

APPENDIX A

**ALTERNATIVE AIRPORT
DEVELOPMENT CONCEPTS**

Appendix A

ALTERNATIVE AIRPORT DEVELOPMENT CONCEPTS

This appendix describes the alternative airport development concepts considered for the long-range development of the Paso Robles Municipal Airport.

FORMULATION OF ALTERNATIVE AIRPORT DEVELOPMENT CONCEPTS

Three alternative concepts were prepared for review with the City on January 24, 2002. The recommended 2020 Airport Master Plan concept will be finalized based on the comments received from the City of El Paso de Robles, Airport Advisory Committee, airport users and public review of the alternatives.

A summary of the principal features of each alternative is presented below. The alternatives are illustrated on Figures A-1 through A-3 at the end of this Appendix. Alternative 4 would be a “no action” alternative.

Alternative Airport Development Concept 1

Land Acquisition

- Acquire fee title or avigation easements for Runway 1L-19R runway protection zones to the north and south.

Airfield

- Extend existing Runway 1L-19R to 7,200 feet with 1,200-foot extension to the north. Provide 500-foot wide runway safety area extending 1,000 feet beyond both ends of the runway.
- Retain existing Runway 13-31 at 4,700-foot length and 100-foot width. Provide 500-foot wide runway safety area extending 1,000 feet beyond both ends of the runway.
- Preserve capability for new parallel Runway 1R-19L at 3,200 by 60 feet at 700 feet to the east of the present Runway 1L-19R and intersecting with Taxiway F at south end. Provide 120-foot wide runway safety area extending 240 feet beyond both ends of the runway. Provide 250-foot wide runway object free area extending 240 feet beyond both ends of the runway.
- Provide small aircraft visual runway protection zones for new Runway 1R-19L and 20:1 approach surface slopes.

- Do not provide parallel taxiway to the west of new Runway 1R-19L centerline.
- Extend Taxiway A to future end of Runway 1R-19L.
- Extend Taxiways C and D to connect to Runway 13-31 and new Runway 1R-19L.
- Provide partial parallel taxiway at 400 feet to the southwest of Runway 13-31 centerline.
- Provide for future instrument landing system and MALS for Runway 19R.

Terminal Area

- Reserve aircraft apron parking space for potential commuter aircraft adjacent to terminal building.
- Retain building restriction line at 750 feet west of Runway 1L-19R centerline.
- Establish new building restriction line at 250 feet to east of new Runway 1R-19L centerline.
- Provide space for new commercial aviation/fixed base operator development north and south of Taxiway F, north of Taxiway C and west of Runway 1-19.
- Develop hangars in the area west of Runway 1L-19R and east of Airport Road and along closed Taxiway G east of Runway 13-31.
- Relocate structures inside new building restriction line and runway protection zone for potential Runway 1R north of Dry Creek Road.
- Develop and extend Cirrus Way to north across Taxiway F for future commercial aviation development.
- Reserve space for future air traffic control tower north of Taxiway C.
- Retain aircraft rescue and firefighting facility in present location.
- Reserve space for future commercial/industrial development south of Taxiway F along Dry Creek Road and west of Runway 1-19 along Airport Road.
- Extend Aerotech Center Way to serve east side of Airport.

Alternative Airport Development Concept 2

Land Acquisition

- Acquire fee title or avigation easements for Runway 1L-19R extensions and runway protection zones to the north and south.
- Acquire fee title or avigation easements for Runway 13-31 extension and runway protection zones to the northwest and southwest.

Airfield

- Extend existing Runway 1L-19R to 10,000 feet with 3,000-foot extension to the north and 1,000-foot extension to the south. Provide 9,000 feet for takeoff in both directions using FAA declared distance concept which does not require realignment of either Dry Creek Road or Tower Road. Provide 1,000-foot displaced landing threshold at both runway ends. Provide 500 feet wide runway safety area extending 1,000 feet beyond both ends of the 8,000 feet of runway available for landing in each direction.
- Extend Taxiway A to future ends of Runway 1L-19R.
- Extend Runway 13-31 to 7,200 feet with 2,500-foot extension to the northwest. Provide 500-foot wide runway safety area extending 1,000 feet beyond both ends of the runway.
- Provide nonprecision instrument runway protection zones for extended Runway 13-31 and 34:1 approach surface slopes.
- Provide parallel taxiway at 400 feet to the southwest of Runway 13-31.
- Preserve capability for new Runway 1R-19L at 3,400 feet by 75 feet and 700 feet to the east of present Runway 1L-19R and intersecting with Runway 13-31 at north end. Provide 120-foot wide runway safety area extending 240 feet beyond both ends of the runway. Provide 400-foot wide runway object free area extending 240 feet beyond both ends of the runway.
- Provide small aircraft visual runway protection zones for new parallel Runway 1R-19L and 20:1 approach surface slopes.
- Provide parallel taxiway at 300 feet to the west of new Runway 1R-19L centerline and connections to Taxiways C and D.

- Provide for future instrument landing system and MALSR on Runway 19R.
- Relocate lighted wind tee and segmented circle.

Terminal Area

- Reserve aircraft apron parking space for potential commuter aircraft adjacent to terminal building.
- Retain building restriction line at 750 feet west of Runway 1L-19R centerline.
- Establish building restriction line at 370 feet to east of new Runway 1R-19L centerline.
- Provide space for new commercial aviation/fixed base operator development west of Runway 1-19, north of Taxiway C and south of Taxiway F.
- Provide space for new hangar development west of Runway 1-19 and east of Runway 13-31.
- Retain aircraft rescue and firefighting facility in present location.
- Reserve site for new air traffic control tower north of Taxiway C.
- Reserve space for future commercial/industrial development south of Taxiway F along Dry Creek Road and west of Runway 1-19 along Airport Road.

Alternative Airport Development Concept 3

Land Acquisition

- Acquire fee title or aviation easements for Runway 1L-19R extension and runway protection zones to the north and south.
- Acquire fee title or aviation easements for Runway 13-31 extension and runway protection zones to northwest and southeast.

Airfield

- Extend existing Runway 1L-19R to 9,000 feet with 2,000-foot extension to the north and 1,000-foot extension the south. Provide 500-foot wide runway safety area extending 1,000 feet beyond both ends of the runway.

- Extend Runway 13-31 to the northwest to 6,400 feet by 100 feet. Provide 500-foot wide runway safety area extending 1,000 feet beyond both ends of the runway.
- Provide large aircraft visual runway protection zones for Runway 13-31 and 34:1 approach surface slopes.
- Preserve capability for new Runway 1R-19L at 3,200 feet by 60 feet at 1,600 feet to the east of the present Runway 1L-19R and intersecting with Runway 13-31 and Taxiway B at the north end. Provide 120-foot wide runway safety area extending 240 feet beyond both ends of the runway.
- Provide small aircraft visual runway protection zones for new Runway 1R-19L and 20:1 approach surface slopes.
- Provide parallel taxiway at 400 feet to southwest of Runway 13-31.
- Provide taxiway connection from Taxiway D to new Runway 1R-19L.
- Provide for future instrument landing system and MALSR for Runway 19R.

Terminal Area

- Reserve aircraft apron parking space for potential commuter aircraft adjacent to terminal building.
- Retain building restriction line at 750 feet west of Runway 1L-19R centerline.
- Provide building restriction line at 750 feet on both sides of Runway 13-31.
- Provide space for new commercial aviation/fixed base operator development west of Runway 1L-19R, south of Taxiway F and northwest of Runway 13-31.
- Develop new hangars east of Airport Road.
- Relocate structures inside new building restriction lines and runway protection zone for Runway 1R north of Dry Creek Road.
- Reserve space for future air traffic control tower and aircraft rescue and firefighting facility north of Taxiway C.

- Reserve space for future commercial/industrial development south of Taxiway F along Dry Creek Road and west of Runway 1-19 along Airport Road.
- Relocate Dry Creek Road by at least 1,500 feet to the south.

COMPARISON OF ALTERNATIVE AIRPORT DEVELOPMENT CONCEPTS

The comparison of the Alternative Airport Development Concepts considered several factors including capacity to accommodate forecast demand, provision of runway safety areas, protection of runway protection zones, accommodation of forecast types of aircraft, additional Airport development areas, relocation of roadways, land acquisition and other factors. In the process of formulating these Alternative Airport Development Concepts, an effort was made to include the potential range of practical alternatives.

The comparison is presented in both narrative and tabular form, including a matrix showing factors rated as high, medium and low (high being the best). It should be noted that these ratings are general in nature and the factors are not of equal value. The ratings are not additive in the sense that the total number of high, medium or low ratings indicates a numerical preference as to the best alternative. However, the matrix does provide a visual aid for comparison of individual factors within the alternative concepts.

Initially, the inadequate features of the existing Airport facilities to accommodate the forecast demand and associated requirements were identified as discussed in Chapter 4. (The existing Airport facilities would become a “No Action” Alternative Development Concept 4.) Then ways of overcoming these inadequacies were developed which became the basis for Alternative Airport Development Concepts, 1, 2 and 3.

Some of the aircraft expected to use the Paso Robles Municipal Airport will require a longer runway to operate at maximum gross takeoff weight. While the demand/capacity analysis does not indicate a need for a new parallel runway before the end of the 2020 planning period, prudent planning suggests that the potential for accommodating such a runway in the long-term be analyzed. For any runway extension, additional land would be required for runway protection zones. In addition, based on FAA criteria, runway safety areas would have to be provided extending beyond the ends of the runway for any new or extended runway.

The lateral separations of the existing Runways 1L-19R and 13-31, potential new Runway 1R-19L and associated taxiways are concerns for locating facilities for the Alternative Airport Development Concepts 1, 2 and 3. In addition, the recommended separation of parallel runways is 700 feet from centerline to centerline for simultaneous VFR operations. However, this may not be feasible at the Airport without a waiver from the FAA of the 500-foot separation from the VORTAC or alternatively relocation of the VORTAC.

Alternative Airport Development Concept 1

This alternative provides for lengthening the primary Runway 1L-19R to 7,200 feet with a 1,200-foot extension to the north. This avoids any rerouting of Dry Creek Road or Tower Road as they are below the 50:1 approach surfaces to an extended Runway 1L-19R.

This alternative retains Runway 13-31 at its present length of 4,700 feet and provides a partial parallel taxiway at 400 feet southwest of the runway. The existing runway protection zones (500 feet by 800 feet by 1,000 feet) are retained and no additional land acquisition is recommended beyond the ends of Runway 13-31. The BRL is retained at 500 feet on either side of Runway 13-31.

This concept addresses the potential long-range runway capacity by providing a 3,200-foot parallel runway. The parallel runway is shown designed to accommodate small aircraft (under 12,500 pounds maximum gross weight). The runway protection zones and the building restriction line to the east of the runway are the same or similar to Alternatives 2 and 3. The runway intersects with and extends 3,200 feet to the north of Taxiway F. This causes some existing buildings to the north of Dry Creek Road to penetrate the runway protection zone and building restriction line for the future parallel runway. The new runway width is shown at 60 feet for small aircraft.

This alternative provides more space for future development in the area north of Dry Creek Road compared to Alternatives 2 and 3. To develop the center of the Airport requires a new access road (Cirrus Way) off Dry Creek Road that would cross Taxiway F. This would require a new taxiway parallel to Runway 13-31, and an extension of Taxiway D, to serve the east side of the Airport. In addition, because the future building restriction line is located further to the east than for existing Runway 1L-19R, some existing development north of Dry Creek Road would have to be relocated. Realignment of Dry Creek Road would not be required. Additional land acquisitions (fee title or avigation easement) would be required (as for Alternatives 2 and 3) to the north because of the extension of Runway 1L-19R to the north.

The potential development of the area between the runways is impacted by the clear areas required around the VORTAC and ASOS. In addition, there could be concern over potential runway incursion issues with a future road (Cirrus Way) crossing Taxiway F.

A site for future air traffic control tower is located north of Taxiway C.

The area at the southwest end of the Airport is shown as commercial aviation/ fixed base operator area. Therefore, new areas would have to be developed for additional hangar areas elsewhere on the Airport. These could be in the area north of Dry Creek Road or south of Beacon Road. This would require extension of utilities to serve these new areas.

Alternative Airport Development Concept 2

This concept provides for lengthening the primary Runway 1L-19R to 9,000 feet for takeoff in both directions without having to reroute Dry Creek Road to the south or Tower Road to the north. The runway pavement would be extended 3,000 feet to the north and 1,000 feet to the south. Both Dry Creek Road and Tower Road would stay below the 50:1 approach surfaces to the displaced landing thresholds of Runway 1L-19R, and 8,000 feet would be available for landing in both directions. Both roads would be outside the runway safety area and runway object free area.

This alternative provides for the extension of Runway 13-31 to the northwest to 7,200 feet. It also provides nonprecision instrument runway protection zones (500 feet by 1,010 feet by 1,700 feet) for Runway 13-31, which are larger than the visual runway protection zones shown in Alternative 1, as well as the exiting runway protection zones. The future building restriction line should be at 750 feet on either side of Runway 13-31, which would impact future development southwest of Runway 31 and northwest of Runway 13.

This concept addresses potential long-range runway capacity by preserving the capability for a 3,400-foot parallel runway at the 700-foot runway centerline separation. This concept places the parallel Runway 1R-19L within 400 feet of the VORTAC. This would require either a waiver of the recommended 500-foot VORTAC-to-runway clearance criteria, relocation of the VORTAC, or locating the parallel runway at less than 700 feet from the centerline of the existing Runway 1L-19R. The runway extends 3,400 feet south of Taxiway B to the north of Runway 13-31. The new runway width is shown at 75 feet for small aircraft.

This alternative provides the most additional development space on the Airport, including the area west of Runway 1L-19R and south of Taxiway F along Dry Creek Road, and also includes the area south of Tower Road and east of Airport Road for future development.

Additional land acquisition or avigation easement would be required to the north and south of the Airport for the runway extensions and runway protection zones for Runways 1L-19R and 13-31. This alternative does not require the realignment of Dry Creek Road around, or across, the south end of the Airport or Tower Road around, or across, the north end of the Airport.

A new aircraft rescue and firefighting facility would be developed in the present terminal area. A future air traffic control tower would be located north of Taxiway C. The southwest area of the Airport would be developed for hangars and additional commercial aviation/fixed base operator development. This would require extension of utilities in the northwestern part of the Airport or along Dry Creek Road to serve these facilities. The existing buildings south of new parallel Runway 1R-19L would not require relocating.

Alternative Airport Development Concept 3

This alternative shows the maximum practical extension for Runway 1L-19R (to 9,000 feet) without requiring the realignment of Airport Road and Tower Road. However, Dry Creek Road would have to be realigned to the south. Additional land acquisition (fee title or avigation easements) would be required to the south, compared to Alternatives 1 and 2, because of the longer extension of Runway 1L-19R and realignment of Dry Creek Road.

This concept addresses the potential long-range runway capacity and runway-to-runway separation and potential impact on the VORTAC by locating a future parallel runway by 500 feet to the east of the VORTAC and 1,600 feet east of Runway 1L-19R. A runway length of 3,200 feet would be provided which would not be adequate to accommodate all small aircraft expected to use the Airport. A 3,200-foot runway satisfies the requirements for about 95 percent of the small aircraft fleet. However, this alternative would not impact the VORTAC. Some buildings south of Taxiway F and north of Dry Creek Road are within the future runway protection zone and building restriction lines for the parallel runway and would have to be relocated.

The area southwest of Runway 1L-19R would be developed for commercial aviation/fixed base operator lease lots; therefore, new hangar areas would have to be developed north of Dry Creek Road or south of Beacon Road. This alternative provides the least space for additional development in the area north of Dry Creek Road because it requires additional land be kept clear of development in the runway protection zone and between the building restriction lines for the parallel runway.

An area north of Taxiway C and south of the California Department of Forestry is reserved for a future air traffic control tower and new aircraft rescue and firefighting facility. This location would have less impact on California Department of Forestry operations than the location illustrated in Alternatives 1 and 2, which may only allow a single taxiway access (Taxiway B) into the California Department of Forestry area in order to minimize potential runway incursion issues.

Alternative Airport Development Concept 4 – No Action

The existing Airport facilities are illustrated on Figure 4 in Interim Report No. 1. This concept does not provide adequate capacity to meet potential long-term demand for aviation facilities. In addition, the existing length of Runway 1-19 is too short to accommodate all the aircraft expected to use the Airport without weight restrictions. The existing Runway 1L-19R does not have a complete full length parallel taxiway and Runway 13-31 does not have even a partial parallel taxiway.

This alternative would not provide for any additional new development areas compared to the other alternatives. However, this alternative avoids the costs of any Airport improvements, land acquisition or road realignments.

This alternative does not provide adequate facilities for forecast general aviation or air taxi activity on the Airport or potential commuter passenger and air cargo activity.

Summary

A matrix comparison of the alternatives is presented in Table A-1.

Table A-1

ALTERNATIVE AIRPORT DEVELOPMENT CONCEPTS MATRIX
Paso Robles Municipal Airport

Factor	Alternative Airport Development Concept			
	1	2	3	4
Primary Runway 1L-19R length	Medium	High	High	Low
Runway 13-31 length	Medium	High	High	Medium
Parallel Runway 1R-19L length	Medium	Medium	Medium	n.a.
Effect of runway-runway separation	Medium	Medium	High	n.a.
Airfield capacity	High	High	High	Low
Hangar Space	Medium	High	Medium	Low
Commercial Aviation Space	High	High	Medium	Low
Commercial/Industrial Space	Medium	High	Medium	Low
Building relocations required	Medium	Low	High	High
Road relocations required	High	High	Low	High

n.a. = not applicable

SOURCE: Aries Consultants Ltd.