



Preliminary Findings of Proposed Alternative

The attached drawing provides a schematic layout of the proposed alternative that will be discussed on July 27, 2010. A full report will follow and should be posted on the City's website no later than July 19th. The report will contain a greater explanation of how the team arrived at this layout, and a description of additional planning terminology used throughout the study. The contents contained on the attached drawing are still subject to further FAA review and comment as well as additional input from the U.S. Coast Guard..

It is important to note that if the City Council does move forward with this alternative for DY to show on the airport layout plan (ALP), the next step in the process would be for a full airspace review and FAA conditional approval of the ALP. The projects must then receive an environmental determination through the Environmental Assessment (EA) process prior to any design taking place.

Introduction and Background

On May 6th, June 9th, and June 30th 2010 representatives from the City of Venice and DY Consultants met with FAA staff members from Orlando and Washington D.C. to develop alternatives to address community concerns expressed about homes located in the Runway 13 end Runway Protection Zone (RPZ) and minimizing physical impacts to the Venice Golf Association (VGA) golf course leasehold.

A full range of alternatives were identified and reviewed that could potentially alleviate these concerns and at the same time enhance safety and maintain utility of the airport. The discussions addressed alternatives for each runway and ranged from shifting runway threshold locations to the use of Engineered Materials Arresting Systems (EMAS).

DY was asked to further investigate the alternatives that were addressed during the working sessions. Several experts in their respective fields were also called upon by DY for additional information necessary to assist with the assessment of the alternatives.

Goals and Objectives

Goals and objectives of the planning effort and meetings with the FAA continue to be as follows:

- To the extent practicable, relocate the Runway 13 RPZ onto existing airport property.
- Maintain design standards and operational utility of a primary runway (same as Runway 13-31 is today).
 - Equal landing and departure lengths
 - Approach capabilities should be equivalent to those that are presently in place on Runway 13-31
 - Maintain existing airport reference code
- If a standard, graded RSA cannot be achieved due to site constraints, provide equivalent RSA with a standard EMAS providing 70 knot capability.
- Provide for 600 feet of approach RSA.



- Increase the width and length of the Object Free Areas while minimizing impacts to the golf course.
- Provide adequate wind coverage.
- Conform to all C-II FAA design criteria to the extent practicable as set forth by FAA Advisory Circulars, Orders, regulations and standards.

The ultimate objective of the working sessions with the FAA were to determine if a concept exists that could resolve Council and community concerns and at the same time satisfy FAA safety standards; maintain runway utility and avoid potential impacts to users and based aircraft.

Potential solutions could not reduce runway utility or safety for any tenant, based aircraft or those that use the airport on a regular basis. Within each of the above cases several concepts were identified to address the key concerns previously identified ranging from shifting runway threshold locations to the use of Engineered Materials Arresting Systems (EMAS).

Existing “As- Is” Conditions

Runway 13-31

The existing conditions will serve as a baseline to compare impacts of the alternatives. The Runway 13 RPZ contains 24 homes within its C-II dimensions. Alternatives will investigate ways to eliminate or reduce that number.

The center of the Intracoastal Waterway is located approximately 1,300 feet from the approach end of Runway 31. The waterway is approximately 20 feet below ground elevation and is used intermittently by water vessels to and from the Gulf of Mexico. Sailboat mast heights above 50 feet would currently clear the existing 20:1 threshold siting surface but penetrate the existing 34:1 approach surface and 40:1 departure surface when passing by the runway. Research indicates that the vast majority of all sailboat masts are less than 65 feet. This is a manufacture design characteristic generated by the fact that federal highway bridge design criteria call for a 65-foot waterway clearance (mean high water). Therefore, any mast greater than 65 feet would typically not be able to pass under (non-opening) bridges located throughout the U.S. waterways system. DY is waiting for further information from the U.S. Coast Guard with regard to typical vessel and mast heights for this portion of the Intracoastal Waterway.

Runway 4-22

The VGA golf course club house is located within the Runway 4 RSA, ROFA, and RPZ while the cart storage building is located within the Runway 4 RSA and ROFA. The golf course driving range and parts of the golf course that impede compliant RSA and ROFA standards would remain and the City would ask the FAA for modifications to standards. Runway use remains “as-is” fewer jets will use Runway 4-22 as a noise abatement runway on a consistent basis until it is rehabilitated from its present condition as well as it lacks a non-precision approach to either runway end.

An existing condition that must be addressed in the alternative is the bascule bridge (Circus Bridge) over the Intracoastal Waterway on Business 41 approximately 1,200 to 1,300 feet



northeast of the existing end of Runway 22. The bridge has two leafs that open on demand for water vessels needing more than 25 feet of vertical clearance. The top elevation of the bridge when open is approximately 93 feet. The open height of the bridge must be considered for the approach, threshold siting and departures surfaces for Runway 4-22. According to calculations conducted a 526 foot displaced threshold is necessary to clear the 20:1 approach surface. In addition the bridge is located within the future Runway 4 40:1 departure surface.

Runway Object Free Area (ROFA) Deficiencies and the Golf Course

The ROFA along the entire length of the west side of Runway 13-31 does not meet current FAA design standards nor does the ROFA on either side of Runway 4-22 southwest of the runway intersection due to the location of the fence separating the airport from the Venice Golf Association (VGA) leasehold. The existing ROFA to Runway centerline dimension varies along the entire length of Runway 13-31 anywhere from 280 to 290 feet. The existing ROFA standard dimension for this runway and Runway 4-22 is 400 feet. The Runway 4-22 ROFA southwest of the runway intersection varies on both sides due to the location of the golf course and narrows even further as it continues toward the runway end.

To determine the maximum distance the fence could be relocated without an adverse impact to the golf course a golf course architect was asked to investigate the site and provide suggestions to accomplish this goal. It was determined that the fence located to the west of Runway 13-31 which is south of the intersection of Runway 4-22 has no room for improvement.

North of the Runway 4-22 intersection and west of Runway 13-31 some improvement could be made with minor changes to the golf course. It was estimated that the maximum the fence could be relocated without adversely impacting the golf course would be 50 feet in some areas. To achieve this, no changes would be necessary to Existing Hole 22 due to its existing length and size. If the FAA desired, Hole 21 could be relocated and the cart path retained if the additional 50 feet were continued to the corner north of Runway 4-22. The fence could conceivably be relocated along the north side of Runway 4-22 with no change to Hole 20 and converting Hole 19 from a Par 4 to a Par 3.

The ROFA would continue to be nonstandard however the FAA does consider the improvement an enhancement to safety at the airport.

Proposed Alternative

Runway 13-31: Shift 727 feet Southeast, Construct EMAS, use Declared Distances

Runway 4-22: Standard RSA Using Declared Distances and 160 feet to Runway 22.

The Proposed Alternative as illustrated would involve the installation of engineered materials arresting systems (EMAS) at the Runway 31 end. A 1,000 foot standard RSA is equivalent to a 70 knot arrestor bed placed within the rear of a 600 foot RSA (for undershoot protection). The runway has been shifted to the maximum extent possible. As such in order to maintain 5,000 feet of useable runway and maintain its current utility, the placement of the Runway 13 RPZ has been located as far onto airport property as possible.



Runway 13-31 is shifted 727 feet to the southeast, an additional 727 feet is added to the Runway 31 end and a 312 foot long by 100 or 150 wide EMAS bed is placed at the rear of a 600 foot RSA to achieve maximum takeoff and landing distance available in both directions. The EMAS has a 35 foot setback and a 254 foot displaced threshold would begin outside of the setback to provide a full 600 foot approach RSA. The declared distances or useable runway length available in this scenario would be as follows:

Runway 13-31 Declared Distances		
(in feet)	Runway 13	Runway 31
TORA	5,000	5,000
TODA	5,000	5,000
ASDA	5,000	5,000
LDA	5,000	5,000

The Runway 13 approach would have a 605 foot displaced threshold. As a result of this displacement, aircraft would be at a higher altitude over the areas off the 13 end. During the last work session, the potential removal of 400 feet of pavement at the 13 end was discussed assuming the intermittent passage of a 50 foot mast sailboat in the ICW at the end of 31. Subsequent to that meeting, FAA staff asked for further research to be conducted considering a 65’ mast. In that event, 122 feet of pavement at the end of the runway could be removed. Both scenarios continue to be researched for final selection of an appropriate mast height.

The Relocating the Runway 13-31 thresholds will require an airspace evaluation to adjust the existing GPS approach procedures. It appears that the 20:1 threshold siting surface will clear intermittent water vessels having a maximum mast height of 50 feet. The Omni Directional Approach Lights to Runway 31 would need to be assessed to determine if reconfiguring the system would be possible.

Existing parallel Taxiway D would be extended to meet the new Runway 31 displaced threshold location. The published runway length would be 5,727 feet. The alternative would comply with FAA standards with the exception of the ROFA and two homes would be impacted within the RPZ. As the primary runway it maintains existing useable runway length available. This alternative will satisfy airport user needs that are presently based or frequent the airport.

Runway 4-22

Runway 4-22 is the City’s Preferred Noise Abatement Runway and all pilots are requested to use it when wind and weather conditions permit. Due to its existing condition it is not being used to its greatest potential. Once rehabilitated it is expected that it could be used to a much greater extent if utility is maintained or improved for existing jet users.

Runway 4-22 was given an airspace “overview” by Mr. Gary Raymond an Airspace Evaluation Program Specialist to determine if a GPS approach with 1 mile visibility minimums or greater could be accommodated to each of the runway ends. According to



information available to him at this time, if the runways are marked for non-precision instrumentation the following could be obtained:

Type	Runway 04	Runway 22
LPV	DA 212 visibility 1 SM	Accurate Survey must be conducted of bridge
LNAV/VNAV	DA 262 visibility 1 SM	DA 344 visibility 1.5 SM
LNAV	MDA 300 visibility 1 SM	440 visibility 1 SM

In addition, the ROFA fence could be relocated 50 feet in most areas with minimal impact to the golf course. Hole 19 could be converted to a Par 3. A portion of the cart building, and clubhouse would remain in the ROFA and RPZ. A portion of Harbor Drive remains in the upper west corner of the ROFA as well.

Due to the Circus Bridge height runway length would remain as it is today 5,000 feet however the Runway 22 end displacement will increase to 526 feet. By adding 160 feet to the Runway 22 end, the Accelerated Stop Distance Available (ASDA) length could be increased resulting in declared distances for this alternative as follows:

Runway 4-22 Declared Distances

(in feet)	Runway 4	Runway 22
TORA	5,000	5,000
TODA	5,000	5,000
ASDA	5,000	5,000
LDA	5,000	4,314

As previously indicated GPS approaches to Runway 4-22 can likely be achieved and would be an additional encouragement for jet operators to use the runway on a more regular basis when possible. A survey completed in accordance with FAA AC 150-5300-16, 17, and 18B would be required prior to full implementation by the FAA. The Runway 4 departure surface does not clear the Circus Bridge when it is open. Since this is an existing condition and the bridge is open only on demand it is unclear if published departure procedures can be put in place to alleviate the condition.

This alternative also depicts Taxiway E at a standard centerline to runway centerline separation distance of 300 feet. Adjusting the taxiway to meet standards would require additional area between the existing fence and the taxiway safety area. This would require additional adjustments to the golf course. To maintain the proper Taxiway OFA criteria, the fence would actually need to be relocated 65.5 feet.

Runway 4-22 would comply with FAA standards with the exception of the ROFA. A modification to standards would be required.

The preliminary order of magnitude costs to implement the Proposed Alternative is as follows:



Criteria Evaluated to Date	Homes in RPZ	Golf Course Modifications	RSA/EMAS	ROFA	Taxiway E	Declared Distances	GPS Approach	Obstructions	Preliminary Cost
ALTERNATIVES FOR EXISTING PRIMARY RUNWAY 13-31									
Existing Conditions	24	none	Standard RSA	Nonstandard request mods.	n/a	n/a	Yes both ends of 13/31	Yes - Vessel Mast ok up to 50 feet	\$15 - \$20m
Proposed Alternative Runway 13-31	Portions of 2	Move fence 50' where possible and relocate hole 21	Standard on 13 end EMAS on 31 end	Request modification	n/a	Yes - 5,000 available- Published length 5,727	Airspace evaluation required to re-site for new threshold locations	Yes - Vessel Mast less than 50 feet ok.	\$9.5 – \$10.5m
Proposed Alternative Runway 4-22	N/A	Move fence 50' where possible and relocate Hole 19. Relocate driving range, entrance road and cart path	Standard using declared distances	Request modification	Improved	Yes – 5,000 available except for LDA on 22 – 4,965'	Airspace evaluation required to site threshold locations	Yes – Circus Bridge	\$3.5 - \$4.5m
Total Preliminary Estimate									\$13.0 – \$15.0m

Note: Costs do not include rehabilitation of Runway 4-

