

3. ALTERNATIVES ANALYSIS

3.1 Introduction

This chapter provides a summary of the analysis completed to identify the most reasonable alternatives for evaluation in this Environmental Assessment (EA). As discussed in **Chapter 2, Purpose and Need**, the primary purpose of the Proposed Actions is to better meet the Durango-La Plata County Airport's (DRO or the Airport) existing service and facility needs in a manner that allows for future growth and development of the terminal building, parking, and apron. This chapter discusses reasonable alternatives for the terminal building (and associated projects). Additionally, in compliance with FAA guidance and regulations associated with the NEPA, "No Action" alternatives are included.

3.2 Terminal Alternatives

From the information gathered in the 2017 Master Plan, the future size of the terminal was determined and based on facility needs at two Planning Activity Levels (PALs) as shown in **Table 3-1** and **Table 3-2**.

Planning Activity Level	Enplaned Passengers ^{/a/}
Existing (2015)	205,000
PAL 1 (2025)	284,000
PAL 2 (2035)	391,000

TABLE 3-1 – DRO PAL AND ENPLANEMENTS

Source: Durango-La Plata County Airport 2017 Master Plan Note: ^{/a/}Rounded to nearest thousandth

Type of Occupancy	Existing Space (square feet)	Current Need (2015)	PAL 1 (2025)	PAL 2 (2035)
Airline Space	17,000	26,924	34,131	42,758
Transportation Security Administration Space	2,500	14,830	16,080	19,524
Concessions	4,200	3,500	5,600	7,200
Public Space	13,500	28,160	44,560	56,230
Airport Administration	2,400	5,000	5,000	5,000
Utilities and Support Spaces	1,900	3,686	5,376	6,804
Total Terminal Area (Rounded)	41,500 ¹	82,100	110,800	137,600

TABLE 3-2 – DRO TERMINAL FACILITY REQUIREMENTS SUMMARY

Source: Durango-La Plata County Airport 2017 Master Plan

Note: ¹The areas described above are approximate based on available archived drawings and CAD files for the existing terminal building, therefore rounded totals were used for the existing facility.

Following the presentation of the preferred terminal concepts in the 2017 Master Plan process, concerns were raised regarding funding availability. As a result, the alternatives were further refined, reduced in size, and PAL 0 was created based on the current (2014) needs of the Airport. It was determined that the new terminal, to meet current needs (PAL 0 - 2014), should be at least 80,000 square feet, parking spaces for 1,500 surface vehicles, four aircraft gates, and one remain overnight parking position. PAL 1 and PAL 2 were found to be beyond the reasonable planning period for this EA and unreasonable due to cost constraints. Further, the enplanements used as the basis for PAL 1 and PAL 2 have not increased as anticipated. As of the end of 2017,





the enplanements at DRO were at approximately 187,000¹. It is expected that the development needs to accommodate PAL 0 will remain viable and usable for at least ten years from opening day. If in the future it is determined that the terminal, parking, and apron needs of PAL 1 and PAL 2 are needed, both the east and west side of the Airport have the space needed for expansion as discussed in the 2017 Master Plan; however, the costs associated with those expansions is significant.

3.2.1 Terminal Alternative Development

The terminal alternatives identified in the 2017 Master Plan were developed through a process that considered the overall site plan of DRO and its future needs. Through this process it was found that the existing terminal building is operating beyond its capacity and needs renovation and expansion or replacement. Several meetings were held to gather input and concerns on the type and location of the future terminal project. Meetings included elected officials from the City of Durango and La Plata County, Airport Board of Commissioners, the Airport Master Plan Planning Advisory Committee (PAC), and the general public. Additionally, a survey was given to the PAC, Airport passengers, airlines, DRO tenants, and local business owners.

The following quantitative and qualitative evaluation criteria were developed from the meeting and survey results:

Qualitative:

- Promotes safety and efficiency of airport operations
- Enhances security of airport and airline operations
- Improves customer satisfaction/convenience
- Fosters Durango/Four Corners' image
- Minimizes construction phasing impacts to tenants and users
- Incorporates sustainable design elements where appropriate
- Sensitive to environmental resources

Quantitative:

- Complies with FAA safety and design standards
- Maximizes operational efficiency
- Meets the 20-year facility requirements with room to grow
- Balances benefits with costs

Three reasonable terminal building alternatives were identified through the evaluation criteria:

- 1. Renovate and Expand the Existing Terminal
- 2. Construct New Terminal Adjacent to Existing Terminal
- 3. Construct New Terminal on East Side of Runway

These alternatives were recommended for evaluation in this EA and are discussed in the following sections, along with a No Action Alternative.



¹ FAA, CY 2017 Passenger Boarding Data, 2017

3.2.2 No Action Terminal Alternative

The No Action Terminal Alternative means no significant improvements or changes would be made to the existing terminal building, terminal parking, terminal apron, airfield system, utilities, or any other airport facilities (**Figure 3-1**). Thus, the No Action Terminal Alternative would not allow DRO to better meet the existing service and facility needs, thereby maintaining the current level "D" LOS (an adequate level of service, with conditions of unstable flow, acceptable delays for short periods of time, and adequate levels of comfort.).

As discussed in the 2017 Master Plan's **Chapter 3**, **Aviation Activity**, enplanements will continue to increase over the next 20 years, with an approximate increase of 28 percent by 2035. Under the No Action Terminal Alternative, the existing terminal building would continue to operate inefficiently, and the level of service would decrease as passenger loads increased. Further, the No Action Terminal Alternative would result in a considerable increase in maintenance costs to keep the existing terminal building working, as well as inadequate parking for both autos and aircraft.

Although the No Action Terminal Alternative would not meet the Purpose and Need for the Proposed Action, this alternative was retained for further analysis in this EA. The No Action Alternative is kept in the analysis for environmental baseline comparative purposes, to fulfill Council on Environmental Quality (CEQ) regulations (40 CFR Part 1502) implementing NEPA, and to comply with FAA Orders 1050.1F² and 5050.4B³.



FIGURE 3-1 - NO ACTION TERMINAL ALTERNATIVE

Source: Jviation, 2016 Note: Not to scale

² FAA, Order1050.1F, Environmental Impacts: Policies and Procedures, 2015

³ FAA, Order 5050.4B, National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions, 2006



3.2.3 Common Elements of Terminal Alternatives 1 and 2

The following elements are included in Terminal Alternatives 1 and 2. To reduce redundancy, the elements are discussed here rather than in each alternative's independent section.

Terminal Apron

The aircraft parking apron would be reconstructed to remove non-aircraft rated pavement and replace it with aircraft rated pavement. Alternative 2 also includes an apron expansion to accommodate the relocation of the terminal. Both alternatives provide space for five aircraft parking positions: four gates and one remain overnight.

Terminal Parking and Realigned Terminal Loop Road

Existing auto parking, already operating at a deficiency, would be further impacted by the terminal expansion/relocation. Expansion of the existing lots is limited as the west side of the airfield is at the edge of the mesa top. However, the spaces needed to meet current demand can be accommodated by expanding existing surface lots. The expansions would account for any parking lost due to terminal expansion/relocation and additional demand. To expand the lots, the terminal loop road would be relocated to the mesa edge and most of landscaping within the loop road would be removed. There are approximately 1,100 existing paved parking spaces; approximately 1,500 spaces would be available after the expansion.

Utility Improvements

The primary utility corridor is underneath the apron directly east of the existing terminal building. This utility corridor includes wet and dry utilities such as water, sanitary sewer, natural gas, electric, and communication. These utilities would require reconstruction and relocation to accommodate the expanded or relocated terminal footprint and apron. A phased relocation and temporary installations to maintain utility services is expected during construction.

Borrow Site

Additional fill material is required to prepare the construction sites for the proposed development. The proposed borrow site is located southwest of the runway, as shown in **Figure 3-2**. The site is approximately 78,000 square yards and would provide enough fill for either alternative.

Staging Area (Batch Plant and Construction Equipment)

A staging area, required for construction equipment and an asphalt batch plant, will be located west of the runway and will be accessed via an existing vehicle service road (see **Figure 3-2**).

Maintenance

In both Terminal Alternative 1 and 2, DRO will be responsible for maintaining all pavement, to include both existing and future pavement.





FIGURE 3-2 - TERMINAL ALTERNATIVES 1 AND 2: LIMITS OF DISTURBANCE

Source: Jviation, 2017

Notes: Apron expansion only applies to Alternative 2 Not to scale

3.2.4 Terminal Alternative 1: Renovate and Expand Existing Terminal

Terminal Alternative 1 proposes the renovation and expansion of the existing terminal building. This alternative seeks to use the existing airfield and landside infrastructure to the greatest extent possible (see **Figure 3-3**).





FIGURE 3-3 - TERMINAL ALTERNATIVE 1: RENOVATE AND EXPAND EXISTING TERMINAL

The existing terminal building would be enlarged to accommodate additional depth and length of all terminal functions and areas to approximately 80,000 square feet. The existing building would need to be incorporated into the new construction and be completely reconfigured, involving a complete remodel of existing interior and exterior finishes. Due to the age and capacity of building systems, existing systems would be replaced with new equipment sized to serve the needs of the entire building and meeting latest energy efficiency standards. The existing building codes for fire protection would be implemented and integrated between old and new space. Concession areas meeting program requirements would be located on both sides of the security checkpoint and sized to offer passengers options for food, beverage, and sundries.

Complex phasing would be required during construction to maintain functionality for passengers and airlines and minimize impacts to normal operations. However, a decreased level of service will be unavoidable at times.

3.2.5 Terminal Alternative 2: Construct New Terminal on West Side

Terminal Alternative 2 proposes to construct a new terminal building on the west side of the Airport, next to the existing terminal building, and seeks to use the existing airfield and landside infrastructure to the greatest extent possible with a new building (see **Figure 3-4**).



Source: Jviation, 2016 Note: Not to scale



FIGURE 3-4 - TERMINAL ALTERNATIVE 2: CONSTRUCT NEW TERMINAL ON WEST SIDE

The new terminal building would be constructed north of the existing terminal. The existing terminal building would be demolished after the new building is completed and the site reused for auto parking. Highperformance modern systems would be used to capture the benefits of sustainable design principles and reduce operating costs of the new building. Design elements that reflect Durango's image would be incorporated into the project. Phasing would be needed to minimize impacts to the normal airport operations, primarily because there is very little space available for contractors to stage equipment and materials. Concession areas meeting program requirements would be located at both sides of the security checkpoint and sized to offer passengers options for food, beverage, and sundries.

3.2.6 Terminal Alternative 3: Construct New Terminal on East Side of Runway

Terminal Alternative 3 involves construction of all new terminal facilities on the east side of the airfield on undeveloped land (see **Figure 3-5**), some of which was disturbed during initial airport construction. This alternative seeks to utilize Airport-owned land that is available for development but has not been considered accessible due to barriers such as utility extension and access. Construction of a new terminal, aircraft parking apron, partial parallel taxiway, auto parking, and access roadways to CR 309A would be required. The former terminal location would then be made available for lease or redevelopment for aeronautical purposes given the location and proximity to the active airfield.

Source: Jviation, 2016 Note: Not to scale



FIGURE 3-5 - TERMINAL ALTERNATIVE 3: CONSTRUCT NEW TERMINAL ON EAST SIDE OF RUNWAY



Source: Jviation, 2017 Note: Not to scale

Terminal Building

This alternative includes the construction of a new terminal building on the east side of the airfield. Highperformance modern systems would be used to capture the benefits of sustainable design principles and reduce operating costs of the new building. No phasing would be needed as airport operations would not be affected by construction. Concession areas meeting program requirements would be located at both sides of the security checkpoint and sized to offer passengers options for food, beverage, and sundries.

Terminal Apron

A new aircraft parking apron is included with the construction of the new terminal building on the east side of the runway. The apron would accommodate five aircraft parking spaces: four gate positions and one remain overnight. The new terminal building would be centered on the terminal apron and both the terminal and apron would have the ability to expand to the north and south.

Partial Parallel and Connector Taxiways

To provide terminal service on the east side of the runway, a new partial parallel taxiway, Taxiway B, would be constructed to allow for safe and efficient aircraft movement. Three connector taxiways would be constructed and edge lighting and airfield signage installed, with the required 400-foot taxiway-to-runway separation and various electronic navigational aids relocated outside of the safety areas. One notable design element is that the south end of Taxiway B would remain within a critical area for the glideslope antenna; hold lines are proposed on either side of the critical area to mitigate this issue. This approach allows for considerable savings because the area features sloping terrain that would otherwise require additional earthwork to construct around the critical area.

Although a full taxiway is not proposed, the partial parallel taxiway would accommodate existing and forecasted traffic without creating delays. The Airport currently operates under the recommended operational capacity and will continue to do so in the future as depicted in **Table 3-4**. The new partial parallel taxiway would



add capacity to the taxiway system as GA traffic would continue to use the west side full parallel taxiway (Taxiway A) and only commercial aircraft would use the new east side partial parallel taxiway. The prevailing winds at DRO are from the west and southwest, resulting in most aircraft using Runway 21 and landing to the south. Commercial traffic landing to the south, which is the majority of traffic, would avoid the west side completely and have a very short taxi time to the new terminal, while occasional traffic landing to the north would use Taxiway A and experience a longer taxiing time. Commercial aircraft taking off from Runway 21 would experience a longer taxi time; however, when considered with the short taxi time of aircraft landing on the same runway, the total taxi time will be comparable to the existing taxi time.

VFR ^{/a/} Hourly Capacity	IFR ^{/b/} Hourly Capacity	Annual Service Volume			
74	57	195,000			
Airport Master Plan Forecast – Year 2035					
VFR Hourly Demand 32	IFR Hourly Demand Annual Operations 16 61,566				
Because DRO is a non-towered airport, there are no records of actual peak hour operations. VFR hourly demand calculated based on Annual Operations × 10.4% (Peak Month) ÷ 30 (Average Day) × 15% (Peak Hour). IFR hourly demand calculated based on Annual Operations ÷ 2 × 10.4% (Peak Month) ÷ 30 (Average Day) × 15% (Peak Hour). Actual peak hour operations likely fluctuate by season and may also differ from calculations.					
Demand-Capacity Ratio					
43.2%	28%	31.6%			

Source: Durango-La Plata County Airport 2017 Master Plan

Notes: ^{/a/}VFR = Visual Flight Rules

^{/b/}IFR – Instrument Flight Rules

Auto Parking

Parking has been defined in three areas that have the potential to be expanded to the north and south to accommodate future growth. The storm water in these lots would be collected by a system of inlets and underground storm sewer pipes and conveyed to a new detention pond. Allowable ponding depths at inlets in parking areas would be carefully considered to balance inlet efficiency and passenger comfort. Utility infrastructure for the parking lots would include electrical, communications ducts, and wiring for lighting and revenue control.

Access Roadways

A new road would be constructed from the existing CR 309A up to a new terminal loop road, shown in **Figure 3-6**. Additionally, CR 309A would be improved, bringing the existing two-lane paved and gravel roadways up to the new access road typical section standards. As CR 309A is currently located below the mesa, the new access road would need to climb up the slope to reach the new terminal site. This would require cut and fill to meet grade requirements. Landscaping berms would be considered to lessen the visual impact of the new roadway as it climbs the mesa. A new circulation road would be constructed to support the east side terminal development. The circulation road would include two 12-foot lanes with curb and gutter and two five-foot sidewalks. Additional lanes may be needed at intersections and in front of the terminal to increase safety and improve traffic flow.



FIGURE 3-6 – TERMINAL ALTERNATIVE 3: AIRPORT ACCESS ROAD



Source: Jviation, 2017 Note: Not to scale

Utility Improvements

New utility infrastructure is required to support a new terminal building on the east side of the runway. The required utility infrastructure includes water, sanitary sewer, storm sewer, natural gas, electric, communications, and irrigation. The majority of utilities would be installed using open trench construction with granular bedding. Most of these utility systems would be extended from the existing infrastructure on the west side of the runway.

To accommodate the new development area, a new electric vault would be installed on the east side of the airfield near the terminal development. This new vault would replace the existing vault and provide power to the entire airfield lighting system as well as the east and west side development.

Borrow Site

Terminal Alternative 3 would require additional fill material to prepare the construction site for the proposed development. The proposed borrow site is the same site to be used for Alternatives 1 and 2, shown in **Figure 3-7**. The site is approximately 78,000 square yards and would provide enough fill for all components of Terminal Alternative 3.



Staging Area

The staging area will be located east of the runway and north of the proposed terminal site (see **Figure 3-7**). Access from the staging area to the development site will be via a new access road.

Vehicle Service and Haul Roads

Terminal Alternative 3 requires the construction of a vehicle service/haul road that would run from the proposed borrow site to the new apron. The road would continue north of the apron and tie into the existing service road at the north end of the runway (see **Figure 3-7**). The southern portion of the access road (running from the borrow site to the new apron) would also serve as a haul road during construction.



FIGURE 3-7 - TERMINAL ALTERNATIVE 3: LIMITS OF DISTURBANCE

Maintenance

It is understood that DRO would be responsible for maintaining all pavement, to include the existing pavement on the west side as well as new pavement on the east side of the Airport.

Source: Jviation, 2017 Note: Not to scale



3.2.7 Airport Access Road Considerations

The initial project planning for the terminal alternatives included a new airport access road, as shown in **Figure 3-8**. The current primary access to DRO from the surrounding area is SH-172. County Road 309A (CR-309A) provides secondary access from the south. The access road to DRO from SH 172 is CR 309. The intersection of SH-172 and CR-309 was analyzed in the traffic study completed by Felsburg, Holt & Ullevig, Inc. as part of the 2017 Master Plan. It was found that "the existing SH-172 / CR-309 intersection had been identified as a traffic safety problem by both La Plata County and the Colorado Department of Transportation (CDOT). La Plata County Staff has rated the intersection #1 on a listing of intersections in need of improvement, and CDOT Staff agree that the configuration and location of the intersection causes sight distance limitations and increased crash potential. While the intersection crash data do not necessarily indicate an elevated safety risk, it is evident that safety concerns exist."

Based on this safety concern, the Colorado Department of Transportation (CDOT) recommended that airport access be relocated and the existing intersection limited to right turn in and right turn out. The preferred location for the new access road was east of the existing entrance and aligned with existing CR-338. The new access road would remain within DRO boundaries and tie into the existing CR-309A. This location would require intersection improvements to SH-172 to add turn lanes. The roadway improvements required beyond the new access road were dependent on the terminal site alternative selected.

Through meetings with the FAA and DRO, the new access road was removed from the alternatives and from further review in this EA as the FAA does not consider the construction of the new terminal a major redevelopment that would trigger the need for the intersection improvements. Many of the individual resource reports located in the Appendices include analysis of impacts resulting from the access road. These reports were not revised after the road was eliminated, enabling them to be used in future studies. The decision to remove the intersection from this EA does not preclude CDOT or La Plata County from improving/relocating the intersection outside of this project.





FIGURE 3-8 – AIRPORT ACCESS ROAD CONSIDERATIONS

Source: Jviation, 2016 Note: Not to scale

3.2.8 Terminal Alternatives to be Carried Forward

Terminal Alternatives 1, 2, and 3 were carried forward in the draft EA and evaluated for environmental impacts. Additionally, the No Action Terminal Alternative was carried forward and served as the basis of comparison for each alternative's environmental impacts.

3.2.9 Selected Alternatives

The Airport elected to wait until after the public involvement process to select which alternative to move forward with. At the conclusion of the public comment period, the Airport reviewed the three alternatives and determined that a combination of the Alternatives 1 and 2 would be the best option in moving forward. The Airport Advisory Commission unanimously voted on January 24th, 2019 to select the combination of Alternative 1 and 2 as the Proposed Action.



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