

Chapter Two: Alternatives

2.1 Introduction

This chapter summarizes the alternatives that were identified for meeting the project purpose and need discussed in *Chapter One, Purpose and Need*. The range of alternatives considered reflects the type of proposed action and the potential for environmental impact. FAA Order 1050.1F states, “An EA must consider the proposed action and a discussion of the consequences of taking no action, and may limit the range of alternatives to action and no action when there are no unresolved conflicts concerning alternative uses of available resources.” Since there are no unresolved resource conflicts and no anticipated significant impacts associated with the Proposed Action, the alternatives considered in this EA are limited to the Proposed Action and No Action Alternatives.

This chapter describes the factors considered for development of the Proposed Action and defines the Proposed Action and the No Action Alternatives.

2.2 Factors Considered for Development of Proposed Action

Methods for phasing the reconstruction of Runway 13R-31L and associated improvements were considered relative to duration and cost, and potential for operational impacts. Additionally, taxiway locations were considered to aid in airfield efficiency.

2.2.1 Construction Phasing

Prior to design of the Proposed Action, consideration was given to ways to best phase the reconstruction of Runway 13R-31L and associated improvements. One phasing scenario was to temporarily relocate the Runway 13R threshold and allow the runway to remain open at a shortened length. The second phasing scenario was to close the runway in its entirety for the full duration of its reconstruction.

Under both phasing scenarios, initial improvements located outside the RSA would begin in October 2020 pending environmental approval, design completion and selection of a contractor for construction. The temporarily relocated Runway 13R threshold (first phasing scenario) or the full closure of Runway 13R-31L (second phasing scenario) would begin as early as January 5, 2021 and as late as mid-February 2021. The final phase of Taxiway C reconstruction would occur in early 2022 under both phasing scenarios.

2.2.1.1 Temporary Relocation of Runway 13R Threshold

A construction phase that temporarily relocates the threshold for Runway 13R would allow the runway to remain open for approximately 90-120 days at the onset of runway reconstruction. With the temporarily relocated threshold, the runway would be shortened to a length of 5,480 feet for 13R departures and 5,880 feet for 31L departures, as shown in **Figures 2-1 and 2-2**.

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It is estimated that relocating the threshold temporarily would take approximately 30 days at a cost of approximately \$200,000. With the temporarily relocated threshold, the available runway would be shortened. The available runway length would be reduced even further with visual only approaches to 13R which in turn would further limit its usability. Under this construction phasing scenario, the entire runway would be closed for a duration of eight months following the shortened runway operation. A portion of the runway would be used as a taxiway for the first two months to allow aircraft from the Jet Aviation apron to access the airfield during Taxiway C reconstruction. The following six months would be utilized to reconstruct the remainder of Runway 13R-31L. Considering the threshold would be temporarily relocated in early 2021, the full runway closure period would still be ongoing during some part of the winter holiday travel season that begins with Thanksgiving.

The use of a shortened Runway 13R-31L would be more appropriate for GA aircraft. However, most GA facilities are located east of Runway 13L-31R and aircraft typically use the adjacent runway. FAA Airport Traffic Control (ATC) was not in favor of operating the shortened runway as it would require ATC to direct GA aircraft from one side of the airfield to the other, including crossing Runway 13L-31R.¹ Other Airport Stakeholders (i.e., users) also agreed that the operation of a shortened runway for 90-120 days, including an initial shut down for 30 days to set up the relocated threshold, was not beneficial to airport operations. Therefore, this construction phasing scenario was eliminated from further consideration. See *Appendix H, Stakeholder and Agency Involvement* for stakeholder meeting minutes.

2.2.1.2 Close Runway 13R-31L without Temporary Relocation of Runway 13R Threshold

This construction phasing scenario would close Runway 13R-31L in its entirety soon after beginning construction. This alternative would allow contractors full access to the runway to expedite the overall construction schedule and would not temporarily relocate the Runway 13R threshold, thus eliminating the time and cost needed to relocate the threshold. Providing access to the entire runway sooner would create efficiencies in contractor operations to complete the construction sooner. The total runway closure time would increase to a maximum of nine months; however, the total construction duration would be reduced by 1-2 months. Using this method of construction phasing would allow for the runway reconstruction to be completed prior to the 2021 holiday high season, specifically Thanksgiving. As with the temporarily relocated runway threshold construction phasing scenario, a portion of the runway would be utilized as a taxiway for the first two months to allow aircraft from the Jet Aviation apron to access the airfield during Taxiway C reconstruction.

During a stakeholder meeting in October 2018, it was agreed that GA operators would likely adjust their schedules to accommodate heavier periods of traffic to help alleviate delays during single runway use. ATC noted that all current procedures on Runway 13L-31R would be maintained during the single runway operation. Thus, this phasing of construction was determined to be the most viable and is included as the proposed construction period for analysis of potential impacts.

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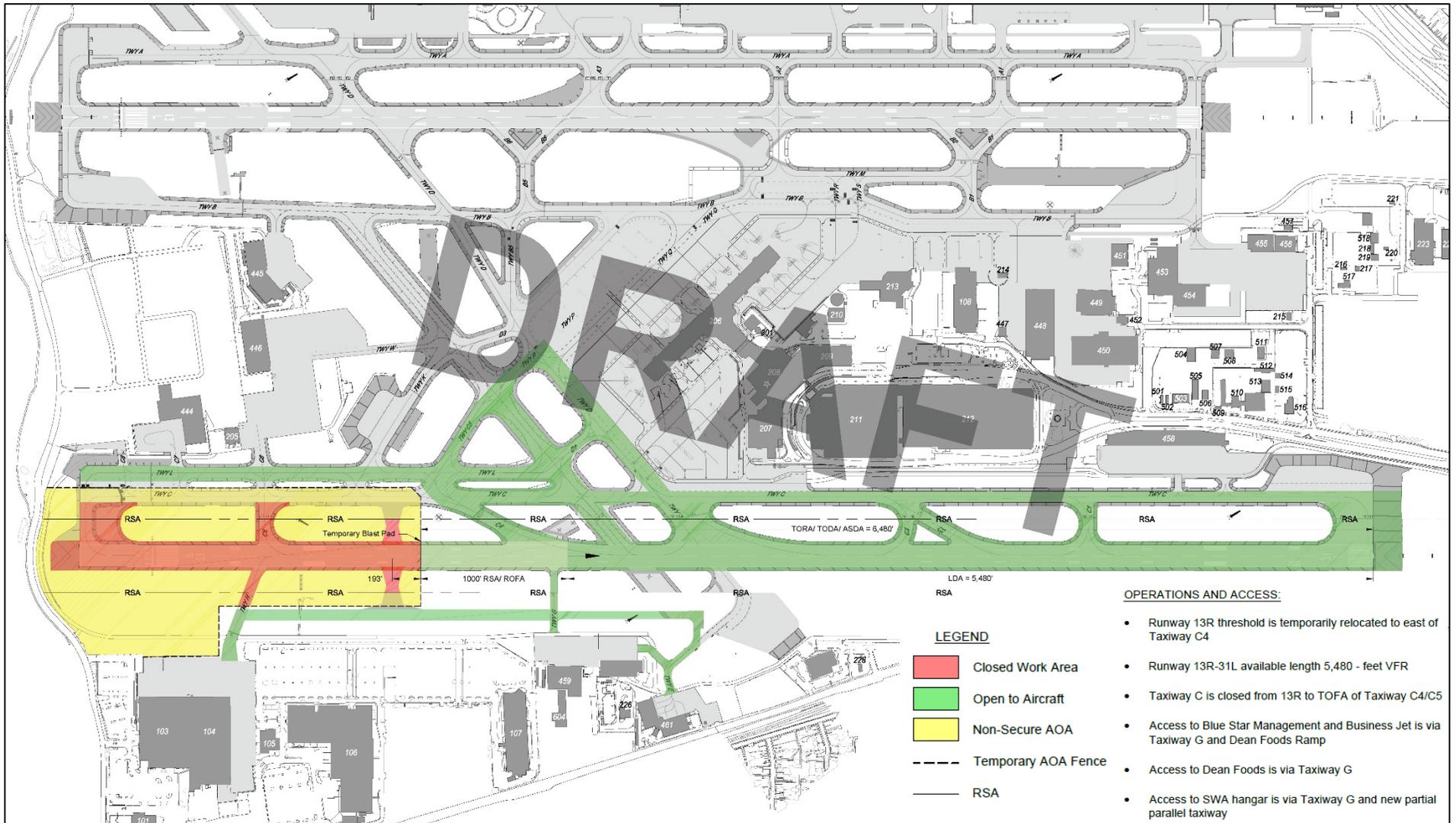


Figure 2-1. Relocate Runway 13R Threshold Alternative – 13R Departure Available Distances

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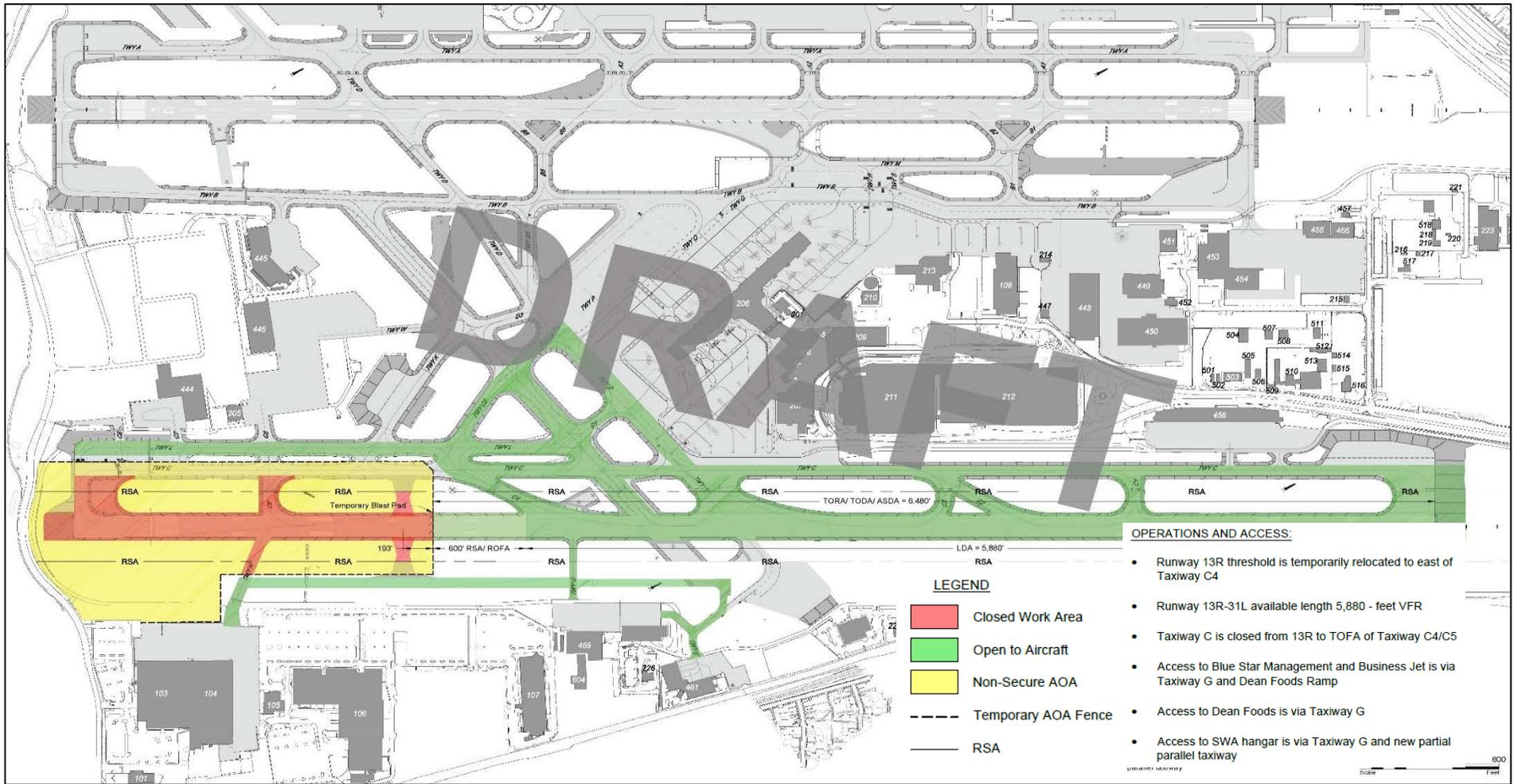


Figure 2-2. Relocate Runway 13R Threshold Alternative – 31L Departure Available Distances

2.2.2 Taxiway Locations

As described in Section 1.4.1.1, *Runway and Taxiway Pavement*, the 2016 airfield pavement evaluation indicated various taxiway connectors also required reconstruction, hence providing the opportunity to reconfigure the taxiway system during reconstruction of Runway 13R-31L.

2.2.2.1 Airport Layout Plan Taxiway Improvements

The 2016 approved ALP includes the proposed demolition and taxiway development for Runway 13R-31L as shown on **Figure 2-3**. The approved ALP taxiway improvements would meet FAA taxiway design criteria, enhance airfield safety, and improve airfield efficiencies in limited areas by:

- Eliminating wide expanses of taxiway pavement (Taxiway D connector and Taxiway E end);
- Eliminating abandoned pavement between Taxiway C4 and Taxiway E which can lead to pilot disorientation;
- Providing an adequate turning movement from Taxiway C4 to southbound Taxiway C (Taxiway C4 fillet);
- Eliminating a runway crossing within the “high energy” zone and eliminating direct access from the GA facility to the runway (Taxiway H); and
- Separating the wide expanse of pavement at the Runway 31L/Taxiway C end (new pavement island).

The ALP taxiway improvements associated with Runway 13R-31L would enhance efficiencies for vehicles on the new VSR west of the runway. However, they would not enhance efficiencies for tenants on the west side of the runway as aircraft would still need to cross the runway to reach the 13R threshold.

2.2.2.2 2018 Taxiway Improvements

A taxiway layout analysis was completed in 2018 to determine opportunities for additional taxiway improvements (i.e., safety and efficiency enhancements) along Runway 13R-31L. The analysis included the taxiway improvements shown on **Figure 2-4** which provide the same improvements as the ALP taxiway layout but with additional improvements including:

- Eliminating all non-90-degree taxiway connectors;
- Eliminating multiple taxiway connectors within the runway high energy zone;
- Providing a non-circuitous taxiing route for tenants on the west side to reach the Runway 13R threshold; and
- Continuing the partial parallel taxiway further south to allow for connection to future development off Denton Drive.

The enhanced efficiencies included in the 2018 taxiway layout for Runway 13R-31L would provide a safer, more efficient taxiway system (all 90-degree intersections) and provide a non-circuitous taxiing route for tenants on the west side of the runway. Thus, the taxiway layout as depicted on Figure 2-4 is included as the Proposed Action.

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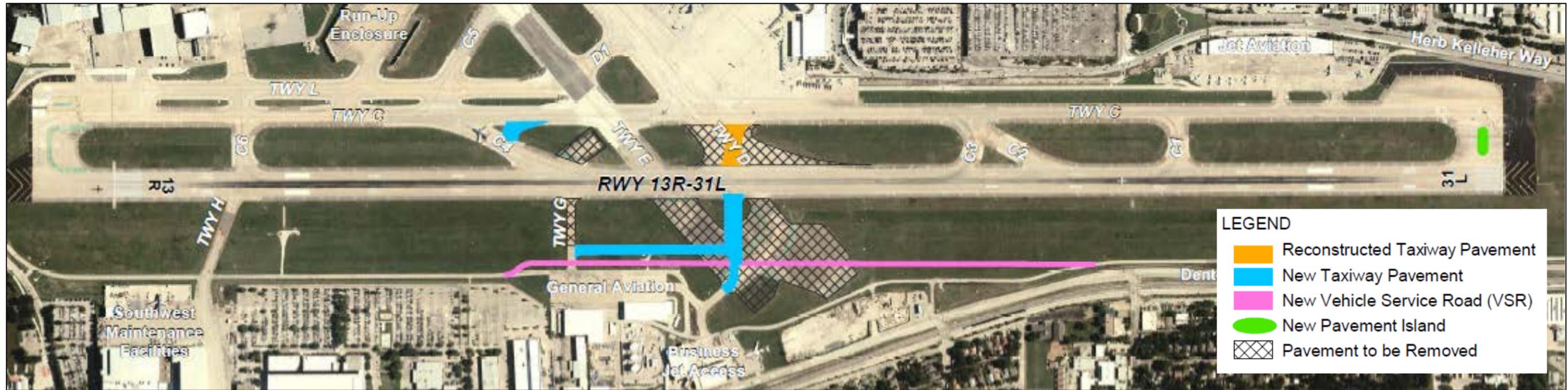


Figure 2-3. ALP Taxiway Improvements

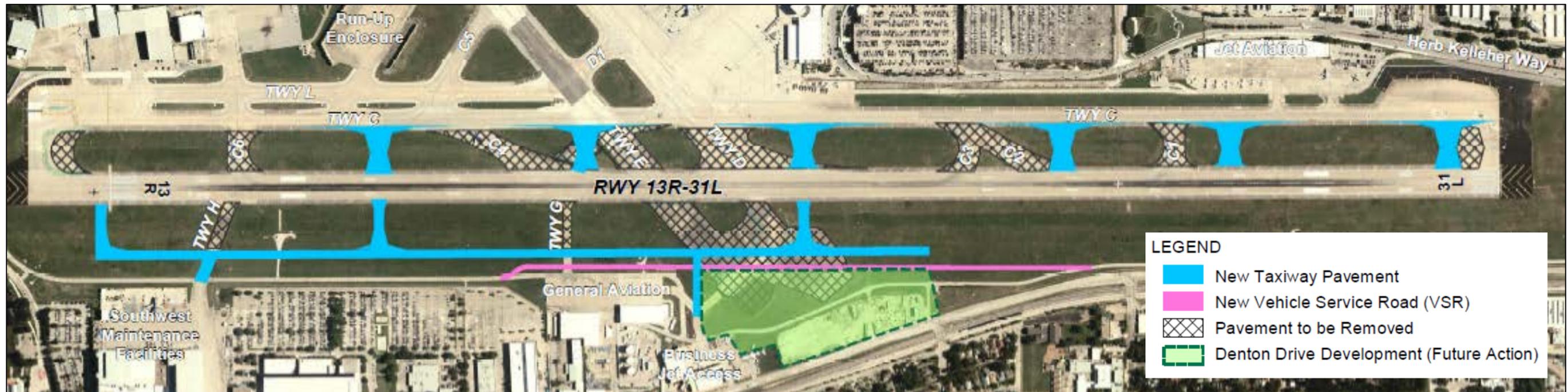


Figure 2-4. 2018 Taxiway Improvements

2.3 Proposed Action (Sponsor's Preferred Alternative)

FAA Order 1050.1F requires that the preferred alternative be identified if one has been selected by the proponent. In this case the Proposed Action as defined in Section 1.3, *Description of the Proposed Action* and the Sponsor's Preferred Alternative are one and the same. The Proposed Action would meet the operational needs of the Airport by allowing the Runway 13R-31L and associated improvements to operate safely into the future, meeting FAA design criteria while also reducing airfield efficiencies.

2.4 No Action Alternative

The No Action Alternative would leave Runway 13R-31L in its current state and would not implement the associated improvements. Runway and taxiway pavements would continue to deteriorate, creating unsafe conditions for aircraft operation. FAA runway safety criteria would not be met, and the airfield would not meet operational needs for airfield safety and efficiency.

The No Action Alternative would leave the taxiway system in its current state. FAA safety standards would not be met as wide expanses of taxiway connectors and non-90-degree taxiway intersections would remain. Additionally, no partial parallel taxiway would be constructed on the west side of Runway 13R-31L to enhance airfield efficiencies.

In accordance with CEQ and NEPA guidance, and FAA Orders 1050.1F and 5050.4B requirements, the No Action Alternative was carried forward for detailed analysis.

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Endnotes

¹ HNTB. (October 2, 2018). Runway 13R-31L Reconstruction, *Stakeholder Meeting Environmental Documentation*, DAL Administrative Office, Dallas, Texas.