

3 Alternatives

Seven alternatives, plus the No Action Alternative, were developed for initial consideration. Each of the seven build alternatives meets the purpose and need of the project by providing a relocated runway built to the FAA's 60-foot width standard and 150-foot runway/taxiway separation, and each removes vegetation in the OFA. Each build alternative relocates Delp Road out of the OFA, in a different alignment. Initial screening of these alternatives included qualitative assessments relating to:

- Property acquisition, including size of parcel(s) to be acquired and whether acquisition would have social impacts that require the relocation of a residence and/or relocation of a non-residential auxiliary structure (*i.e.*, a barn or garage).
- Whether the alignment would require a new crossing of the unnamed creek. A new crossing is perceived to add additional cost for the structure, as well as additional permitting and cost for wetland and aquatic habitat mitigation.
- Impact of road realignment on traffic safety. Delp Road is under Clark County's jurisdiction. County engineers are of the opinion that the straighter the alignment, the safer the roadway is. They also support intersections where the relocated road enters the existing alignment on a slight curve rather than as a T-intersection. Currently, Delp Road has existing right angle curves, and vertical and horizontal line of sight deficiencies that will not be addressed by the proposed action, except for the portion of the road relocated for this project.

The alternatives under consideration represent a range of combinations of the aforementioned elements: runway/taxiway centerline separation, runway width, runway length and RSA, OFA, RPZ and FAR Pat 77 penetrations. All alternatives, except the No Action Alternative and Alternative 2, relocate and extend the runway to meet the separation and length requirements. Because the runway would be newly constructed, it is assumed that the width standard will also be met. Additionally, all alternatives, except the No Action, relocate the Runway 25 end (eastern end) to provide a clear approach over 267th Street. A preliminary design report was prepared and is included as **Appendix C**¹, which shows detailed cost estimates. In summary, the alternatives being reviewed include:

- Alternative 1: No Action No changes will be made to runway/taxiway centerline separation, runway width, runway length or OFA. Twenty years of airport pavement maintenance is included.
- Alternative 2: Relocate Runway with 60' Width

¹ Please note the Preliminary Design Report was prepared in February 2009. Costs for Alternatives 5, 6 and 7 were later updated to reflect new information and layouts, as shown in the errata sheets included in the Design Report.

- Alternative 3: Runway Relocation and Extension (3,070'), Delp Road Relocated to the Northwest
- Alternative 4: Runway Relocation and Extension (3,070') Delp Road Relocated as shown on the ALP (to the Northwest)
- Alternative 5: Runway Relocation and Extension (3,070'), Delp Road Relocated on Port-owned Property
- Alternative 6: Runway Relocation and Extension (3,070'), Delp Road Relocated to the North
- Alternative 7: Runway Relocation and Extension (3,070'), Delp Road Relocated in Tunnel
- Alternative 8: Runway Relocation and Extension (3,070'), Delp Road Dead Ended

These alternatives were analyzed based on how they meet the purpose and need, project feasibility, FAA design standard compatibility, environmental impacts, and project costs. Following is a detailed discussion of these alternatives.

3.1 Alternatives Analyzed

3.1.1 Individual Project Component Options

The Purpose and Need identifies multiple design deficiencies at the Airport. At the beginning of the alternatives process, several options were identified to correct individual deficiencies. As none of these options fully met the Purpose and Need, they were removed early in the planning process; however, they are mentioned here for disclosure purposes and have not been designated as viable alternatives.

3.1.1.1 Relocate Taxiway to North

One option to correct the runway/taxiway separation deficiency, which was identified in the ALP Update, shifts the taxiway to the north to gain 150-foot runway centerline to taxiway centerline separation distance (rather than relocating the runway to the south). This option would require purchase of private property and relocation of private homes and hangars. The advisory committee and Port asked to remove this option due to the property acquisition and relocation costs, and negative social impact. Additionally, it was determined there was no real benefit to moving the taxiway north.

3.1.1.2 Runway Width Retained

This option, identified in the ALP Update, maintained the current runway width until pavement is reconstructed and was removed from consideration once it was determined the only viable build alternative for the runway/taxiway separation deficiency was to shift the runway south. It was decided that if the runway is reconstructed it should be built to the FAA standard of 60 feet.

3.1.1.3 Runway Extension without Relocation

An option for runway length discussed in the ALP Update was removed from consideration once it was determined that relocating the runway was required (rather than moving the taxiway north to achieve runway/taxiway centerline separation). This option would extend runway in its present location 450 feet to the west to achieve a runway length of 3,070 feet. This length would accommodate 95% of small aircraft with less than 10 passenger seats and would require relocation of Delp Road and the acquisition of adjacent off-Airport property.

3.1.2 *Alternative 2*

Alternative 2 (**Exhibit 3A**) would have relocated the runway to the south to obtain the proper runway/taxiway separation distance. The alternative was identified through discussions with the advisory committee and members of the public. However, it would have constrained the runway length to 1,800 feet, which is 820 feet shorter than the already deficient runway length. This alternative was not acceptable to the Port or the advisory committee and was removed from consideration. No cost estimates were prepared for this alternative.

3.1.3 *Alternative 3*

Alternative 3 would have met all the project's design criteria and purpose and need (see **Exhibit 3B**), and was identified in the ALP Update. However, the proposed Delp Road relocation would have been routed in a manner that would have required the purchase of a home and relocation of its residents. The social impact of this alternative was not justified, since other alternatives also meet the project's purpose and need without requiring the relocation of residents. The construction and road pavement maintenance cost for this alternative is \$7,494,197.

3.1.4 *Alternative 4*

Alternative 4, identified through the public involvement process, is similar to Alternative 6 with one key difference. Alternative 4 would have impacted the driveway of two residents and required removal of a garage (see **Exhibit 3C**). Alternative 6 was found to be a more appealing alternative since it avoids removal of the garage. As such, Alternative 4 was removed from consideration. The construction and road pavement maintenance cost for this alternative is \$7,362,853.

3.1.5 *Alternative 8*

Alternative 8 would have met the project's purpose and need. However, the closure of Delp Road was considered an undue burden on the local community, including emergency service providers, and was not favored by the Port, advisory committee or public (see **Exhibit 3D**). Consequently, Alternative 8 was removed from consideration.

3.2 ***Remaining Alternatives to be Analyzed Throughout EA***

3.2.1 *Alternative 1: No Action Alternative*

This alternative does not change the existing deficiencies in runway/taxiway centerline separation, runway width, runway length or RSA, OFA, RPZ and FAR Part 77 penetrations. Only maintenance for a 20-year period is considered in this alternative.

Key Features of Alternative 1 are:

- There is no property acquisition
- There are no environmental impacts.
- It does not meet the FAA design standards identified in the ALP.

The total estimated project cost for the No Action Alternative (includes only pavement maintenance operations) is \$887,500.

The No Action Alternative does not meet the project's purpose and need. It will be retained in the EA as a baseline for analysis of the build alternatives, as required under NEPA

3.2.2 *Alternative 5*

Alternative 5 consists of relocating and extending the runway to meet FAA design standards. The differentiator with the alternative is the disposition of Delp Road. Alternative 5 would relocate Delp Road on Port Property (see **Exhibit 3E**). Delp Road would diverge from the current alignment with a 150-ft radius curve to the west. It would run west approximately 1,200 feet, and then curve 180 degrees around the end of the runway, and then east approximately 600 feet before curving back to the northwest to tie into the existing alignment of Delp Road prior to the stream crossing. Both of the east-west portions of this alignment would be located just south of the proposed taxiway OFA and north of the runway OFA. There would be no new stream crossing. The existing roadway would be closed to through traffic between the two new connection points. It would remain open to local access for property owners.

This alternative is not favored by the EAAC and Port Commission, as they believe the social impact of Alternative 5 would be too great. Alternative 5 would move Delp Road closer to residential home sites, thereby creating a noise nuisance. Additionally, Clark County expressed concern over adding three sharp curves, to what is a rather straight

roadway, since it would likely increase the accident rate in the area (see **Appendix D**). Alternative 5 limits on-airport development/expansion and keeps the road within the RPZ.

Key Features of Alternative 5 are:

- On-airport improvements meet the FAA design standards identified in the ALP
- Runway length can accommodate 95% of B-1 (small) aircraft
- No wetland/environmental mitigation or new stream crossing.
- Realignment nearly all on Port property.
- Three curves may be perceived as a traffic safety hazard.
- Property acquisition of 0.5 acres, with no structures.
- Delp Road is relocated outside the OFA, but remains within the RPZ.
- Road construction would not require a detour, temporary road closure or temporary roadway.

The total estimated project cost for Alternative 5 (includes construction and 20-year maintenance for Delp Road) is \$6,285,340.

3.2.3 Alternative 6

Alternative 6 would relocate Delp Road along the southern and western boundaries of Port property. Delp Road would then tie into the existing alignment of Delp Road at 252nd Street, by a slight S curve to avoid private driveway impacts (see **Exhibit 3F**). This alignment would cross the stream at a new location with a box culvert. The existing roadway would be closed to through traffic between the two new connection points. It would remain open to local access for property owners.

Similar to Alternative 5, this alternative would move Delp Road closer to residential properties. Clark County expressed concerns about the road alignment, as it would create a rather long straight stretch of road and increase the County's maintenance costs (see Appendix D). Additionally, while the design meets County design standards, there is a public perception the new alignment could potentially attract speeding. The EAAC and Port Commission agreed that the social impact of the road relocation would be too great.

Key Features of Alternative 6 are:

- On-airport improvements meet the FAA design standards identified in the ALP
- Runway length can accommodate 95% of B-1 (small) aircraft
- Minimal impacts associated with new stream crossing, no wetland mitigation.
- Property acquisition of 0.6 acres, with no structures.
- Delp Road is relocated outside the OFA, but remains within the RPZ.
- Avoids private driveway impacts.
- Road construction would not require a detour, temporary road closure or temporary roadway.

The total estimated project cost for Alternative 6 (includes construction and 20-year maintenance for Delp Road) is \$6,858,627.

3.2.4 Alternative 7 – Sponsor's Preferred Alternative

Delp Road would be located at its current alignment, with a tunnel under the Port's property to maintain FAA design standards for safety setbacks in the Sponsor's Preferred Alternative. The proposed tunnel would be 42' wide with ConSpan arches set on continuous cement concrete footings. The roadway would be built on top of the footings and would have a minimum 1% grade to ensure positive drainage of stormwater. An enclosed stormwater system consisting of catch basins and piping would run the length of the tunnel. Please see **Exhibit 3G** for an overview of this alternative.

The Sponsor's Preferred Alternative allows the road to be reclassified as an Urban Arterial, if necessary. The tunnel would be a short segment that is on an access-controlled facility (*i.e.*, there cannot be any driveways or intersections). Since an Urban Arterial is a standard 3-lane road, with the center being a two-way left run lane, there is no need for the third lane in the tunnel as there is nothing to access.

As the alternatives were being developed, the Port was informed of FAA's concerns regarding private access to the north taxiway and the questionable need to have two full-length parallel taxiways. After discussions with the FAA, it was agreed the Sponsor's Preferred Alternative, and all build alternatives, would include obtaining the required runway/taxiway centerline separation between the existing north taxiway and the new runway, extending the southern taxiway to match the new runway length, and maintaining the north taxiway at its current length and location.

Key Features of the Sponsor's Preferred Alternative are:

- There is no property acquisition for the road relocation, only acquisition of the Runway 7 RPZ
- No new stream crossing
- Minimal environmental impacts
- On-airport improvements meet the FAA design standards identified in the ALP
- Runway length can accommodate 95% of B-1 (small) aircraft
- Delp Road is relocated outside both the OFA and RPZ
- No wetland mitigation.
- Construction would require a detour, temporary road closure or temporary roadway to construct the tunnel.

The overall estimated project cost for Alternative 7, including road pavement maintenance, is \$9,449,665.

The EAAC and Port Commission selected this alternative as the Sponsor's Preferred Alternative to be analyzed with the No Action Alternative and Alternatives 5 and 6 throughout the EA.

3.3 Additional Funding Sources

The Sponsor's Preferred Alternative (Alternative 7) is anticipated to cost approximately \$2.8 million more than the other viable alternatives. Funding sources other than FAA may be appropriate, as the difference in cost is related to the road relocation rather than an on-airport improvement.

Several funding options were explored; however, the project would not qualify or be competitive for the funding sources identified. The project would not qualify to receive federal transportation funds from the sources available to Regional Transportation Commission or the State Department of Transportation. Additionally, since Delp Road is not a federally classified road, the project would not qualify for Surface Transportation Program or Congestion Mitigation and Air Quality funds.