APPENDIX C

ALTERNATIVES

C. Alternatives Background

C.1 Comparison of Alternatives

The 2019 Airport Master Plan Update (2019 MPU) initially identified seven alternatives to mitigate the hot spot that left the hot spot pavement intact. This means the hot spot physically remained, but provided an alternate taxiway (Taxiway W) for accessing Runway 10R from the north.[1] However, leaving the pavement intact would increase the risk for runway incursions because aircraft taxiing to depart on the full length of Runway 10R would have to cross two runways.[2] After discussions between the City of Boise (Airport Sponsor), stakeholders, and the Federal Aviation Administration (FAA), the Airport Sponsor refined the 2019 MPU to consider various alternatives focused on the west airfield area, central airfield area, and east airfield area[3] to physically remove the hot spot pavement, correct nonstandard taxiway geometry, align the runway thresholds, and reduce the risk for incursions.[4] The 2019 MPU selected one alternative as the preferred alternative from each of the airfield areas that were considered (west, central, and east) in order to enhance runway safety. The ultimate preferred alternative removed the hot spot, corrected non-standard taxiway geometry, and aligned the thresholds of the parallel runways. After completing the 2019 MPU, additional discussion and evaluation during the 2021 Runway Safety Action Plan (RSAP) further strengthened the need to align the staggered runway thresholds.

This Environmental Assessment (EA) identifies three alternatives, including one the 2019 MPU process selected as the preferred alternative, which addresses the runway safety issues discussed **Section 1.1** of the EA. These three alternatives would correct the hot spot, nonstandard taxiway geometry, and the staggered runway thresholds.

The first alternative, lengthening the Runway 10L end and shortening the Runway 28R end, would align Runway 10L/28R to match parallel Runway 10R/28L. The second alternative, lengthening the Runway 28L end and shortening the Runway 10R end, would align Runway 10R/28L to match parallel Runway 10L/28R. The third alternative,

1 Ricondo. (2019, December). Boise Airport Master Plan Update.
2 Ricondo. (2019, December). Boise Airport Master Plan Update.
3 As described in the 2019 MPU, the airfield is commonly referred to as the West Airfield, which includes the Runway 10R end and Taxiway J east to Taxiway G; the Central Airfield, which includes Taxiway G east to Taxiway D, and the East Airfield, which includes Taxiway D east to the Runway 28R end.
4 Ricondo. (2019, December). Boise Airport Master Plan Update.

shortening the Runway 10R end and Runway 28R ends to match the other, would align the runway thresholds.

These three alternatives, as well as the No Action Alternative, are described in detail below. The EA carries forward the alternatives that satisfied both Level 1 and Level 2 for detailed evaluation in the EA. **Table C-1** provides an overview of the screening process for all alternatives.

Table C-1
Alternatives Screening Summary

KEY Meets Screening Criteria Does Not Meet Screening Criteria				
Screening Level and Criteria	**Alternative 1: Align Runway 10L/28R Thresholds**	**Alternative 2: Align Runway 10R/28L Thresholds (Proposed Action)**	**Alternative 3: Align Runway 10R/28L Threshold and Runway 10L/28R Threshold**	**Alternative 4: No Action Alternative[1]**
Level 1: Does the alternative meet the Purpose and Need?	Yes	Yes	Yes	N/A
Proceed to Level 2?	Yes	Yes	Yes	Yes[1]
2a: Is the alternative technically feasible?	Yes	Yes	Yes	N/A
2b: Is the alternative reasonable?	No	Yes	No	N/A
Retain for detailed analysis in EA?	**No**	**Yes**	**No**	**Yes[1]**

Notes:

/1/ - Required in the EA by FAA Order 1050.1G, *FAA National Environmental Policy Act Implementing Procedures,* Section 1.5(b)(ii)

Sources: Ricondo, 2019; RS&H, 2022.

C.1.1 Alternative 1: Align Runway 10L/28R Threshold

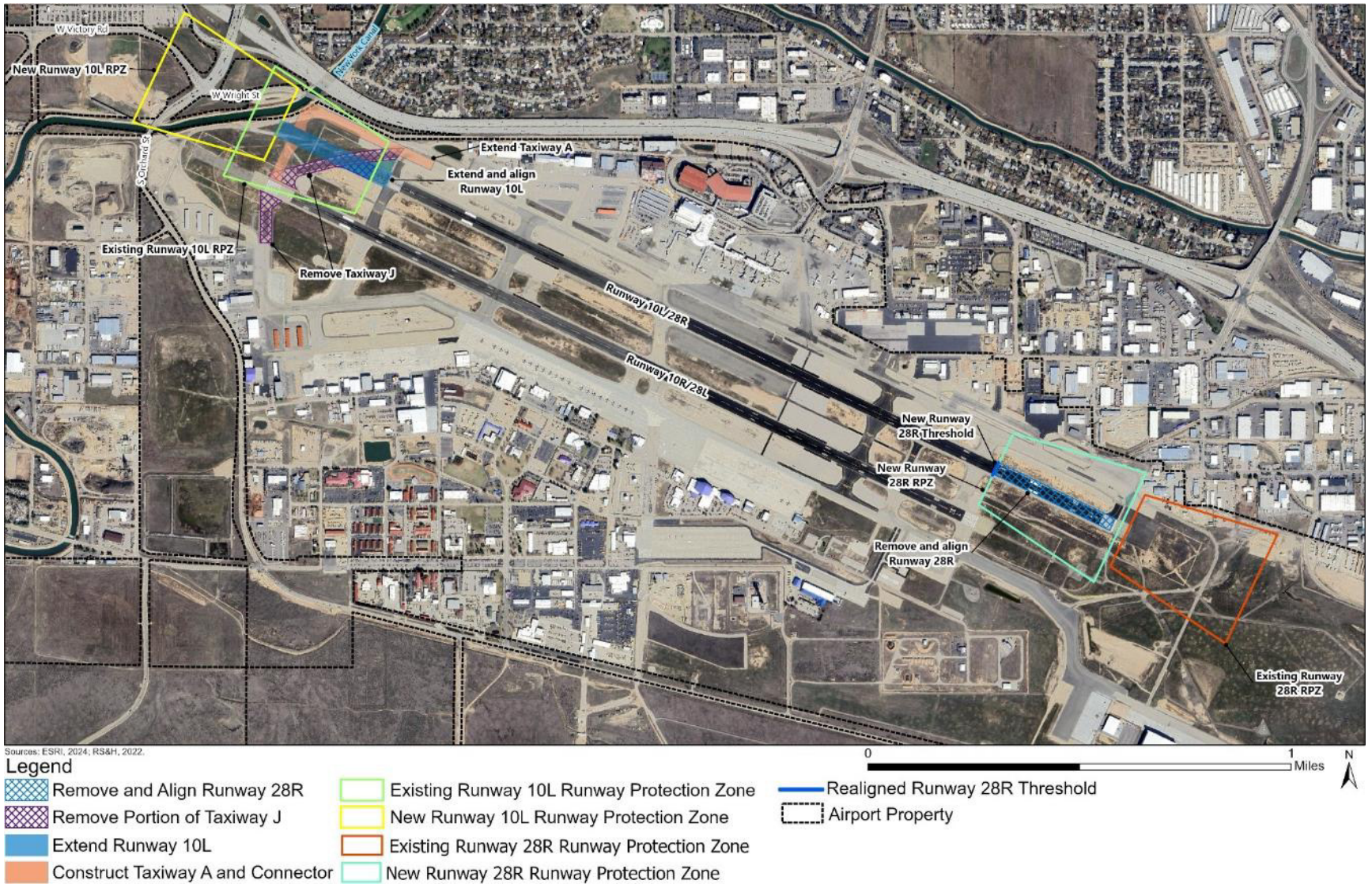
Alternative 1 would align Runway 10L/28R to match parallel Runway 10R/28L. To do so, the Airport Sponsor would lengthen the Runway 10L end and shorten the Runway 28R end. Taxiway A would be extended to provide departing aircraft to have the full use of Runway 10R/28L for take-offs.

Level 1 – This alternative would remove a portion of Taxiway J and remove the staggered runway thresholds by aligning the Runway 28R threshold with Runway 28L and the Runway 10L threshold with the Runway 10R threshold to correct the hot spot and nonstandard taxiway geometry (see **Figure C-1**). This alternative met the Level 1 screening criteria regarding Purpose and Need (to mitigate the hot spot, correct nonstandard taxiway geometry, and eliminate the staggered runway thresholds) and, as a result, Alternative 1 was advanced to Level 2 screening.

Level 2 – This alternative is considered technically feasible[5] in that constructing this alternative is possible from an engineering perspective. However, this alternative is not considered comparatively reasonable in terms of safety, policy, environmental, social, and economic consequences.

[5] FAA. (2025). FAA Order 1050.1G, *FAA National Environmental Policy Act Implementing Procedures*, Paragraph 6.1(u).

Figure C-1
Alternative 1: Align Runway 10L/28R Thresholds



Constructing this alternative with the extension to Runway 10L to ensure the runway thresholds are aligned would also shift the runway protection zone (RPZ) to match the new end of Runway 10L. According to the FAA, the RPZ is an "area at ground level prior to the threshold or beyond the runway end to enhance the safety and protection of people and property on the ground."[6] Shifting the RPZ to its new location would result in public roadways and a portion of a parking lot being included within the new RPZ (see **Figure C-1**). Both roadways and parking lots are considered incompatible land uses within an RPZ.[7] FAA requires Airport Sponsors to try to protect against introducing incompatible development, such as new public roadways and parking lots, within RPZs for safety purposes.[8] This potentially could result in the Airport Sponsor having to relocate the roadways and parking lot out of the RPZ if deemed necessary to protect people and property.

This alternative also would require the relocation of a portion of the Boise Airport (Airport) service road as the new runway and Taxiway A pavement would physically cross over the service road. This alternative would also affect the New York Canal, a federally regulated waterway. Some of the Navigational Aids (NAVAIDs) that would be relocated to support the extension of Runway 10L would be located where the New York Canal is currently located. Additionally, extending Taxiway A would also affect the New York Canal. Implementing this alternative would require extensive environmental permitting and engineering to minimize impacts to the New York Canal, or alternatively, it would require relocating that portion of the New York Canal completely.

Finally, extending the Runway 10L end would allow the aircraft to operate closer to the neighboring communities west of the Airport.

C.1.2 Alternative 2: Align Runway 10R/28L Threshold (Proposed Action)

Alternative 2 would align the runway ends of Runway 10R/28L to match parallel Runway 10L/28R. To do so, the Airport Sponsor would shorten Runway 10R end and lengthen the Runway 28L end.

Level 1 – This alternative would align the Runway 10R threshold with Runway 10L and the Runway 28L threshold with the Runway 28R threshold to correct the hot spot and nonstandard taxiway geometry and remove the staggered runway thresholds (see

[6] FAA. (2022, March 31). Advisory Circular (AC) 150/5300-13B, *Airport Design, Change 1*, Section 1.5, 82.
[7] FAA. (2012, September 27). Memorandum: Interim Guidance on Land Uses Within a Runway Protection Zone.
[8] FAA. (2021, June). Draft Advisory Circular (AC) 150/5190-4B, *Airport Land Use Compatibility*, Section 2.2.4.3.

Figure C-2). This alternative met the Level 1 screening criteria regarding Purpose and Need (to mitigate the hot spot, correct nonstandard taxiway geometry, and eliminate the staggered runway thresholds) and, as a result, Alternative 2 was advanced to Level 2 screening.

Level 2 – This alternative is considered technically feasible[9] in that constructing this alternative is possible from an engineering perspective. This alternative is also considered comparatively reasonable to implement, as unreasonable safety, policy, environmental, social, and economic consequences have not been identified.[10]

The runway shift and extension to Runway 10R/28L to ensure the runway thresholds are aligned would also require a shift to the existing RPZ. This shift in the Runway 10R RPZ would remove most of the incompatible land uses currently in the RPZ (see **Figure C-2**). Although the FAA recognizes that in certain situations an airport sponsor may not fully control land within the RPZ, the FAA encourages airport sponsors to take all possible measures to protect against, remove, or mitigate incompatible land uses. Additionally, some of the NAVAIDs requiring relocation to support this runway shift and extension would be located entirely on Airport property and would not require environmental permitting, extensive engineering, or impact the New York Canal.

[9] FAA. (2025). FAA Order 1050.1G, *FAA National Environmental Policy Act Implementing Procedures*, Paragraph 6.1(u).
[10] FAA. (2006, April 28). FAA Order 5050.4B, National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions, Section 1007(e)(4)(b), Page 10-10.

Figure C-2
Alternative 2: Align Runway 10R/28L Thresholds (Proposed Action)

C.1.3 Alternative 3: Align Runway 10R/28L and Runway 10L/28R Thresholds

Alternative 3 would shorten each of the runways to match the other and align the runway thresholds. To implement this alternative, the Runway 10R and Runway 28R ends would be shortened.

Level 1 – This alternative would shorten Runway 10R to align the Runway 10R threshold with the Runway 10L threshold and shorten Runway 28R to align the Runway 28R threshold with the Runway 28L threshold to remove the staggered runway thresholds and correct the hot spot and nonstandard taxiway geometry (see **Figure C-3**). This alternative met the Level 1 screening criteria regarding Purpose and Need (to mitigate the hot spot, correct nonstandard taxiway geometry, and eliminate the staggered runway thresholds) and, as a result, Alternative 3 was advanced to Level 2 screening.

Level 2 – This alternative is considered technically feasible[11] in that constructing this alternative is possible from an engineering perspective. However, this alternative is not considered comparatively reasonable in terms of safety, policy, environmental, social, and economic consequences.

Removing Taxiway J and 1,341 feet of Runway 10R would eliminate the hot spot and align the threshold with Runway 10L (see **Figure C-3**). Shortening Runway 10R would also shift in the Runway 10R RPZ further onto Airport property and remove most of the incompatible land uses currently in the RPZ. Removing 1,578 feet of Runway 28R would align the threshold with Runway 28L (see **Figure C-3**). The hot spot would be eliminated and both runway thresholds would be aligned.

However, reducing the length of both runways to realign the thresholds would leave a runway length of only 8,422 on both runways. As stated in the 2019 MPU, a runway length of 10,000 feet should be achieved for both runways.[12] Reducing the length of the runways to a length less than that recommended in the 2019 MPU is not advisable as this could result in larger and heavier aircraft having to reduce payload (passengers and/or freight) to operate aircraft safely. This reduced runway length is a safety concern as well as an economic concern as it could result in a loss of revenue for the Airport Sponsor.

[11] FAA. (2025). FAA Order 1050.1G, *FAA National Environmental Policy Act Implementing Procedures*, Paragraph 6.1(u).
[12] Ricondo. (2019, December). Boise Airport Master Plan Update.

Figure C-3

Alternative 3: Align Runway 10R/28L Threshold and Runway 10L/28R Threshold

C.1.4 Alternative 4: No Action Alternative

Under the No Action Alternative, the Airport Sponsor would not correct the hot spot, nonstandard taxiway geometry, or align the runway thresholds, thereby not reducing the risks for runway incursions and wrong surface landings. The Airport Sponsor would continue to operate and serve forecast aviation demands with existing facilities. The No Action Alternative does not meet the Purpose and Need described in **Section 2** of the EA. and current FAA safety and design standards to enhance runway safety at the Airport would not be met. However, Although the No Action Alternative does not meet the project's purpose and need, it does serve as a baseline for a comparison of impacts to the preferred alternative and is therefore retained for analysis.