NEW SMYRNA BEACH MUNICIPAL AIRPORT

Runway 7/25 Runway Safety Area Alternatives

City of New Smyrna Beach

DRAFT

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NEW SMYRNA BEACH MUNICIPAL AIRPORT
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1. Introduction

The New Smyrna Beach Municipal Airport (EVB or Airport) is currently in the process of completing an Airport Master Plan Update. The resulting Master Plan and associated Airport Layout Plan (ALP) are currently with the Federal Aviation Administration (FAA) for review. 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, as currently written, 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. 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. The effective shortening of the Runway would negatively impact their businesses.

2. 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.

3. 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
C&S COMPANIES PROPOSED 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 they 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.

4. 2018 Airport Master Plan Update

Michael Baker International was working concurrently on the Airport Master Plan Update. 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 published landing distance of a Cessna Citation 560XL is 3,755 feet. The balanced field length for the aircraft is 3,959 feet. The published take-off distance for a King Air 350i is 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."

At the time of the Airport Master Plan Update, the declared distances were believed to be as shown below:

Table 2
DECLARED DISTANCES AT THE TIME OF THE 2018 MASTER PLAN UPDATE

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

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 these threshold displacements.

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 alternatives were not a part of the Airport Master Plan Update document. However, 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 further displaced to provide the following declared distances:

Table 3
DECLARED DISTANCES PROPOSED BY THE 2018 AIRPORT MASTER PLAN UPDATE

Runway	TORA	TODA	ASDA	LDA
7	5,000	5,000	4,853.5	4,518.5
25	5,000	5,000	4,763.5	4,763.5

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

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*.

5. Airport Layout Plan

The Airport Layout Plan addresses the declared distances on Runway 7/25 as follows:

Table 4
DECLARED DISTANCES ON THE 2018 AIRPORT LAYOUT PLAN

Distances	Runway 7		Runway 25	
	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.

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

The FAA has not yet published the Airport Master Plan Update 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 5.

Table 5
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

While concentrating on the approach surfaces for the runway, neither the C&S report nor the Master Plan Update considered the fact that Runway 7/25 has non-precision instrument approaches to both ends of the Runway. Therefore, 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 C414 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 take-off distances, landing distances and balanced field 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 6
SAMPLE AIRCRAFT TAKE-OFF AND LANDING DISTANCES

	Tail Number	Take-off Distance	Landing Distance	Balanced Field
Bombardier Challenger 300 MTOW 38,850		4,810	2,600	
Bombardier Challenger 350 MTOW 40,600		5,090	5,300 wet	4,732
Cessna 414A		2,185		2,595
Cessna 500	N528WL		2,737	3,851
Cessna 500	N900G		2,737	3,851
Cessna 500	N28WL		2,737	3,851
Cessna 501	N17HA		2,673	3,035
Cessna 550	N524MA	4,950	5,700 Vref+10	4,065
Cessna 551	N228MH	3,450	2,078	
Citation XLS		3,560	2,739	
Falcon 2000EX		5,585	2,640	
Gulfstream G500		5,300	3,100	
Hawker 900 XP		5,032	2,295	
Honda HA-420 Honda Jet		< 4,000	<3,050	

Sources: Various manufactures websites and aircraft manuals provided by tenants of the Airport, which can be found as **Appendix A**

For each aircraft above, three of the aircraft had take-off 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. The writers of this report did not have access to the operating manuals for these specific aircraft and many were graciously provided by tenants of the Airport. These pages can be found as **Appendix A** to this report/

9. Typical Aeronautical Insurance Policies

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.

10. 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.

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 7 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.

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

Table 7
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.

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.

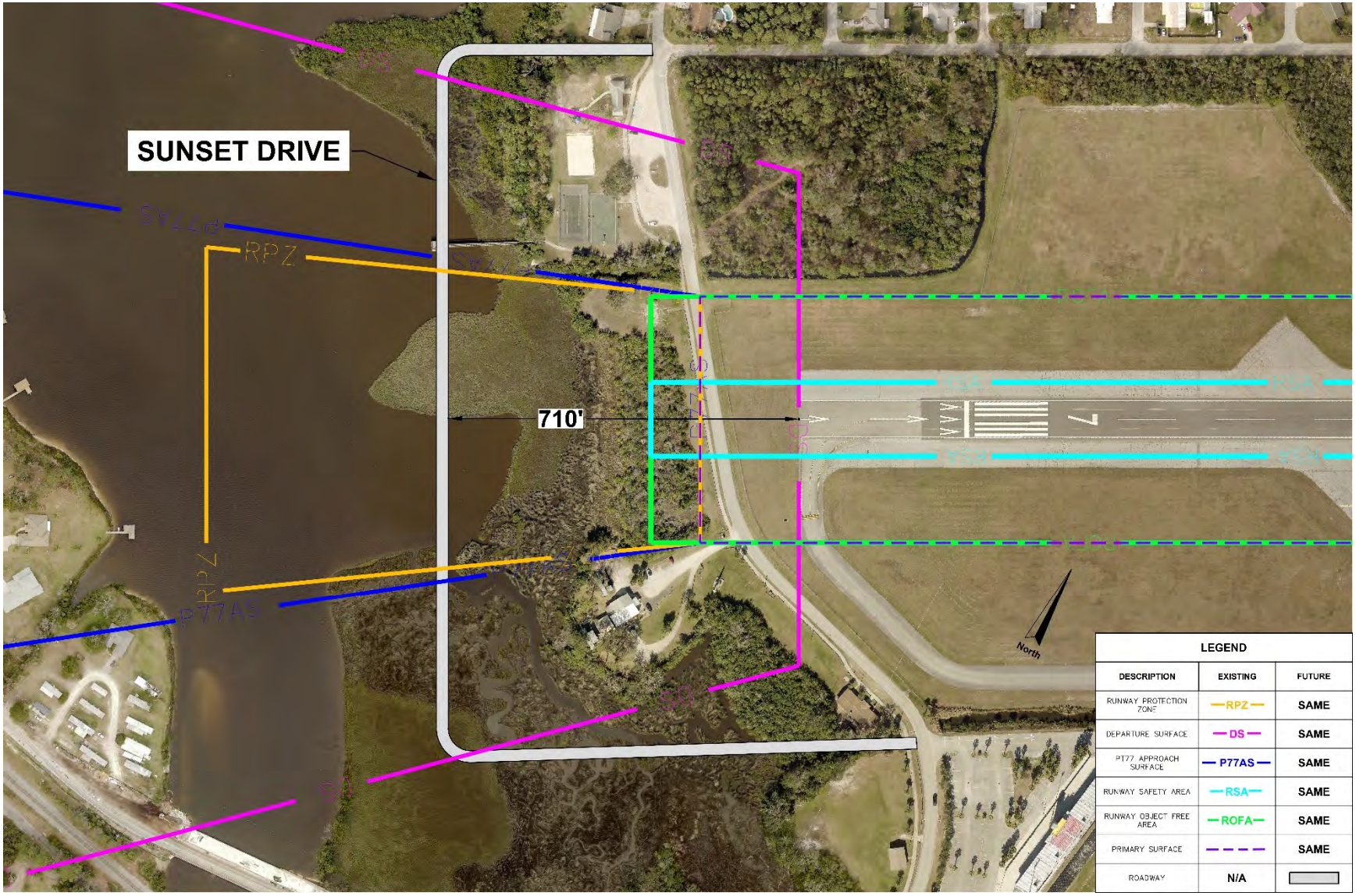


Figure 4
ALTERNATIVE 1A: RELOCATION OF SUNSET DRIVE TO ACCOMMODATE RUNWAY 7 APPROACH SLOPE

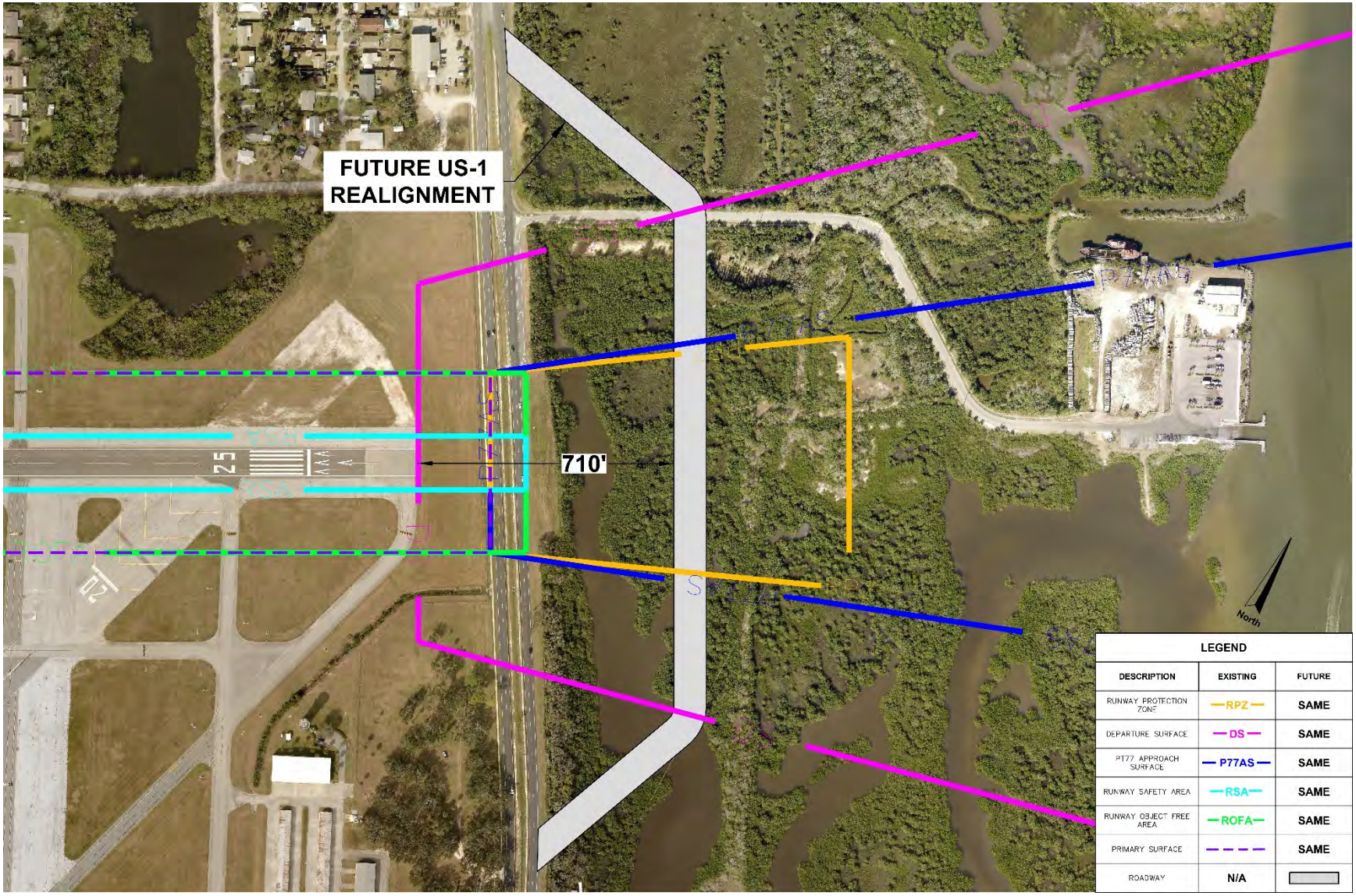


Figure 5
ALTERNATIVE 1B: RELOCATION OF U.S. 1 TO ACCOMMODATE RUNWAY 25 APPROACH SLOPE

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.

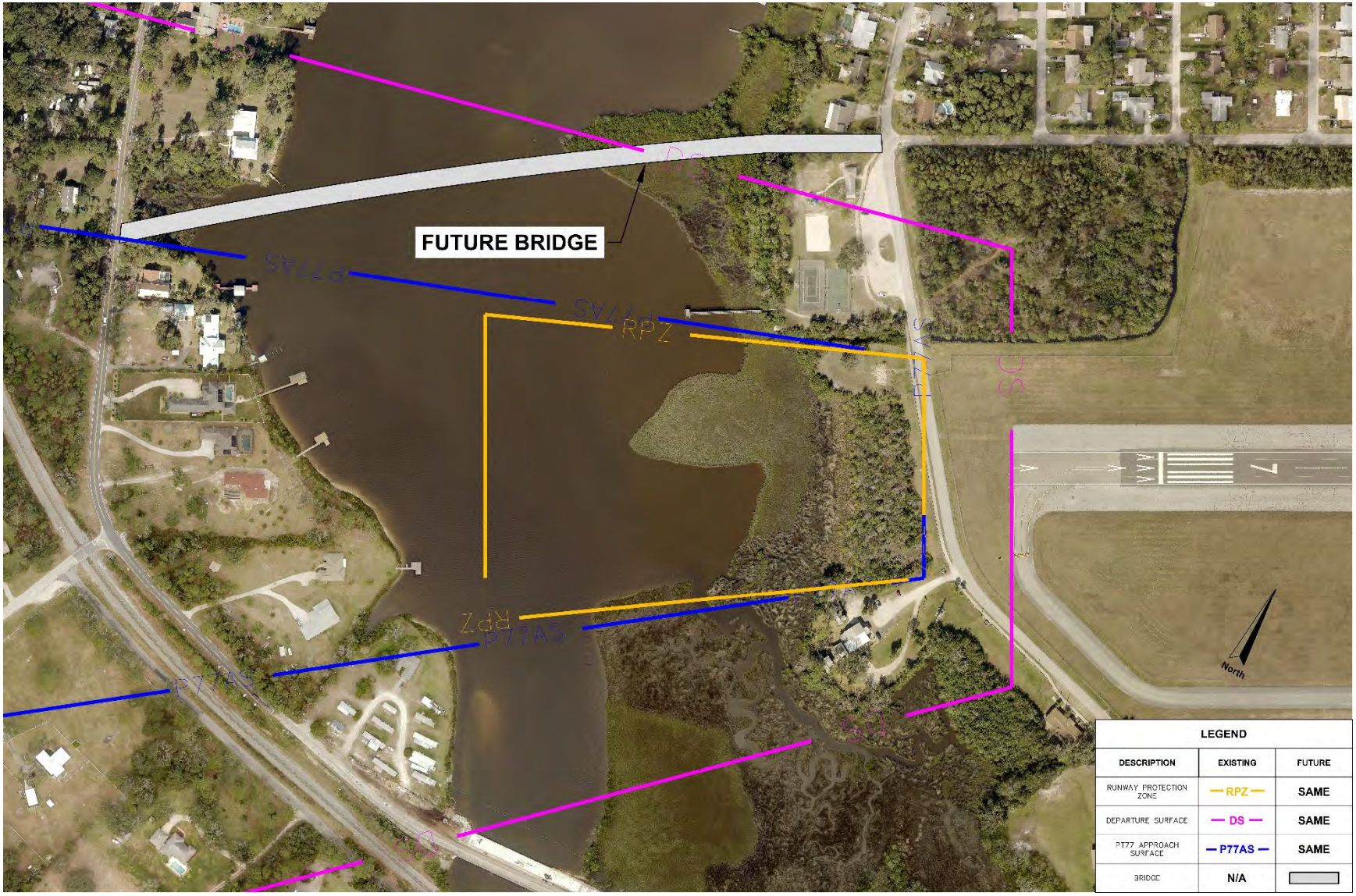


Figure 6
ALTERNATIVE 1C: RELOCATION OF SUNSET DRIVE AROUND RUNWAY 7 RPZ

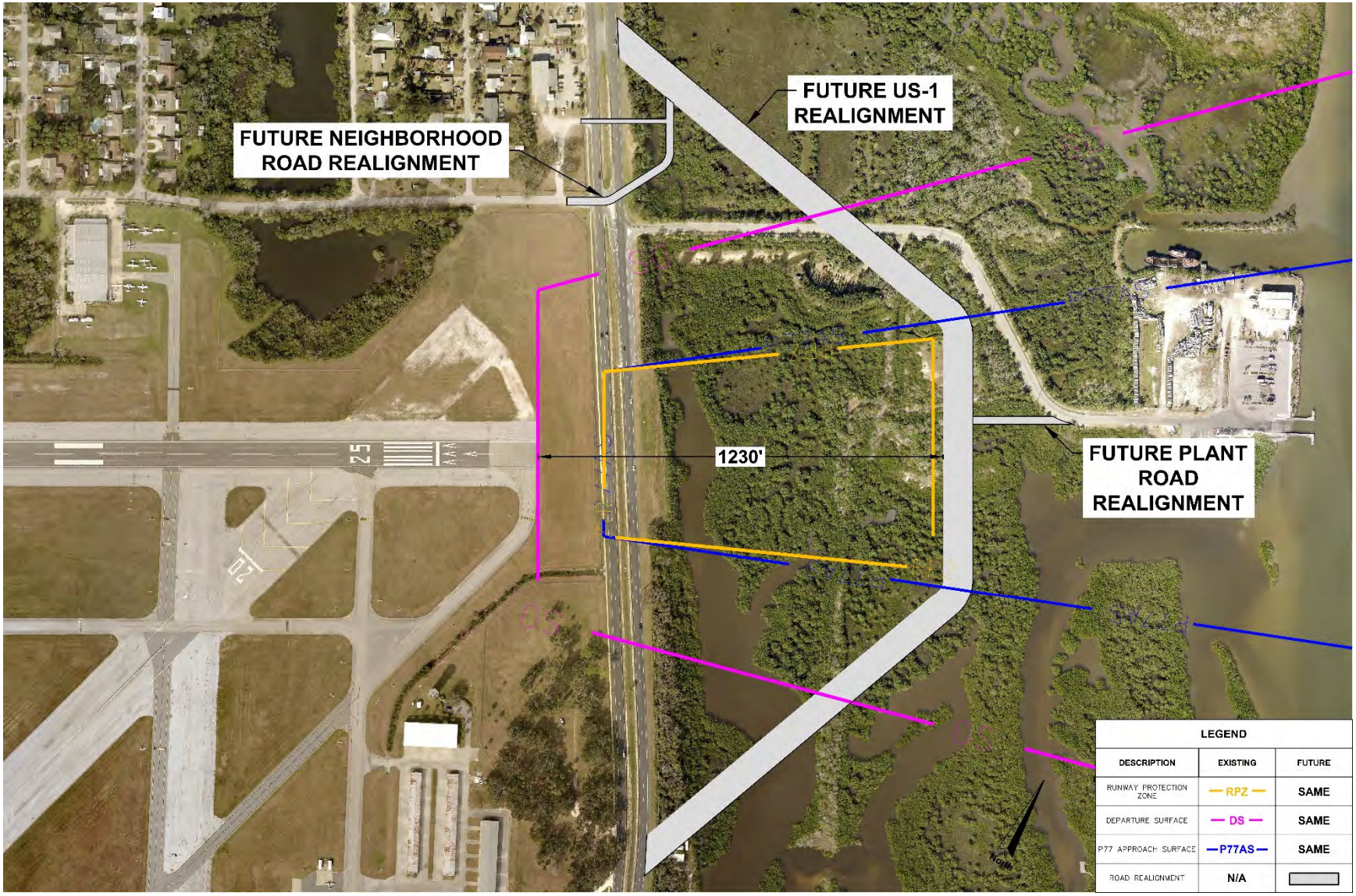


Figure 7
ALTERATIVE 1D: RELOCATION OF U.S. 1 TO AROUND RUNWAY 25 RPZ

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

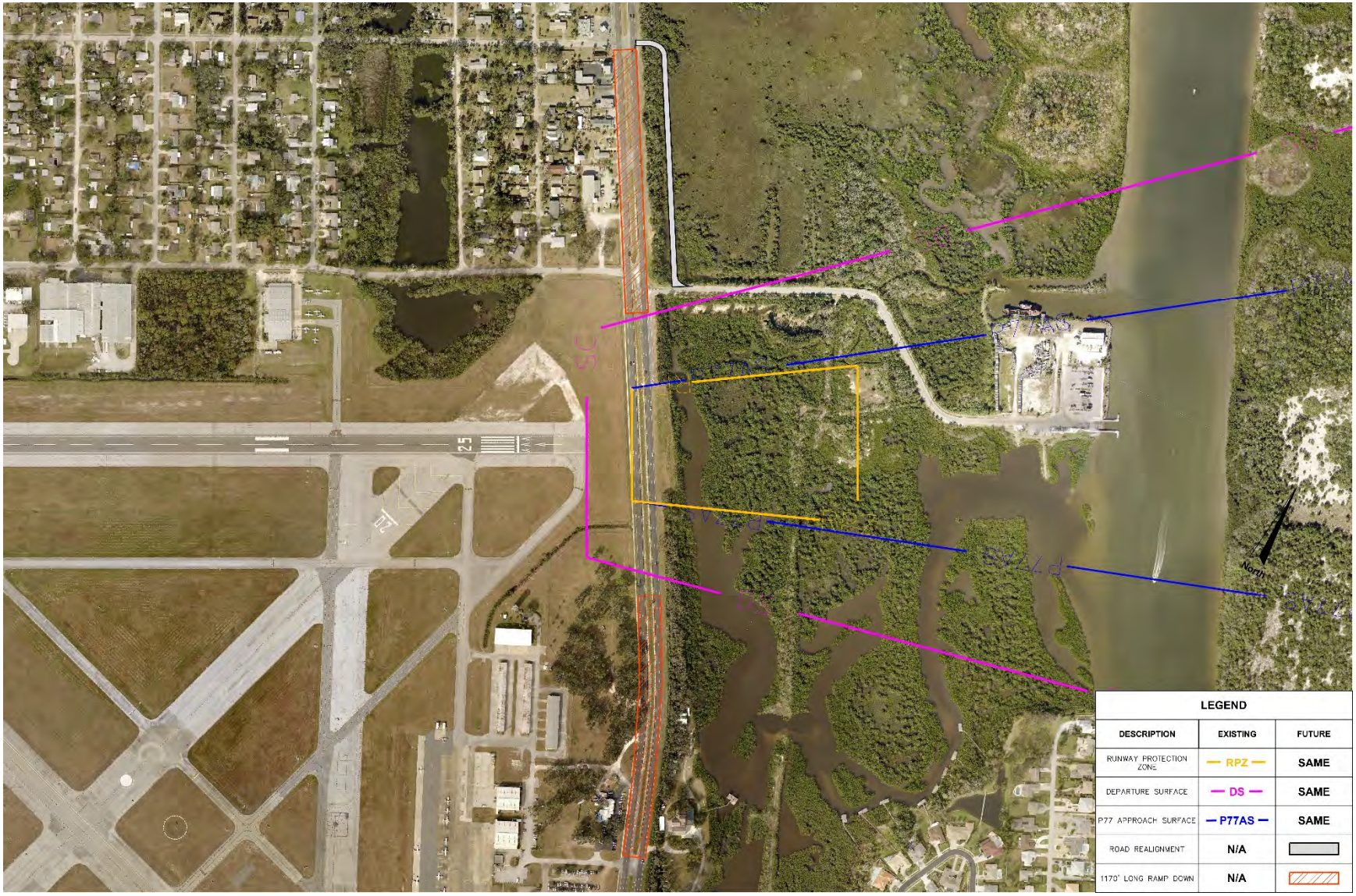


Figure 9
ALTERNATIVE 2B: TUNNEL BENEATH RUNWAY 25

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.

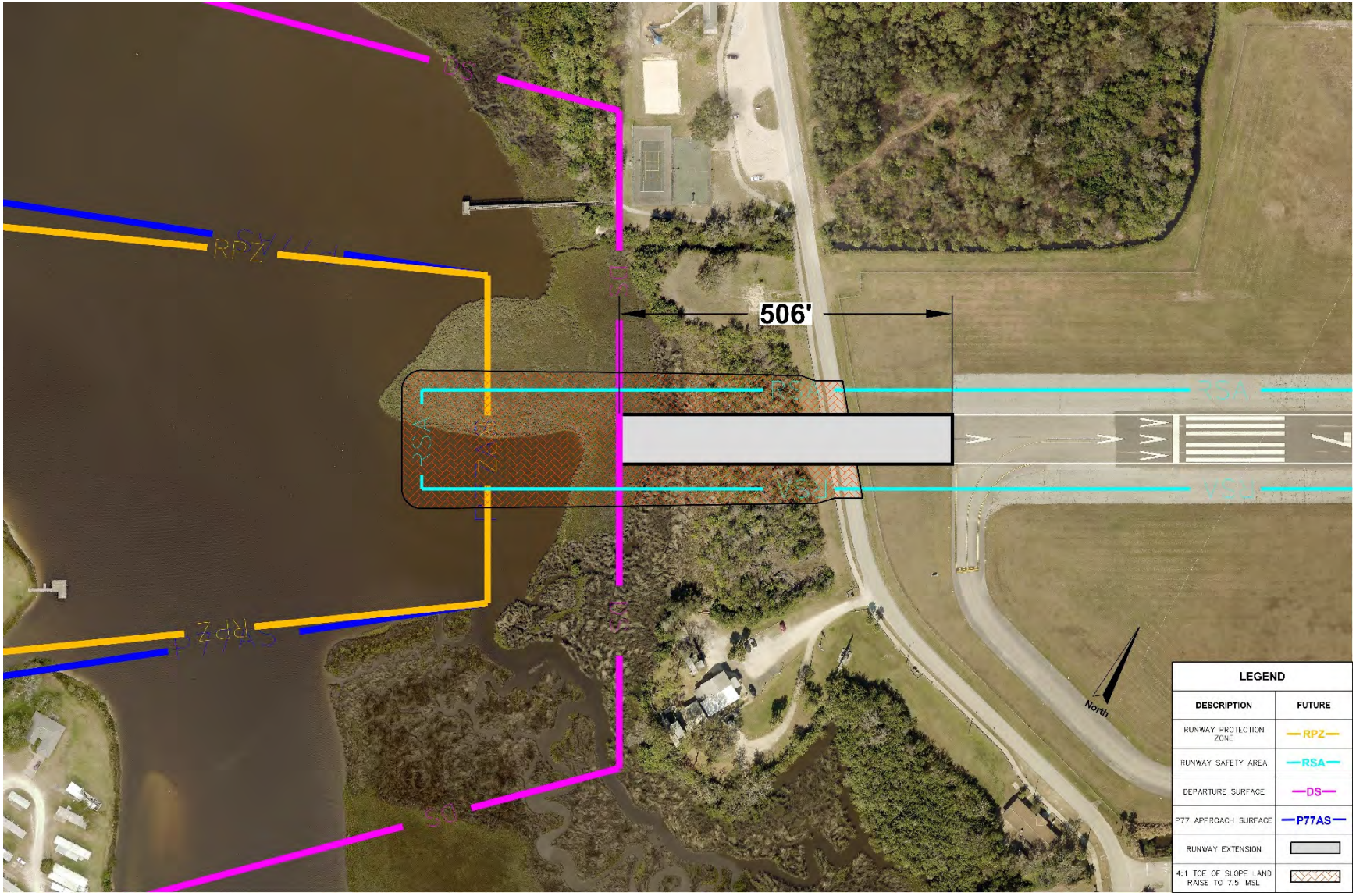


Figure 10
ALTERNATIVE 3: CLOSURE OF SUNSET DRIVE

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.

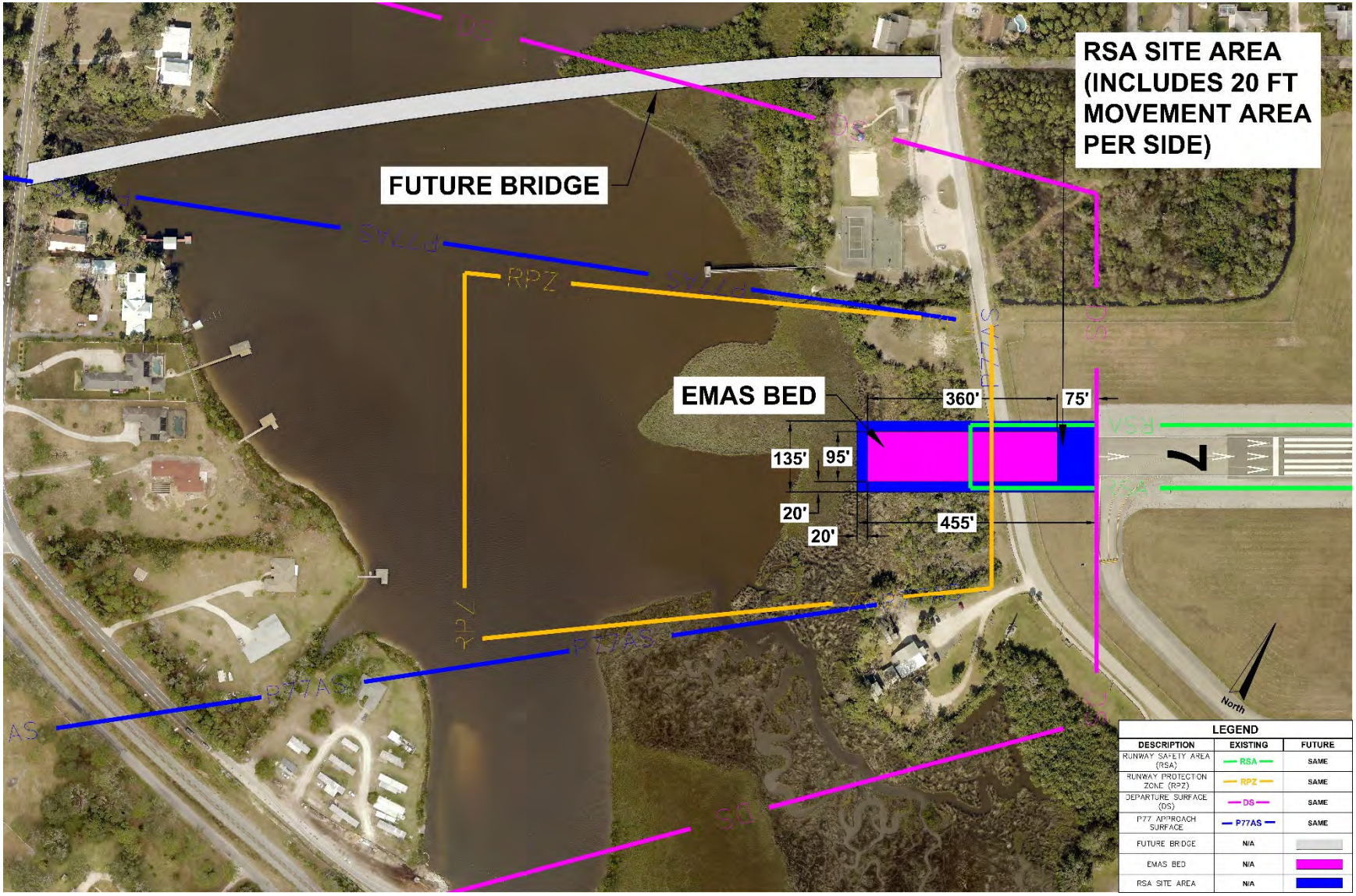


Figure 11
ALTERNATIVE 5A: EMAS ON RUNWAY 7

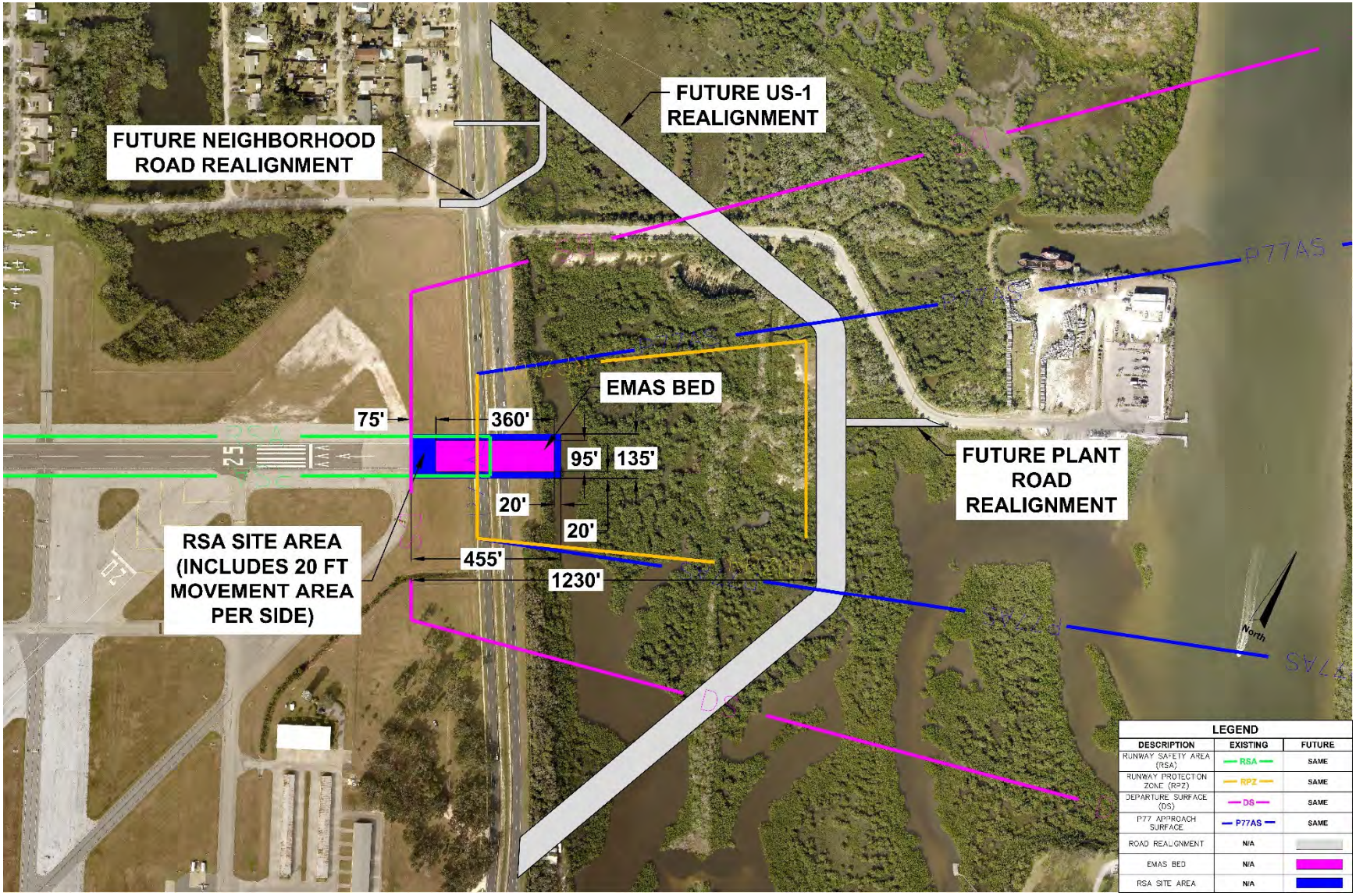


Figure 12
ALTERNATIVE 5B: EMAS ON RUNWAY 25

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 the Runway

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.

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.

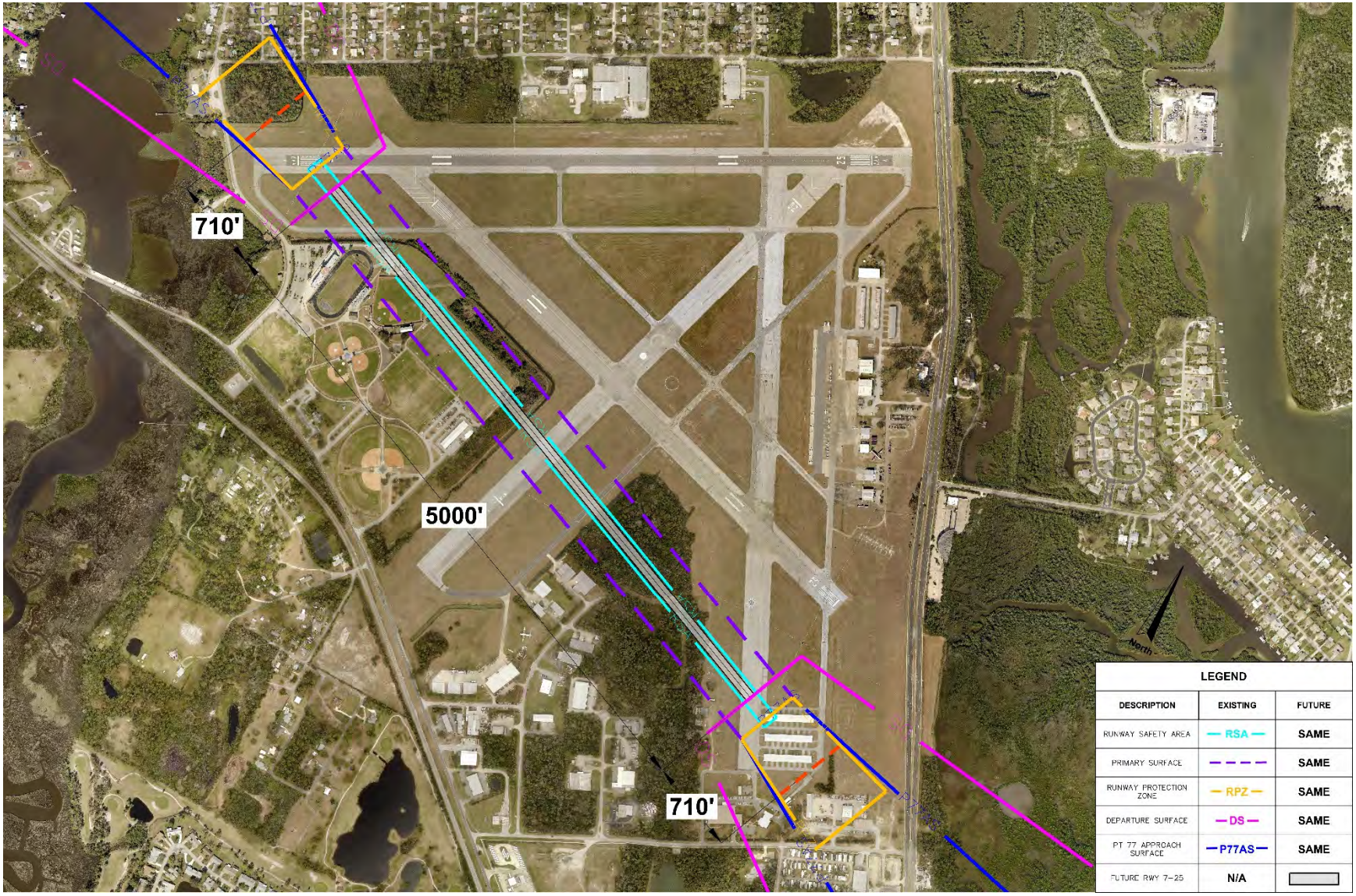


Figure 13
ALTERNATIVE 6A: RUNWAY RELOCATION

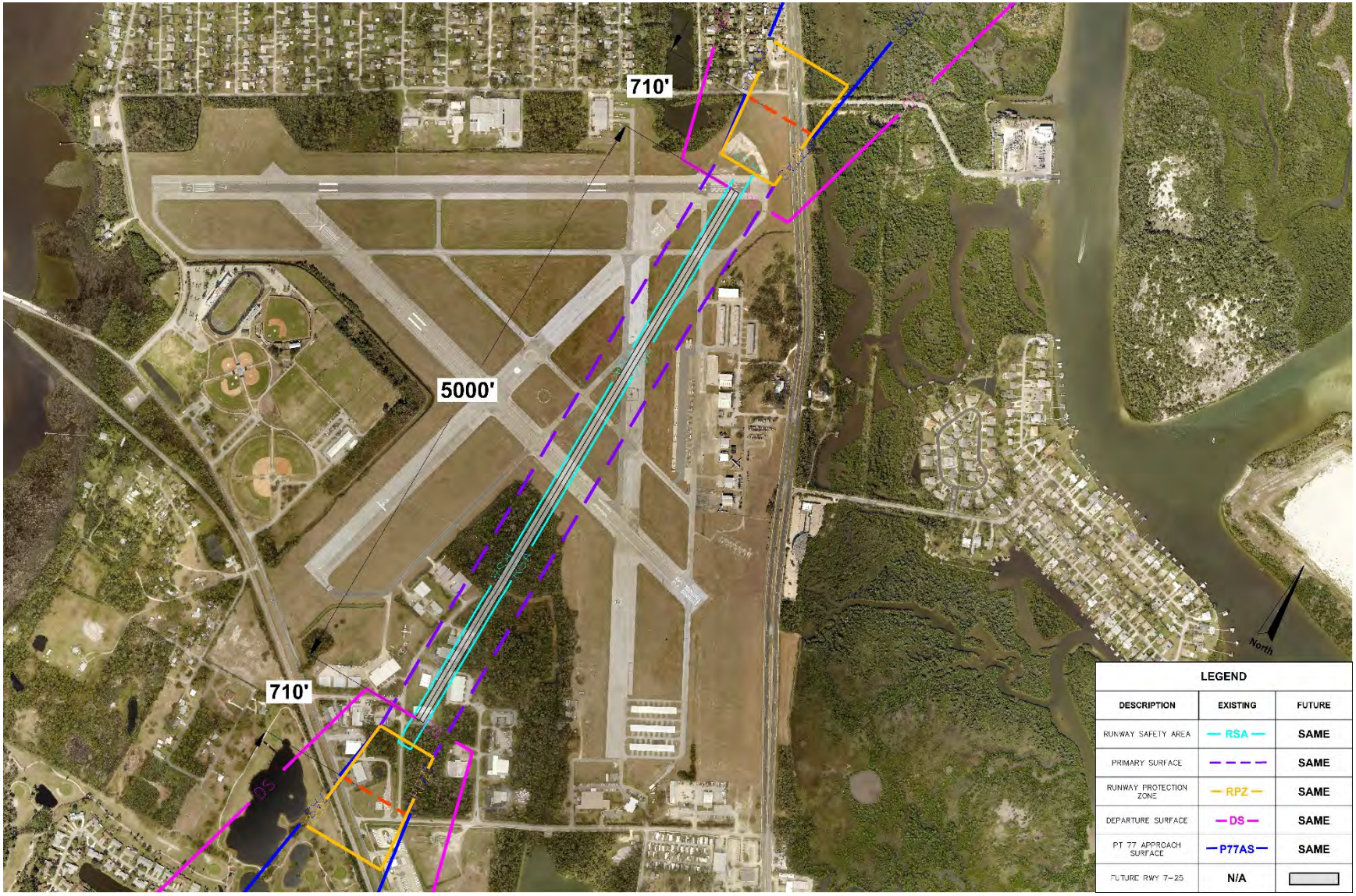


Figure 14
ALTERNATIVE 6B: RUNWAY RELOCATION

Both options 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 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) currently under review by the FAA shows a 1,079-foot extension of the Runway 11 end across Runway 7/25 for a total length for Runway 11/29 of 5,398 feet. While the Runway extension is proposed to remain on Airport property, 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. Assuming that 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 8. 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.

Table 8
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 8 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 6 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.

13. Order of Magnitude Cost Estimates

Order of magnitude cost estimates were prepared for each 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 8. Greater detail is shown in **Appendix E.**

Table 9
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 Option 1	$672,930,000	$672,930,000
6B	Shifting or Realigning Runway Option 2	$676,350,000	$676,350,000
7	Extension to Runway 11/29	**$2,780,000	**$2,780,000
8	Explore Obtaining a Modification to Standards	N/A	N/A
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 2018 Master Plan Update
*** Cost Estimate from the C&S Report

Cost estimates were not provided for alternatives 4, 7, 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 8 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 $672,930,000 and $676,350,000 respectively. This alternative 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 the acceleration of the extension of Runway 11/29. This was estimated by the Master Plan Update to cost $2,780,000. If the funding were

available for this alternative, the Environmental Assessment for this project could begin as early as 2020. Ideally, the design would occur in 2021, and the construction would occur in 2022.

The third least expensive alternative that would meet the criteria of the City, Airport, and tenants, would be the closing of Sunset Drive as presented in Alternative 3. By itself, the closing of Sunset Drive would cost $28,120,000. However, to provide the residents of Islesboro with access to the west, a bridge like that proposed in Alternative 1C, could be provided with a cost of $52,200,000. As U.S. 1 would still be located within the RPZ of Runway 25, and if this were required to be corrected, the cost for that would be like that shown in Alternative 1B for $67,600,000. This would bring the total cost of Alternative 3 up to $147,920,000. Alternatively, by relocating Sunset Drive outside of the RPZ for Runway 7 and relocating U.S. 1 outside of the RPZ for Runway 25, the comparative cost would be $127,940,000.

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 imminent approval by the FAA of the 2018 Master Plan and the associated Airport Layout Plan, that the displaced thresholds would become official. 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 or 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

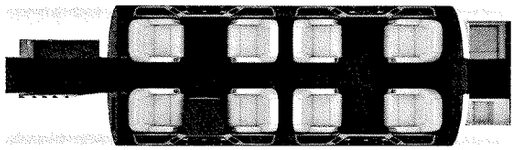
- Shifting and relocating the Runway

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. Of the alternatives that would meet the requirements of the City, the Airport and the tenants, by keeping a 5,000-foot physical length of the runway on the Airport, as well as required FAA and FDOT safety area requirements the acceleration of the extension of Runway 11/29 would be the least costly.

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

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 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	106	3320	105	2530	104	2300	103	2090	103	1900	106	114
-20	106	3370	105	2570	104	2350	103	2130	103	1930	106	114
-15	106	3420	105	2620	104	2390	103	2180	103	1970	106	114
-10	106	3470	105	2660	104	2430	103	2220	103	2010	106	114
-5	106	3520	104	2710	104	2480	103	2260	103	2050	106	114
0	106	3570	104	2750	104	2520	103	2300	103	2090	106	114
5	106	3640	104	2810	104	2570	103	2350	103	2140	106	114
10	106	3760	105	2900	104	2660	103	2430	103	2210	106	114
15	106	3900	105	2990	104	2740	104	2500	103	2280	106	114
20	106	4230	106	3210	106	2930	105	2680	104	2430	106	114
25	106	4640	106	3500	106	3170	106	2870	105	2610	106	114
30	105	5220	106	3850	106	3480	106	3120	106	2810	106	114
35	104	5920	106	4280	106	3860	106	3460	106	3090	106	114
40	103	6750	107	4750	107	4280	107	3830	107	3410	107	114
45	102	7690	107	5280	107	4750	107	4250	107	3770	107	114
50	102	8900	107	5940	107	5330	107	4760	107	4220	107	114
53	101	9830	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	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	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	4390	105	3320	105	3000	104	2740	103	2490	105	113
30	105	4830	105	3650	105	3290	105	2950	105	2680	105	113
35	105	5380	105	4040	105	3640	105	3270	105	2910	105	113
40	105	6020	105	4470	105	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	105	4990	105	4450	105	3950	105	113
54	102	9050	106	6240	106	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	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	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	1780	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	2960	103	2660	103	111
40	103	5380	103	4040	103	3640	103	3260	103	2900	103	111
45	103	5960	103	4460	103	4010	103	3590	103	3190	103	111
50	103	6650	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	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	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	2190	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	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)

Configuration AA

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:

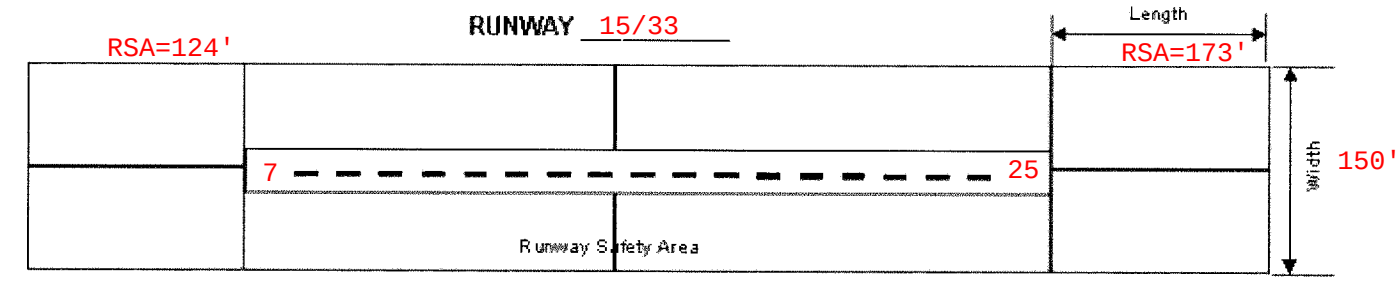
Object Form

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

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
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

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
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

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
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

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
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:	**$265,392,450**
	ELECTRICAL ITEMS				
8	Electrical Demolition (15% of Civil Total)	1	AL	$43,789,754	$43,789,754
9	Vault Modifications (10% of Civil Total)	1	AL	$26,539,245	$26,539,245
10	Ground Rods/Lightening Protection (5% of Civil Total)	1	AL	$14,596,585	$14,596,585
11	Temp Lights/NAVAIDS (1% of Civil Total)	1	AL	$2,919,317	$2,919,317
				Electrical Total:	**$350,318,034**
	GENERAL CONSTRUCTION ITEMS				
12	Mobilization (12% Electrical Total)	1	AL	$42,038,164	$42,038,164
13	Project Survey (2% Electrical Total)	1	AL	$7,006,361	$7,006,361
14	Quality Control (4% Electrical Total)	1	AL	$14,012,721	$14,012,721
15	Erosion Control (3% Electrical Total)	1	AL	$10,509,541	$10,509,541
16	Safety and Security (2% Electrical Total)	1	AL	$210,191	$210,191
17	Legal (7% Electrical Total)	1	AL	$24,522,262	$24,522,262
				Construction Total:	**$448,617,274**
	PROJECT SOFT COSTS				
18	Project Design (12% of Construction Costs)	1	AL	$53,834,073	$53,834,073
19	Construction Administration and Inspection (13% of Construction Costs)	1	AL	$58,320,246	$58,320,246
20	Contingency (25% of Construction Costs)	1	AL	$112,154,319	$112,154,319
				Project Grand Total:	**$672,925,912**
				Project Grand Total (Rounded):	**$672,930,000**

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:	**$266,741,100**
	ELECTRICAL ITEMS				
8	Electrical Demolition (15% of Civil Total)	1	AL	$44,012,282	$44,012,282
9	Vault Modifications (10% of Civil Total)	1	AL	$26,674,110	$26,674,110
10	Ground Rods/Lightening Protection (5% of Civil Total)	1	AL	$14,670,761	$14,670,761
11	Temp Lights/NAVAIDS (1% of Civil Total)	1	AL	$2,934,152	$2,934,152
				Electrical Total:	**$352,098,252**
	GENERAL CONSTRUCTION ITEMS				
12	Mobilization (12% Electrical Total)	1	AL	$42,251,790	$42,251,790
13	Project Survey (2% Electrical Total)	1	AL	$7,041,965	$7,041,965
14	Quality Control (4% Electrical Total)	1	AL	$14,083,930	$14,083,930
15	Erosion Control (3% Electrical Total)	1	AL	$10,562,948	$10,562,948
16	Safety and Security (2% Electrical Total)	1	AL	$211,259	$211,259
17	Legal (7% Electrical Total)	1	AL	$24,646,878	$24,646,878
				Construction Total:	**$450,897,022**
	PROJECT SOFT COSTS				
18	Project Design (12% of Construction Costs)	1	AL	$54,107,643	$54,107,643
19	Construction Administration and Inspection (13% of Construction Costs)	1	AL	$58,616,613	$58,616,613
20	Contingency (25% of Construction Costs)	1	AL	$112,724,255	$112,724,255
				Project Grand Total:	**$676,345,532**
				Project Grand Total (Rounded):	**$676,350,000**

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 = 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	106	3320	106	2530	104	2300	103	2090	103	1900	106	114
-20	106	3370	105	2570	104	2350	103	2130	103	1930	106	114
-15	106	3420	105	2620	104	2390	103	2180	103	1970	106	114
-10	106	3470	105	2660	104	2430	103	2220	103	2010	106	114
-5	106	3520	104	2710	104	2480	103	2260	103	2050	106	114
0	106	3570	104	2750	104	2520	103	2300	103	2090	106	114
5	106	3640	104	2810	104	2570	103	2350	103	2140	106	114
10	106	3760	105	2900	104	2660	103	2430	103	2210	106	114
15	106	3900	105	2990	104	2740	104	2500	103	2280	106	114
20	106	4230	106	3210	106	2930	105	2680	104	2430	106	114
25	106	4840	106	3500	106	3170	106	2870	105	2610	106	114
30	106	5220	106	3850	106	3480	106	3120	105	2810	106	114
35	104	5920	106	4280	106	3860	106	3460	106	3090	106	114
40	103	6750	107	4750	107	4280	107	3830	107	3410	107	114
45	102	7390	107	5280	107	4750	107	4280	107	3770	107	114
50	103	8800	107	5940	107	5330	107	4780	107	4220	107	114
53	101	9830	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	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	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	2520	102	2390	102	2180	105	113
20	105	4020	105	3050	104	2900	103	2550	102	2320	105	113
25	105	4090	105	3320	105	3000	104	2740	103	2490	105	113
30	105	4880	105	3650	105	3290	105	2950	105	2680	105	113
35	105	5080	105	4040	105	3340	105	3270	105	2910	105	113
40	105	6020	105	4470	105	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	105	4990	105	4450	105	3950	105	113
54	102	9050	106	6240	106	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	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	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	2960	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	3150	103	111
50	103	6650	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	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	99	2710	97	2080	96	1890	96	1710	95	1540	100	109
-20	99	2750	97	2120	96	1930	96	1750	95	1670	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	99	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	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
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

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	-	-

T = Trace