(1) Receive a building permit for its property; and

(2) Make application to the city commission for any approval (or modification of a prior approval) required to develop its property.

If city commission approval is required for final approval of both the aviation approved construction permit and any other required approval, the applicant for development may make a consolidated application on multiple matters and the city commission may consider these multiple matters at a single consolidated hearing.

(b) *Procedures for obtaining an aviation approved construction permit.*

(1) Applicants shall submit to the development services department a completed aviation approved construction permit application form (as provided by the city) and a copy of the notice of proposed construction form submitted to the FAA for the project. Permit requests may be considered by the development services director concurrent with development plan approval consideration.

(2)

Prior to permit requests being considered for approval, applicants shall submit to the development services department the final determination issued by the FAA based on its review of the applicant's notice of proposed construction submitted in accordance with 14 CFR 77.

(c) *Criteria for granting an aviation approved construction permit.*

(1) Where the FAA has reviewed the proposed development and determined that its construction would not exceed an obstruction standard of 14 CFR 77, the development services director shall grant an aviation approved construction permit for the proposed development provided a condition is attached to the permit approval to ensure that the approved

structure is marked and lighted prior to the issuance of a certificate of occupancy if so required by chapter 14-60, in accordance with the standards of Rules of the Department of Transportation and Federal Aviation Administration Advisory Circular 70/7460-1, as amended.

(2) Where the FAA has reviewed a proposed development and determined that the proposed development exceeds the obstruction standards of 14 CFR 77, no aviation approved construction permit shall be approved by the development services director, and an airport obstruction variance must be obtained by the applicant for the proposed development to proceed.

(d) *Appeals.* Actions of the development services director relating to granting or denying an aviation approved construction permit may be appealed by any aggrieved party with standing to bring such appeal within 15 days of the decision rendered to the city manager. The decision of the city manager may be appealed within 15 days to the city commission or to the airport board of adjustment if such a board is established by the city commission in accordance with F.S. § 333.10. There shall be no right of appeal to the city's board of adjustment. All appeals shall be filed, reviewed, and heard in a manner consistent with F.S. §§ 333.08 and 333.10.

(Ord. No. 10-95, § 4, 3-28-1995)

- **Sec. 22-95. - Airport obstruction variance procedures and criteria.**

(a) *Procedures for obtaining an airport obstruction variance.*

(1) Applicants shall submit to the development services department a completed airport construction variance application form, as provided by the city. Variance requests shall be considered by the city commission or airport board of adjustment if such a board is established by the city commission in accordance with F.S. § 333.10. The request may be approved, approved with conditions, or denied.

(2) Prior to variance requests being scheduled for consideration by the city commission or airport board of adjustment if such a board is established by the city commission in accordance with F.S. § 333.10, the applicant shall submit to the development services department the following:

a. A copy of the notice of proposed construction form submitted to the FAA;

b. A final determination issued by the FAA based on its review of the applicant's notice of proposed construction submitted in accordance with 14 CFR 77;

c. A valid aeronautical evaluation (may consist of the evaluation performed by the FAA);

d. Comments from the FDOT or evidence that the FDOT has made no comments during its required 45-day comment time

period. The evidence shall include a return receipt showing that the FDOT comment time frame has been exceeded.

(b) *Criteria for granting an airport obstruction variance.*

(1) Where the FAA has reviewed the proposed development and determined that its construction would exceed an obstruction standard of 14 CFR 77, the city commission or airport board of adjustment if such a board is established by the city commission in accordance with F.S. § 333.10, may grant an airport obstruction variance.

(2) Such a variance shall be granted if the commission determines that:

a. Literal enforcement of the regulations would result in practical difficulty or unnecessary hardship to the applicant;

b. The relief granted would not be contrary to the public interest (to wit, the development can be accommodated in navigable airspace without adverse impact to the airport or aviation operations);

c. The construction of the proposed structure would not cause an increase in the minimum descent altitude or the decision height at the airport; and

d. The granting of the variance would do substantial justice and be in accordance with F.S. ch. 333 and federal laws and regulations.

(3) The city commission or airport board of adjustment if such a board is established by the city commission in accordance with F.S. § 333.10 shall consider in approving or denying a variance request:

a. The nature of the terrain and height of existing structures;

b. Public and private interests and investments;

c. The character of flying operations and planned development of airports;

d. FAA designated federal airways;

e. Technological advances;

f. The safety of persons on the ground and in the air;

g. Land use density;

h. The safe and efficient use of navigable airspace;

i. The cumulative effects on navigable airspace of all existing structures, proposed structures identified in the applicable jurisdictions' comprehensive plans, and all other known proposed structures in the area;

j. FAA determinations and results of aeronautical studies conducted by or for the FAA;

k. FDOT comments and recommendations, including FDOT findings relating to F.S. § 333.025(1) standards and guidelines;

l. Comments and recommendations from local airport authorities; and

m. Other testimony and findings of aviation operations and safety experts.

(4) Any variance so granted shall require as a condition of that variance that the structure be marked and lighted to indicate to aircraft pilots the presence of an obstruction in accordance with the standards of FAA advisory circular number 70/7460-IG. Where such marking or lighting is required, such requirement shall be satisfied prior to the issuance of a certificate of occupancy (C.O.) for the affected structure.

(5) The aeronautical evaluations submitted are valid. (The determinations have become final, have not reached the expiration date, etc.)

Subsections (b)(1)-(5) shall be the exclusive variance criteria under this article for granting an airport obstruction variance.

(Ord. No. 10-95, § 5, 3-28-1995)

- **Sec. 22-96. - Runway protection zone and regulations.**

(a) *Zone establishment.* There is created and established as an overlay zone on the adopted official zoning map a runway protection zone for areas at each end of every active runway at the airport. Within a runway protection zone, certain uses are restricted or prohibited to reduce incompatibilities with normal airport operations and danger to public health.

(b) *Runway protection zone regulations.*

(1) *Prohibited uses.* In general, uses, activities or construction in runway protection zones that are incompatible within normal airport operations or endanger public health, safety and welfare by resulting in physical obstruction, congregations of people, emissions of light or smoke, or attraction of birds shall be prohibited. The following specific types of uses shall be prohibited within the runway protection zone:

a. Educational facilities (including all types of primary and secondary schools, preschool, and child care facilities);

b. Hospitals, medical inpatient treatment facilities, nursing/convalescent home facilities;

c. Places of worship;

d. Shopping malls, sports arenas/stadiums, hotels, motels, and RV/mobile home parks.

(2) *Allowable uses.* Any use that is not prohibited in a runway protection zone as determined in subsection (b)(1) of this section is allowable within the runway protection zone, subject to compliance with applicable noise impact zone and zoning district regulations.

(3) *Appeals.* Determinations by the development services director relating to use interpretations involving subsection (b)(1) may be appealed to the

city manager, and the city manager's decision may be appealed to the city commission or airport board of adjustment if such a board is established by the city commission in accordance with F.S. § 333.10. An appeal may be made to the city commission or airport board of adjustment if such a board is established by the city commission in accordance with F.S. § 333.10 by an applicant or any person aggrieved or taxpayer affected or governing body of a political subdivision or the FDOT with standing to bring such an appeal under state or federal law. All such appeals to the city manager and the city commission or airport board of adjustment if such a board is established by the city commission in accordance with F.S. § 333.10 shall be filed, reviewed and heard in a manner consistent with F.S. §§ 333.08 and 333.10.

(Ord. No. 10-95, § 6, 3-28-1995)

- **Sec. 22-97. - Airport noise impact zone and regulations.**

(a) *Zone establishment.*

(1) There is created and established as an overlay zone on the adopted official zoning map an airport noise impact zone for areas surrounding the airport. The noise impact zone is an area in which uses are restricted and special construction standards are to be used to minimize the impact of airport-generated noise routinely produced by continuation of normal airport operations. The airport noise impact zone is defined as an area contiguous to the airport measuring half the length of the longest active runway on either side of and at the end of each active runway centerline. For land use control purposes, this boundary shall be considered to be consistent with the 65 to 70 L_{dn} zone determined by an official 14 CFR 150 noise study.

(2) Notwithstanding other provisions of this section, should the airport conduct an official 14 CFR 150 program or receive an approved 14 CFR 150 noise exposure map, the boundaries of the airport noise impact zone shall be modified to comply with the official noise study, subject to amendment of the official zoning atlas.

(b) *Noise impact zone land use regulations.* Provisions of this section shall apply to construction, alteration, moving, repair and use of any building or structure within the noise impact zone.

(1) *Permitted uses.* The following uses shall be permitted within the established noise overlay zone unless prohibited by zoning district regulations:

a. Governmental services.

b. Transportation.

c. Off-street parking.

d. Offices, business and professional.

e. Wholesale and retail building materials, hardware and farm equipment.

f. General retail trade.

g. Utilities, heavy or limited.

h. Communications.

i. General manufacturing.

j. Photographic and optical services.

k. Mining and fishing, resource production and extraction.

l. Nature exhibits and zoos.

m. Golf courses, riding stables and water recreation.

n. Agricultural operations.

o. Similar uses.

(2) *Restricted uses and criteria.* The following uses shall be permitted within the established noise overlay zone (unless prohibited by zoning district regulations) only if the proposed development complies with the applicable criteria described below:

a. *Child care, transient lodgings, educational centers, residential (other than mobile homes), and similar uses.* Developers of proposed child care facilities, transient lodgings, educational centers and residential uses (other than mobile homes) shall verify to the city in writing that proposed buildings are designed to achieve an outdoor-to-indoor noise level reduction (NLR) of at least 25 decibels. (Normal residential construction can be expected to provide an NLR of 20 to 25 decibels.)

b. *Hospitals, homes for the aged, places of worship, auditoriums, concert halls and similar uses.* Hospitals, homes for the aged, places of worship, auditoriums and concert halls shall verify to the city in writing that proposed buildings are designed to achieve an outdoor-to-indoor NLR of at least 25 decibels.

c. *Outdoor sports arenas, spectator sports and similar uses.* Outdoor sports arenas and spectator sports facilities must be constructed with special sound reinforcement systems consistent with building code regulations.

In lieu of providing written verification that a proposed building is designed for an NLR of 25 decibels (as stated in subsection (b)(2)a.-c. of this section), a developer may execute and record an avigation easement as provided in section 22-99.

(c) *Prohibited uses.* Those activities and land uses not specifically listed in subsection (b) as permitted or restricted within the noise overlay zone based on their similarity to noise tolerance and compatibility with normal airport operations as exhibited by the activities and land uses that are listed in subsection (b) are prohibited.

(d) *Appeals.* Determinations by the development services director relating to use interpretations involving subsections (a), (b) or (c) may be appealed to the city manager. Further appeal may be made to the city commission or airport board of adjustment if such a board is established by the city commission in accordance with F.S. § 333.10 by an applicant, any aggrieved person, taxpayer affected, governing body of a political subdivision, or the FDOT. All such appeals to the city commission or airport board of adjustment if such a board is established by the city commission in accordance with F.S. § 333.10 shall be filed, reviewed and heard in a manner consistent with F.S. § 333.08 and § 333.10.

(Ord. No. 10-95, § 7, 3-28-1995)

Cross reference - Noise generally, § 38-71 et seq.

- **Sec. 22-98. - Building restriction line zone and regulations.**

(a) *Establishment of zone.* The building restriction line (BRL) zone is established as an overlay zone on the adopted city zoning map. This zone is established to identify suitable building area locations at the airport and abutting properties that preclude interference with normal operations of the airport and its activities. To maintain safety of airport operations, the BRL zone encompasses the runway protection zones, the runway object free area, the runway visibility zone, NAVAID critical areas, and areas required for terminal instrument procedures. The BRL is located 500 feet from the centerline of each active runway at the airport and extends the length of the runway between the runway protection zones. The BRL zone shall be delineated on the FAA-approved airport layout plan (ALP).

(b) *Building restriction line regulations.*

(1) *Prohibited uses.* In general, uses, activities or construction in the BRL zone that are incompatible with normal airport operations or endanger public health, safety and welfare are prohibited.

(2) *Allowable uses.* Only temporary parking of aircraft or equipment necessary for normal airport operations is permitted within the BRL zone.

(3) *Appeals.* Appeals shall be handled using the same procedures as in section 22-96.

(Ord. No. 10-95, § 8, 3-28-1995)

- **Sec. 22-99. - Avigation easements.**

An avigation easement is a legal document that grants to the owner/operator of a nearby airport a right to continue to operate the airport in a manner similar to current operations, despite potential nuisance effects upon uses that are being established in close proximity to the airport. Applicants choosing to provide an avigation easement shall execute the easement to the city or other airport owner or operator. The easement shall be in a form acceptable to the city attorney's office and shall be executed in a recordable form by the property owner prior to:

(1) Release of a development site plan; or
(2) Via recording of a final plat; or
(3) Issuance of a building permit;

as applicable. The property owner shall record the easement and provide a copy to the city.

(Ord. No. 10-95, § 9, 3-28-1995)

- **Sec. 22-100. - Special requirements.**

(a) *Generally.* The special requirements of this section shall apply to proposed developments.
(b) *Solid waste management facilities.* Solid waste management facilities shall be reviewed in accordance with the state department of environmental regulation rule chapter 17-701, which requires the following:

(1) No solid waste disposal site shall be permitted to be located as follows:

a. Within 10,000 feet of any publicly licensed airport active runway;

b. So that it places the active runways and/or approach-and-departure patterns of an airport between the solid waste disposal site and bird feeding, water or roosting areas; or

c. Locations outside the above locations but still within the limits of any airport overlay zone if determined by the FAA to pose a hazard.

(2) Proposed developments that produce lights or illumination, smoke, glare or other visual obscuration, or produce electronic interference with airport/airplane navigation signals, are subject to the standards specified in the FAA Procedures Manual 7400.2D, Procedures for Handling Airspace Matters (September 16, 1993), consistent with F.S. § 333.03(3), as may be applied and enforced by the state and/or federal governments.

(Ord. No. 10-95, § 10, 3-28-1995)

- **Sec. 22-101. - Nonconforming uses.**

The regulations prescribed in this article shall not be construed to require the removal, lowering or other change to or alteration of any structure or natural vegetation not conforming to the regulations as of the effective date of this section, or to otherwise interfere with continuance of any nonconforming use except as provided in F.S. § 333.07(1) and (3). However, no preexisting nonconforming structure, natural vegetation or use shall be replaced, rebuilt, altered or allowed to grow higher, or to be replanted, so as to constitute an increase in the degree of nonconformity with this article. Nothing contained in this section shall require any change in the construction, alteration or intended use of any structure, where the construction or alteration was

begun prior to the effective date of this section and is completed within one year thereafter. The provisions of the land development regulations also apply to nonconformities.

(Ord. No. 10-95, § 11, 3-28-1995)

- **Sec. 22-102. - Judicial review.**

  Any person aggrieved, or taxpayer affected, by the decision of any board or governing body of a political subdivision contained in this article may apply for judicial relief to the circuit court in accordance with the procedures set forth in F.S. § 333.11.

(Ord. No. 10-95, § 12, 3-28-1995)

- **Sec. 22-103. - Conflicting regulations.**

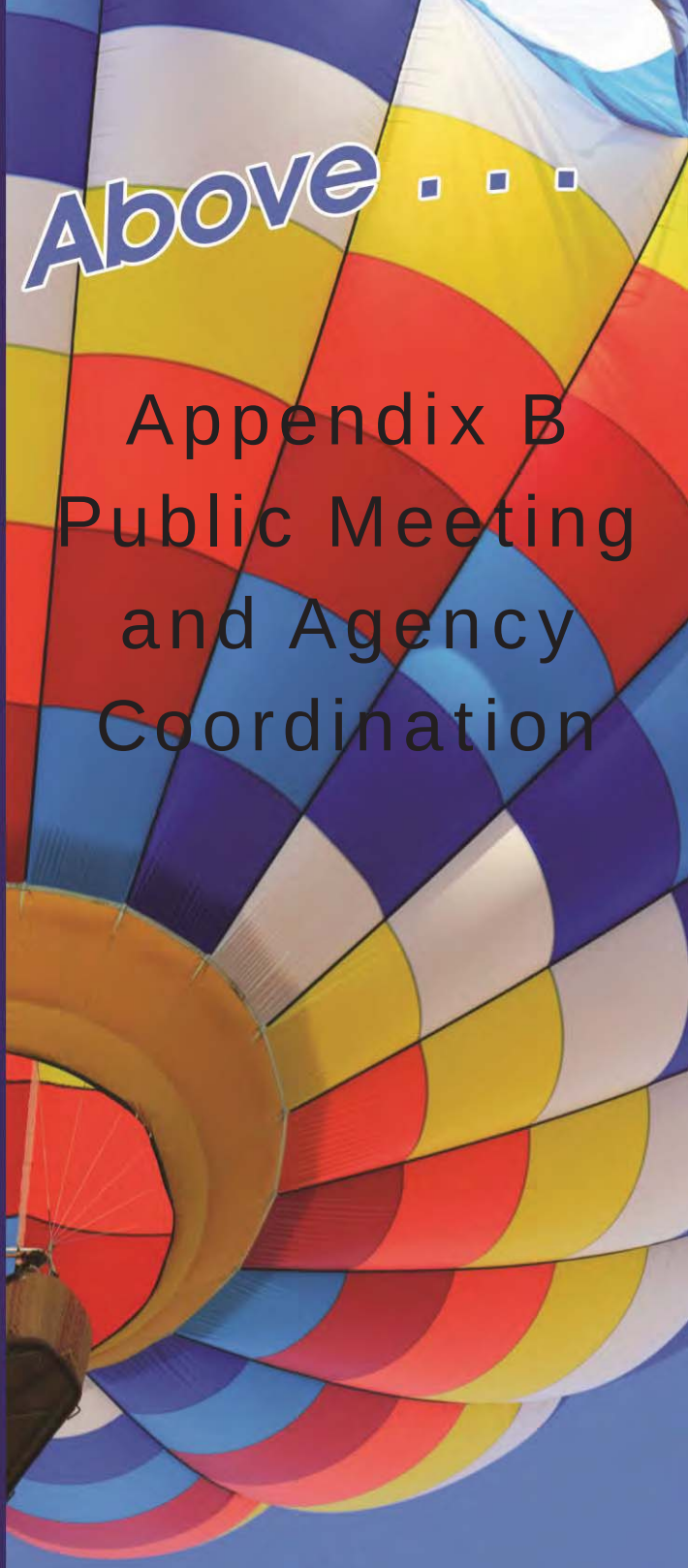
  Where there exists a conflict between any of the regulations or limitations prescribed in this article and any other regulations applicable to the same area, whether the conflict is with respect to the height of structures or trees, the use of land, or any other matter, the more stringent limitation or requirement shall govern and prevail.

(Ord. No. 10-95, § 13, 3-28-1995)

- **Secs. 22-104 - 22-136. - Reserved.**

Rising Above . . .

Appendix B
Public Meeting and Agency Coordination



New Smyrna Beach Municipal Airport

MASTER PLAN UPDATE

APPENDIX B
PUBLIC MEETING AND AGENCY COORDINATION

B.1 PUBLIC INFORMATION MEETING

Two Public Information Meetings were conducted to inform the general public and interested stakeholders about the recommendations of the Airport Master Plan Update and to solicit public comment during the project's implementation. The Project Team coordinated the meeting logistics and facilitated the public meetings as appropriate.

The New Smyrna Beach Municipal Airport's Master Plan Update Public Information Meeting #1 was held on August 4, 2015 in the Commission Chambers of City Hall. There were 21 attendees present and no written comments were provided.

The "open house" meeting format included an oral presentation accompanied by a slide presentation by Phil Jufko of Michael Baker International, Inc. The oral presentation included information relative to the overall airport master planning process, existing facilities, aviation forecasts, and next steps in the Study. Representatives of the consultant team were available at various stations to answer questions from members from the local community.

The second Public Information Meeting was held on May 19, 2016 in the Commission Chambers of City Hall. There were eight (8) attendees present and one (1) of these attendees shared written comments regarding the Study's preliminary recommendations for future airport development. Members of the consultant team were available at various stations to answer questions from members of the local community.

Comments received during the Public Information Meetings were taken into consideration in the development the 2017 EVB Master Plan Update.

The written comments obtained from attendees are included below:

Attendee – Richard Abbott:
Comment – My concern is a rumor that I've heard that a group of fighter pilots may be planning to set up operation at our City Airport. A concern this could result in a lot of aircraft noise over New Smyrna Beach. Does this master plan address what kind of flight operators are allowed at the City Airport? Does the City Commission have the final say so on what type of flight operators are allowed at our airport?

Sign-In Sheets

The sign-in sheets from the Public Information Meetings are included in this appendix for documentation purposes.

PUBLIC MEETING #1
NEW SMYNA BEACH MUNICIPAL AIRPORT MASTER PLAN UPDATE
SIGN-IN SHEET
AUGUST 4, 2015

GENERAL PUBLIC

NO.	NAME	ADDRESS	PHONE	EMAIL
1	James Zeiler	3338 W. Locanda Circle NSB, FL 32168	(386)366-1549	JIM@ZEILER.ORG
2	Keith Goodrum	122 Park Blvd N.S.B 32168	(386)4238582	Sussieta@yahoo.com
3	Tony Otte	210 Sams Ave NSB	386.566.3941	totte@cityofnsb.com
4	Jake Sachs	210 Sams Ave NSB	386 690 3100	
5	Maureen McCorry	432 Bouchelle Dr #202 NSB	386 402-8329	MCCORRYMAUREEN@yahoo.com
6	Terence McCorry	432 Bouchelle Dr #202 NSB	386 402 8329	
7		1339 Scarlett Dr	386 409-2167	
8	Janet Tinoco	~~[illegible]~~ 1007 Faulkner Ct.		jtinoco@fl.rr.com
9	Rhonda Walker	602 Skyline Dr. NSB, FL 32168	386-424-2199	rwalker@cityofnsb.com
10	Lisa Dawson	602 Skyline Dr. NSB, FL 32168	386-424-2199	ldawson@cityofnsb.com
~~11~~				

PUBLIC MEETING #1
NEW SMYNA BEACH MUNICIPAL AIRPORT MASTER PLAN UPDATE
SIGN-IN SHEET
AUGUST 4, 2015

GENERAL PUBLIC

NO.	NAME	ADDRESS	PHONE	EMAIL
~~23~~ 11	Ben Murphy	2055 S Atlantic	850-221 3214	Bum05c@gmail.com
~~24~~ 12	Jeff Mitchell	1012 Conrad Dr NSB	386-402-0411	Jeffm1887@gmail.com
~~25~~ 13 14	Joe & Louise Piper	2630 Turnbull Est Dr NSB	772 370 8260	lpiper1948@Gmail.com
~~26~~ 15	Jim Speer	33 CUNNINGHAM DR	427 7538	SKYKINGP[illegible]@CFL.RR.COM
~~27~~ 16	JIM RUSSELL	3321 TUSCANO AV	689-5900	JIMRUSSELL2014@GMAIL.COM
~~28~~ 17	ROBERT DEBBERAA	469 FLOUNDER AVE.	3063499322	
~~29~~ 18	John Evans	600 Skyline dr	386-409-5583	JOHNEVANS@EpicFlightAcademy.com
~~30~~ 19	CINDY KRATTIGER	TARA TRAIL	409-2167	
~~31~~ 20	MIKE KOTLOW	5020 W LINOSBAUGH STE 240 TAMPA, FL 33606	813-466-6020	MJKotlow@Mbakerintl.com
~~32~~ 21	PHIL JUFKO	"	813-466-6021	PJufko@mbakerintl.com
33				

PUBLIC MEETING #2
NEW SMYRNA BEACH MUNICIPAL AIRPORT MASTER PLAN UPDATE
SIGN-IN SHEET
MAY 19, 2016

GENERAL PUBLIC

NO.	NAME	ADDRESS	PHONE	EMAIL
1	ROBERT ABBATICCHIO	31 ANDREA DR NSB 32168	386 428-1711	NODOTNO COM @ BELLSOUTH.NET
2	JAMES ZEELER	3338 W. LOCANDA NSB, FL 32168	(386) 366-1549	EUBERUA CW C.COM
3	EILEEN SMYSER	412 QUAY ASSISI NSB	614-738-4572	
4		" "	" 45 "	
5	Robert J. Piper	2630 Turnbull Estates Dr.	772-708-8814	RJPiper1958@GMail.com
6	RICK ABBOTT	1065 Clubhouse N SB Blvd	386 423 8538	
7	H.B. SPROUSE	502 Brittle Fern DeLand	(201) 708 9664	
8	Bob Perry	55 Cunningham Dr New Smyrna Beach, FL	386 314-1302	dpilot89@gmail.com
9				
10				
11				

B.2 AGENCY COORDINATION

As part of the master planning process, key components of the Airport Master Plan Update must be coordinated with representatives of the Federal Aviation Administration (FAA) and the Florida Department of Transportation (FDOT) Aviation Office for approval. This includes submittal of the Aviation Forecasts and the Airport Layout Plan drawing set.

Aviation Forecast Review and Approval

The Aviation Forecasts associated with this study were prepared in accordance with Advisory Circular AC 150/5070-6B, Airport Master Plans and submitted to the FAA's Orlando Airports District Office (ADO) in accordance with the FAA's Memorandum pertaining to FAA Review and Approval of Aviation Forecasts, dated December 23, 2004. Correspondence pertaining to the review and approval of the Master Plan Update forecast is included at the end of this appendix.

Airport Layout Plan Review and Conditional Approval

The Airport Layout Plan drawing set approval process consists of multiple submittals to the airport sponsor, the FAA, and the FDOT. Upon completion of the final draft of the technical report and Airport Layout Plan drawing set, the Draft ALP and supporting documentation was submitted to the FAA's Orlando ADO for initial review and comment. Upon addressing the ADO's initial round of comments, the Draft Airport Layout Plan drawing set was resubmitted to the ADO for distribution to various FAA offices for airspace review. Following this process, the drawing set was revised based on the airspace determination and review comments received. The Final Airport Layout Plan drawing set and accompanying Airport Master Plan Update Report was submitted to the FAA and FDOT for distribution and Conditional Approval. Correspondence pertaining to the review and approval of the Airport Layout Plan drawing set is included at the end of this appendix.

Michael Baker INTERNATIONAL

CELEBRATING 75 YEARS 1940 - 2015

We Make a Difference

February 3, 2016

Marisol Elliott
Program Manager/Community Planner
Federal Aviation Administration, Orlando ADO
5950 Hazeltine National Drive, Suite 400
Orlando, FL 32822-5024

SUBJECT: Forecasts for the New Smyrna Beach Municipal Airport (EVB) Master Plan Update
FAA Comments

Dear Marisol,

We have addressed your comments on the Draft EVB Forecasts for the Master Plan as follows:

1. Table 2-3 the All years does not add up to what is shown. Comment addressed.
2. Why is Runway 11-29 the primary runway and not 7-25? Comment addressed.
   Runway 11-29 is considered the primary runway because of its non-precision approach capability and that it is used in preference by itinerant aircraft (i.e. turbopros and jets) when conditions permit. This is also significant as these aircraft represent the family of critical aircraft operating at the airport.
3. Is 2015 base year – I'm assuming that but it's not really clear in the document or tables that 2015 is the established base year – although it will be an estimated base year.
   Comment addressed.
4. Show actual TAF numbers in your summary comparison to the TAF – just the percent difference isn't enough. Comment addressed.

On behalf of the City of New Smyrna Beach, we are providing the revised version of Working Paper No. 1, which includes the Forecast Chapter for your approval. Please feel free to contact me if you have any questions related to this submittal.

Sincerely,

MICHAEL BAKER INTERNATIONAL, INC.

Philip Jufko
Director of Aviation Planning

CC: Rhonda Walker (EVB), File 146328
Attach: Draft EVB Forecast for the Master Plan Update

4020 West Linebaugh Avenue, Suite 420 | Tampa, FL 33624
Office: 813.889.3892 | Fax: 813.889.3893

U.S. Department
of Transportation
**Federal Aviation
Administration**

ORLANDO AIRPORTS DISTRICT OFFICE
5950 Hazeltine National Dr., Suite 400
Orlando, Florida 32822-5003
Phone: (407) 812-6331 Fax: (407) 812-6978

March 22, 2016

Ms. Rhonda Walker
New Smyrna Beach Airport
602 Skyline Drive
New Smyrna Beach, FL 32168

Dear Ms. Walker:

RE: Master Plan/Aviation Demand Forecast
New Smyrna Beach Airport (EVB)

We have reviewed the Master Plan Forecast of Aeronautical Demand dated February 2016 and find it consistent with the 2015 Federal Aviation Administration (FAA) Terminal Area Forecast (TAF). Based on this finding the New Smyrna Beach Airport Master Plan Forecast is approved for use.

Should you have any questions, please feel free to contact me at (407) 812-6331 X-140.

Sincerely,

"Original Signed By Stephen Wilson"

Stephen Wilson
Community Planner

cc:
Philip Jufko, Michael Baker International, Inc.

Michael Baker INTERNATIONAL

CELEBRATING 75 YEARS 1940 - 2015

We Make a Difference

October 29, 2016

Mr. Jim Wikstrom
District 5 Aviation, Spaceport, and Seaport Supervisor
Florida Department of Transportation
133 S Semoran Blvd
Orlando, FL 32807

SUBJECT: Working Paper 1 for the New Smyrna Beach Municipal Airport (EVB) Master Plan Update
FDOT Comments

Dear Jim,

We have addressed FDOT's comments on the Draft Working Paper 1 for the EVB Master Plan Update as follows:

1. Page 1, Section 1.1: Would like to see additional discussion on the FDOT program and funding requirements similar to what is provided for the FAA. Comment addressed.
2. Page 17, Precision Approach Path Indicators (PAPI) and Figure 2-2. It is suggested that Figure 2-2 show the PAPIs without the note that the PAPIs are inactive. This issue is discussed in the text, and it is reasonable to believe that the PAPIs will be returned to service prior to completion of the Master Plan. Comment addressed.
3. Please provide us with a copy of the approved forecast letter from the FAA at your convenience. A copy of the FAA Forecast Approval Letter will be sent upon receipt.

On behalf of the City of New Smyrna Beach, we are providing the revised version of Working Paper No. 1. Please feel free to contact me if you have any questions related to this submittal.

Sincerely,

MICHAEL BAKER INTERNATIONAL, INC.

Philip Jufko
Director of Aviation Planning

CC: Rhonda Walker (EVB), File 146328
Attach: Revised Draft Working Paper 1

4020 West Linebaugh Avenue, Suite 420 | Tampa, FL 33624
Office: 813.889.3892 | Fax: 813.889.3893

Jufko, Philip

From: Stephen.Wilson@faa.gov
Sent: Thursday, March 29, 2018 11:33 AM
To: rwalker@cityofnsb.com
Cc: Jufko, Philip; Armando.Rovira@faa.gov
Subject: EXTERNAL: Draft ALP Comments
Attachments: LOB Comments 3_29_18.pdf

Follow Up Flag: Follow up
Due By: Friday, April 27, 2018 8:00 AM
Flag Status: Flagged

Rhonda

See the following ALP Comments from the ALP Coordination Process:

Page 3
-Unless I missed it, please add RPZ Dimensions
-Legend Box should include: ARP, Wind Cone, Beacon,
-Please call out ATCT
-Unless I missed it, please add runway end coordinates

Page 15
-It looks like Future Bldg. “I” should be labeled “E”; Future Bldg. “E” should be labeled “I”.

Also see comments from FAA Flight Procedures. Other FAA comments are still pending.

Thanks

Stephen Wilson
Community Planner
FAA, Orlando Airports District Office
8427 SouthPark Circle, Suite 524
Orlando, FL 32819
407.487.7229
Stephen.wilson@faa.gov

Jufko, Philip

From: Stephen.Wilson@faa.gov
Sent: Tuesday, May 22, 2018 2:07 PM
To: rwalker@cityofnsb.com
Cc: Jufko, Philip; Armando.Rovira@faa.gov
Subject: EXTERNAL: ALP
Attachments: LOB Comments Final.pdf

Rhonda,

See the attached FAA Lines Of Business Comments, specifically those from Tech Ops.
No office objected however, so please address those comments we sent you 3/29/18 to make ALP Set Final.

Once those comments are addressed, you can submit to us at least five (5) Final full – size sets with a Final Master Plan Document.
In addition, we request a PDF version of both ALP and MPU.

Thanks

Stephen Wilson
Community Planner
FAA, Orlando Airports District Office
8427 SouthPark Circle, Suite 524
Orlando, FL 32819
407.487.7229
Stephen.wilson@faa.gov

Federal Aviation Administration

« OE/AAA

Case Data | Part 77 | Analysis | Generate Letters | Documents | Corresp Archive | Create Div Response | Div Responses

ASN: 2018-ASO-1008-NRA
Project:
Update

Description: This submittal transmits the EVB ALP Update. The previous ALP was last updated in 2002. This ALP includes the following: Proposed Runway 11 Extension; Proposed Parallel Taxiway (Parallel to RWY 7/25); Proposed Taxiway/Apron Development; Proposed Hangar Development; Proposed Airport Roads; Proposed Pavement Removal; Proposed Relocated AWOS.

City, State: NEW SMYRNA BEACH, FL
Latitude: 29-03-20.50N NAD 83
Longitude: 80-56-56.10W

	Proposed
SE:	11 Ft
AGL:	1 Ft
AMSL:	12 Ft

Click on the division for response details.

SBG	FP	FS	USAF	AP	Tech Ops	USN	USA	FM	AT-OEG	DHS	AP(139)	AT-OSG	ATCT
Not Sent	IFR Effect	No Objection	No Objection	No Response	No Objection with Provision	Auto Screen	Auto Screen	Auto Screen	No Objection	Auto Screen	Auto Screen	No Objection	No Objection
☐ Request	☐ Unlock	☐ Unlock	☐ Unlock	☐ Cancel	☐ Unlock	☐ Unlock	☐ Unlock	☐ Unlock	☐ Unlock	☐ Unlock	☐ Unlock	☐ Unlock	☐ Unlock

AP Sponsor	CASFO	FSDO	Other	SMO
Not Sent	Not Sent	Not Sent	Not Sent	Not Sent
☐ Request	☐ Request	☐ Request	☐ Request	☐ Request

Submit Form

Division	Requested By	Requested Date	Responded By	Responded Date	Response Type	Response	Duration (Days)
AT - ATCT/Facilities	John Morrow	03/06/2018	James Zeiler (386) 423-5022	03/06/2018	No Objection		0
AT-OSG	SYSTEM OEAAA	03/05/2018	John Morrow (404) 305-5628	03/06/2018	No Objection		1
Air Force	SYSTEM OEAAA	03/05/2018	Kareem Bernard (202) 767-8634	03/27/2018	No Objection		16
Air Traffic Obstruction	SYSTEM OEAAA	03/05/2018	Robert Alexander (718) 553-4546	03/05/2018	No Objection		0

Division	Requested By	Requested Date	Responded By	Responded Date	Response Type	Response	Duration (Days)
Evaluation Group							
Airports	SYSTEM OEAAA	03/05/2018			No Response		
Airports Part 139 Inspectors	SYSTEM OEAAA	03/05/2018	SYSTEM OEAAA (202) 580-7500	03/05/2018	Auto Screen	Autoscreened for AP(139) - Not ALP or CSPP Proposal	0
Army	SYSTEM OEAAA	03/05/2018	SYSTEM OEAAA (202) 580-7500	03/05/2018	Auto Screen	No Conflict with USA Conflix Program	0
Department of Homeland Security	SYSTEM OEAAA	03/05/2018	SYSTEM OEAAA (202) 580-7500	03/05/2018	Auto Screen	No conflict with DHS radar or airport obstruction screening	0
Flight Procedures	SYSTEM OEAAA	03/05/2018	Gary Raymond (404) 305-5945	03/28/2018	IFR Effect	NO IFR EFFECT. The Eastern SA FPT has reviewed this NRA (EVB ALP) and have no objections. We did notice that there is a possible extension to the R29 end of R11/29. The FPT will take action to create a future runway and protect for Future Departure and Approach surfaces. Any Construction on the runways, taxiways, and buildings need to processed as their own separate NRA.	17
Flight Standards	Gary Raymond	03/28/2018	Richard Scheibel (404) 305-4515	05/08/2018	No Objection		28
Flight Standards	SYSTEM OEAAA	03/05/2018	Richard Scheibel (404) 305-4515	03/28/2018	No Objection		16
Frequency Management	SYSTEM OEAAA	03/05/2018	SYSTEM OEAAA (202) 580-7500	03/05/2018	Auto Screen	Autoscreened for FM- No frequencies	0
Navy	SYSTEM OEAAA	03/05/2018	SYSTEM OEAAA (202) 580-7500	03/05/2018	Auto Screen	No Conflict with USN Conflix Program	0
Tech Ops	SYSTEM OEAAA	03/05/2018	Conchita Watts (404) 305-6611	05/14/2018	No Objection with Provision	VISAIDS COMMENTS: 1. Proposed RW 11-29 Extension _ Visaids Impact. a) The proposed RW 11-29 extension has no visaids impact. b) Coordinate with the airport operator, the local AT to assess for potential restricted visibility of the RW 07 PAPI lights after the RW 11 end is extended. 2. Proposed RW 29 REILs. a) There must a clear line of sight to the proposed REILs from approaching aircraft and from any controlling point. b) Coordination will be required with the FAA Flight Inspection Services to perform a commissioning flight inspection for the proposed RW 29 REILs. 3. Proposed RW 7-25 REILs. a) There must a clear line of sight to the proposed REILs from approaching aircraft and from any controlling point. b) Coordination will be required with the FAA Flight Inspection Services to perform a commissioning flight inspection for the proposed RW 7-25 REILs. 4. RW 02-20 existing runway width. The Runway Data Table lists the existing runway width as 75'. This is not consistent with the FAA Chart Supplement which lists the existing runway width as 100'. Resolve any discrepancy. 5. Proposed RW 02 REILs. a) There must a clear line of sight to the proposed REILs from approaching aircraft and from any controlling point. b) Coordination will be required with the FAA Flight Inspection Services to perform a commissioning flight inspection for the proposed RW 02 REILs. 6. Proposed RW 02-20 PAPIs. a) Coordination will be required with the FAA ATO P&R Group if any of the PAPIs will be owned or maintained by the FAA. b) Coordination will be required with the FAA NFDC to complete a VGSI Data Form for the proposed RW 2-20 PAPIs. The PAPI installer should alert AVN that the VGSI data is "pending" when the form is being emailed to AVN, as instructed In the last section of the form. c) No object shall penetrate the OCS for the proposed PAPIs. No object shall restrict the line of sight to the PAPI lights from approaching aircraft. Coordination will be required with the FAA Flight Inspection Services to perform a commissioning flight inspection for the proposed RW 2-20 PAPIs. 7. Clear line of sight from ATCT. Coordinate with the airport operator to ensure there is a	50

Division	Requested By	Requested Date	Responded By	Responded Date	Response Type	Response	Duration (Days)
						clear line of sight to existing and future airfield visaids and antennas from the ATCT or from any other controlling point. WEATHER COMMENTS: Future location for AWOS at EVB airport is acceptable; however, aircraft height in compass pad area should not exceed a height of 37.5 ft. NEH calculated per 6560.20 section 2.5, for that distance from the AWOS. GENERAL COMMENTS: Airport Layout Plans (ALPs) are long term planning initiatives and limited in scope, therefore conceptual in nature. ALP approval does not constitute blanket approval of new structures given the absence of detailed structure information required for comprehensive review. All new structures require separate aeronautical study submissions with detailed building plans for independent study. Ensure appropriate Notice of Construction/Alteration, FAA 7460-1, is filed for review of all permanent and temporary structures.	

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Readers & Viewers: PDF Reader | MS Word Viewer | MS PowerPoint Viewer | MS Excel Viewer | WinZip

AIRPORT LAYOUT PLAN DRAWING SET

NEW SMYRNA BEACH MUNICIPAL AIRPORT

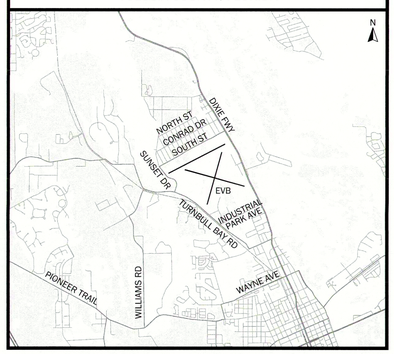
NEW SMYRNA BEACH, FLORIDA

FAA AIP #: 3-12-0054-018-2014

STATE GRANT #: 418297-1-94-01



VOLUSIA COUNTY, FLORIDA



LOCATION / VICINITY MAP

NOT TO SCALE

DRAWING INDEX

DRAWING NO.	DESCRIPTION	REVISION DATE
1	TITLE SHEET	
2	AIRPORT DATA SHEET	
3	AIRPORT LAYOUT PLAN DRAWING	
4	AIRPORT AIRSPACE DRAWING - RUNWAY 2-20 (1 OF 3)	
5	AIRPORT AIRSPACE DRAWING - RUNWAY 7-25 (2 OF 3)	
6	AIRPORT AIRSPACE DRAWING - RUNWAY 11-29 (3 OF 3)	
7	INNER PORTION OF THE APPROACH SURFACE DRAWING - RUNWAY 2-20	
8	INNER PORTION OF THE APPROACH SURFACE DRAWING - RUNWAY 7	
9	INNER PORTION OF THE APPROACH SURFACE DRAWING - RUNWAY 25	
10	INNER PORTION OF THE APPROACH SURFACE DRAWING - RUNWAY 11	
11	INNER PORTION OF THE APPROACH SURFACE DRAWING - RUNWAY 29	
12	RUNWAY DEPARTURE SURFACE DRAWING - RUNWAY 2-20	
13	RUNWAY DEPARTURE SURFACE DRAWING - RUNWAY 7-25	
14	RUNWAY DEPARTURE SURFACE DRAWING - RUNWAY 11-29	
15	TERMINAL AREA DRAWING	
16	LAND USE DRAWING	
17	AIRPORT PROPERTY MAP	

JANUARY 2019

PREPARED FOR:

THE CITY OF NEW SMYRNA BEACH, FLORIDA

PREPARED BY:

MICHAEL BAKER INTERNATIONAL, INC.

Michael Baker INTERNATIONAL

AIRPORT SPONSOR APPROVAL
THIS AIRPORT DRAWING IS APPROVED BY:
(SIGNATURE) Pam Brangaccio DATE: 1/30/19
NAME: PAM BRANGACCIO
TITLE: CITY MANAGER

STATE AERONAUTICS AGENCY APPROVAL
THIS AIRPORT DRAWING IS APPROVED BY:
(SIGNATURE) _____ DATE: _____
NAME: _____
TITLE: _____

REVISIONS			
NO.	DESCRIPTION	DATE	BY

PROJECT NAME: AIRPORT MASTER PLAN UPDATE

DRAWING NAME: TITLE SHEET

FAA AIP # / STATE GRANT #: 3-12-0054-018-2014 / 418297-1-94-01

DIVISION: PLANNING

DATE: JANUARY 2019

DRAWING NUMBER: 1

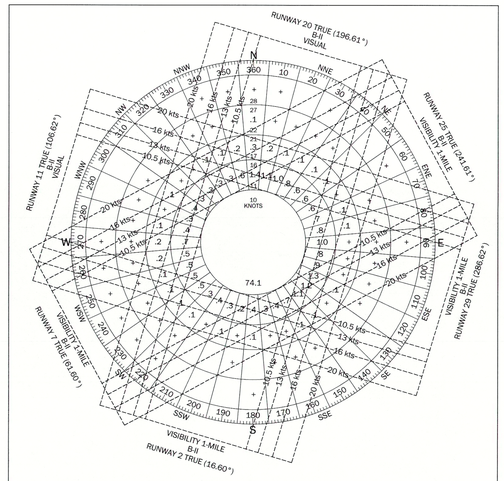
Y:\Planning\EVB - New Smyrna Beach Municipal Airport\Master Plan Update\Drawings\ALP Set\01_Title.dwg Modified: Jan 28, 2019 - 10:47am Plotted: Jan 28, 2019 - 10:48am agnazzo/kreuyn

EXISTING BUILDING TABLE		
ID	DESCRIPTION	TOP EL.
1	ATCT & ROTATING BEACON	68.6'
2	ELECTRICAL VAULT	18.5'
3	EXECUTIVE HANGARS	26.5'
4	PORTABLE HANGAR	16.8'
5	T-HANGAR (10 UNITS) (SEE NOTE 2)	22.1'
6	T-HANGAR (10 UNITS) (SEE NOTE 2)	22.3'
7	T-HANGAR (10 UNITS)	24.1'
8	HANGAR / RESTAURANT	31.9'
9	HANGAR / TERMINAL	32.3'
10	RESTAURANT	20.7'
11	AIRPORT ADMINISTRATION	17.5'
12	FLIGHT SCHOOL	22.2'
13	FLIGHT SCHOOL	28.1'
14	HANGAR	25.9'
15	HANGAR	23.2'
16	T-HANGAR (13 UNITS)	31.4'
17	T-HANGAR (16 UNITS)	23.6'
18	T-HANGAR (16 UNITS)	23.5'
19	SHED	14.2'
20	FUEL TANKS	20.7'
21	PUBLIC WORKS	27.1'
22	PUBLIC WORKS	19.6'
23	PUBLIC WORKS GARAGE	25.1'
24	STORAGE	19.2'
25	CITY FIRE STATION	27.4'
26	STORAGE	25.8'
27	CITY POLICE DEPARTMENT	23.7'
28	POLICE TRAINING CENTER (SEE NOTE 2)	18.3'
29	INDUSTRIAL	27.7'
30	INDUSTRIAL	32.4'
31	INDUSTRIAL	18.0'
32	INDUSTRIAL	20.0'
33	INDUSTRIAL	29.5'
34	INDUSTRIAL	28.1'
35	INDUSTRIAL	22.6'
36	INDUSTRIAL	25.2'
37	INDUSTRIAL	24.7'
38	INDUSTRIAL	23.1'
39	INDUSTRIAL	25.7'
40	INDUSTRIAL	32.0'
41	INDUSTRIAL	22.0'
42	HANGAR	31.0'
43	HANGAR	31.3'
44	HANGAR	28.9'
45	HANGAR	29.9'
46	HANGAR	30.2'
47	INDUSTRIAL	25.9'
48	INDUSTRIAL	25.0'
49	INDUSTRIAL	15.5'
50	INDUSTRIAL	23.7'
51	INDUSTRIAL	36.2'
52	INDUSTRIAL	31.3'
53	CITY STORAGE BUILDING	14.0'
54	CITY STORAGE BUILDING	21.7'
55	SCHOOL BOARD	25.0'
56	PUBLIC WORKS STORAGE	21.8'
57	SOUTHARD'S RECYCLING	18.7'
58	REC SERVICES	21.5'
59	REC SERVICES	28.6'
60	REC SERVICES	17.4'
61	CONCESSION STAND / SCORE KEEPER	16.9'
62	GARDEN CLUB	16.9'
63	SPORTS COMPLEX	56.5'
64	SEVAA BUILDING	14.2'
65	LIONS CLUB	12.3'
66	VFW	13.8'
67	PARK RESTROOMS	16.7'
68	VOLUSIA COUNTY MOSQUITO CONTROL	22.1'
69	VOLUSIA COUNTY MOSQUITO CONTROL	21.8'
70	VOLUSIA COUNTY MOSQUITO CONTROL	14.8'
71	VOLUSIA COUNTY MOSQUITO CONTROL	22.1'
72	VOLUSIA COUNTY MOSQUITO CONTROL	23.7'
73	VOLUSIA COUNTY MOSQUITO CONTROL	25.9'
74	VOLUSIA COUNTY MOSQUITO CONTROL	30.0'
75	GOSS STORAGE	15.2'
76	CITY STORAGE BUILDING	21.4'
77	UTILITIES COMMISSION SUBSTATION	16.7'
78	AMERICAN AERO SERVICES	17.3'
79	GEORGE BAKER AVIATION IJT, INC.	17.3'
80	NEW SMYRNA BEACH SKATEPARK	18.1'

1. EXISTING BUILDING ELEVATIONS WERE OBTAINED FROM A COMBINATION OF THE APPROVED 2005 AIRPORT LAYOUT PLAN DRAWING AND QUANTUM SPATIAL SURVEY, FLOWN NOVEMBER 2015.
2. BUILDINGS TO BE REMOVED OR RELOCATED.

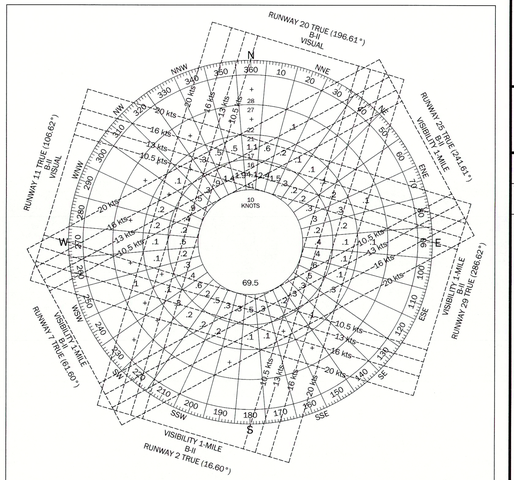
FUTURE BUILDING TABLE		
ID	DESCRIPTION	TOP EL.
A	62' x 65' HANGAR	30.0'
B	62' x 65' HANGAR	30.0'
C	62' x 65' HANGAR	30.0'
D	62' x 65' HANGAR	30.0'
E	33' x 42' HANGAR (3)	20.0'
F	33' x 42' HANGAR (3)	20.0'
G	100' x 100' HANGAR	35.0'
H	80' x 130' POTENTIAL ADMIN & MAINTENANCE FACILITY	35.0'
I	100' X 130' TERMINAL BUILDING	40.0'
J	100' x 120' HANGAR	40.0'
K	100' x 120' HANGAR	40.0'
L	100' x 120' HANGAR	40.0'
M	100' x 120' HANGAR	40.0'
N	52' x 368' T-HANGAR (13-UNIT)	20.0'
O	52' x 368' T-HANGAR (13-UNIT)	20.0'
P	52' x 368' T-HANGAR (13-UNIT)	20.0'
Q	52' x 368' T-HANGAR (13-UNIT)	20.0'
R	52' x 368' T-HANGAR (13-UNIT)	20.0'
S	52' x 368' T-HANGAR (13-UNIT)	20.0'
T	125' x 150' HANGAR	40.0'
U	125' x 150' HANGAR	40.0'
V	125' x 150' HANGAR	40.0'
W	125' x 150' HANGAR	40.0'
X	125' x 150' HANGAR	40.0'
Y	125' x 150' HANGAR	40.0'
Z	125' x 150' HANGAR	40.0'

1. FUTURE BUILDING ELEVATIONS WERE CALCULATED BASED UPON THEIR ASSUMED FUTURE HEIGHT ABOVE GROUND LEVEL.



WIND DATA SOURCE: NATIONAL CLIMATIC DATA CENTER STATION 722361 : NEW SMYRNA BEACH, FL 53,129 OBSERVATIONS PERIOD OF RECORD: (2006-2016)	WIND COVERAGE %			
CROSSWIND COMPONENT (KTS/MPH)	RUNWAY 2-20	RUNWAY 7-25	RUNWAY 11-29	COMBINED
10.5 / 12	88.20	88.58	88.67	99.46
13 / 15	93.78	94.18	93.56	99.88
16 / 18	98.68	98.57	98.11	99.98
20 / 23	99.72	99.69	99.57	100.00

ALL WEATHER WINDROSE



WIND DATA SOURCE: NATIONAL CLIMATIC DATA CENTER STATION 722361 : NEW SMYRNA BEACH, FL 2,874 OBSERVATIONS PERIOD OF RECORD: (2006-2016)	WIND COVERAGE %			
CROSSWIND COMPONENT (KTS/MPH)	RUNWAY 2-20	RUNWAY 7-25	RUNWAY 11-29	COMBINED
10.5 / 12	90.28	81.65	79.63	98.80
13 / 15	94.17	89.70	87.12	99.66
16 / 18	97.59	96.47	95.50	99.91
20 / 23	99.24	99.25	99.17	99.99

IFR WINDROSE

AIRPORT DATA		
DESCRIPTION	EXISTING	FUTURE
NPIAS SERVICE LEVEL (ASSET)	RELIEVER / REGIONAL	SAME
STATE EQUIVALENT SERVICE ROLE	GENERAL AVIATION	SAME
AIRPORT REFERENCE CODE (ARC)	B-II	SAME
AIRPORT CRITICAL AIRCRAFT	CESSNA CITATION 560XL	SAME
AIRPORT ELEVATION (AMSL) (NAVD88)	10.8'	SAME
MEAN MAX. TEMP. (HOTTEST MONTH)	89.5° (JULY)	SAME
AIRPORT REFERENCE POINT (NAD 83) LATITUDE	N 29° 03' 20.50"	N 29° 03' 20.50"
LONGITUDE	W 80° 56' 56.08"	W 80° 56' 57.15"
MAGNETIC DECLINATION (MAY 2017)	6° 40' 0" W ± 0° 20'	0° 5' W PER YEAR
AIRPORT NAVIGATIONAL AIDS	BEACON	SAME
MISCELLANEOUS FACILITIES	PAPI-4, SEGMENTED CIRCLE, LIGHTED WIND CONE, AWOS, MITL	PAPI-4, SEGMENTED CIRCLE, LIGHTED WIND CONE, AWOS, MITL

TAXIWAY / TAXILANE DATA TABLE (ADG-II / TDG-II)		
	EXISTING	FUTURE
TAXIWAY WIDTH	35'	SAME
TAXIWAY EDGE SAFETY MARGIN	7.5'	SAME
TAXIWAY SHOULDER WIDTH	15'	SAME
TAXIWAY SAFETY AREA WIDTH	79'	SAME
TAXIWAY OBJECT FREE AREA WIDTH	131'	SAME
TAXIWAY SEPARATION TO FIXED OR MOVABLE OBJECT	65.5'	SAME
TAXIWAY LIGHTING	MITL	SAME
TAXILANE WIDTH	35'	SAME
TAXILANE SAFETY AREA WIDTH	79'	SAME
TAXILANE OBJECT FREE AREA WIDTH	115'	SAME
TAXILANE SEPARATION TO FIXED OR MOVABLE OBJECT	57.5'	SAME

MODIFICATION TO FAA DESIGN STANDARDS			
FAA APPROVAL DATE	AIRSPACE CASE NUMBER	STANDARD TO BE MODIFIED	DESCRIPTION
		NONE	

EXISTING / FUTURE DECLARED DISTANCES TABLE												
	RUNWAY 2		RUNWAY 20		RUNWAY 7		RUNWAY 25		RUNWAY 11		RUNWAY 29	
DISTANCES	EXISTING	FUTURE	EXISTING	FUTURE	EXISTING	FUTURE	EXISTING	FUTURE	EXISTING	FUTURE	EXISTING	FUTURE
TORA	4,000'	4,000'	4,000'	4,000'	5,000'	5,000'	5,000'	5,000'	4,319'	5,233'	4,319'	4,484'
TODA	4,000'	4,000'	4,000'	4,000'	5,000'	5,000'	5,000'	5,000'	4,319'	5,398'	4,319'	5,398'
ASDA	4,000'	4,000'	4,000'	3,952.7'	5,000'	4,853.5'	5,000'	4,763.5'	4,319'	5,398'	4,319'	5,398'
LDA	3,215'	3,215'	4,000'	3,952.7'	4,665'	4,518.5'	4,700'	4,763.5'	4,319'	4,484'	4,319'	5,233'

RUNWAY DATA TABLE												
	RUNWAY 2-20				RUNWAY 7-25				RUNWAY 11-29			
	EXISTING		FUTURE		EXISTING		FUTURE		EXISTING		FUTURE	
RUNWAY LENGTH	4,000'		SAME		5,000'		SAME		4,319'		5,398'	
RUNWAY WIDTH	75'		SAME		75'		SAME		75'		SAME	
RUNWAY WIND COVERAGE % (ALL WEATHER):												
10.5KTS / 12MPH	88.20		SAME		88.58		SAME		88.67		SAME	
13KTS / 15MPH	93.78		SAME		94.18		SAME		93.56		SAME	
16KTS / 18MPH	98.68		SAME		98.57		SAME		98.11		SAME	
20KTS / 23MPH	99.72		SAME		99.69		SAME		99.57		SAME	
RUNWAY DESIGN CODE (RDC)	B-II		SAME		B-II		SAME		B-II		SAME	
APPROACH REFERENCE CODE (APRC)	D / VI / 5000		SAME		D / VI / 5000		SAME		D / VI / 5000		SAME	
DEPARTURE REFERENCE CODE (DPRC)	D / VI		SAME		D / VI		SAME		D / VI		SAME	
CRITICAL AIRCRAFT	CESSNA CITATION 560XL		SAME		CESSNA CITATION 560XL		SAME		CESSNA CITATION 560XL		SAME	
EFFECTIVE GRADIENT (%)	0.018% / -0.018% (SEE NOTE 2)		SAME		0.046% / -0.046% (SEE NOTE 2)		SAME		0.060% / -0.060% (SEE NOTE 2)		0.048% / -0.048%	
RSA DIMENSIONS (RUNWAY END) (ACTUAL / STANDARD)	2 [(252.7' x 150') / (300' x 150')]	20 [(300' x 150') / (300' x 150')]	PUBLISH DECLARED DISTANCES		7 [(63.5' x 150') / (300' x 150')]	25 [(153.5' x 150') / (300' x 150')]	PUBLISH DECLARED DISTANCES		11 [(300' x 150') / (300' x 150')]	29 [(300' x 150') / (300' x 150')]	PUBLISH DECLARED DISTANCES	
ROFA DIMENSIONS (RUNWAY END) (ACTUAL / STANDARD)	2 [(252.7' x 500') / (300' x 500')]	20 [(300' x 500') / (300' x 500')]	PUBLISH DECLARED DISTANCES		7 [(63.5' x 500') / (300' x 500')]	25 [(153.5' x 500') / (300' x 500')]	PUBLISH DECLARED DISTANCES		11 [(300' x 500') / (300' x 500')]	29 [(300' x 500') / (300' x 500')]	PUBLISH DECLARED DISTANCES	
RUNWAY OFZ DIMENSIONS (RUNWAY END)	2 [(200' X 400' / 200' X 400')] / 20 [(200' X 400' / 200' X 400')]		SAME		7 [(90.5' x 400') / [(200' x 400')] 25 [(153.5' x 400') / (200' x 400')]		PUBLISH DECLARED DISTANCES		11 [(200' x 400') / (200' x 400')] 29 [(200' x 400') / (200' x 400')]		PUBLISH DECLARED DISTANCES	
INNER APPROACH OFZ	N/A		SAME		N/A		SAME		N/A		SAME	
INNER TRANSITIONAL OFZ	N/A		SAME		N/A		SAME		N/A		SAME	
PRECISION OFZ	N/A		SAME		N/A		SAME		N/A		SAME	
RUNWAY LIGHTING	NONE		MIRL		MIRL		SAME		MIRL		SAME	
PAVEMENT STRENGTH:												
SINGLE WHEEL GEAR (LBS)	55,000		SAME		55,000		SAME		55,000		SAME	
DUAL WHEEL GEAR (LBS)	N/A		SAME		N/A		SAME		N/A		SAME	
DUAL TANDEM WHEEL GEAR (LBS)	N/A		SAME		N/A		SAME		N/A		SAME	
PCN	UNKNOWN		TBD		UNKNOWN		TBD		UNKNOWN		TBD	
SURFACE COMPOSITION	ASPHALT		SAME		ASPHALT		SAME		ASPHALT		SAME	
SURFACE TREATMENT	NONE		SAME		NONE		SAME		NONE		SAME	
FAR PART 77 PRIMARY SURFACE (WIDTH)	500'		SAME		500'		SAME		500'		SAME	
	RUNWAY 2		RUNWAY 20		RUNWAY 7		RUNWAY 25		RUNWAY 11		RUNWAY 29	
	EXISTING	FUTURE	EXISTING	FUTURE	EXISTING	FUTURE	EXISTING	FUTURE	EXISTING	FUTURE	EXISTING	FUTURE
FAR PART 77 APPROACH TYPE	NPI	SAME	VISUAL	SAME	NPI	SAME	NPI	SAME	VISUAL	SAME	NPI	SAME
FAR PART 77 APPROACH SURFACE SLOPE	34:1	SAME	20:1	SAME	34:1	SAME	34:1	SAME	20:1	SAME	34:1	SAME
THRESHOLD SITING SURFACE (TSS) SLOPE	20:1 (TYPE 4)	SAME	20:1 (TYPE 3)	SAME	20:1 (TYPE 4)	SAME	20:1 (TYPE 4)	SAME	20:1 (TYPE 3)	SAME	20:1 (TYPE 4)	SAME
RUNWAY DEPARTURE SURFACE	YES	SAME	YES	SAME	YES	SAME	YES	SAME	YES	SAME	YES	SAME
VISIBILITY MINIMUMS	1-1/4 MILE	SAME	VISUAL	SAME	1-MILE	SAME	1-MILE	SAME	VISUAL	SAME	1-MILE	SAME
TYPE OF AERONAUTICAL SURVEY REQUIRED	COMBINATION	SAME	NON-VERTICALLY GUIDED	SAME	NON-VERTICALLY GUIDED	SAME	COMBINATION	SAME	NON-VERTICALLY GUIDED	SAME	COMBINATION	SAME
LATITUDE (NAD 83)	N 29° 02' 56.2900"	SAME	N 29° 03' 34.2365"	SAME	N 29° 03' 17.5585"	SAME	N 29° 03' 41.0995"	SAME	N 29° 03' 21.2573"	N 29° 03' 23.8442"	N 29° 03' 09.0293"	N 29° 03' 08.5621"
LONGITUDE (NAD 83)	W 80° 56' 59.0281"	SAME	W 80° 56' 46.1364"	SAME	W 80° 57' 28.7939"	SAME	W 80° 56' 39.2327"	SAME	W 80° 57' 13.4616"	W 80° 57' 23.3307"	W 80° 56' 26.8267"	W 80° 56' 25.0452"
RUNWAY END ELEVATION (NAVD 88)	8.1'	SAME	8.8'	SAME	7.5'	SAME	9.8'	SAME	7.8'	SAME	10.4'	SAME
TOUCHDOWN ZONE EL. (NAVD 88)	8.8'	SAME	8.8'	SAME	8.3'	SAME	10.1'	SAME	10.5'	8.9'	10.8'	SAME
RUNWAY MARKINGS	BASIC	NON-PRECISON	BASIC	SAME	BASIC	NON-PRECISON	BASIC	NON-PRECISON	NON-PRECISION	SAME	NON-PRECISION	SAME
VISUAL AND INSTRUMENT NAVAIDS	NONE	PAPI-4, REIL	VISUAL	VISUAL, PAPI-4	PAPI-4	PAPI-4, REIL	PAPI-4	PAPI-4, REIL	VISUAL, PAPI-4	SAME	PAPI-4	PAPI-4, REIL
RUNWAY PROTECTION ZONE:												
LENGTH	1,000'	SAME	1,000'	SAME	1,000'	SAME	1,000'	SAME	1,000'	SAME	1,000'	SAME
INNER WIDTH	500'	SAME	500'	SAME	500'	SAME	500'	SAME	500'	SAME	500'	SAME
OUTER WIDTH	700'	SAME	700'	SAME	700'	SAME	700'	SAME	700'	SAME	700'	SAME
ACRES	13.770	SAME	13.770	SAME	13.770	SAME	13.770	SAME	13.770	SAME	13.770	SAME
DISPLACED THRESHOLD COORDINATES:												
LATITUDE (NAD 83)	N 29° 03' 03.7308"	SAME	N/A	SAME	N 29° 03' 19.1375"	SAME	N 29° 03' 39.6880"	SAME	N/A	N 29° 03' 21.2573"	N/A	N 29° 03' 09.0293"
LONGITUDE (NAD 83)	W 80° 56' 56.4899"	SAME	N/A	SAME	W 80° 57' 25.4699"	SAME	W 80° 56' 42.2060"	SAME	N/A	W 80° 57' 13.4616"	N/A	W 80° 56' 26.8267"
DISPLACED THRESHOLD ELEVATION	8.3'	SAME	N/A	SAME	7.5'	SAME	9.9'	SAME	N/A	7.8'	N/A	10.4'
DISPLACED THRESHOLD DISTANCE	785'	SAME	N/A	SAME	335'	SAME	300'	SAME	N/A	914'	N/A	165'

NEW SMYRNA BEACH MUNICIPAL AIRPORT
NEW SMYRNA BEACH, FLORIDA

Michael Baker INTERNATIONAL

DESIGNER:	CHECKED BY:
APN	MJK
TECHNICIAN:	PROJECT NUMBER:
APN	146328

GENERAL NOTES:

1. EXISTING ELEVATIONS, AND COORDINATES WERE OBTAINED FROM A SURVEY, FLOWN NOVEMBER 2015.
2. RUNWAY MEETS LINE OF SIGHT REQUIREMENTS.

FAA DISCLAIMER

THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICIES OF THE FAA. THE ACCEPTANCE OF THIS PLAN BY THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED HEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH PUBLIC LAWS.

CONSTRUCTION NOTICE REQUIREMENT

TO PROTECT OPERATIONAL SAFETY AND ULTIMATE DEVELOPMENT, ALL PROPOSED CONSTRUCTION ON THE AIRPORT MUST BE COORDINATED BY THE AIRPORT OWNER WITH THE FAA AIRPORTS DISTRICT OFFICE PRIOR TO CONSTRUCTION. FAA'S REVIEW TAKES APPROXIMATELY 60 DAYS.

REVISIONS

NO.	DESCRIPTION	DATE	BY

PROJECT NAME:

AIRPORT MASTER PLAN UPDATE

DRAWING NAME:

AIRPORT DATA SHEET

FAA AIP # / STATE GRANT #

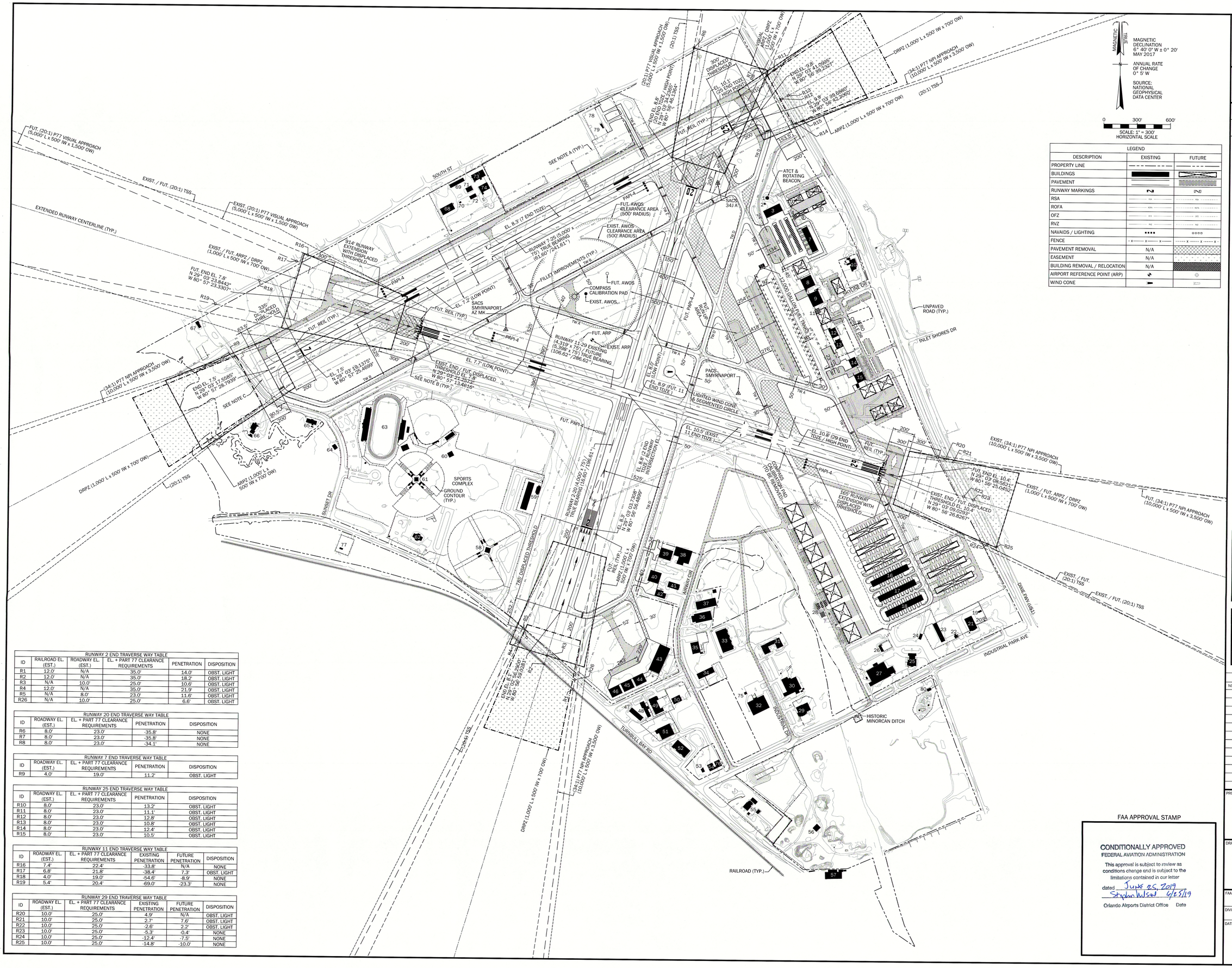
3-12-0054-018-2014 / 418297-1-94-01

DIVISION: PLANNING

DATE: JANUARY 2019

DRAWING NUMBER: 2

I:\Planning\EVB - New Smyrna Beach Municipal Airport\Master Plan Update\Drawings\ALP Set\02_Airport Data Sheet.dwg Modified: Jan 28, 2019 - 10:53am Plotted: Jan 28, 2019 - 10:54am apowell/newych



LEGEND		
DESCRIPTION	EXISTING	FUTURE
PROPERTY LINE		
BUILDINGS		
PAVEMENT		
RUNWAY MARKINGS		
RSA		
ROFA		
OFZ		
RVZ		
NAVAIDS / LIGHTING		
FENCE		
PAVEMENT REMOVAL	N/A	
EASEMENT	N/A	
BUILDING REMOVAL / RELOCATION	N/A	
AIRPORT REFERENCE POINT (ARP)		
WIND CONE		

RUNWAY 2 END TRAVERSE WAY TABLE					
ID	RAILROAD EL. (EST.)	ROADWAY EL. (EST.)	EL. + PART 77 CLEARANCE REQUIREMENTS	PENETRATION	DISPOSITION
R1	12.0'	N/A	35.0'	14.0'	OBST. LIGHT
R2	12.0'	N/A	35.0'	18.2'	OBST. LIGHT
R3	N/A	10.0'	25.0'	10.6'	OBST. LIGHT
R4	12.0'	N/A	35.0'	21.9'	OBST. LIGHT
R5	N/A	8.0'	23.0'	11.6'	OBST. LIGHT
R26	N/A	10.0'	25.0'	6.6'	OBST. LIGHT

RUNWAY 20 END TRAVERSE WAY TABLE				
ID	ROADWAY EL. (EST.)	EL. + PART 77 CLEARANCE REQUIREMENTS	PENETRATION	DISPOSITION
R6	8.0'	23.0'	-35.8'	NONE
R7	8.0'	23.0'	-35.8'	NONE
R8	8.0'	23.0'	-34.1'	NONE

RUNWAY 7 END TRAVERSE WAY TABLE				
ID	ROADWAY EL. (EST.)	EL. + PART 77 CLEARANCE REQUIREMENTS	PENETRATION	DISPOSITION
R9	4.0'	19.0'	11.2'	OBST. LIGHT

RUNWAY 25 END TRAVERSE WAY TABLE				
ID	ROADWAY EL. (EST.)	EL. + PART 77 CLEARANCE REQUIREMENTS	PENETRATION	DISPOSITION
R10	8.0'	23.0'	13.2'	OBST. LIGHT
R11	8.0'	23.0'	11.1'	OBST. LIGHT
R12	8.0'	23.0'	12.8'	OBST. LIGHT
R13	8.0'	23.0'	10.8'	OBST. LIGHT
R14	8.0'	23.0'	12.4'	OBST. LIGHT
R15	8.0'	23.0'	10.5'	OBST. LIGHT

RUNWAY 11 END TRAVERSE WAY TABLE					
ID	ROADWAY EL. (EST.)	EL. + PART 77 CLEARANCE REQUIREMENTS	EXISTING PENETRATION	FUTURE PENETRATION	DISPOSITION
R16	7.4'	22.4'	-33.8'	N/A	NONE
R17	6.8'	21.8'	-38.4'	7.3'	OBST. LIGHT
R18	4.0'	19.0'	-54.6'	-8.9'	NONE
R19	5.4'	20.4'	-69.0'	-23.3'	NONE

RUNWAY 29 END TRAVERSE WAY TABLE					
ID	ROADWAY EL. (EST.)	EL. + PART 77 CLEARANCE REQUIREMENTS	EXISTING PENETRATION	FUTURE PENETRATION	DISPOSITION
R20	10.0'	25.0'	4.9'	N/A	OBST. LIGHT
R21	10.0'	25.0'	2.7'	7.6'	OBST. LIGHT
R22	10.0'	25.0'	-2.6'	2.2'	OBST. LIGHT
R23	10.0'	25.0'	-5.3'	-0.4'	NONE
R24	10.0'	25.0'	-12.4'	-7.5'	NONE
R25	10.0'	25.0'	-14.8'	-10.0'	NONE

FAA APPROVAL STAMP

CONDITIONALLY APPROVED
FEDERAL AVIATION ADMINISTRATION

This approval is subject to review as conditions change and is subject to the limitations contained in our letter

dated June 25, 2019

Orlando Airports District Office Date

NEW SMYRNA BEACH MUNICIPAL AIRPORT
NEW SMYRNA BEACH, FLORIDA

Michael Baker INTERNATIONAL

DESIGNER:	CHECKED BY:
APN	MJK
TECHNICIAN:	PROJECT NUMBER:
APN	146328

GENERAL NOTES:

1. EXISTING BASE MAPPING AND ELEVATIONS WERE OBTAINED FROM A SURVEY, FLOWN NOVEMBER 2015.

PLAN REFERENCED NOTES:

A. THE BUILDING RESTRICTION LINE (BRL) IS BASED ON 20' ABOVE THE NEAREST RUNWAY ELEVATION OR THE MOST CRITICAL SURFACE IN THE VICINITY.

B. EXISTING HOLDING POSITION MARKINGS ARE LOCATED 200' OR MORE FROM RUNWAY CENTERLINE. FUTURE HOLDING POSITION MARKINGS ARE LOCATED 200' FROM RUNWAY CENTERLINE.

C. ASSUMING THAT OFZS BEGIN AT THE RUNWAY THRESHOLDS, THERE ARE NO OFZ PENETRATIONS AT EVB.

FAA DISCLAIMER

THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICIES OF THE FAA. THE ACCEPTANCE OF THIS PLAN BY THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED HEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH PUBLIC LAWS.

CONSTRUCTION NOTICE REQUIREMENT

TO PROTECT OPERATIONAL SAFETY AND ULTIMATE DEVELOPMENT, ALL PROPOSED CONSTRUCTION ON THE AIRPORT MUST BE COORDINATED BY THE AIRPORT OWNER WITH THE FAA AIRPORTS DISTRICT OFFICE PRIOR TO CONSTRUCTION. FAA'S REVIEW TAKES APPROXIMATELY 60 DAYS.

REVISIONS

NO.	DESCRIPTION	DATE	BY

PROJECT NAME:

AIRPORT MASTER PLAN UPDATE

DRAWING NAME:

AIRPORT LAYOUT PLAN DRAWING

FAA AIP # / STATE GRANT #

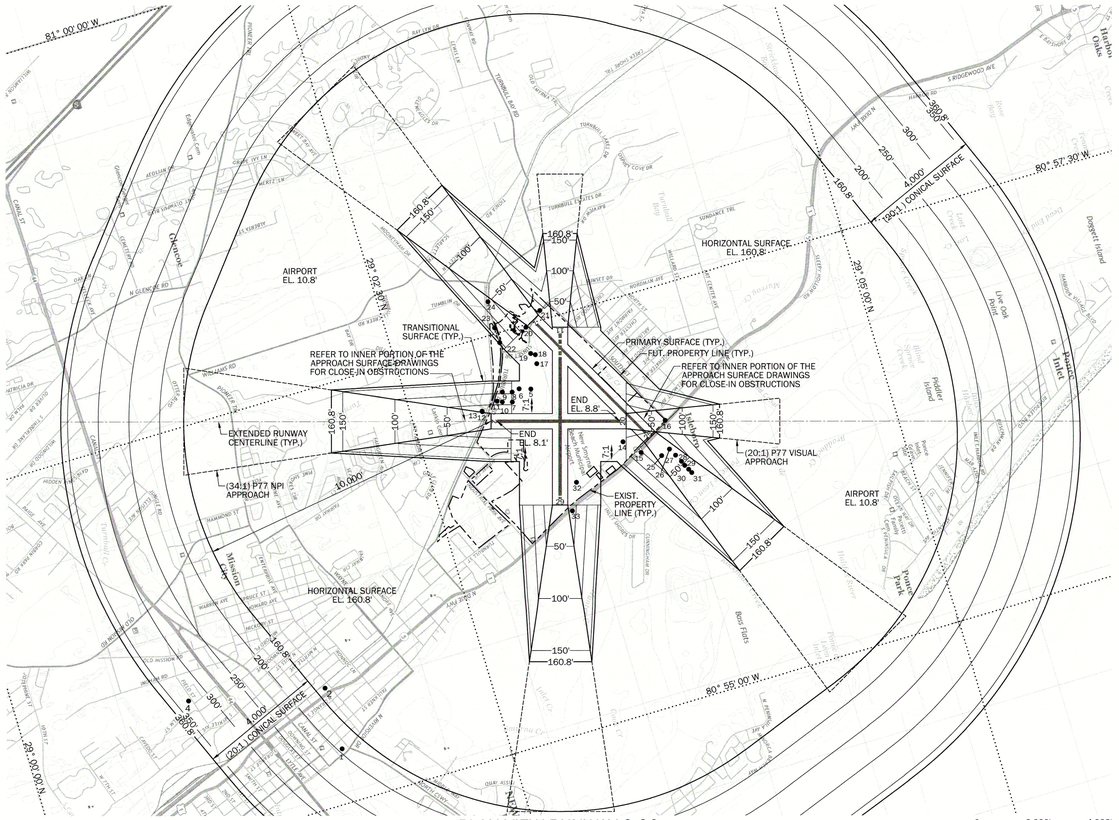
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DIVISION: PLANNING

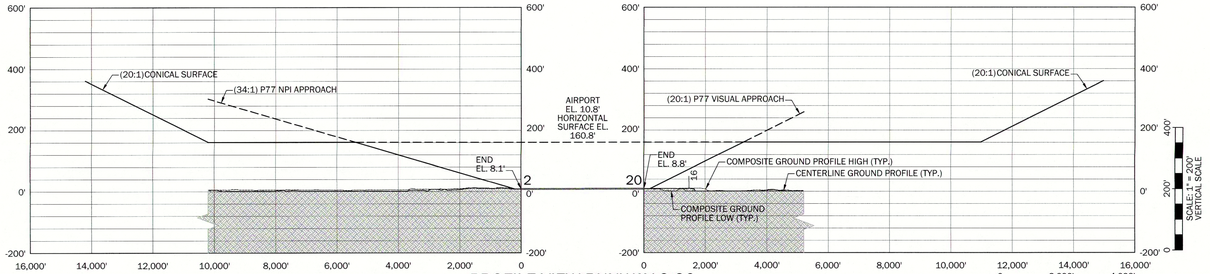
DATE: JANUARY 2019

DRAWING NUMBER: 3

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PLAN VIEW RUNWAY 2-20

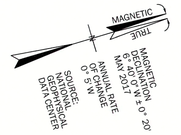


PROFILE VIEW RUNWAY 2-20

DIGITAL OBSTACLE FILE (DOF) OBSTRUCTION DATA TABLE

ID	CITY	TYPE	GROUND SURFACE EL	AGL	AMSL	SURFACE	PENETRATION	LIGHTING	MARKING	FAA STUDY #	ON_JDATE	DISPOSITION
1	NEW SMYRNA BCH	TANK	5.0'	190.0'	195.0'	CONICAL	0.9'	RED	NONE		2014152	NONE
2	NEW SMYRNA BCH	TOWER	9.0'	195.0'	204.0'	HORIZONTAL	43.2'	MEDIUM INTENSITY WHITE STROBE & RED	UNKNOWN	2003AS0024020E	2004116	NONE
3	PORT ORANGE	TOWER	31.0'	248.0'	279.0'	CONICAL	-54.1'	MEDIUM INTENSITY WHITE STROBE & RED	UNKNOWN	2003AS0043770E	2004081	NONE
4	NEW SMYRNA BCH	TOWER	9.0'	190.0'	199.0'	CONICAL	-132.3'	MEDIUM INTENSITY WHITE STROBE & RED	UNKNOWN	2003AS0031740E	2003285	NONE
5	NEW SMYRNA BEACH	POLE	8.0'	81.0'	89.0'	TRANSITIONAL	-33.5'	UNKNOWN	UNKNOWN		2012089	NONE
6	NEW SMYRNA BEACH	POLE	9.0'	80.0'	89.0'	TRANSITIONAL	-34.3'	UNKNOWN	UNKNOWN		2012089	NONE
7	NEW SMYRNA BEACH	POLE	9.0'	70.0'	79.0'	TRANSITIONAL	16.8'	RED	UNKNOWN		2012089	NONE
8	NEW SMYRNA BEACH	POLE	9.0'	81.0'	90.0'	TRANSITIONAL	-18.3'	UNKNOWN	UNKNOWN		2012089	NONE
9	NEW SMYRNA BEACH	POLE	9.0'	81.0'	90.0'	TRANSITIONAL	-17.8'	UNKNOWN	UNKNOWN		2012089	NONE
10	NEW SMYRNA BEACH	POLE	9.0'	70.0'	79.0'	TRANSITIONAL	17.1'	RED	UNKNOWN		2012089	NONE
11	NEW SMYRNA BEACH	POLE	7.0'	71.0'	78.0'	TRANSITIONAL	12.1'	UNKNOWN	UNKNOWN		2012089	OBST. LIGHT
12	NEW SMYRNA BEACH	POLE	8.0'	24.0'	32.0'	TRANSITIONAL	13.5'	UNKNOWN	UNKNOWN		2012089	OBST. LIGHT
13	NEW SMYRNA BEACH	POLE	9.0'	33.0'	42.0'	TRANSITIONAL	20.2'	UNKNOWN	UNKNOWN		2012089	OBST. LIGHT
14	NEW SMYRNA BEACH	CTRL TWR	13.0'	80.0'	93.0'	TRANSITIONAL	23.3'	RED	UNKNOWN		2012089	NONE
15	NEW SMYRNA BEACH	T-L TWR	6.0'	45.0'	51.0'	TRANSITIONAL	-3.3'	UNKNOWN	UNKNOWN		2012089	NONE
16	NEW SMYRNA BEACH	POLE	10.0'	39.0'	49.0'	APPROACH	-23.3'	UNKNOWN	UNKNOWN		2012089	NONE
17	NEW SMYRNA BEACH	POLE	8.0'	82.0'	90.0'	TRANSITIONAL	-11.5'	RED	UNKNOWN		2012089	NONE
18	NEW SMYRNA BEACH	POLE	8.0'	82.0'	90.0'	TRANSITIONAL	13.7'	RED	UNKNOWN		2012089	NONE
19	NEW SMYRNA BEACH	POLE	7.0'	82.0'	89.0'	TRANSITIONAL	0.8'	RED	UNKNOWN		2012089	NONE
20	NEW SMYRNA BEACH	POLE	3.0'	34.0'	37.0'	TRANSITIONAL	20.0'	UNKNOWN	UNKNOWN		2012089	OBST. LIGHT
21	NEW SMYRNA BEACH	POLE	4.0'	40.0'	44.0'	TRANSITIONAL	15.9'	UNKNOWN	UNKNOWN		2012089	OBST. LIGHT
22	NEW SMYRNA BEACH	T-L TWR	2.0'	72.0'	74.0'	TRANSITIONAL	-81.6'	UNKNOWN	UNKNOWN		2012089	NONE
23	NEW SMYRNA BEACH	T-L TWR	1.0'	71.0'	72.0'	TRANSITIONAL	-55.8'	UNKNOWN	UNKNOWN		2012089	NONE
24	NEW SMYRNA BEACH	POLE	4.0'	62.0'	66.0'	TRANSITIONAL	-3.1'	UNKNOWN	UNKNOWN		2012089	NONE
25	NEW SMYRNA BEACH	T-L TWR	2.0'	56.0'	58.0'	APPROACH	27.9'	UNKNOWN	UNKNOWN		2012089	OBST. LIGHT
26	NEW SMYRNA BEACH	T-L TWR	3.0'	45.0'	48.0'	APPROACH	17.2'	UNKNOWN	UNKNOWN		2012089	OBST. LIGHT
27	NEW SMYRNA BEACH	T-L TWR	2.0'	55.0'	57.0'	APPROACH	17.8'	UNKNOWN	UNKNOWN		2012089	OBST. LIGHT
28	NEW SMYRNA BEACH	T-L TWR	2.0'	58.0'	60.0'	APPROACH	12.6'	UNKNOWN	UNKNOWN		2012089	OBST. LIGHT
29	NEW SMYRNA BEACH	T-L TWR	2.0'	56.0'	58.0'	APPROACH	5.5'	UNKNOWN	UNKNOWN		2012089	OBST. LIGHT
30	NEW SMYRNA BEACH	T-L TWR	7.0'	54.0'	61.0'	APPROACH	3.2'	UNKNOWN	UNKNOWN		2012089	OBST. LIGHT
31	NEW SMYRNA BEACH	POLE	7.0'	53.0'	60.0'	APPROACH	1.9'	UNKNOWN	UNKNOWN		2012089	OBST. LIGHT
32	NEW SMYRNA BEACH	NAVAID	9.0'	49.0'	58.0'	TRANSITIONAL	7.2'	UNKNOWN	UNKNOWN		2012089	NONE
33	NEW SMYRNA BEACH	POLE	10.0'	40.0'	50.0'	TRANSITIONAL	16.1'	UNKNOWN	UNKNOWN		2012089	OBST. LIGHT
34	NEW SMYRNA BEACH	T-L TWR	10.0'	180.0'	190.0'	CONICAL	-131.5'	NONE	NONE	2012AS0086370E	2013331	NONE

1. OBSTRUCTION DATA SOURCE: FAA DIGITAL OBSTACLE FILE (DOF), 7/19/2015.
2. OBSTRUCTIONS NUMBER 3 AND 34 NOT WITHIN VIEWPORT SHOWN.



NEW SMYRNA BEACH
MUNICIPAL AIRPORT
NEW SMYRNA BEACH, FLORIDA

Michael Baker
INTERNATIONAL

DESIGNER:	CHECKED BY:
APN	MJK
TECHNICIAN: APN	PROJECT NUMBER: 146328

GENERAL NOTES:

1. EXISTING ELEVATIONS WERE OBTAINED FROM A SURVEY FLOWN NOVEMBER 2015.
2. FEDERAL AVIATION REGULATIONS (FAR) PART 77 SPECIFIES CLEARANCE REQUIREMENTS FOR ROADS, RAILROADS, AND WATERWAYS AS FOLLOWS: A) 17 FEET FOR AN INTERSTATE HIGHWAY, B) 15 FEET FOR ANY OTHER PUBLIC ROADWAY, C) 10 FEET OR THE HEIGHT OF THE HIGHEST MOBILE OBJECT THAT WOULD NORMALLY TRAVERSE THE ROAD, WHICHEVER IS GREATER, FOR A PRIVATE ROAD, D) 23 FEET FOR A RAILROAD, AND E) FOR A WATERWAY OR ANY OTHER TRAVERSE WAY NOT PREVIOUSLY MENTIONED, AN AMOUNT EQUAL TO THE HEIGHT OF THE HIGHEST MOBILE OBJECT THAT WOULD NORMALLY TRAVERSE IT.
3. CHAPTER 22 OF THE CITY OF NEW SMYRNA BEACH CODE OF ORDINANCES (SECTIONS 22-92 AND 22-93) ESTABLISHES FOUR "AIRPORT OVERLAY ZONES OF INFLUENCE" SURROUNDING EVB AND ALSO DESCRIBES NOTIFICATION REQUIREMENTS, THE ZONES ADDRESS HEIGHT RESTRICTIONS, RPZ COMPATIBILITY, AND NOISE EXPOSURE.

REVISIONS

NO.	DESCRIPTION	DATE	BY

PROJECT NAME:
AIRPORT
MASTER PLAN UPDATE

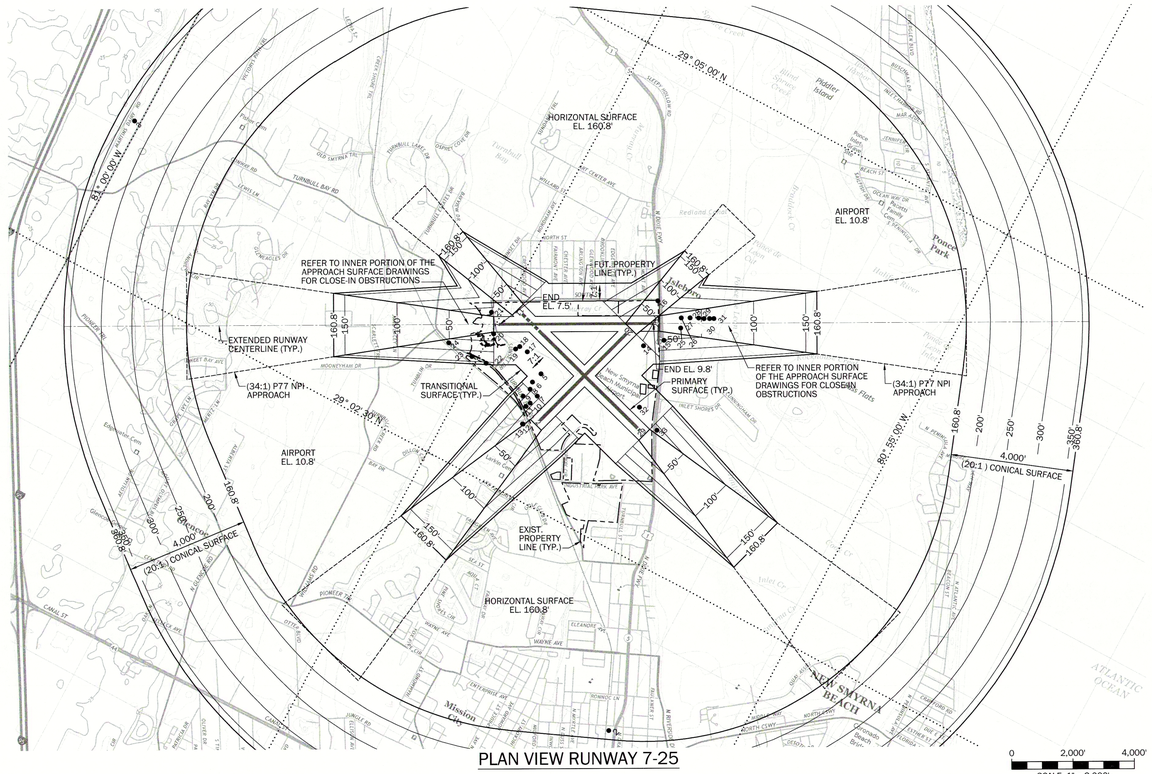
DRAWING NAME:
AIRPORT AIRSPACE
DRAWING - RUNWAY
2-20 (1 OF 3)

FAA AIP # / STATE GRANT #
3-12-0054-018-2014 / 418297-1-94-01

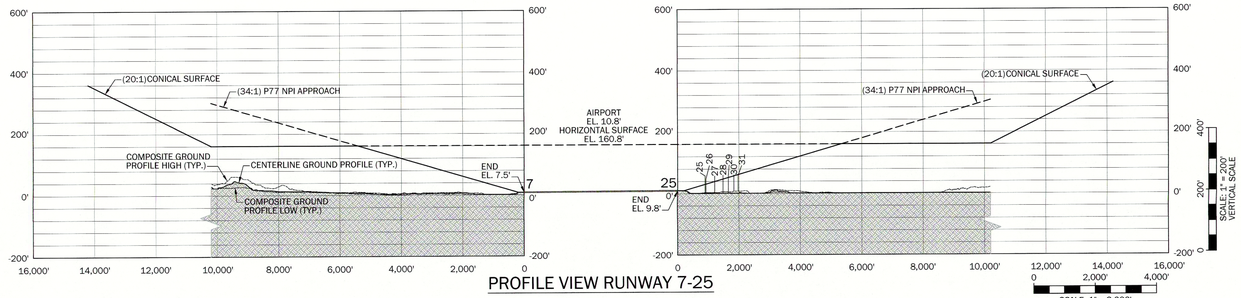
DIVISION: PLANNING

DATE:	DRAWING NUMBER:
JANUARY 2019	4

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PLAN VIEW RUNWAY 7-25

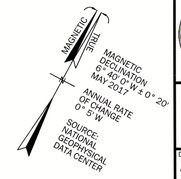


PROFILE VIEW RUNWAY 7-25

DIGITAL OBSTACLE FILE (DOF) OBSTRUCTION DATA TABLE

ID	CITY	TYPE	GROUND SURFACE EL	AGL	AMSL	SURFACE	PENETRATION	LIGHTING	MARKING	FAA STUDY #	ON_JDATE	DISPOSITION
1	NEW SMYRNA BCH	TANK	5.0'	190.0'	195.0'	CONICAL	0.9'	RED	NONE		2014152	NONE
2	NEW SMYRNA BCH	TOWER	9.0'	195.0'	204.0'	HORIZONTAL	43.2'	MEDIUM INTENSITY WHITE STROBE & RED	UNKNOWN	2003ASO02402OE	2004116	NONE
3	PORT ORANGE	TOWER	31.0'	248.0'	279.0'	CONICAL	-54.1'	MEDIUM INTENSITY WHITE STROBE & RED	UNKNOWN	2003ASO04377OE	2004081	NONE
4	NEW SMYRNA BCH	TOWER	9.0'	190.0'	199.0'	CONICAL	-132.3'	MEDIUM INTENSITY WHITE STROBE & RED	UNKNOWN	2003ASO03174OE	2003285	NONE
5	NEW SMYRNA BEACH	POLE	8.0'	81.0'	89.0'	TRANSITIONAL	-33.5'	UNKNOWN	UNKNOWN		2012089	NONE
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34	NEW SMYRNA BEACH	T-L TWR	10.0'	180.0'	190.0'	CONICAL	-131.5'	NONE	NONE	2012AS008637OE	2013331	NONE

1. OBSTRUCTION DATA SOURCE: FAA DIGITAL OBSTACLE FILE (DOF), 7/19/2015.
2. OBSTRUCTION NUMBERS 1-4 AND 34 ARE NOT WITHIN VIEWPORT SHOWN.



NEW SMYRNA BEACH MUNICIPAL AIRPORT
NEW SMYRNA BEACH, FLORIDA

Michael Baker
INTERNATIONAL

DESIGNER:	CHECKED BY:
APN	MJK
TECHNICIAN: APN	PROJECT NUMBER: 146328

GENERAL NOTES:

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REVISIONS

NO.	DESCRIPTION	DATE	BY

PROJECT NAME:
AIRPORT
MASTER PLAN UPDATE

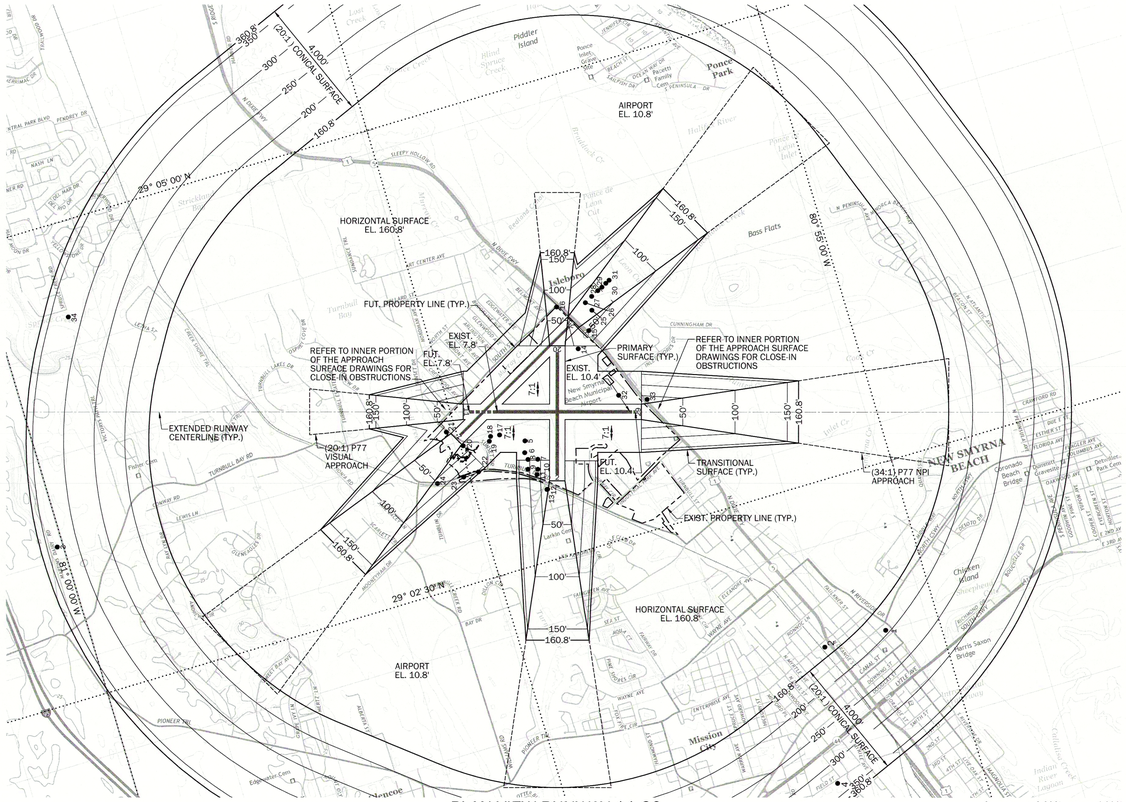
DRAWING NAME:
AIRPORT AIRSPACE
DRAWING - RUNWAY
7-25 (2 OF 3)

FAA AIP # / STATE GRANT #
3-12-0054-018-2014 / 418297-1-94-01

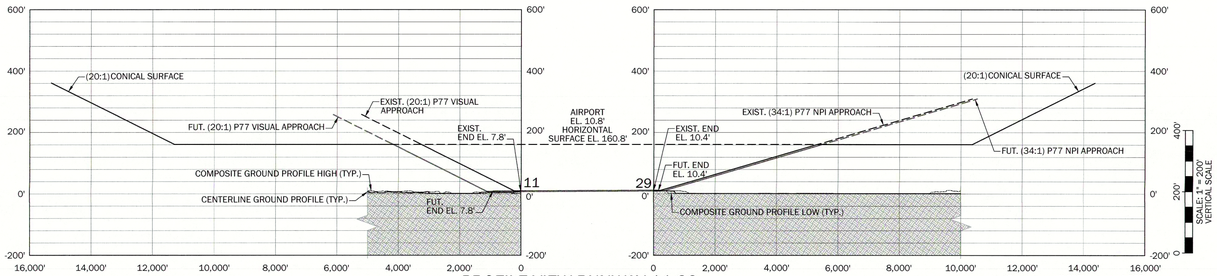
DIVISION: PLANNING

DATE:	DRAWING NUMBER:
JANUARY 2019	5

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PLAN VIEW RUNWAY 11-29

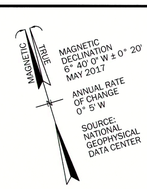


PROFILE VIEW RUNWAY 11-29

DIGITAL OBSTACLE FILE (DOF) OBSTRUCTION DATA TABLE

ID	CITY	TYPE	GROUND SURFACE EL	AGL	AMSL	SURFACE	PENETRATION	LIGHTING	MARKING	FAA STUDY #	ON_JDATE	DISPOSITION
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5	NEW SMYRNA BEACH	POLE	8.0'	81.0'	89.0'	TRANSITIONAL	-33.5'	UNKNOWN	UNKNOWN		2012089	NONE
6	NEW SMYRNA BEACH	POLE	9.0'	80.0'	89.0'	TRANSITIONAL	-34.3'	UNKNOWN	UNKNOWN		2012089	NONE
7	NEW SMYRNA BEACH	POLE	9.0'	70.0'	79.0'	TRANSITIONAL	16.8'	RED	UNKNOWN		2012089	NONE
8	NEW SMYRNA BEACH	POLE	9.0'	81.0'	90.0'	TRANSITIONAL	-18.3'	UNKNOWN	UNKNOWN		2012089	NONE
9	NEW SMYRNA BEACH	POLE	9.0'	81.0'	90.0'	TRANSITIONAL	-17.8'	UNKNOWN	UNKNOWN		2012089	NONE
10	NEW SMYRNA BEACH	POLE	9.0'	70.0'	79.0'	TRANSITIONAL	17.1'	RED	UNKNOWN		2012089	NONE
11	NEW SMYRNA BEACH	POLE	7.0'	71.0'	78.0'	TRANSITIONAL	12.1'	UNKNOWN	UNKNOWN		2012089	OBST. LIGHT
12	NEW SMYRNA BEACH	POLE	8.0'	24.0'	32.0'	TRANSITIONAL	13.5'	UNKNOWN	UNKNOWN		2012089	OBST. LIGHT
13	NEW SMYRNA BEACH	POLE	9.0'	33.0'	42.0'	TRANSITIONAL	20.2'	UNKNOWN	UNKNOWN		2012089	OBST. LIGHT
14	NEW SMYRNA BEACH	CTRL TWR	13.0'	80.0'	93.0'	TRANSITIONAL	23.3'	RED	UNKNOWN		2012089	NONE
15	NEW SMYRNA BEACH	T-L TWR	6.0'	45.0'	51.0'	TRANSITIONAL	-3.3'	UNKNOWN	UNKNOWN		2012089	NONE
16	NEW SMYRNA BEACH	POLE	10.0'	39.0'	49.0'	APPROACH	-23.3'	UNKNOWN	UNKNOWN		2012089	NONE
17	NEW SMYRNA BEACH	POLE	8.0'	82.0'	90.0'	TRANSITIONAL	-11.5'	RED	UNKNOWN		2012089	NONE
18	NEW SMYRNA BEACH	POLE	8.0'	82.0'	90.0'	TRANSITIONAL	13.7'	RED	UNKNOWN		2012089	NONE
19	NEW SMYRNA BEACH	POLE	7.0'	82.0'	89.0'	TRANSITIONAL	0.8'	RED	UNKNOWN		2012089	NONE
20	NEW SMYRNA BEACH	POLE	3.0'	34.0'	37.0'	TRANSITIONAL	20.0'	UNKNOWN	UNKNOWN		2012089	OBST. LIGHT
21	NEW SMYRNA BEACH	POLE	4.0'	40.0'	44.0'	TRANSITIONAL	15.9'	UNKNOWN	UNKNOWN		2012089	OBST. LIGHT
22	NEW SMYRNA BEACH	T-L TWR	2.0'	72.0'	74.0'	TRANSITIONAL	-81.6'	UNKNOWN	UNKNOWN		2012089	NONE
23	NEW SMYRNA BEACH	T-L TWR	1.0'	71.0'	72.0'	TRANSITIONAL	-55.8'	UNKNOWN	UNKNOWN		2012089	NONE
24	NEW SMYRNA BEACH	POLE	4.0'	62.0'	66.0'	TRANSITIONAL	-3.1'	UNKNOWN	UNKNOWN		2012089	NONE
25	NEW SMYRNA BEACH	T-L TWR	2.0'	56.0'	58.0'	APPROACH	27.9'	UNKNOWN	UNKNOWN		2012089	OBST. LIGHT
26	NEW SMYRNA BEACH	T-L TWR	3.0'	45.0'	48.0'	APPROACH	17.2'	UNKNOWN	UNKNOWN		2012089	OBST. LIGHT
27	NEW SMYRNA BEACH	T-L TWR	2.0'	55.0'	57.0'	APPROACH	17.8'	UNKNOWN	UNKNOWN		2012089	OBST. LIGHT
28	NEW SMYRNA BEACH	T-L TWR	2.0'	58.0'	60.0'	APPROACH	12.6'	UNKNOWN	UNKNOWN		2012089	OBST. LIGHT
29	NEW SMYRNA BEACH	T-L TWR	2.0'	56.0'	58.0'	APPROACH	5.5'	UNKNOWN	UNKNOWN		2012089	OBST. LIGHT
30	NEW SMYRNA BEACH	T-L TWR	7.0'	54.0'	61.0'	APPROACH	3.2'	UNKNOWN	UNKNOWN		2012089	OBST. LIGHT
31	NEW SMYRNA BEACH	POLE	7.0'	53.0'	60.0'	APPROACH	1.9'	UNKNOWN	UNKNOWN		2012089	OBST. LIGHT
32	NEW SMYRNA BEACH	NAVAID	9.0'	49.0'	58.0'	TRANSITIONAL	7.2'	UNKNOWN	UNKNOWN		2012089	NONE
33	NEW SMYRNA BEACH	POLE	10.0'	40.0'	50.0'	TRANSITIONAL	16.1'	UNKNOWN	UNKNOWN		2012089	OBST. LIGHT
34	NEW SMYRNA BEACH	T-L TWR	10.0'	180.0'	190.0'	CONICAL	-131.5'	NONE	NONE	2012AS008637OE	2013331	NONE

1. OBSTRUCTION DATA SOURCE: FAA DIGITAL OBSTACLE FILE (DOF), 7/19/2015.
2. OBSTRUCTION NUMBER 4 IS NOT WITHIN VIEWPORT SHOWN.



NEW SMYRNA BEACH MUNICIPAL AIRPORT
NEW SMYRNA BEACH, FLORIDA

Michael Baker
INTERNATIONAL

DESIGNER:	CHECKED BY:
APN	MJK
TECHNICIAN: APN	PROJECT NUMBER: 146328

GENERAL NOTES:

1. EXISTING ELEVATIONS WERE OBTAINED FROM A SURVEY FLOWN NOVEMBER 2015.
2. FEDERAL AVIATION REGULATIONS (FAR) PART 77 SPECIFIES CLEARANCE REQUIREMENTS FOR ROADS, RAILROADS, AND WATERWAYS AS FOLLOWS: A) 17 FEET FOR AN INTERSTATE HIGHWAY, B) 15 FEET FOR ANY OTHER PUBLIC ROADWAY, C) 10 FEET OR THE HEIGHT OF THE HIGHEST MOBILE OBJECT THAT WOULD NORMALLY TRAVERSE THE ROAD, WHICHEVER IS GREATER, FOR A PRIVATE ROAD, D) 23 FEET FOR A RAILROAD, AND E) FOR A WATERWAY OR ANY OTHER TRAVERSE WAY NOT PREVIOUSLY MENTIONED, AN AMOUNT EQUAL TO THE HEIGHT OF THE HIGHEST MOBILE OBJECT THAT WOULD NORMALLY TRAVERSE IT.
3. CHAPTER 22 OF THE CITY OF NEW SMYRNA BEACH CODE OF ORDINANCES (SECTIONS 22-92 AND 22-93) ESTABLISHES FOUR "AIRPORT OVERLAY ZONES OF INFLUENCE" SURROUNDING EVB AND ALSO DESCRIBES NOTIFICATION REQUIREMENTS. THE ZONES ADDRESS HEIGHT RESTRICTIONS, RPZ COMPATIBILITY, AND NOISE EXPOSURE.

REVISIONS

NO.	DESCRIPTION	DATE	BY

PROJECT NAME:
AIRPORT
MASTER PLAN UPDATE

DRAWING NAME:
AIRPORT AIRSPACE
DRAWING - RUNWAY
11-29 (3 OF 3)

FAA AIP # / STATE GRANT #
3-12-0054-018-2014 / 418297-1-94-01

DIVISION: PLANNING

DATE: JANUARY 2019

DRAWING NUMBER: 6

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LEGEND
- APPROACH OBSTRUCTION
- TSS OBSTRUCTION
- OBSTRUCTION WITHIN 5' OF SURFACE

MAGNETIC / TRUE

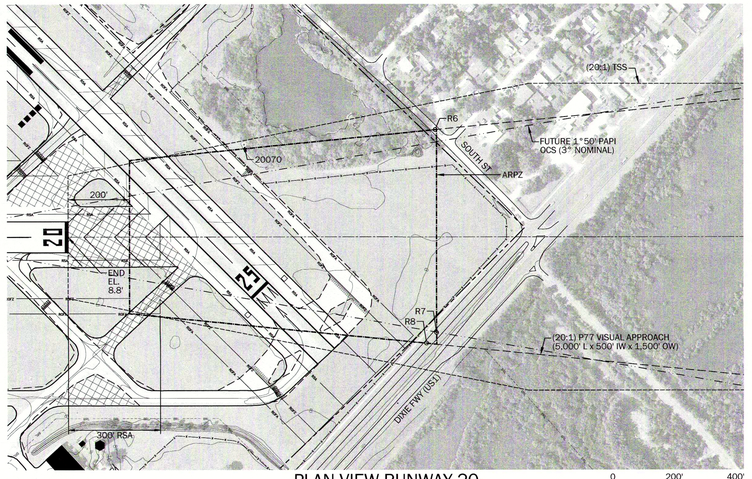
SOURCE: NATIONAL GEOPHYSICAL DATA CENTER

ANNUALIZE AT 5' W

MAGNETIC DECLINATION MAY 2017 = 6° W ± 0° 20'



PLAN VIEW RUNWAY 2



PLAN VIEW RUNWAY 20

PROFILE VIEW RUNWAY 2

PROFILE VIEW RUNWAY 20

RUNWAY 2 END TRAVERSE WAY TABLE

ID	RAILROAD EL. (EST.)	ROADWAY EL. (EST.)	EL. + PART 77 CLEARANCE REQUIREMENTS	PENETRATION	DISPOSITION
R1	12.0'	N/A	35.0'	14.0'	OBST. LIGHT
R2	12.0'	N/A	35.0'	18.2'	OBST. LIGHT
R3	N/A	10.0'	25.0'	10.6'	OBST. LIGHT
R4	12.0'	N/A	35.0'	21.9'	OBST. LIGHT
R5	N/A	8.0'	23.0'	11.6'	OBST. LIGHT
R26	N/A	10.0'	25.0'	6.6'	OBST. LIGHT

RUNWAY 2 (34:1) P77 NPI APPROACH OBSTRUCTION DATA TABLE

ID	DESCRIPTION	TRIGGERING EVENT	OBJECT TOP EL.	ALLOWABLE SURFACE EL.	PENETRATION	DISPOSITION
19190	TREE	EXISTING	61.2'	61.4'	-0.2'	MONITOR
21194	TREE	EXISTING	69.1'	30.0'	39.1'	TRIM / REMOVE
21666	TREE	EXISTING	83.8'	42.6'	41.2'	TRIM / REMOVE
21674	TREE	EXISTING	77.9'	37.4'	40.5'	TRIM / REMOVE
21682	TREE	EXISTING	79.7'	39.6'	40.1'	TRIM / REMOVE
37463	TREE	EXISTING	61.5'	19.5'	42.0'	TRIM / REMOVE
38757	TREE	EXISTING	32.4'	33.7'	-1.3'	MONITOR

RUNWAY 2 (20:1) TSS OBSTRUCTION DATA TABLE

ID	DESCRIPTION	TRIGGERING EVENT	OBJECT TOP EL.	ALLOWABLE SURFACE EL.	PENETRATION	DISPOSITION
18040	TREE	EXISTING	54.6'	41.3'	13.3'	TRIM / REMOVE
18048	TREE	EXISTING	53.6'	46.2'	7.4'	TRIM / REMOVE
21058	TREE	EXISTING	82.6'	65.1'	17.5'	TRIM / REMOVE

RUNWAY 20 END TRAVERSE WAY TABLE

ID	ROADWAY EL. (EST.)	EL. + PART 77 CLEARANCE REQUIREMENTS	PENETRATION	DISPOSITION
R6	8.0'	23.0'	-35.8'	NONE
R7	8.0'	23.0'	-35.8'	NONE
R8	8.0'	23.0'	-34.1'	NONE

RUNWAY 20 (20:1) P77 VISUAL APPROACH OBSTRUCTION DATA TABLE

ID	DESCRIPTION	TRIGGERING EVENT	OBJECT TOP EL.	ALLOWABLE SURFACE EL.	PENETRATION	DISPOSITION
				NONE		

RUNWAY 20 (20:1) TSS OBSTRUCTION DATA TABLE

ID	DESCRIPTION	TRIGGERING EVENT	OBJECT TOP EL.	ALLOWABLE SURFACE EL.	PENETRATION	DISPOSITION
20070	TREE	EXISTING	44.2'	37.4'	6.8'	TRIM / REMOVE

NEW SMYRNA BEACH MUNICIPAL AIRPORT
NEW SMYRNA BEACH, FLORIDA

Michael Baker INTERNATIONAL

DESIGNER:	CHECKED BY:
APN	MJK
TECHNICIAN: APN	PROJECT NUMBER: 146328

GENERAL NOTES:

1. EXISTING BASE MAPPING, ELEVATIONS, AND OBSTRUCTION DATA WERE OBTAINED FROM A SURVEY, FLOWN NOVEMBER 2015.
2. FEDERAL AVIATION REGULATIONS (FAR) PART 77 SPECIFIES CLEARANCE REQUIREMENTS FOR ROADS, RAILROADS, AND WATERWAYS AS FOLLOWS: A) 17 FEET FOR AN INTERSTATE HIGHWAY, B) 15 FEET FOR ANY OTHER PUBLIC ROADWAY, C) 10 FEET OR THE HEIGHT OF THE HIGHEST MOBILE OBJECT THAT WOULD NORMALLY TRAVERSE THE ROAD, WHICHEVER IS GREATER, FOR A PRIVATE ROAD, D) 23 FEET FOR A RAILROAD, AND E) FOR A WATERWAY OR ANY OTHER TRAVERSE WAY NOT PREVIOUSLY MENTIONED, AN AMOUNT EQUAL TO THE HEIGHT OF THE HIGHEST MOBILE OBJECT THAT WOULD NORMALLY TRAVERSE IT.

PLAN REFERENCED NOTES:

A. THE BUILDING RESTRICTION LINE (BRL) IS BASED ON 20' ABOVE THE NEAREST RUNWAY ELEVATION OR THE MOST CRITICAL SURFACE IN THE VICINITY.

B. THE BASE ELEVATIONS OF ALL OBJECTS ARE UNKNOWN. THEREFORE, OBJECTS WERE TRIMMED AT THE COMPOSITE PROFILE HIGH.

C. ONLY A SAMPLING OF OBSTRUCTIONS ARE SHOWN IN THE TABLES DUE TO DENSITY.

REVISIONS

NO.	DESCRIPTION	DATE	BY

PROJECT NAME:

AIRPORT MASTER PLAN UPDATE

DRAWING NAME:

INNER PORTION OF THE APPROACH SURFACE DRAWING - RUNWAY 2-20

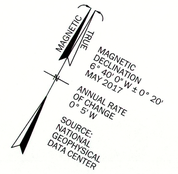
FAA AIP # / STATE GRANT #
3-12-0054-018-2014 / 418297-1-94-01

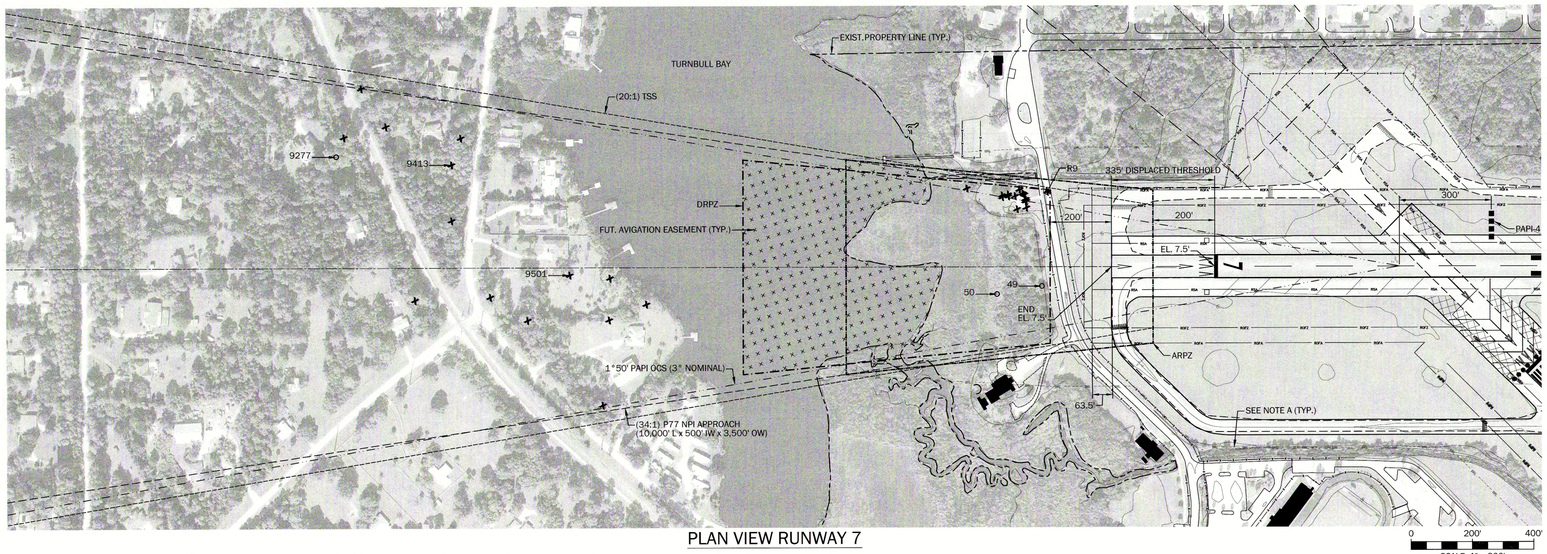
DIVISION: PLANNING

DATE:	DRAWING NUMBER:
JANUARY 2019	7

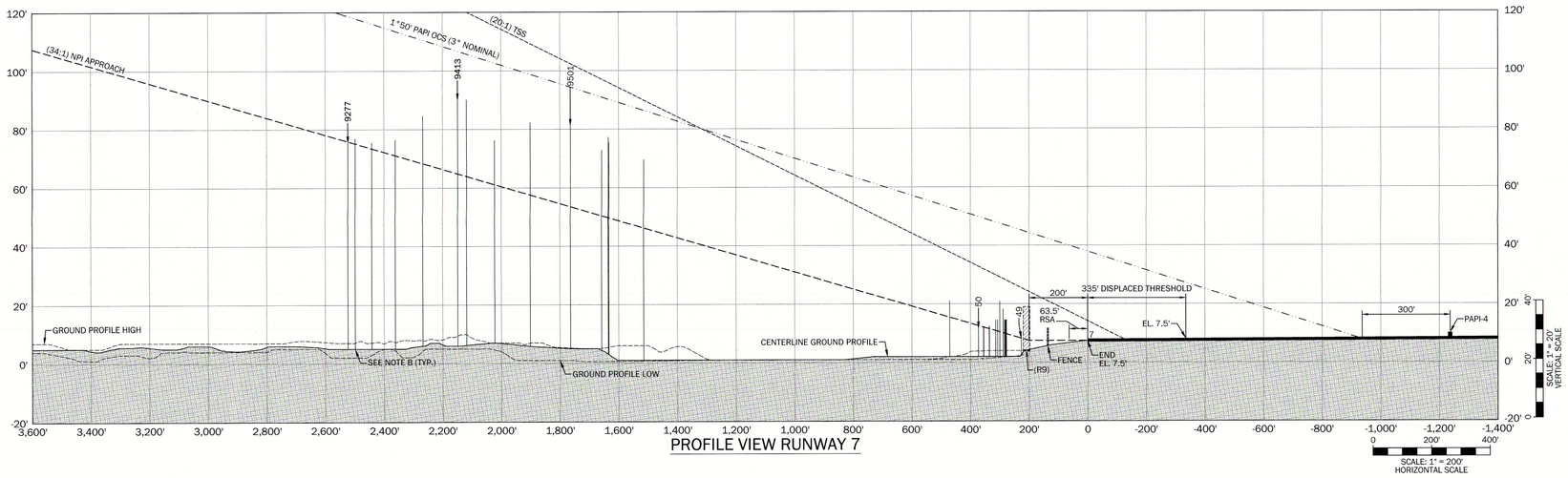
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LEGEND
- APPROACH OBSTRUCTION
- TSS OBSTRUCTION
- OBSTRUCTION WITHIN 5' OF SURFACE





PLAN VIEW RUNWAY 7



PROFILE VIEW RUNWAY 7

RUNWAY 7 END TRAVERSE WAY TABLE

ID	ROADWAY EL. (EST.)	EL. + PART 77 CLEARANCE REQUIREMENTS	PENETRATION	DISPOSITION
R9	4.0'	19.0'	11.2'	OBST. LIGHT

RUNWAY 7 (34:1) P77 NPI APPROACH OBSTRUCTION DATA TABLE

ID	DESCRIPTION	TRIGGERING EVENT	OBJECT TOP EL.	ALLOWABLE SURFACE EL.	PENETRATION	DISPOSITION
49	TREE	EXISTING	8.1'	8.3'	-0.2	MONITOR
50	TREE	EXISTING	11.5'	12.6'	-1.1'	MONITOR
9277	TREE	EXISTING	75.3'	75.8'	-0.5	MONITOR
9413	TREE	EXISTING	89.9'	64.8'	25.1'	TRIM / REMOVE
9501	TREE	EXISTING	81.1'	53.5'	27.6'	TRIM / REMOVE

RUNWAY 7 (20:1) TSS OBSTRUCTION DATA TABLE

ID	DESCRIPTION	TRIGGERING EVENT	OBJECT TOP EL.	ALLOWABLE SURFACE EL.	PENETRATION	DISPOSITION
			NONE			

RUNWAY 7 2 ° PAPI OCS OBSTRUCTION DATA TABLE

ID	DESCRIPTION	TRIGGERING EVENT	OBJECT TOP EL.	ALLOWABLE SURFACE EL.	PENETRATION	DISPOSITION
			NONE			

NEW SMYRNA BEACH MUNICIPAL AIRPORT
NEW SMYRNA BEACH, FLORIDA

Michael Baker INTERNATIONAL

DESIGNER:	CHECKED BY:
APN	MJK
TECHNICIAN: APN	PROJECT NUMBER: 146328

GENERAL NOTES:

1. EXISTING BASE MAPPING, ELEVATIONS, AND OBSTRUCTION DATA WERE OBTAINED FROM A SURVEY, FLOWN NOVEMBER 2015.
2. FEDERAL AVIATION REGULATIONS (FAR) PART 77 SPECIFIES CLEARANCE REQUIREMENTS FOR ROADS, RAILROADS, AND WATERWAYS AS FOLLOWS: A) 17 FEET FOR AN INTERSTATE HIGHWAY, B) 15 FEET FOR ANY OTHER PUBLIC ROADWAY, C) 10 FEET OR THE HEIGHT OF THE HIGHEST MOBILE OBJECT THAT WOULD NORMALLY TRAVERSE THE ROAD, WHICHEVER IS GREATER, FOR A PRIVATE ROAD, D) 23 FEET FOR A RAILROAD, AND E) FOR A WATERWAY OR ANY OTHER TRAVERSE WAY NOT PREVIOUSLY MENTIONED, AN AMOUNT EQUAL TO THE HEIGHT OF THE HIGHEST MOBILE OBJECT THAT WOULD NORMALLY TRAVERSE IT.

PLAN REFERENCED NOTES:

A. THE BUILDING RESTRICTION LINE (BRL) IS BASED ON 20' ABOVE THE NEAREST RUNWAY ELEVATION OR THE MOST CRITICAL SURFACE IN THE VICINITY.

B. THE BASE ELEVATIONS OF ALL OBJECTS ARE UNKNOWN. THEREFORE, OBJECTS WERE TRIMMED AT THE COMPOSITE PROFILE HIGH.

C. ONLY A SAMPLING OF OBSTRUCTIONS ARE SHOWN IN THE TABLES DUE TO DENSITY.

REVISIONS

NO.	DESCRIPTION	DATE	BY

PROJECT NAME:
AIRPORT MASTER PLAN UPDATE

DRAWING NAME:
INNER PORTION OF THE APPROACH SURFACE DRAWING - RUNWAY 7

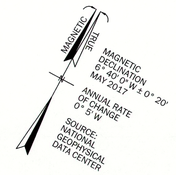
FAA AIP # / STATE GRANT #
3-12-0054-018-2014 / 418297-1-94-01

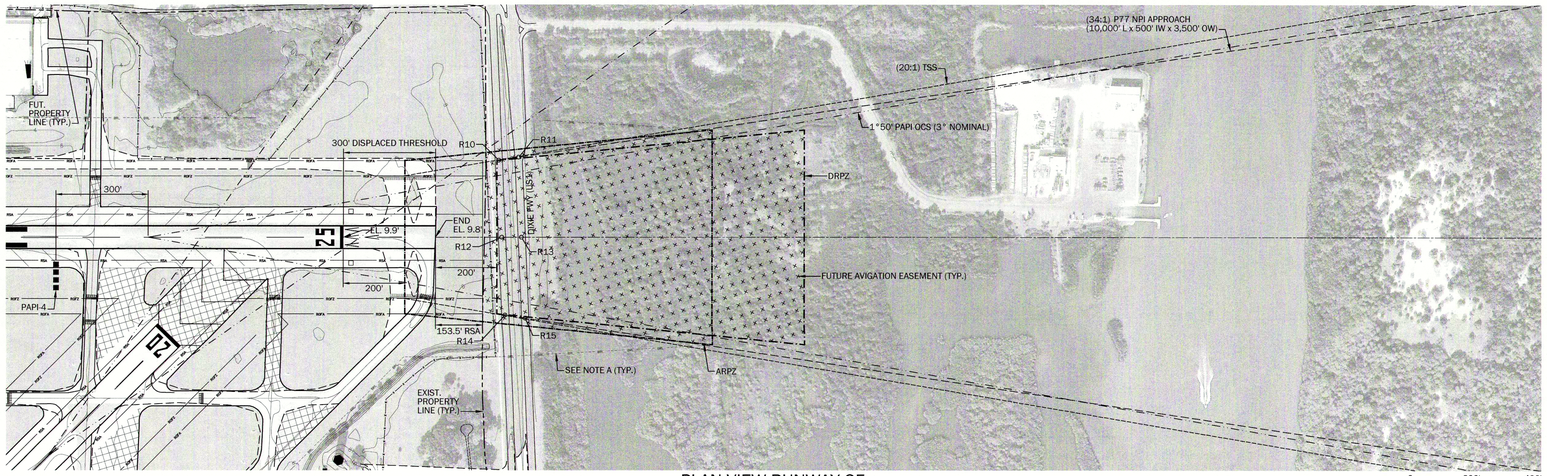
DIVISION: PLANNING

DATE:	DRAWING NUMBER:
JANUARY 2019	8

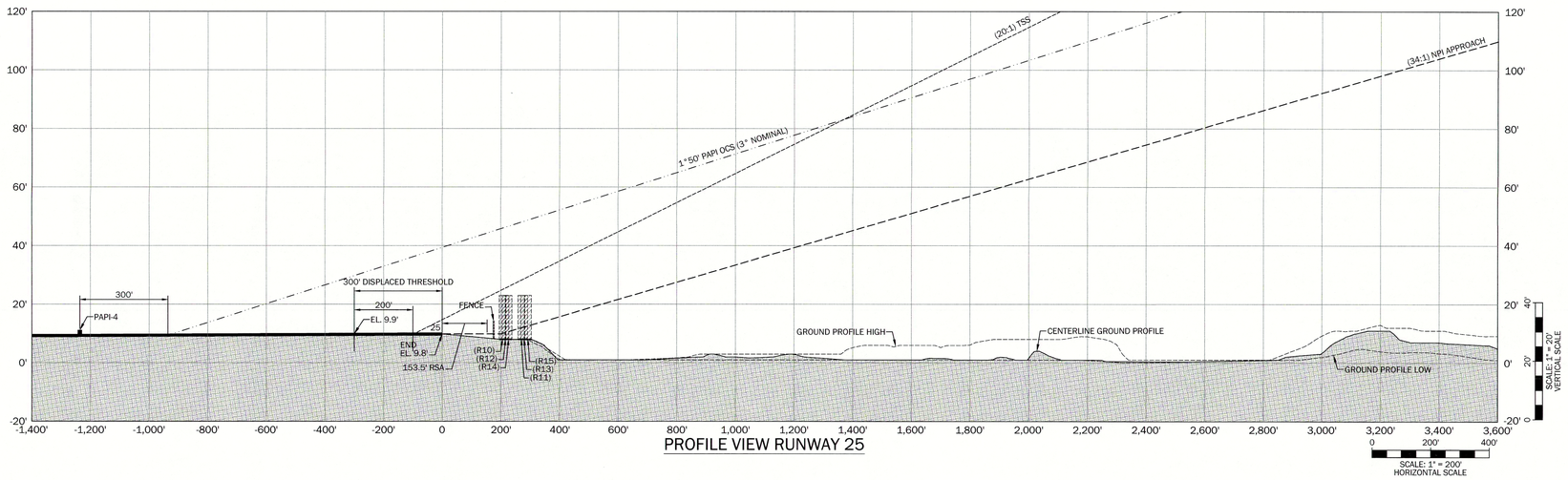
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LEGEND
- APPROACH OBSTRUCTION
- TSS OBSTRUCTION
- OBSTRUCTION WITHIN 5' OF SURFACE





PLAN VIEW RUNWAY 25



PROFILE VIEW RUNWAY 25

RUNWAY 25 END TRAVERSE WAY TABLE

ID	ROADWAY EL. (EST.)	EL. + PART 77 CLEARANCE REQUIREMENTS	PENETRATION	DISPOSITION
R10	8.0'	23.0'	13.2'	OBST. LIGHT
R11	8.0'	23.0'	11.1'	OBST. LIGHT
R12	8.0'	23.0'	12.8'	OBST. LIGHT
R13	8.0'	23.0'	10.8'	OBST. LIGHT
R14	8.0'	23.0'	12.4'	OBST. LIGHT
R15	8.0'	23.0'	10.5'	OBST. LIGHT

RUNWAY 25 (34:1) P77 NPI APPROACH OBSTRUCTION DATA TABLE

ID	DESCRIPTION	TRIGGERING EVENT	OBJECT TOP EL.	ALLOWABLE SURFACE EL.	PENETRATION	DISPOSITION
TRAVERSE WAY OBSTRUCTIONS ONLY (SEE TRAVERSE WAY TABLE ABOVE)						

RUNWAY 25 (20:1) TSS OBSTRUCTION DATA TABLE

ID	DESCRIPTION	TRIGGERING EVENT	OBJECT TOP EL.	ALLOWABLE SURFACE EL.	PENETRATION	DISPOSITION
			NONE			

RUNWAY 25 2° PAPI OCS OBSTRUCTION DATA TABLE

ID	DESCRIPTION	TRIGGERING EVENT	OBJECT TOP EL.	ALLOWABLE SURFACE EL.	PENETRATION	DISPOSITION
			NONE			

NEW SMYRNA BEACH MUNICIPAL AIRPORT
NEW SMYRNA BEACH, FLORIDA

Michael Baker INTERNATIONAL

DESIGNER:	CHECKED BY:
APN	MJK
TECHNICIAN: APN	PROJECT NUMBER: 146328

GENERAL NOTES:

1. EXISTING BASE MAPPING, ELEVATIONS, AND OBSTRUCTION DATA WERE OBTAINED FROM A SURVEY, FLOWN NOVEMBER 2015.
2. FEDERAL AVIATION REGULATIONS (FAR) PART 77 SPECIFIES CLEARANCE REQUIREMENTS FOR ROADS, RAILROADS, AND WATERWAYS AS FOLLOWS: A) 17 FEET FOR AN INTERSTATE HIGHWAY, B) 15 FEET FOR ANY OTHER PUBLIC ROADWAY, C) 10 FEET OR THE HEIGHT OF THE HIGHEST MOBILE OBJECT THAT WOULD NORMALLY TRAVERSE THE ROAD, WHICHEVER IS GREATER, FOR A PRIVATE ROAD, D) 23 FEET FOR A RAILROAD, AND E) FOR A WATERWAY OR ANY OTHER TRAVERSE WAY NOT PREVIOUSLY MENTIONED, AN AMOUNT EQUAL TO THE HEIGHT OF THE HIGHEST MOBILE OBJECT THAT WOULD NORMALLY TRAVERSE IT.

PLAN REFERENCED NOTES:

A. THE BUILDING RESTRICTION LINE (BRL) IS BASED ON 20' ABOVE THE NEAREST RUNWAY ELEVATION OR THE MOST CRITICAL SURFACE IN THE VICINITY.

B. THE BASE ELEVATIONS OF ALL OBJECTS ARE UNKNOWN. THEREFORE, OBJECTS WERE TRIMMED AT THE COMPOSITE PROFILE HIGH.

C. ONLY A SAMPLING OF OBSTRUCTIONS ARE SHOWN IN THE TABLES DUE TO DENSITY.

REVISIONS

NO.	DESCRIPTION	DATE	BY

PROJECT NAME:
AIRPORT MASTER PLAN UPDATE

DRAWING NAME:
INNER PORTION OF THE APPROACH SURFACE DRAWING - RUNWAY 25

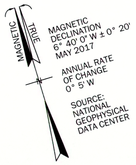
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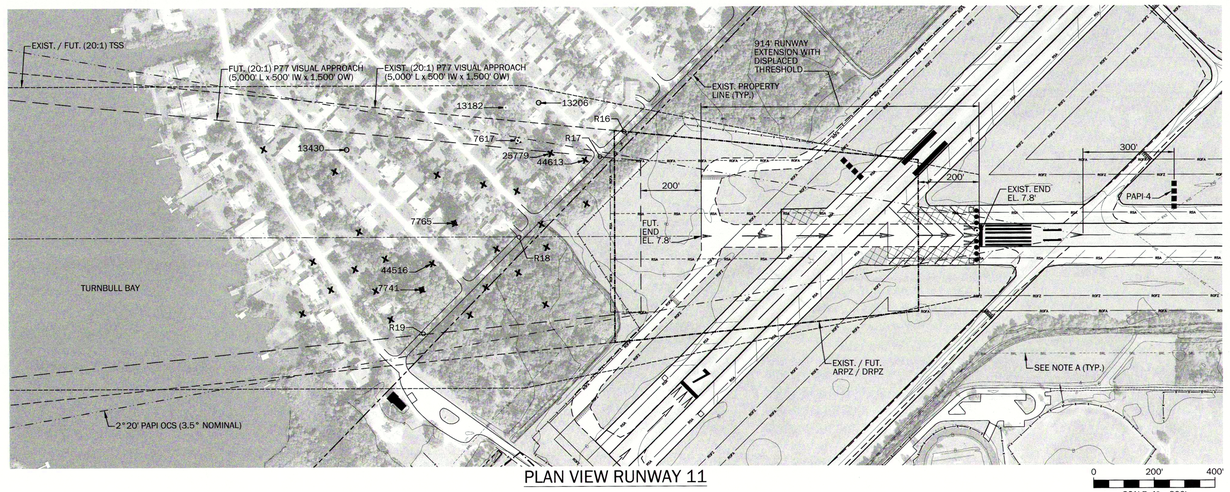
DIVISION: PLANNING

DATE:	DRAWING NUMBER:
JANUARY 2019	9

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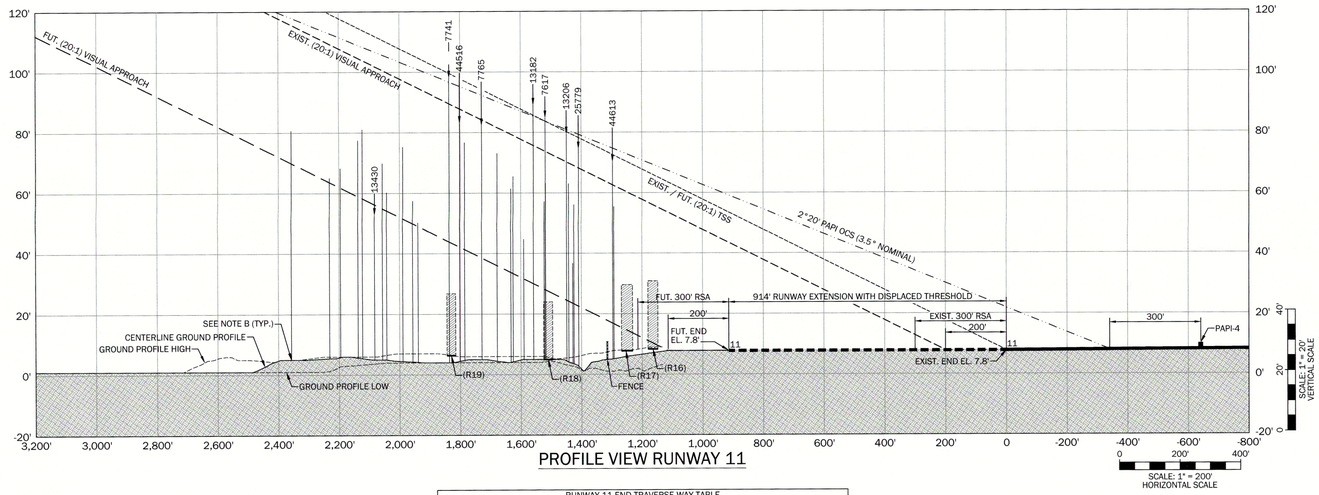
LEGEND
- APPROACH OBSTRUCTION
- TSS OBSTRUCTION
- OBSTRUCTION WITHIN 5' OF SURFACE





PLAN VIEW RUNWAY 11

0 200' 400'
SCALE: 1" = 200'
HORIZONTAL SCALE



PROFILE VIEW RUNWAY 11

0 200' 400'
SCALE: 1" = 200'
HORIZONTAL SCALE

SCALE: 1" = 20'
VERTICAL SCALE

RUNWAY 11 END TRAVERSE WAY TABLE

ID	ROADWAY EL. (EST.)	EL. + PART 77 CLEARANCE REQUIREMENTS	EXISTING PENETRATION	FUTURE PENETRATION	DISPOSITION
R16	7.4'	22.4'	-33.8'	N/A	NONE
R17	6.8'	21.8'	-38.4'	7.3'	OBST. LIGHT
R18	4.0'	19.0'	-54.6'	-8.9'	NONE
R19	5.4'	20.4'	-69.0'	-23.3'	NONE

RUNWAY 11 (20:1) P77 VISUAL APPROACH OBSTRUCTION DATA TABLE

ID	DESCRIPTION	TRIGGERING EVENT	OBJECT TOP EL.	ALLOWABLE EXISTING SURFACE EL.	EXISTING PENETRATION	ALLOWABLE FUTURE SURFACE EL.	FUTURE PENETRATION	DISPOSITION
7617	TREE	EXISTING	84.8'	73.7'	11.1'	N / A	N / A	TRIM / REMOVE
7741	TREE	EXISTING	98.1'	89.6'	8.5'	43.9'	54.2'	TRIM / REMOVE
7765	TREE	EXISTING	82.3'	84.2'	-1.9'	38.5'	43.8'	TRIM / REMOVE
13430	TREE	EXISTING	52.8	101.9'	-49.1'	56.2'	-3.4'	MONITOR
25779	TREE	EXISTING	74.5'	68.3'	6.2'	22.6'	51.9'	TRIM / REMOVE
44516	TREE	EXISTING	83.1'	87.9'	-4.8'	42.2'	40.9'	TRIM / REMOVE
44613	TREE	EXISTING	70.2'	62.6'	7.6'	16.9'	53.3'	TRIM / REMOVE

EXISTING / FUTURE RUNWAY 11 (20:1) TSS OBSTRUCTION DATA TABLE

ID	DESCRIPTION	TRIGGERING EVENT	OBJECT TOP EL.	ALLOWABLE SURFACE EL.	PENETRATION	DISPOSITION
7617	TREE	EXISTING	84.8'	83.7'	1.1'	TRIM / REMOVE
7741	TREE	EXISTING	98.1'	99.6'	-1.5'	MONITOR
13182	TREE	EXISTING	89.0'	85.7'	3.3'	TRIM / REMOVE
13206	TREE	EXISTING	79.5'	80.2'	-0.7'	MONITOR

RUNWAY 11 2.5° PAPI OCS OBSTRUCTION DATA TABLE

ID	DESCRIPTION	TRIGGERING EVENT	OBJECT TOP EL.	ALLOWABLE SURFACE EL.	PENETRATION	DISPOSITION
			NONE			

NEW SMYRNA BEACH MUNICIPAL AIRPORT
NEW SMYRNA BEACH, FLORIDA

Michael Baker INTERNATIONAL

DESIGNER:	CHECKED BY:
APN	MJK
TECHNICIAN: APN	PROJECT NUMBER: 146328

GENERAL NOTES:

1. EXISTING BASE MAPPING, ELEVATIONS, AND OBSTRUCTION DATA WERE OBTAINED FROM A SURVEY, FLOWN NOVEMBER 2015.
2. FEDERAL AVIATION REGULATIONS (FAR) PART 77 SPECIFIES CLEARANCE REQUIREMENTS FOR ROADS, RAILROADS, AND WATERWAYS AS FOLLOWS: A) 17 FEET FOR AN INTERSTATE HIGHWAY, B) 15 FEET FOR ANY OTHER PUBLIC ROADWAY, C) 10 FEET OR THE HEIGHT OF THE HIGHEST MOBILE OBJECT THAT WOULD NORMALLY TRAVERSE THE ROAD, WHICHEVER IS GREATER, FOR A PRIVATE ROAD, D) 23 FEET FOR A RAILROAD, AND E) FOR A WATERWAY OR ANY OTHER TRAVERSE WAY NOT PREVIOUSLY MENTIONED, AN AMOUNT EQUAL TO THE HEIGHT OF THE HIGHEST MOBILE OBJECT THAT WOULD NORMALLY TRAVERSE IT.

PLAN REFERENCED NOTES:

A. THE BUILDING RESTRICTION LINE (BRL) IS BASED ON 20' ABOVE THE NEAREST RUNWAY ELEVATION OR THE MOST CRITICAL SURFACE IN THE VICINITY.

B. THE BASE ELEVATIONS OF ALL OBJECTS ARE UNKNOWN. THEREFORE, OBJECTS WERE TRIMMED AT THE COMPOSITE PROFILE HIGH.

C. ONLY A SAMPLING OF OBSTRUCTIONS ARE SHOWN IN THE TABLES DUE TO DENSITY.

REVISIONS

NO.	DESCRIPTION	DATE	BY

PROJECT NAME:
AIRPORT MASTER PLAN UPDATE

DRAWING NAME:
INNER PORTION OF THE APPROACH SURFACE DRAWING - RUNWAY 11

FAA AIP # / STATE GRANT #
3-12-0054-018-2014 / 418297-1-94-01

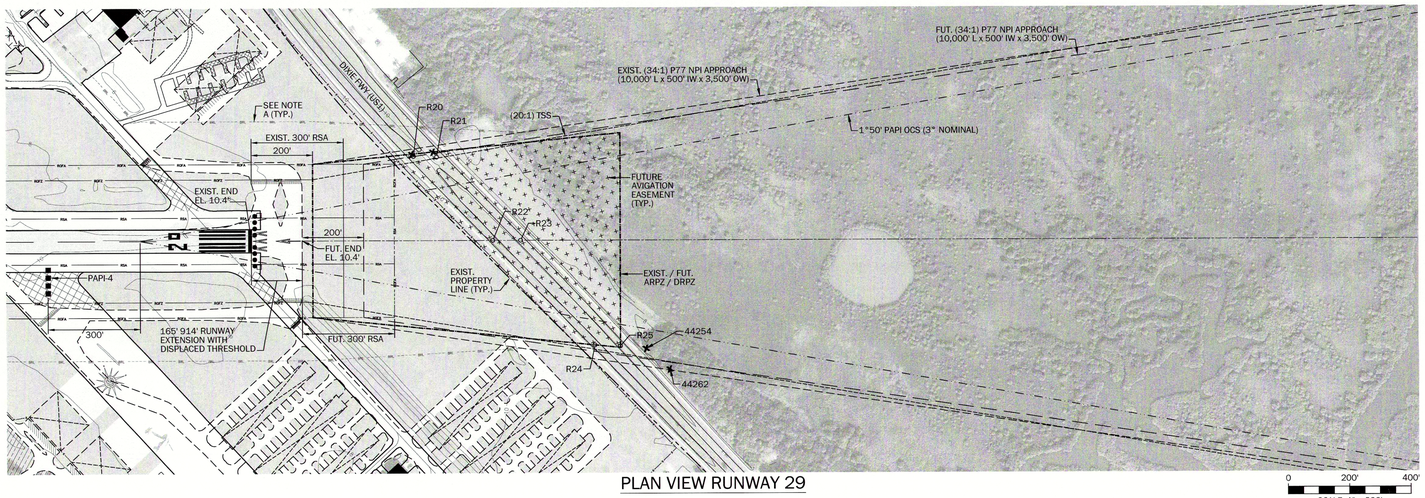
DIVISION: PLANNING

DATE:	DRAWING NUMBER:
JANUARY 2019	10

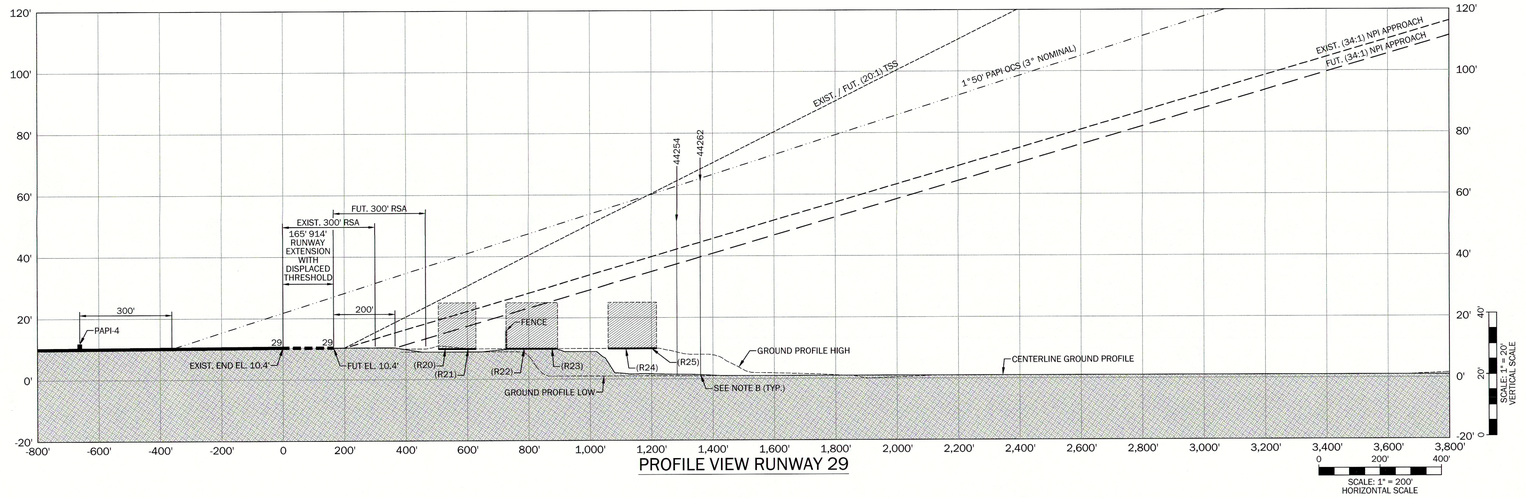
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LEGEND
- APPROACH OBSTRUCTION
- TSS OBSTRUCTION
- OBSTRUCTION WITHIN 5' OF SURFACE

MAGNETIC DECLINATION 6° 40' 0" W ± 0° 20' MAY 2017
ANNUAL RATE OF CHANGE 0° 5' W
SOURCE: NATIONAL GEOPHYSICAL DATA CENTER



PLAN VIEW RUNWAY 29



PROFILE VIEW RUNWAY 29

RUNWAY 29 END TRAVERSE WAY TABLE

ID	ROADWAY EL. (EST.)	EL. + PART 77 CLEARANCE REQUIREMENTS	EXISTING PENETRATION	FUTURE PENETRATION	DISPOSITION
R20	10.0'	25.0'	4.9'	N/A	OBST. LIGHT
R21	10.0'	25.0'	2.7'	7.6'	OBST. LIGHT
R22	10.0'	25.0'	-2.6'	2.2'	OBST. LIGHT
R23	10.0'	25.0'	-5.3'	-0.4'	NONE
R24	10.0'	25.0'	-12.4'	-7.5'	NONE
R25	10.0'	25.0'	-14.8'	-10.0'	NONE

RUNWAY 29 (34:1) P77 NPI APPROACH OBSTRUCTION DATA TABLE

ID	DESCRIPTION	TRIGGERING EVENT	OBJECT TOP EL.	ALLOWABLE EXISTING SURFACE EL.	EXISTING PENETRATION	ALLOWABLE FUTURE SURFACE EL.	FUTURE PENETRATION	DISPOSITION
44254	TREE	EXISTING	51.1'	42.3'	8.8'	37.4'	13.7'	TRIM / REMOVE
44262	TREE	EXISTING	64.1'	44.5'	19.6'	N / A	N / A	TRIM / REMOVE

EXISTING / FUTURE RUNWAY 29 (20:1) TSS OBSTRUCTION DATA TABLE

ID	DESCRIPTION	TRIGGERING EVENT	OBJECT TOP EL.	ALLOWABLE SURFACE EL.	PENETRATION	DISPOSITION
			NONE			

RUNWAY 29 2° PAPI OCS OBSTRUCTION DATA TABLE

ID	DESCRIPTION	TRIGGERING EVENT	OBJECT TOP EL.	ALLOWABLE SURFACE EL.	PENETRATION	DISPOSITION
			NONE			

NEW SMYRNA BEACH MUNICIPAL AIRPORT
NEW SMYRNA BEACH, FLORIDA

Michael Baker INTERNATIONAL

DESIGNER:	CHECKED BY:
APN	MJK
TECHNICIAN: APN	PROJECT NUMBER: 146328

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REVISIONS

NO.	DESCRIPTION	DATE	BY

PROJECT NAME:
AIRPORT MASTER PLAN UPDATE

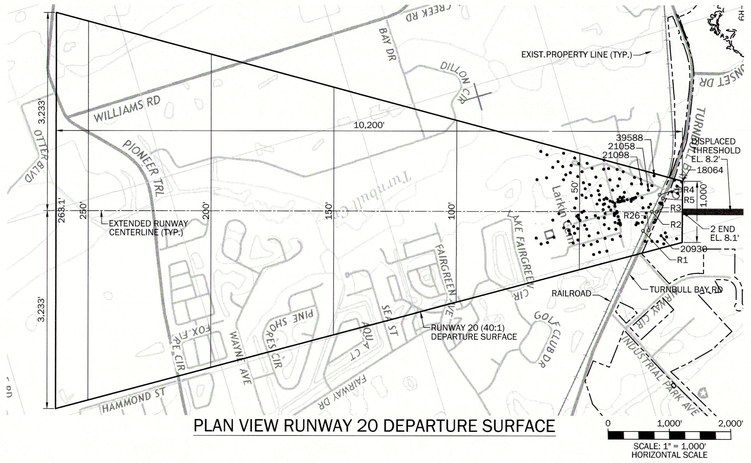
DRAWING NAME:
INNER PORTION OF THE APPROACH SURFACE DRAWING - RUNWAY 29

FAA AIP # / STATE GRANT #
3-12-0054-018-2014 / 418297-1-94-01

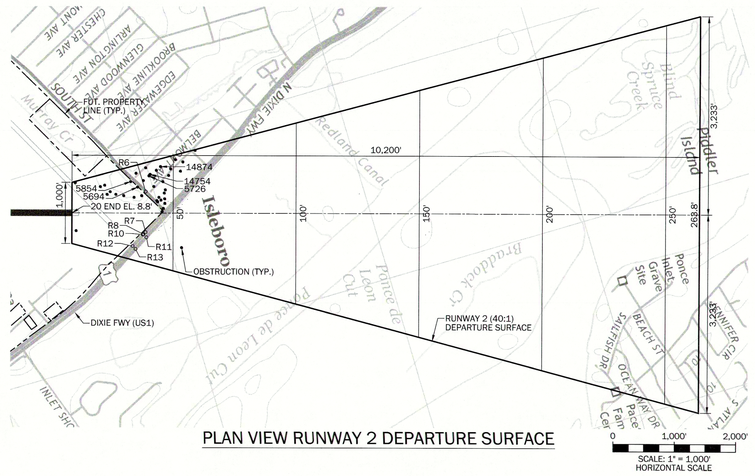
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DATE:	DRAWING NUMBER:
JANUARY 2019	11

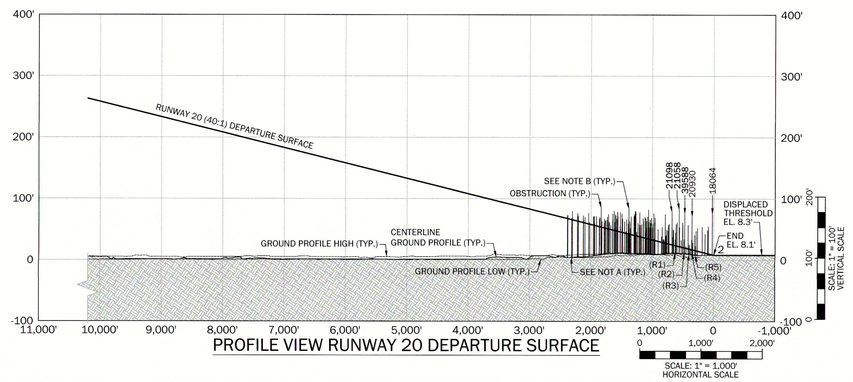
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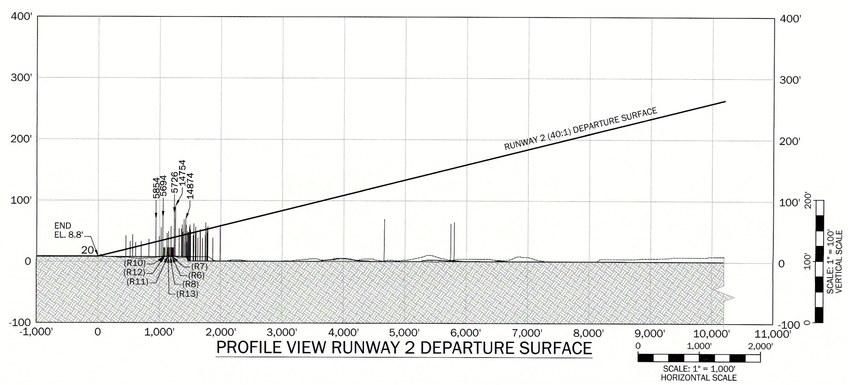
PLAN VIEW RUNWAY 20 DEPARTURE SURFACE



PLAN VIEW RUNWAY 2 DEPARTURE SURFACE



PROFILE VIEW RUNWAY 20 DEPARTURE SURFACE



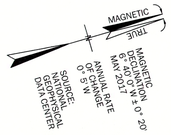
PROFILE VIEW RUNWAY 2 DEPARTURE SURFACE

RUNWAY 20 DEPARTURE SURFACE TRAVERSE WAY TABLE					
ID	ROADWAY EL. (EST.)	RAILROAD EL. (EST.)	EL. + PART 77 CLEARANCE REQUIREMENTS	PENETRATION	DISPOSITION
R1	N/A	12.0'	35.0'	10.9	OBST. LIGHT
R2	N/A	12.0'	35.0'	14.5	OBST. LIGHT
R3	10.0'	N/A	25.0'	6.6	OBST. LIGHT
R4	N/A	12.0'	35.0'	17.7	OBST. LIGHT
R5	8.0'	N/A	23.0'	7.1	OBST. LIGHT

RUNWAY 20 (40:1) DEPARTURE SURFACE OBSTRUCTION TABLE					
ID	DESCRIPTION	OBJECT TOP EL.	SURFACE EL.	PENETRATION	DISPOSITION
18064	TREE	75.1'	8.4'	66.7'	TRIM / REMOVE
20930	TREE	70.6'	16.7'	53.9'	TRIM / REMOVE
21058	TREE	82.6'	21.9'	60.7'	TRIM / REMOVE
21098	TREE	78.0'	24.8'	53.2'	TRIM / REMOVE
39588	TREE	75.3'	19.7'	55.6'	TRIM / REMOVE

RUNWAY 2 DEPARTURE SURFACE TRAVERSE WAY TABLE				
ID	ROADWAY EL. (EST.)	EL. + PART 77 CLEARANCE REQUIREMENTS	PENETRATION	DISPOSITION
R6	8.0'	23.0'	-15.8	NONE
R7	8.0'	23.0'	-15.8	NONE
R8	8.0'	23.0'	-15.0	NONE
R10	8.0'	23.0'	-14.7	NONE
R11	8.0'	23.0'	-16.2	NONE
R12	8.0'	23.0'	-10.6	NONE
R13	8.0'	23.0'	-11.7	NONE

RUNWAY 2 (40:1) DEPARTURE SURFACE OBSTRUCTION TABLE					
ID	DESCRIPTION	OBJECT TOP EL.	SURFACE EL.	PENETRATION	DISPOSITION
5694	TREE	72.5'	35.5'	37.0'	TRIM / REMOVE
5726	TREE	78.9'	40.1'	38.8'	TRIM / REMOVE
5854	TREE	69.4'	32.6'	36.8'	TRIM / REMOVE
14754	TREE	91.3'	40.6'	50.7'	TRIM / REMOVE
14874	TREE	69.5'	44.8'	24.7'	TRIM / REMOVE



NEW SMYRNA BEACH
MUNICIPAL AIRPORT
NEW SMYRNA BEACH, FLORIDA

Michael Baker
INTERNATIONAL

DESIGNER:	CHECKED BY:
APN	MJK
TECHNICIAN:	PROJECT NUMBER:
APN	146328

GENERAL NOTES:

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REVISIONS

NO.	DESCRIPTION	DATE	BY

PROJECT NAME:

AIRPORT
MASTER PLAN UPDATE

DRAWING NAME:

RUNWAY
DEPARTURE SURFACE
DRAWING - RUNWAY 2-20

FAA AIP # / STATE GRANT #

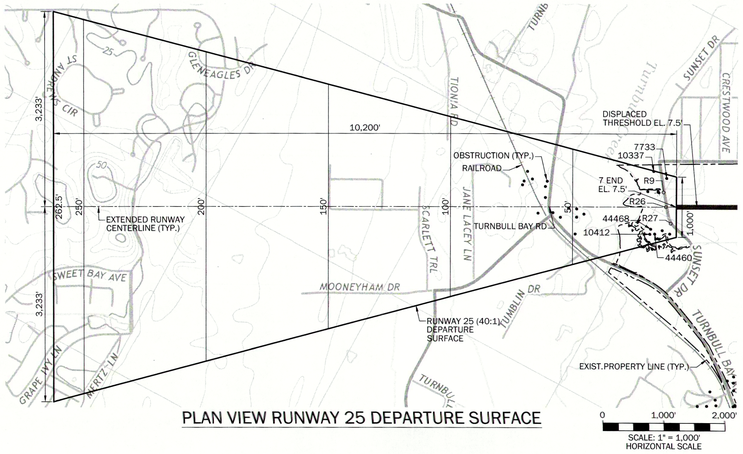
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DIVISION:

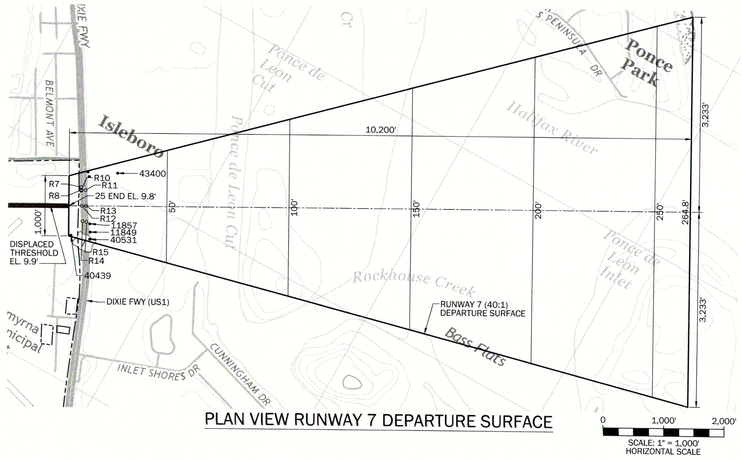
PLANNING

DATE:	DRAWING NUMBER:
JANUARY 2019	12

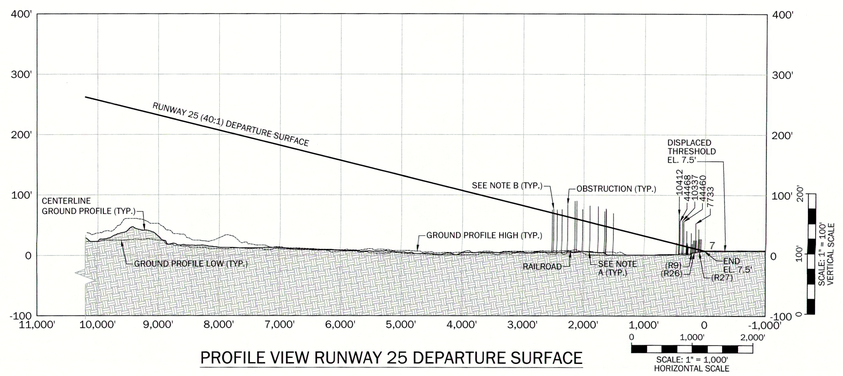
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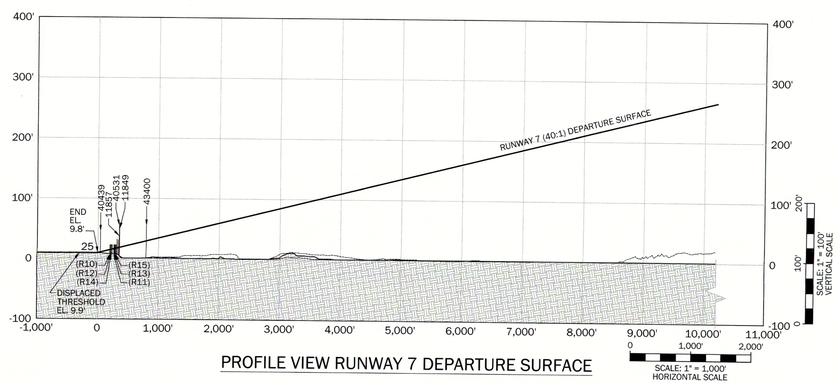
PLAN VIEW RUNWAY 25 DEPARTURE SURFACE



PLAN VIEW RUNWAY 7 DEPARTURE SURFACE



PROFILE VIEW RUNWAY 25 DEPARTURE SURFACE



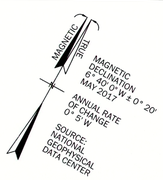
PROFILE VIEW RUNWAY 7 DEPARTURE SURFACE

RUNWAY 25 DEPARTURE SURFACE TRAVERSE WAY TABLE				
ID	ROADWAY EL. (EST.)	EL. + PART 77 CLEARANCE REQUIREMENTS	PENETRATION	DISPOSITION
R9	4.0'	19.0'	6.2'	OBST. LIGHT
R26	5.0'	20.0'	8.2'	OBST. LIGHT
R27	6.0'	21.0'	11.2'	OBST. LIGHT

RUNWAY 25 (40:1) DEPARTURE SURFACE OBSTRUCTION TABLE					
ID	DESCRIPTION	OBJECT TOP EL.	SURFACE EL.	PENETRATION	DISPOSITION
7733	TREE	53.1'	11.5'	41.6'	TRIM / REMOVE
10337	TREE	57.8'	16.9'	40.9'	TRIM / REMOVE
10412	TREE	66.3'	18.3'	48.0'	TRIM / REMOVE
44460	TREE	56.4'	16.4'	40.0'	TRIM / REMOVE
44468	TREE	56.7'	18.0'	38.7'	TRIM / REMOVE

RUNWAY 7 DEPARTURE SURFACE TRAVERSE WAY TABLE				
ID	ROADWAY EL. (EST.)	EL. + PART 77 CLEARANCE REQUIREMENTS	PENETRATION	DISPOSITION
R7	8.0'	23.0'	8.2'	OBST. LIGHT
R8	8.0'	23.0'	8.2'	OBST. LIGHT
R10	8.0'	23.0'	8.2'	OBST. LIGHT
R11	8.0'	23.0'	6.4'	OBST. LIGHT
R12	8.0'	23.0'	7.8'	OBST. LIGHT
R13	8.0'	23.0'	6.2'	OBST. LIGHT
R14	8.0'	23.0'	7.5'	OBST. LIGHT
R15	8.0'	23.0'	5.9'	OBST. LIGHT

RUNWAY 7 (40:1) DEPARTURE SURFACE OBSTRUCTION TABLE					
ID	DESCRIPTION	OBJECT TOP EL.	SURFACE EL.	PENETRATION	DISPOSITION
11849	TREE	49.7'	18.6'	31.1'	TRIM / REMOVE
11857	TREE	37.9'	18.5'	19.4'	TRIM / REMOVE
40439	TREE	45.3'	10.8'	34.5'	TRIM / REMOVE
40531	POLE	54.6'	18.5'	36.1'	TRIM / REMOVE
43400	TREE	55.2'	29.6'	25.6'	TRIM / REMOVE



NEW SMYRNA BEACH MUNICIPAL AIRPORT
NEW SMYRNA BEACH, FLORIDA

Michael Baker INTERNATIONAL

DESIGNER:	CHECKED BY:
APN	MJK
TECHNICIAN: APN	PROJECT NUMBER: 146328

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REVISIONS

NO.	DESCRIPTION	DATE	BY

PROJECT NAME:

AIRPORT MASTER PLAN UPDATE

DRAWING NAME:

RUNWAY DEPARTURE SURFACE DRAWING - RUNWAY 7-25

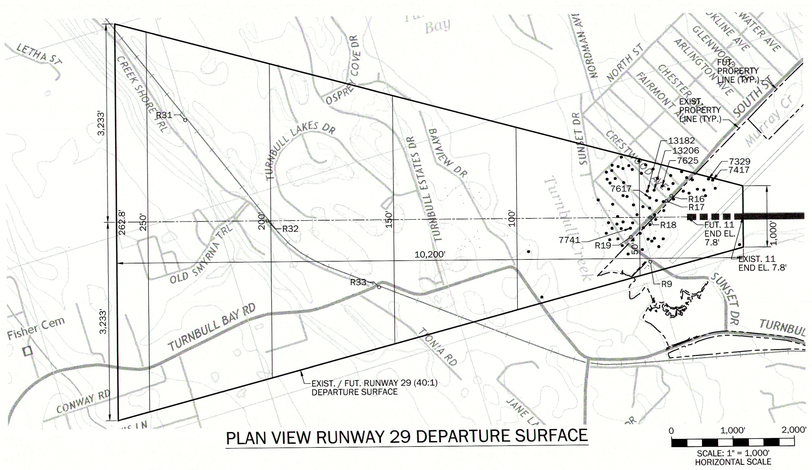
FAA AIP # / STATE GRANT #

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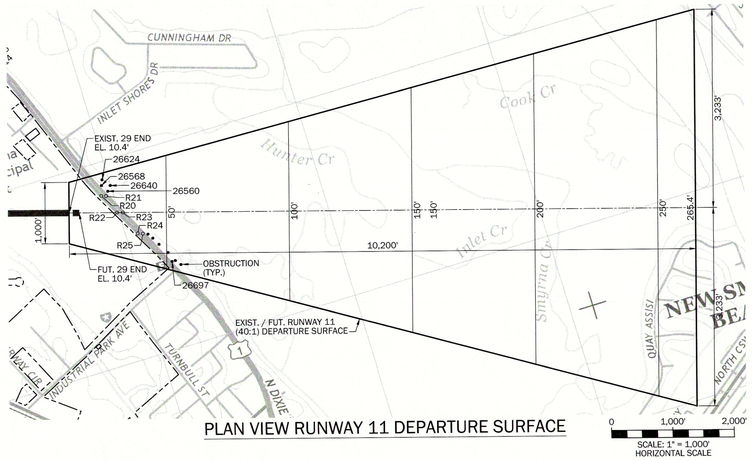
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DATE:	DRAWING NUMBER:
JANUARY 2019	13

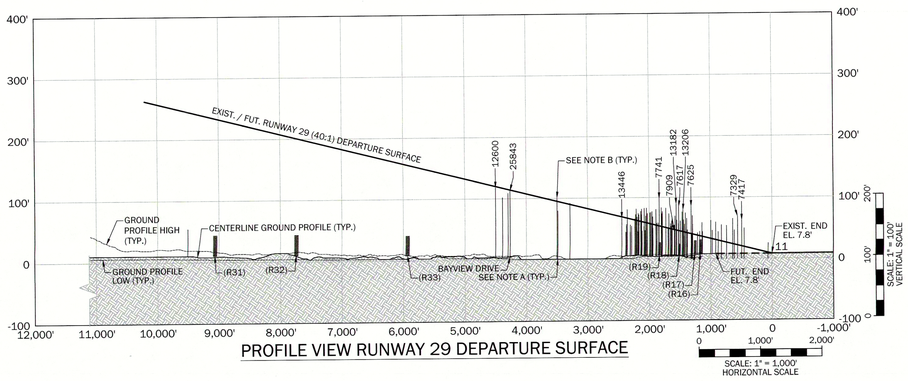
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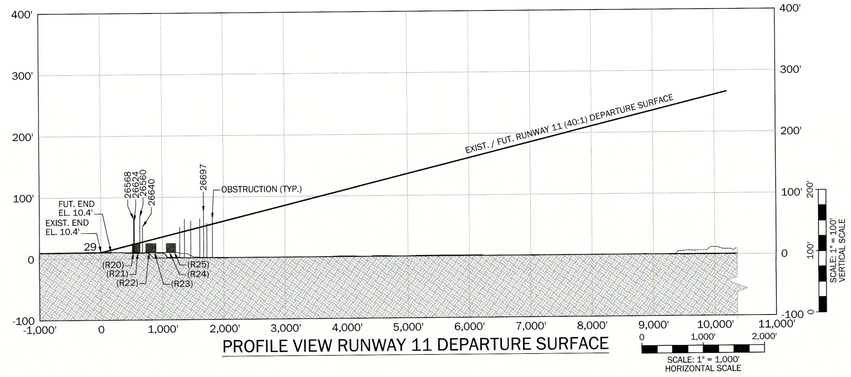
PLAN VIEW RUNWAY 29 DEPARTURE SURFACE



PLAN VIEW RUNWAY 11 DEPARTURE SURFACE



PROFILE VIEW RUNWAY 29 DEPARTURE SURFACE



PROFILE VIEW RUNWAY 11 DEPARTURE SURFACE

EXISTING / FUTURE RUNWAY 29 DEPARTURE SURFACE TRAVERSE WAY TABLE					
ID	ROADWAY EL. (EST.)	RAILROAD EL. (EST.)	EL. + PART 77 CLEARANCE REQUIREMENTS	PENETRATION	DISPOSITION
R9	4.0	N/A	19.0	-26.7	NONE
R16	7.4	N/A	22.4	-14.6	NONE
R17	6.8	N/A	21.8	-17.2	NONE
R18	4.0	N/A	19.0	-26.7	NONE
R19	5.4	N/A	20.4	-33.2	NONE
R31	N/A	10.5	33.5	-201.0	NONE
R32	N/A	10.4	33.4	-167.9	NONE
R33	N/A	8.9	31.9	-124.2	NONE

EXIST. / FUT. RUNWAY 29 (40:1) DEPARTURE SURFACE OBSTRUCTION TABLE					
ID	DESCRIPTION	OBJECT TOP EL.	SURFACE EL.	PENETRATION	DISPOSITION
7329	TREE	68.6'	21.8'	46.8'	TRIM / REMOVE
7417	TREE	62.0'	20.1'	41.9'	TRIM / REMOVE
7617	TREE	84.8'	45.8'	39.0'	TRIM / REMOVE
7625	TREE	85.0'	40.7'	44.3'	TRIM / REMOVE
7741	TREE	98.1'	53.7'	44.4'	TRIM / REMOVE
13182	TREE	89.0'	46.7'	42.3'	TRIM / REMOVE
13206	TREE	79.5'	44.0'	35.5'	TRIM / REMOVE

EXISTING / FUTURE RUNWAY 11 DEPARTURE SURFACE TRAVERSE WAY TABLE				
ID	ROADWAY EL. (EST.)	EL. + PART 77 CLEARANCE REQUIREMENTS	PENETRATION	DISPOSITION
R20	10.0	25.0	1.4	OBST. LIGHT
R21	10.0	25.0	-0.5	NONE
R22	10.0	25.0	-5.0	NONE
R23	10.0	25.0	-7.3	NONE
R24	10.0	25.0	-13.3	NONE
R25	10.0	25.0	-15.4	NONE

EXIST. / FUT. RUNWAY 11 (40:1) DEPARTURE SURFACE OBSTRUCTION TABLE					
ID	DESCRIPTION	OBJECT TOP EL.	SURFACE EL.	PENETRATION	DISPOSITION
26560	TREE	68.1'	26.2'	41.9'	TRIM / REMOVE
26568	TREE	64.5'	23.7'	40.8'	TRIM / REMOVE
26624	TREE	61.0'	24.0'	37.0'	TRIM / REMOVE
26640	TREE	52.1'	27.3'	24.8'	TRIM / REMOVE
26697	POLE	75.3'	52.2'	23.1'	TRIM / REMOVE

MAGNETIC
TRUE
MAGNETIC DECLINATION 6° 40' 0" W ± 0° 20' MAY 2017
ANNUAL RATE OF CHANGE 0° 5' W
SOURCE: NATIONAL GEOPHYSICAL DATA CENTER

NEW SMYRNA BEACH MUNICIPAL AIRPORT
NEW SMYRNA BEACH, FLORIDA

Michael Baker INTERNATIONAL

DESIGNER:	CHECKED BY:
APN	MJK
TECHNICIAN:	PROJECT NUMBER:
APN	146328

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PLAN REFERENCED NOTES:

A. THE BASE ELEVATIONS OF ALL OBJECTS ARE UNKNOWN. THEREFORE, OBJECTS WERE TRIMMED AT THE COMPOSITE PROFILE HIGH.

B. ONLY A SAMPLING OF OBSTRUCTIONS ARE SHOWN IN THE TABLES DUE TO DENSITY.

REVISIONS

NO.	DESCRIPTION	DATE	BY

PROJECT NAME:

AIRPORT MASTER PLAN UPDATE

DRAWING NAME:

RUNWAY DEPARTURE SURFACE DRAWING - RUNWAY 11-29

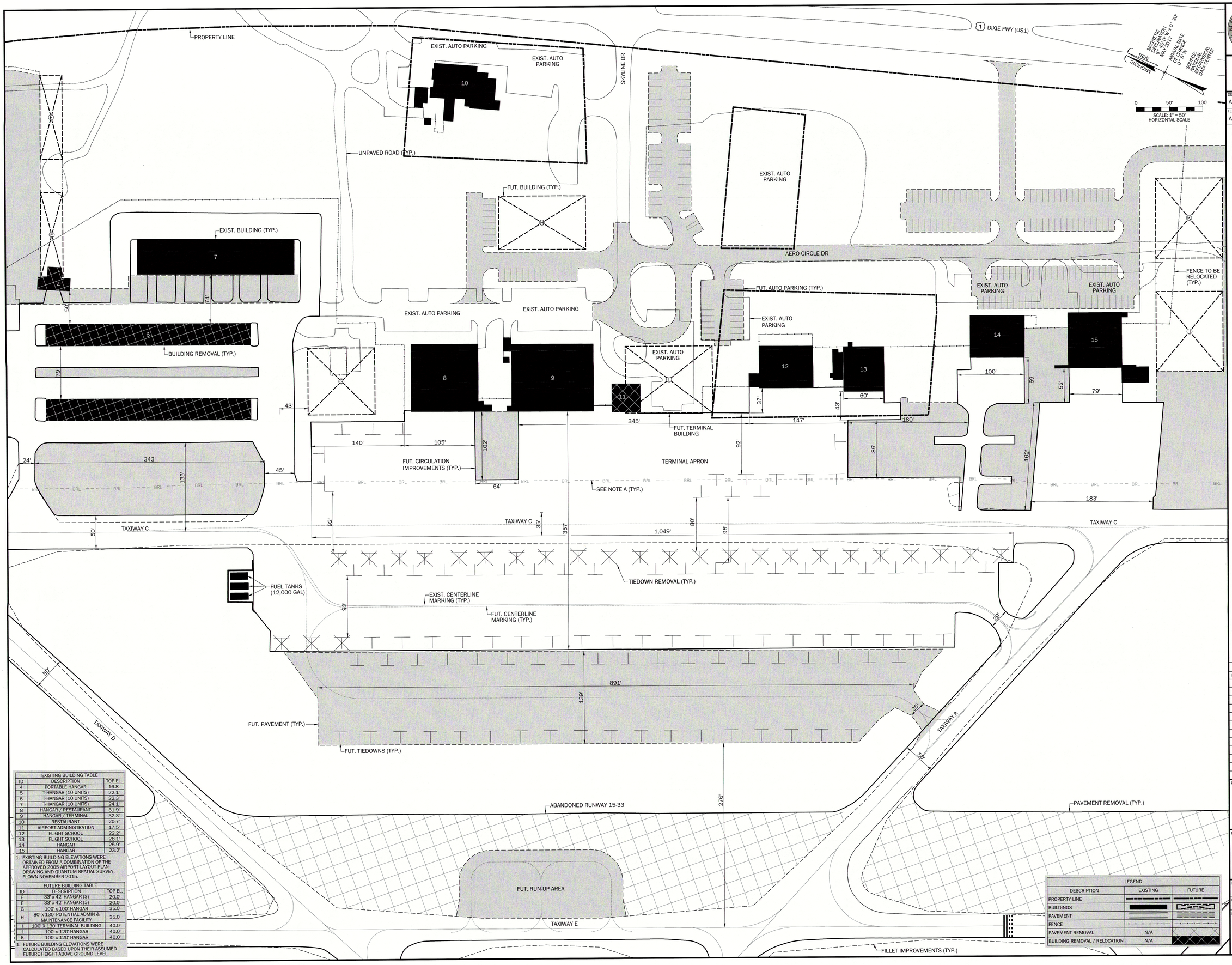
FAA AIP # / STATE GRANT #

3-12-0054-018-2014 / 418297-1-94-01

DIVISION: PLANNING

DATE:	DRAWING NUMBER:
JANUARY 2019	14

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EXISTING BUILDING TABLE		
ID	DESCRIPTION	TOP EL.
4	PORTABLE HANGAR	16.8'
5	T-HANGAR (10 UNITS)	22.1'
6	T-HANGAR (10 UNITS)	22.3'
7	T-HANGAR (10 UNITS)	24.1'
8	HANGAR / RESTAURANT	31.9'
9	HANGAR / TERMINAL	32.3'
10	RESTAURANT	20.7'
11	AIRPORT ADMINISTRATION	17.5'
12	FLIGHT SCHOOL	22.2'
13	FLIGHT SCHOOL	28.1'
14	HANGAR	25.9'
15	HANGAR	23.2'

1. EXISTING BUILDING ELEVATIONS WERE OBTAINED FROM A COMBINATION OF THE APPROVED 2005 AIRPORT LAYOUT PLAN DRAWING AND QUANTUM SPATIAL SURVEY, FLOWN NOVEMBER 2015.

FUTURE BUILDING TABLE		
ID	DESCRIPTION	TOP EL.
E	33' x 42' HANGAR (3)	20.0'
F	33' x 42' HANGAR (3)	20.0'
G	100' x 100' HANGAR	35.0'
H	80' x 130' POTENTIAL ADMIN & MAINTENANCE FACILITY	35.0'
I	100' X 130' TERMINAL BUILDING	40.0'
J	100' x 120' HANGAR	40.0'
K	100' x 120' HANGAR	40.0'

1. FUTURE BUILDING ELEVATIONS WERE CALCULATED BASED UPON THEIR ASSUMED FUTURE HEIGHT ABOVE GROUND LEVEL.

LEGEND		
DESCRIPTION	EXISTING	FUTURE
PROPERTY LINE		
BUILDINGS		
PAVEMENT		
FENCE		
PAVEMENT REMOVAL	N/A	
BUILDING REMOVAL / RELOCATION	N/A	

NEW SMYRNA BEACH MUNICIPAL AIRPORT
NEW SMYRNA BEACH, FLORIDA

Michael Baker INTERNATIONAL

DESIGNER:	CHECKED BY:
APN	MJK
TECHNICIAN:	PROJECT NUMBER:
APN	146328

GENERAL NOTES:

1. EXISTING BASE MAPPING WAS OBTAINED FROM A SURVEY, FLOWN NOVEMBER 2015.

PLAN REFERENCED NOTES:

A. THE BUILDING RESTRICTION LINE (BRL) IS BASED ON 20' ABOVE THE NEAREST RUNWAY ELEVATION OR THE MOST CRITICAL SURFACE IN THE VICINITY.

REVISIONS

NO.	DESCRIPTION	DATE	BY

PROJECT NAME:

AIRPORT MASTER PLAN UPDATE

DRAWING NAME:

TERMINAL AREA DRAWING

FAA AIP # / STATE GRANT #

3-12-0054-018-2014 / 418297-1-94-01

DIVISION: PLANNING

DATE:	DRAWING NUMBER:
JANUARY 2019	15

Y:\Planning\EVB - New Smyrna Beach Municipal Airport\Master Plan Update\Drawings\ALP Set\15_Terminal Area.dwg Modified: Jan 28, 2019 - 11:04am Plotted: Jan 28, 2019 - 11:04am sprazza\kwyrh



LAND USE LEGEND (SEE NOTE 3)	
COLOR	DESCRIPTION
	AGRICULTURAL
	MARINA
	AIRCRAFT OPERATIONS AREA (AOA)
	COMMERCIAL
	INDUSTRIAL
	RECREATION
	CONSERVATION
	RURAL
	RESIDENTIAL-ESTATE
	LOW DENSITY RESIDENTIAL
	HIGH DENSITY RESIDENTIAL
	OPEN SPACE
	INSTITUTIONAL
	AVIATION RELATED

LEGEND	
SYMBOL	DESCRIPTION
	2009 65 DNL CONTOUR (PART 150 STUDY)
	2014 65 DNL CONTOUR (PART 150 STUDY)
	EXISTING PROPERTY LINE
	FUTURE PROPERTY LINE

NEW SMYRNA BEACH
MUNICIPAL AIRPORT
NEW SMYRNA BEACH, FLORIDA

Michael Baker
INTERNATIONAL

DESIGNER:	CHECKED BY:
APN	MJK
TECHNICIAN: APN	PROJECT NUMBER: 146328

GENERAL NOTES:

1. EXISTING BASE MAPPING WAS OBTAINED FROM A SURVEY, FLOWN NOVEMBER 2015.
2. CHAPTER 22 OF THE CITY OF NEW SMYRNA BEACH CODE OF ORDINANCES (SECTIONS 22-92 AND 22-93) ESTABLISHES FOUR "AIRPORT OVERLAY ZONES OF INFLUENCE" SURROUNDING EVB AND ALSO DESCRIBES NOTIFICATION REQUIREMENTS. THE ZONES ADDRESS HEIGHT RESTRICTIONS, RPZ COMPATIBILITY, AND NOISE EXPOSURE.
3. LAND USE INFORMATION WAS OBTAINED FROM THE CITY OF NEW SMYRNA BEACH COMPREHENSIVE PLAN, 2015 FUTURE LAND USE MAP. THE AOA, OPEN SPACE, INSTITUTIONAL, AND AVIATION RELATED WERE CREATED AS PART OF THIS ALP UPDATE.

REVISIONS

NO.	DESCRIPTION	DATE	BY

PROJECT NAME:
AIRPORT
MASTER PLAN UPDATE

DRAWING NAME:
LAND USE DRAWING

FAA AIP # / STATE GRANT #
3-12-0054-018-2014 / 418297-1-94-01

DIVISION: PLANNING

DATE:	DRAWING NUMBER:
JANUARY 2019	16

C:\Users\agnazarko\ywychkoposta\localfiles\ynj1vA-Polish_-_110816_Land_Use.dwg Modified: Jan 28, 2019 - 11:05am Plotted: Jan 28, 2019 - 12:26pm agnazarkowych

PARCEL LEGEND

- A1 RELEASED FROM AERONAUTICAL PURPOSES ON MAY 19, 1959 AND REMAINS RELEASED.
- A2 RELEASED FROM AERONAUTICAL PURPOSES ON MAY 19, 1959. REOBLIGATED BY CITY COMMISSION APPROVAL ON JUNE 2, 1977. NO SURVEY DATA EXISTS FOR THE REOBLIGATED PARCELS.
- B1 RELEASED FROM AERONAUTICAL PURPOSES ON MAY 19, 1959 AND REMAINS RELEASED.
- B2 RELEASED FROM AERONAUTICAL PURPOSES ON MAY 19, 1959. REOBLIGATED BY CITY COMMISSION APPROVAL ON JUNE 2, 1977. NO SURVEY DATA EXISTS FOR THE REOBLIGATED PARCELS.
- C1 RELEASED FROM AERONAUTICAL PURPOSES ON MAY 19, 1959 AND REMAINS RELEASED.
- C2 RELEASED FROM AERONAUTICAL PURPOSES ON MAY 19, 1959. REOBLIGATED BY CITY COMMISSION APPROVAL ON JUNE 2, 1977. NO SURVEY DATA EXISTS FOR THE REOBLIGATED PARCELS.
- D1 RELEASED FROM AERONAUTICAL PURPOSES ON MAY 19, 1959 AND REMAINS RELEASED.
- D2 RELEASED FROM AERONAUTICAL PURPOSES ON MAY 19, 1959. REOBLIGATED BY CITY COMMISSION APPROVAL ON JUNE 2, 1977. NO SURVEY DATA EXISTS FOR THE REOBLIGATED PARCELS.



MAGNETIC DECLINATION 6° 40' 0" W ± 0° 20' MAY 2017
ANNUAL RATE OF CHANGE 0° 5' W
SOURCE: NATIONAL GEOPHYSICAL DATA CENTER
0 300' 600'
SCALE: 1" = 300'
HORIZONTAL SCALE

PROPERTY TRANSACTIONS			
ID	ACREAGE	DATE SOLD	PURCHASER
1	1.07	6/14/1962	ANTHONY BARBERA
2	1.98	2/18/1963	EDWARD F. WILKINSON
3	0.08	11/14/1963	FLORIDA GAS TRANSMISSION CO.
4	14.24	5/19/1971	J. HERBERT OGDEN
5	2.93	5/3/1976	ROBERT W. BAKER & DONALD E. QUINLAND
6	5.56	10/27/1971	SE VOLUSIA COUNTY COMMITTEE OF 100, INC.
7	0.25	11/10/1975	ANTHONY BARBERA
8	0.21	1/19/1976	EDWARD F. WILKINSON
9	1.77	4/30/1979	CHARLES H. & SHIRLEY A ROLLASON
10	1.89	6/5/1979	VERN BLANCHARD
11	4.35	7/25/1979	HARRY S. DOAN
12	1.38	2/127/1980	DENNIS HIGGINBOTHAM
13	4.68	1/29/1981	HARRY S. DOAN
14	1.77	6/4/1981	PENTACOM
15	2.00	9/20/1982	RICHARD A. FOOTE
16	3.55	6/24/1983	GOSS, INC.
17	4.07	5/11/1984	SPECIALIZED ICE PACKAGING
18	1.29	5/25/1984	DENNIS HIGGINBOTHAM
19	2.68	6/19/1984	ALVIN E. SMITH
20	1.00	2/15/1985	VERNON J. WINDHOLZ
21	1.15	5/15/1986	FRANK ANDERSON
22	1.05	8/11/1986	W. RUDOLPH CORPORATION
23	2.97	8/26/1987	VOLUSIA COUNTY SCHOOL BOARD
24	0.85	11/25/1996	DENNIS HIGGINBOTHAM
25	9.03	5/5/1999	CITY OF NEW SMYRNA BEACH
26	1.28	8/14/2007	VOLUSIA COUNTY SCHOOL BOARD
27	2.16	2/11/2005	AQUACELL BATTERIES, INC.
28	1.4	9/17/2004	DAVID E. GRISWOLD
29	4.8	9/18/2004	DAVID E. GRISWOLD

PROPERTY & EASEMENT TOTALS	
ITEM	ACREAGE
EXISTING PROPERTY	634.8
FUTURE PROPERTY	16.6
PROPERTY TOTAL	651.4
EXISTING EASEMENTS	0.0
FUTURE EASEMENTS	42.4
EASEMENT TOTAL	42.4

FUTURE AVIGATION EASEMENTS		
ID	NOTES	ACREGE
E1	AVIGATION	7.8
E2	AVIGATION	0.08
E3	AVIGATION	0.02
E4	AVIGATION	0.05
E5	AVIGATION	15.3
E6	AVIGATION	7.0
E7	AVIGATION	12.1
FUTURE EASEMENT TOTAL		42.4

FUTURE PROPERTY ACQUISITION				
ID	GRANTOR	GRANTEE	INSTRUMENT	ACREAGE
P1	MOMENTIVE PERFORMANCE MATERIALS	CITY OF NEW SMYRNA BEACH	FEE SIMPLE	3.3
P2	MOMENTIVE PERFORMANCE MATERIALS	CITY OF NEW SMYRNA BEACH	FEE SIMPLE	1.6
P3	JOYCE E. TUMBLIN TRUST	CITY OF NEW SMYRNA BEACH	FEE SIMPLE	5.8
P4	GEROGE H. & VIRGINIA S. BAKER	CITY OF NEW SMYRNA BEACH	FEE SIMPLE	3.8
P5	FRANK H. NORMAN	CITY OF NEW SMYRNA BEACH	FEE SIMPLE	1.9
P6	EPIC AVIATION INC.	CITY OF NEW SMYRNA BEACH	FEE SIMPLE	0.21
FUTURE PROPERTY TOTAL				16.6

1. PARCEL NUMBER 1 THROUGH 29 ARE NOT OWNED BY THE AIRPORT.
2. PARCEL 25 WAS REACQUIRED BY THE AIRPORT IN MAY 1959 THROUGH A FEE SIMPLE PURCHASE.

LEGEND		
DESCRIPTION	EXISTING	FUTURE
PROPERTY LINE		
BUILDINGS		
PAVEMENT		
RUNWAY MARKINGS		
RSA		
ROFA		
OFZ		
RVZ		
NAVAIDS / LIGHTING	****	
PAVEMENT REMOVAL	N/A	
EASEMENT	N/A	

NEW SMYRNA BEACH
MUNICIPAL AIRPORT
NEW SMYRNA BEACH, FLORIDA

Michael Baker INTERNATIONAL

DESIGNER:	CHECKED BY:
APN	MJK
TECHNICIAN: APN	PROJECT NUMBER: 146328

GENERAL NOTES:

1. EXISTING BASE MAPPING WAS OBTAINED FROM A SURVEY, FLOWN NOVEMBER 2015.
2. THE INFORMATION ON THIS DRAWING WAS DERIVED FROM A 2005 PROPERTY MAP AND PARCEL DATA FROM THE VOLUSIA COUNTY COUNTY PROPERTY APPRAISER. INFORMATION FROM THE PREVIOUS PROPERTY MAP COULD NOT BE VERIFIED AS PART OF THIS EFFORT. AN EXHIBIT 'A' PROPERTY MAP UPDATE IS RECOMMENDED.
3. CHAPTER 22 OF THE CITY OF NEW SMYRNA BEACH CODE OF ORDINANCES (SECTIONS 22-92 AND 22-93) ESTABLISHES FOUR "AIRPORT OVERLAY ZONES OF INFLUENCE" SURROUNDING EVB AND ALSO DESCRIBES NOTIFICATION REQUIREMENTS. THE ZONES ADDRESS HEIGHT RESTRICTIONS, RPZ COMPATIBILITY, AND NOISE EXPOSURE.
4. THE PARCEL DATA WAS OBTAINED FROM THE VOLUSIA COUNTY PROPERTY APPRAISER. THE LINES SHOWN DO NOT NECESSARILY REPRESENT THE ACTUAL PROPERTY TRANSACTIONS SHOWN IN THE TABLE BUT ILLUSTRATE PARCEL BOUNDARIES AS OF NOVEMBER 2017.

REVISIONS

NO.	DESCRIPTION	DATE	BY

PROJECT NAME:

AIRPORT
MASTER PLAN UPDATE

DRAWING NAME:

AIRPORT PROPERTY MAP

FAA AIP # / STATE GRANT #
3-12-0054-018-2014 / 418297-1-94-01

DIVISION: PLANNING

DATE:	DRAWING NUMBER:
JANUARY 2019	17

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City of New Smyrna Beach

Catch The Charm

July 3, 2019

Congressman Michael Waltz
District Office
Port Orange City Hall
1000 City Center Circle, 2nd Floor
Port Orange, FL 32129

Dear Congressman Waltz:

As you may recall during your visit to the airport, we have a looming FAA decision on July 10th that would legislatively downsize the New Smyrna Beach Airport. This would negatively impact revenue for the airport, the FAA/DOT authorized commuter air carrier and other aviation businesses based on the field, as well as many other local businesses, prominent local residents, and thousands of guest so critical to our local economy.

If the decision is made by the FAA to publish the declared distance for runway 07/25, it would effectively close the airport to certain types of aircraft and threaten the nearly $200M in economic impact the airport brings to New Smyrna Beach and the surrounding area. Currently, our airport is the 4th busiest Federal Contact Tower in the United States, as well as a reliever airport for Daytona Beach International and Orlando International airports - this would dramatically change that.

We have been working on this issue with the FAA, local aviation business owners, and an aviation consulting company. The consulting company has evaluated the runway 07/25 deficiencies and will be preparing a report providing alternatives to avoid shortening the runway. The report with data justifying the need for a 5000' runway based on critical aircrafts that operate from our airport, will be sent to the FAA on or before July 10th.

However, due to the significant potential negative economic impacts of an unfavorable decision, I am asking for any additional help you can provide. We need your support in asking the FAA to further delay publishing the declared distance for runway 07/25 until such time as the city is able to provide a viable alternative to ensure uninterrupted services to our business partners.

Finally, it should be noted, this is not a request for any expansion of the capabilities of the airport. We are asking for protection of what is currently permitted and what our business partners have tailored their operations around.

Thank you for your time on this matter, and for your continued support and outstanding representation of New Smyrna Beach! I've spoken to many people in our community, who saw the pictures and video from the D-Day event - what an amazing tribute.

Sincerely,

Russ Owen,
Mayor

Cc: Khalid Resheidat, Interim City Manager
Rhonda Walker, Airport Manager

City of New Smyrna Beach

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1000 City Center Circle, 2nd Floor
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Sincerely,

Russ Owen,
Mayor

COPY

Cc: Khalid Resheidat, Interim City Manager
Rhonda Walker, Airport Manager

City of New Smyrna Beach

Catch The Charm

July 3, 2019

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District Office
Port Orange City Hall
1000 City Center Circle, 2nd Floor
Port Orange, FL 32129

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Sincerely,

Russ Owen,
Mayor

Cc: Khalid Resheidat, Interim City Manager
Rhonda Walker, Airport Manager

CHALLENGER 350

TAKEOFF SPEEDS/FIELD LENGTH – FLAPS 20

FLAPS 20°
ENGINE BLEED ON

DRY RUNWAY TAKEOFF DATA
ALTITUDE SEA LEVEL

TAKEOFF SPEEDS (KIAS) AND FIELD LENGTH (FT)

WT (LB) / V1 (KIAS)	DATA	TEMPERATURE °C													
		-40	-30	-20	-10	0	10	15	20	25	30	35	40	45	50
38000 / 135	V_1	119	119	119	119	119	119	119	119	119	119	118	118	117	117
	V_R	119	119	119	119	119	119	119	119	119	119	118	118	117	117
	V_2	130	130	130	129	129	129	129	128	128	128	127	126	125	123
	TOFL	2970	3080	3180	3300	3410	3520	3580	3630	3690	3750	3870	4040	4230	4440
36000 / 140	V_1	119	119	119	119	118	118	118	118	118	118	118	117	117	117
	V_R	119	119	119	119	118	118	118	118	118	118	118	117	117	117
	V_2	129	128	128	128	128	127	127	127	127	127	126	125	124	122
	TOFL	3040	3150	3260	3380	3500	3610	3670	3730	3780	3850	3980	4160	4360	4590
32000 / 144	V_1	118	118	118	118	118	118	118	118	118	118	118	117	117	117
	V_R	118	118	118	118	118	118	118	118	118	118	118	117	117	117
	V_2	127	127	127	127	126	126	126	126	126	126	125	124	123	121
	TOFL	3120	3230	3340	3460	3580	3700	3760	3820	3880	3950	4090	4290	4500	4750
35000 / 145	V_1	118	118	118	118	118	118	118	118	118	118	117	117	117	117
	V_R	118	118	118	118	118	118	118	118	118	118	117	117	117	118
	V_2	126	126	126	125	125	125	125	125	125	124	124	123	122	122
	TOFL	3190	3310	3420	3550	3670	3800	3860	3920	3980	4050	4200	4410	4650	4950
30000 / 153	V_1	118	118	118	118	118	118	118	118	118	117	117	118	120	122
	V_R	119	119	119	119	119	119	119	119	119	119	120	120	121	122
	V_2	125	125	125	125	125	125	125	125	125	125	125	125	125	125
	TOFL	3270	3390	3510	3630	3760	3890	3950	4010	4080	4150	4310	4650	5060	5580
28000 / 157	V_1	122	121	121	121	121	121	121	121	121	121	122	123	125	126
	V_R	123	123	123	123	123	123	123	123	124	124	124	124	125	126
	V_2	129	129	129	129	129	129	129	129	129	129	129	129	129	129
	TOFL	3560	3690	3800	3950	4090	4240	4300	4360	4430	4520	4770	5180	5680	6380
40600 / 163	V_1	127	127	126	126	126	126	126	126	126	126	127	128	130	130
	V_R	128	128	128	128	128	128	128	128	128	128	128	129	130	130
	V_2	133	133	133	133	133	133	133	133	133	133	133	133	133	133
	TOFL	4010	4150	4280	4450	4610	4770	4840	4920	4990	5090	5410	5910	6560	7470

CSEG_QRH_IMP_TO_F20_0FT_DRY_ECS_01MAY14

NOTES:

1. Applicable for ZERO Runway Gradient and ZERO Wind Conditions ONLY.
2. For Runway Gradient and Wind corrections, see corrections page.
3. Add 100 feet to the takeoff field length when using the rolling takeoff preocedure. See AFM for procedure.

MAX T.O. WT
40,600 @ 30°C
5090

TAKEOFF SPEEDS/FIELD LENGTH – FLAPS 20

FLAPS 20° **WET RUNWAY TAKEOFF DATA**

ENGINE BLEED ON **ALTITUDE SEA LEVEL**

TAKEOFF SPEEDS (KIAS) AND FIELD LENGTH (FT)															
WT (LB) V_{FTO} (KIAS)	DATA	TEMPERATURE °C													
		–40	–30	–20	–10	0	10	15	20	25	30	35	40	45	50
28000 V_{FTO}=135	V_1	119	119	119	119	119	119	119	119	119	119	118	118	117	117
	V_R	119	119	119	119	119	119	119	119	119	119	118	118	117	117
	V_2	130	130	130	129	129	129	129	128	128	128	127	126	125	123
	TOFL	3400	3530	3660	3800	3930	4080	4140	4210	4280	4360	4500	4680	4890	5110
30000 V_{FTO}=140	V_1	119	119	119	119	118	118	118	118	118	118	118	117	117	117
	V_R	119	119	119	119	118	118	118	118	118	118	118	117	117	117
	V_2	129	128	128	128	128	127	127	127	127	127	126	125	124	122
	TOFL	3490	3630	3760	3910	4050	4200	4270	4340	4410	4490	4640	4840	5060	5310
32000 V_{FTO}=144	V_1	118	118	118	118	118	118	118	118	118	118	118	117	117	117
	V_R	118	118	118	118	118	118	118	118	118	118	118	117	117	117
	V_2	127	127	127	127	126	126	126	126	126	126	125	124	123	121
	TOFL	3590	3730	3870	4020	4170	4320	4390	4470	4540	4620	4780	5000	5240	5500
34000 V_{FTO}=149	V_1	118	118	118	118	118	118	118	118	118	118	117	117	117	116
	V_R	118	118	118	118	118	118	118	118	118	118	117	117	117	118
	V_2	126	126	126	125	125	125	125	125	125	124	124	123	122	122
	TOFL	3680	3820	3970	4130	4280	4440	4510	4590	4670	4760	4930	5160	5410	5690
36000 V_{FTO}=153	V_1	118	118	118	118	118	118	118	118	118	117	117	117	117	116
	V_R	119	119	119	119	119	119	119	119	119	119	120	120	121	122
	V_2	125	125	125	125	125	125	125	125	125	125	125	125	125	125
	TOFL	3780	3920	4070	4240	4400	4560	4640	4710	4790	4890	5070	5310	5580	5890
38000 V_{FTO}=157	V_1	118	118	118	118	117	117	117	117	117	117	117	117	117	120
	V_R	123	123	123	123	123	123	123	123	124	124	124	124	125	126
	V_2	129	129	129	129	129	129	129	129	129	129	129	129	129	129
	TOFL	3870	4020	4180	4340	4510	4680	4760	4840	4920	5020	5210	5470	5850	6490
40600 V_{FTO}=163	V_1	119	119	119	119	119	119	119	119	118	118	119	121	123	126
	V_R	128	128	128	128	128	128	128	128	128	128	128	129	130	130
	V_2	133	133	133	133	133	133	133	133	133	133	133	133	133	133
	TOFL	4120	4270	4420	4600	4780	4960	5040	5120	5200	5300	5610	6090	6730	7470

C350_QRH_IMP_TO_F20_0FT_WET_ECS_01MAY14

NOTES:

1. Applicable for ZERO Runway Gradient and ZERO Wind Conditions ONLY.
2. Appliable for Two Operable Thrust-Reversers
3. For Runway Gradient and Wind corrections, see corrections page.
4. Add 100 feet to the takeoff field length when using the rolling takeoff preocedure. See AFM for procedure.

Wet Runway
30° limited to 36,000 lbs
4890 ft

Airgate Aviation, Inc.
2022 Aero Circle
New Smyrna Beach, Florida 32168

Via email and hand delivery

Rhonda Walker, Manager
New Smyrna Beach Municipal Airport
602 Skyline Drive
New Smyrna Beach, Florida 32168

Re: Jet operations at KEVB

Dear Rhonda,

Per our discussion yesterday regarding the number of observed jet operations at KEVB, please note the following. As we discussed, our records for the FBO operation reflect: (i) 22 jet operations during the first 8 days of March 2019; (ii) 58 jet operations during the month of February 2019; and (iii) 68 jet operations during the month of January. The results can be extrapolated to reflect an average of 64 jet operations per month or approximately 768 jet operations per year at KEVB. Examples of the jet operations include, but are not limited to, Citation XLs, Gulfstreams (Gulfstream G150), Hawkers, CJ2 – CJ4s, and Beechjets,

Please note that these numbers are limited to traffic observed through the FBO and do not include other operators/operations on the airport. Further, the above numbers do not reflect the operation of the five Cessna Citations that we own and operate. As such, the operations with respect to Airgate's commuter and on-demand part 135 service and/or any part 91 flights are not included in the above numbers. Rather, those operations would add to and increase both the monthly and yearly number of jet operations conducted at KEVB. Projections and historic data regarding our operations indicate that our jet operations will exceed 500 per year.

Should you have any questions, please do not hesitate to contact my office.

Respectfully,

Joseph W. Zitzka,
President

September 29, 2005

Mr. David A. Roberts
Airport Inspection and Safety Manager
Florida Department of Transportation
605 Suwannee Street
Tallahassee, FL 32399-0450

RE: Response to Inspection Results and Airfield Deficiencies
New Smyrna Beach Municipal Airport

Dear Mr. Roberts:

The following is in response to the airfield deficiencies recorded on April 28th for the New Smyrna Beach Municipal Airport. The following comments are from your letter dated July 7, 2005:

1. The safety area for Runway 02 is only 223 feet long due to a fence. The fence should be relocated, the runway end relocated, or a declared distance installed to lengthen the safety area to at least 240 feet.

Response - At this time the airport engineer is considering various options for the re-surfacing of Runway 02-20. Since this secondary crosswind runway is not required based on the wind analysis, the most economical form of re-surfacing is essential in order for the City to accomplish this project. At the time that the runway is re-surfaced, either the Runway 02 end will be relocated or declared distances will be applied.

2. The safety area for Runway 06 is only 133 feet long due to a fence. The fence should be relocated, the runway end relocated, or a declared distance installed to lengthen the safety area to at least 240 feet.

Response - As part of the recently approved 2005 Airport Master Plan Update, new aerial photogrammetry was flown for the airport. This new data along with the runway endpoint data provided a lot of valuable information for the airport. Among which is that Runway 06-24 will need to be re-designated as Runway 07-25 in the future. Also, during the Master Plan process, it was determined that the Airport Reference Code is B-II with only visual approaches for both the existing and future conditions. Therefore, we have applied a Runway Safety Area (RSA) of 150 feet wide by 300 feet long and a Runway Object Free Area (ROFA) of 500 feet wide by 300 feet long to this runway.

Using the new photogrammetry, only 114 feet is available for the more demanding ROFA. Currently the Runway 07 threshold is displaced 335 feet. This displacement provides the proper approach clearance over Sunset Road. Also, by applying declared distances, this displaced threshold provides a more than adequate ROFA and RSA. This application of declared distances is depicted on the Airport Layout Plan (ALP) approved by the Federal Aviation Administration on May 6, 2005. A copy of the ALP is attached.

3. The safety area for Runway 24 is only 182 feet long due to a fence. The fence should be relocated, the runway end relocated, or a declared distance installed to lengthen the safety area to at least 240 feet.

Response - The new photogrammetry showed that only 169 feet is available for the Runway 25 ROFA. Currently the Runway 25 threshold is displaced 300 feet. This displacement provides the proper approach clearance over U.S. Highway 1. Also, by applying declared distances, this displaced threshold provides a more than adequate ROFA and RSA. This application of declared distances is depicted on the ALP approved by the Federal Aviation Administration on May 6, 2005. A copy of the ALP is attached.

With respect to the required updates to the Airport Facility Directory and the Airport Master Record, we have marked-up the copies you have provided for both. In order update the Airport Facility Directory, we ask that you revise the Airport Inspection Record based on the information in this letter and mark-ups attached. Then once the designation of Runway 06-24 is changed to Runway 07-25 in an upcoming lighting and marking project, we will submit the updated Airport Inspection Record to the addresses you provided. This will avoid having to re-submit changes more than once in a few months time.

Should you have any questions, do not hesitate to contact me.

Sincerely,

Rhonda Walker
Assistant Public Works Director

Enclosures

Cc: Mr. Brian Pendleton, Airport Engineering Company, Inc.
Mr. Douglas DiCarlo, Hoyle, Tanner & Associates, Inc.

TECHNICAL ADVISORY COMMITTEE MEETING
MINUTES
SEPTEMBER 20, 2018

The Technical Advisory Committee held a meeting on Thursday, September 20, 2018 at the City Commission Chambers, 210 Sams Avenue, New Smyrna Beach, Florida. Philip Jufko, consultant for Michael Baker International Consultant Firm called the meeting to order at 10:05 a.m.

The following members and support staff were present:

Jim Zeiler, ATCT Manager
Keith Goodrum, Airport Advisory Board Member
Joe Zitzka, Airgate Aviation
Frank Norman, Airgate Aviation
Mike Smyser, Bi-Plan Operation
Gary Norville, Airport Advisory Board Member
Jeff Mitchell, American Aero
Janet Tinoco, Embry-Riddle Aeronautical University
William Feger III, Airport Advisory Board Member
Eileen Smyser, Airport Advisory Board Member
Jim Wikstrom, FDOT District 5
Michael Thompson, Michael Baker International
Philip Jufko, Michael Baker International
Khalid Resheidat, Assistant City Manager
Amye King, Planning Director
Tony Otte, Economic Development Director

Also present were Recording Secretary Tammy Dickerson, Nancy Anderson and members of the public and press.

Discuss updated Airport Master Plan

Philip Jufko, Project Manager with Michael Baker International consultant firm, stated his name then addressed the committee. He stated that they would do a run through on the Airport Master Plan for the ones that weren't at the Airport Advisory Board meeting. He had everyone introduce themselves. He then gave a PowerPoint presentation and discussed the Airport Master Plan process.

Khalid Resheidat stated that he doesn't want to rush the process and if we need more meetings we will have them. He stated that when it goes back before the Airport Advisory Board (AAB) and then the City Commission he wants to make sure that we have discussed all the concerns. He stated that if we don't come to a consensus now in this meeting then we will have another meeting.

Gary Norville, stated his name then addressed the committee. He stated that in the design group of aircraft we operate group 3 aircraft so the wingspan is what puts us in that category so in planning we need to make sure we have at least 118 feet. Our

aircraft have wingspans that are at least 100-110 feet so we need to plan for these planes to get around the airport.

Mr. Jufko stated that some of the areas would not be designed for that but as we get closer to your area they would be. He stated that this airport is designed for group 2 but as things change at the airport we would need to make sure the facilities meet those group 3 standards.

Jeff Mitchell stated that the airplanes that we maintain don't need the extreme length but we need wingtip clearance.

Mr. Norville stated that in the future when considering changes to the airport that we consider that we need group 3 in order to taxi in and out of the facility.

Mr. Jufko asked if there was a particular aircraft that is driving that.

Mr. Norville stated the following aircraft: 2- Boeing B17's, Consolidated B24 and future PBY and C47.

Mike Smyser stated his name then addressed the committee. He asked what the section 6-1 means talking about preferred alternatives.

Mr. Jufko stated that we are looking at several different alternatives for developing on the airport. He stated that we have come up with several different alternatives which doesn't always meet everyone's needs at the airport but there are positives to several of them. He stated that sometimes we end up with a hybrid solution for development as a result. He said such as hangar development we came up with several alternatives for hangar development but only parts of it ended up on the finish line for several reasons such as allowing for future expansion and access capability. So the preferred is what we studied during the preliminary draft which we considered some of the feedback we received from these alternatives also.

Mr. Smyser stated that looking at section 6-1 it talks about what is going to happen with runway 7-25 but it doesn't talk about runway 11-29. He stated that you have in here the 2 runways but what about the runway that is going to retain the 5000 feet that is needed for airport operations. He stated that this seems like the whole crutch of the time line to implement so this declared distance doesn't impede the use of the airport for the clients that normally use the airport. He stated that this is the problem he sees with the preferred alternative which he would say is not a preferred alternative in his view. He stated that this is a compromise because we are dealing with a lot of factors.

Mr. Jufko stated that is exactly what it is a compromise. He stated that we are trying not to impact the community and balancing both the airport and the community. He stated that this has to be resolved or they aren't going to let you continue to operate without resolving this issue with the deficiencies. He stated that the only way to do this without relocating US1 or Sunset Drive is through these declared distances.

Mr. Smyser stated that another issue is the Engineered Materials Arresting System (EMAS) alternative and the Federal Aviation Administration (FAA) orders 5200.9 references that. He stated that seems like an obvious solution for 7-25 to mitigate the problems. He stated that it is proposed in the order so we don't have to have these declared distances as an obstacle.

Joe Zitzka stated his name then addressed the committee. He stated that is one of the questions he has also. He stated that when you look at the grant assurance rules there are affirmative obligations to preserve and protect the runway lengths across the airport. He stated that leads in to the orders 5200.8 and 5200.9 and other mitigation options. He stated that if he reads it correctly there is an affirmative obligation to first go out to see if you can acquire property and if that isn't feasible there is a list of hierarchy that you can look at before you get to the declared distance decision and studies are required to be done before you go out to try and acquire property and declaring distances. He asked what we did in between going out and buying additional property to let's just change the declared distances?

Mr. Jufko stated that is was determined in the previous master plan and validated in this master plan that 11-29 would still be the best way of accomplishing the lengths that were needed.

Mr. Zitzka asked if we are following the hierarchy of options and did the studies that are required or did we simply play off the 2005 master plan.

Mr. Jufko stated that 7-25 is not determined to be the best runway to accomplish the length that is needed even if there are ways to get length on that runway. He stated that there was more length and land available on the airport to make it happen for 11-29.

Mr. Zitzka stated that given the annual service volume for each of the runways that we have isn't it prudent to look at both 11-29 and preserving 7-25.

Mr. Jufko stated that the airport doesn't have a capacity issue problem as far as the annual service volume.

Mr. Zitzka stated that he thought the numbers in the plan suggest that with the annual service volume we need all 3 runways.

Mr. Jufko stated that yes if the airport gets rid of a runway it will cause a problem.

Mr. Zitzka stated that if we change the declare distances then that will effectively get rid of a runway.

Mr. Jufko stated that the declared distance issue that needs to occur on 7-25 came out from the agencies during the review process and we are hopeful that the airport will be able to operate how they have in the past.

Frank Norman stated his name then addressed the committee. He asked if there was a possibility of having a traffic control device on Sunset Drive for landing aircraft and that there are airports that have these. He stated that maybe it could be used as a temporary solution while extending 11-29. He stated that could be something that the airport and the community could deal with together as a solution.

Mr. Jufko stated that the city needs to have a follow up meeting with the FAA and Florida Department of Transportation (FDOT) to discuss options on this immediate impact on the airport. He stated that would only be a temporary solution there will need to be a permanent solution that meets the design criteria.

Mr. Zitzka asked if we could pick the alternative to pursue options laid out in the orders 5200.8 and 5200.9 as the preferred method as opposed to just changing declared distances which causes an immediate substantial hardship and there are a number of airports around the country that have mitigation agreements regarding the runway safety areas. He stated that if the runway safety areas can be adjusted there are a ton of mitigation options that we might be able to have an irregular runway safety area that would address it and our historic operations are favorable. He stated that with these situations he would think that we would be able to ask for a waiver or we just change the declared distances which we know will cause an immediate problem.

Mr. Jufko stated that some of those issues are the reason the city needs to meet with the FAA and the FDOT.

Mr. Zitzka asked if these options could be put in to the master plan instead of making the suggestion that we change the declared distances.

Mr. Jufko stated that the meeting needs to happen soon and prior to any submittal.

Mr. Zitzka asked if the consultant could help with the waiver process or would that have to be the city with the FDOT and FAA.

Michael Thompson stated the determination of practicability falls solely under the FAA. He stated that is not feasible to put in the master plan without the owner sitting down with the FAA. He stated that it's important for the city and the FAA to come to an agreement on what those acceptable distances are going to be because once it's published all pilots in the world are going to see them.

Mr. Zitzka stated that it will be a major adverse impact on Airgate and many of the transient aircraft that come in to the airport. He stated that we have insurance requirements and 135 obligations.

Mr. Thompson asked what the insurance length requirements were on worse case for takeoff and landing.

Mr. Norman stated that in general with most jet operations it's a minimum 5000 foot runway.

Mr. Zitzka stated that in 2015 Hilton Head had an issue on the length of their runway not being 5000 feet and the FAA published something that they would defund an airport that didn't have at least one 5000 foot runway. He asked if our airport was at risk for that since we are a reliever airport.

Mr. Thompson stated that he was not familiar with that but that might be the standard for FDOT. He stated that when you are not in compliance with FAA design standard you are at risk for violating your grant assurances and excluding yourself for public money participation in the future.

Mr. Zitzka asked if we could go to the FAA and tell them we have a commuter with 10+ years' operating on the field and is that a reason to seek modification.

Mr. Thompson stated that the burden isn't on the operator it is on the owner of the airport. He stated that it's the city's responsibility to operate a safe and efficient public use airport and in order to do that they are given guidelines to follow and it's their obligation to provide that. He stated that his suggestion would be to petition the local FAA to help the city achieve that.

Janet Tinoco asked if they knew what the economic impact would be to ceasing operations to the stakeholders at the airport and also the city.

Mr. Zitzka stated that it would be tens of millions, that our direct impact on the last FDOT report was $43 million.

Ms. Tinoco stated that the city just needs to understand the economic details of that.

Mr. Resheidat asked if the FAA agrees to the city's request how long would it take to achieve the goals.

Mr. Thompson stated that he did not know that would have to come from FAA and FDOT. He stated that he knows that it's their primary goal to correct nonstandard conditions, safety and to make up for those deficiencies by use of declared distances short of relocating roads.

Mr. Resheidat asked if we declare the distances on 11-29 what will be the actual length of the runway prior to the extensions.

Mr. Jufko stated that it is 4319 feet.

Mr. Norman asked if the extension on 11-29 were to be successful would it still include an instrument approach to 11. He stated that was one of the reasons to preserve 7-25 at 5000 feet because it does have the approaches there.

Mr. Jufko stated that it could be very difficult to have the instrument approach there.

Mr. Norman stated that this is another thing to look at for the operations at the airport.

Mr. Resheidat asked if the suggestion that Mr. Norman had about the traffic control on Sunset Drive could be permanent or is that only a temporary standpoint.

Mr. Jufko stated that he can't see this being a permanent solution but when meeting with the FAA and the FDOT we need to have some sort of solution when requesting a meeting with them.

Amye King asked why Mr. Jufko thought it would be a temporary solution.

Mr. Jufko stated that they are looking for a solution that meets the FAA design standards.

William Feger stated that he was hoping to find out today why 5000 feet is critical, what are the positives if we meet that or the adverse effects if we don't and maybe we should try to achieve to find more land since the airport is expanding.

Mr. Resheidat stated that our next step is to meet with the FAA and maybe the FDOT.

Mr. Zitzka asked if Airgate was able to attend that meeting.

Mr. Resheidat stated that he will ask but in the past that wasn't the case.

Mr. Jufko stated that after that meeting there might be more direction from there but at least they will know why the master plan hasn't been turned in from that meeting.

Ms. King asked if we should go ahead and install the signal on Sunset Drive before the meeting with the FAA and the FDOT.

Mr. Resheidat stated that needed to wait until after the meeting. He asked if we had to relocate Sunset Drive to the west how far would that be.

Mr. Thompson showed the committee on the power point presentation what it would look like if they relocated Sunset Drive.

Mr. Resheidat stated that if there was an emergency in Islesboro and US1 was blocked they would not be able to get out of their neighborhood.

Mr. Zitzka stated that he thought that it would be nice to have a customs based at the airport and that hasn't been addressed in the master plan. He stated that it looks like to him that the current office could be converted to customs and he didn't know if that should be addressed in the master plan. He stated that hangar buildings B and C need to come down and there is nothing in the master plan on what will be replacing it but

that might be a nice place to move the FBO to with a nicer newer building. He asked if these need to be addressed in the master plan or is there flexibility on where things can be located.

Mr. Norman stated that he would like to add larger plane ramp parking also.

Mr. Jufko stated that he would like to see what the ideas are.

Mr. Zitzka stated that he would be happy to meet with him and share what he had talked with the airport manager about.

Mr. Norman asked if the traffic control device on Sunset was a possible short term solution.

Mr. Jufko stated that they will talk to the FAA and FDOT to see if it's possible but he won't add it to the master plan until they know for sure.

Mr. Resheidat stated that we will look at all the options and then staff will take a recommendation to the AAB.

Mr. Jufko stated that maybe the follow up meeting should be with the AAB not the TAC since we are down to just a few issues at this point.

Keith Goodrum stated his name then addressed the committee. He asked what the time frame was on submitting the master plan.

Mr. Jufko stated that the FAA is looking for it now.

Mr. Goodrum asked what the time frame was for implementing the plan.

Mr. Jufko stated that once it is submitted they will implement the declared distances very soon after it is received and that will cause hardships for businesses at the airport and we won't be able to negotiate as easily with it already submitted.

Mr. Goodrum asked if they will accept amendments to it afterwards.

Mr. Jufko stated that the process has taken too long at this point.

Mr. Goodrum asked if there were priorities on how the airfield improvements are carried out.

Mr. Jufko stated that they have been prioritized in the plan by triggers.

Mr. Otte stated that during the negotiation the serious economic impact needs to be presented to the FAA and the FDOT.

Mr. Jufko stated that a good start would be a letter to the city from Airgate Aviation on what would be that economic impact.

Mr. Thompson stated that the FAA and FDOT guidelines won't entertain build it and they will come.

Mr. Zitzka stated that he will base it on their current operations and their current customers that operate on the field.

Mr. Thompson stated that you need to approach this as to improving and enhancing the safety and how can the FAA help you do that and help us understand what the FAA's requirements are and in the end what will the FAA live with and what can we do to live up to that and how can the FAA help us pay for that.

Mr. Zitzka asked if it was helpful to layout passenger counts, flights and how often we use the runway.

Mr. Thompson stated that would help.

Mr. Jufko stated that you need to mention this is how you have been operating and now we need to make this change and how it's going to impact you.

ADJOURNMENT

With there being no further business, the meeting was adjourned at 12:23pm.