

5.4 SECONDARY (INDUCED) IMPACTS

Major development proposals often involve the potential for induced or secondary impacts on surrounding communities. Examples of these impacts include: shifts in patterns of population movement and growth; public service demands; and changes in business and economic activity to the extent influenced by airport development. Induced impacts are not normally significant except where there are also significant impacts in other categories, especially noise, land use, or direct social impacts.

5.4.1 INDUCED AIRPORT ACTIVITY

Airport development projects may have the potential to induce additional operations or to change the fleet mix at an airport. This section assesses the potential for both of these types of changes at DVO. In this evaluation, it is important to note that the purpose of the proposed Runway 13/31 extension at DVO is to meet FAA dimensional standards, based on the airport design criteria related to the operational and physical characteristics of the Critical Aircraft that currently operates at the subject facility. However, the runway extension will not change the capacity of DVO because the "throughput rate" or capacity of the airport, i.e., the maximum number of aircraft operations that can take place in an hour, will not change from existing conditions as a result of extending the runway. This is because only one aircraft at a time can use the runway, regardless of the runway's length.

5.4.1.1 Existing Conditions

The aircraft operating at DVO are small general aviation aircraft. The runway width and runway to taxiway separation distance at DVO are consistent with FAA B-I (small) airport design standards. The runway length is insufficient for the critical aircraft as described in more detail in Chapter Two, *Purpose and Need* and Appendix D, *Runway Length Analysis*. The Runway Safety Area (RSA) does not meet all ARC B-1 FAA design standards.

5.4.1.2 Future Conditions: 2018

Implementation of Alternative A (No Action) will have no effect on the number of operations at DVO. Likewise, a 1,100-foot extension of the runway (Alternatives B and D) is unlikely to induce any increase in airport operations. The contribution of aviation infrastructure, such as runways, taxiways, apron area, and hangars, generally contribute, at most, only incidental growth in operations at an airport, except at large commercial service airports with capacity (through-put) constraints such as those in the New York City metropolitan area. National and regional economic cycles have much more of an effect on aircraft operations than aviation infrastructure, which is why economic indicators are used in estimating future aviation demand.

Annually, the FAA produces a national aerospace forecast report that forecasts aviation activity for a 20-year period.¹ These forecasts have found the demand for aviation is driven by economic activity. That is, aviation activity typically responds to economic demand rather than creates economic demand. The forecast for a specific airport, such as the DVO Aviation Activity Forecast included in Appendix C of this EIS, is influenced by the same economic factors as the national aerospace forecast.

With regard to fleet mix, as a public use airport DVO is available to all aircraft that can be accommodated by its facilities. Although the Airport is classified as a B-I airport, (i.e., designed for use by aircraft with a wingspan of less than 49 feet and approach speeds of 91 to 120 knots), aircraft larger than the critical aircraft currently operate at the airport and are expected to continue to do so in the future. Furthermore, these larger aircraft will likely continue to operate at DVO with or without implementation of Alternative B or Alternative D. Larger aircraft using DVO typically have limitations on their operating capabilities at DVO such as being limited below their full payload of passengers, cargo, or fuel, especially during takeoff, similar to the limitations on the critical aircraft for DVO, the Cessna 525 on the existing runway.

It is possible that certain pilots who use one size of aircraft at DVO now, could choose to use larger aircraft in the future, if Alternative B or Alternative D is implemented. However, it is more likely that the aircraft fleet mix at DVO accurately reflects the local economic demand for aviation activity, including aviation user choices regarding their preferred size of aircraft. This is because those aviation users who prefer using DVO but require larger aircraft, can already access DVO under current conditions by reducing their payload or fuel.

This EIS addresses accommodating the most demanding aircraft that makes substantial use of an airport (i.e., the critical aircraft) in hot weather and other adverse weather conditions, but not accommodating other larger aircraft with similar limitations. This is because the FAA only considers developing additional aviation facilities justified to accommodate aircraft that make substantial use of an airport. This guidance is included in FAA Order 5090.3C *Field Formulation of the National Plan of Integrated Airport Systems*. As described in more detail in the remainder of this section, implementation of Alternative A (No Action), Alternative B (Sponsor's Proposed Project), or Alternative D, would not result in significant secondary (induced) impacts.

**Alternative A:
No Action**

Alternative A (No Action) includes no development. Therefore, Alternative A would not result in induced airport activity.

¹ FAA Aerospace Forecasts at www.faa.gov/about/office_org/headquarters_offices/apl/aviation_forecasts/

**Alternative B:
Extend Runway to the Northwest by 1,100 Feet (Sponsor's Proposed Project)**

Implementation of Alternative B in 2018 is not anticipated to result in a change in the aircraft fleet mix at DVO for the reasons described earlier in this section. In order to evaluate the potential environmental impacts associated with the possibility that owners or pilots might choose to use larger aircraft at DVO in the event Alternative B is implemented, an analysis of air quality and noise impacts utilizing the 2023 forecast was prepared. The 2023 forecast included a higher level of demand and changes in fleet mix as compared to 2018. As disclosed in Section 5.1 *Noise* and Section 5.5 *Air Quality*, future growth in aviation activity would not result in significant impacts under 2023 operating levels. Therefore, even if construction of the runway extension resulted in increased aviation activity and changes in fleet that exceeded the level forecasted for DVO in 2018, it would not result in a significant impact associated with induced airport activity.

**Alternative D:
Extend Runway to the Southeast by 240 Feet and to the Northwest by 860 Feet**

Like Alternative B, Alternative D would extend the runway length to 4,400 feet. For the same reasons described for Alternative B above, implementation of Alternative D would not result in a significant impact associated with induced airport activity.

5.4.2 PATTERNS OF POPULATION AND GROWTH

5.4.2.1 Existing Conditions

Marin County encompasses approximately 820 square miles. Based on the 2008 estimates by the American Community Survey Marin County had a total estimated population of over 246,500 in 2007.² The San Francisco Bay Area, which includes nine counties including Marin, is currently experiencing a growth in population. Between 1990 and 2008, the population of the San Francisco Bay Area grew by 17 percent compared to a growth rate of 23.5 percent statewide.³ The population of Marin County did not grow at the same rate as the rest of the San Francisco Bay Area with an increase at a rate of 8.1 percent. Marin County is projected to grow by an additional 9.8 percent between 2008 and 2030. While the number of residents increased in Marin County, employment decreased seven percent between 2000 and 2007. The jurisdictions within the General Study Area (GSA) are expected to experience population growth at 23 percent and employment growth at nearly 29 percent during the same timeframe. **Table 5.4-1** and **Table 5.4-2** show these estimates for each jurisdiction within the GSA.

² U.S. Census Bureau, 2008 American Community Survey, Annual Population Estimates, 2008.

³ U.S. Census Bureau, 1990 and 2000 Population Counts.

**Table 5.4-1
POPULATION ESTIMATES, 2000 TO 2030
Gross Field Airport**

PLACE	POPULATION			PERCENT GROWTH, 2000-2030
	2000	2008	2030 (projected)	
Marin County	247,289	248,794	273,151	9.8%
Sonoma County	458,614	466,741	606,346	29.9%
General Study Area Total	705,903	715,535	879,497	22.9%

Sources: U.S. Census Bureau, on-line at www.census.gov
State of California, Department of Finance, *Population Projections for California and Its Counties 2000-2050*, Sacramento, California, July 2007. Marin Countywide Plan Update, November 2007.

**Table 5.4-2
EMPLOYMENT ESTIMATES, 2000 TO 2030
Gross Field Airport**

PLACE	EMPLOYMENT			PERCENT GROWTH, 2000-2030
	2000	2008	2030 (projected)	
Marin County	107,760	108,590	128,490	19.2%
Sonoma County	186,190	191,690	249,640	34.1%
General Study Area Total	293,950	300,280	378,130	28.6%

Source: California Department of Transportation (CALTRANS), *California County Economic Forecasts: 2008-2030*, August 2008, accessed at <http://www.caltrans.ca.gov/hq/tpp/offices/ote/socio-economic.html>

5.4.2.2 Future Conditions: 2018

Alternative A: No Action

Alternative A (No Action) includes no development. Therefore, Alternative A would not result in significant shifts in patterns of population movement or growth inside or outside of the GSA.

**Alternative B:
Extend Runway to the Northwest by 1,100 Feet (Sponsor's Proposed Project)**

The extension of Runway 13/31 1,100 feet to the northwest would require the acquisition of 0.1 acre of land in agricultural use, but would not require the acquisition of residential properties. Therefore, Alternative B (Sponsor's Proposed Project) would not result in significant shifts in patterns of population movement or growth inside or outside of the GSA.

**Alternative D:
Extend Runway to the Southeast by 240 Feet and to the Northwest by 860 Feet**

The extension of Runway 13/31 860 feet to the northwest and 240 feet to the southeast would require the acquisition of 3.72 acre of land in agricultural use, but would not require the acquisition of residential properties. Therefore, Alternative D would not result in significant shifts in patterns of population movement or growth inside or outside of the GSA.

5.4.3 PUBLIC SERVICE DEMANDS

5.4.3.1 Existing Conditions

Fire protection services are provided by the Novato Fire Department. Station 2 is the only fire department station located within the GSA and is located approximately five miles to the southeast of the Airport. The station staff includes a one to three person Type I Paramedic Engine, an ALS Paramedic Ambulance, and a Rescue Boat. Additional support can be supplied by any of the other four stations within the Novato Fire Department. The Novato Police Department staffs 59 officers and is located approximately three miles to the south of the Airport in the center of Novato. There are no hospitals within the GSA. The closest hospital to DVO is the Novato Community Hospital located approximately three miles to the south of the Airport.

5.4.3.2 Future Conditions: 2018

**Alternative A:
No Action**

Alternative A includes no development. Therefore, Alternative A would not result in significant impacts to public service demands.

**Alternative B:
Extend Runway to the Northwest by 1,100 Feet (Sponsor's Proposed Project)**

The extension of Runway 13/31 1,100 feet to the northwest would have no impact on emergency vehicles attempting to access the Airport or surrounding areas or hospitals in the area. Representatives of the Novato Fire Protection District attended the Agency Scoping Meeting held in August 2008 and submitted a written comment letter recommending further study of current and future access to the areas surrounding the runway for emergency response vehicles in accordance with all the pertinent Federal Aviation Administration (FAA) and National Fire Protection Association (NFPA) guidelines (see Appendix A, *Agency Scoping and Coordination*) under this alternative. From a physical impact and access perspective, under Alternative B, emergency vehicle access to both ends of the runway and the taxiway would be improved over Existing Conditions (2008) due to the lengthening and widening of the RSA. Access beyond the runway to areas surrounding the Airport would not change from Existing Conditions (2008). Construction on the south end of the runway could impact an existing 8-inch diameter water line that currently provides water for fire protection to hydrants on the east side of the runway. Alternative B would require relocation and possible upsizing of the water line prior to construction so that no interruption in fire protection services occurs. Therefore, Alternative B would not result in significant impacts to public service demands.

**Alternative D:
Extend Runway to the Southeast by 240 Feet and to the Northwest by 860 Feet**

The extension of Runway 13/31 860 feet to the northwest and 240 feet to the southeast would have no impact on emergency vehicles attempting to access the Airport or surrounding areas or hospitals in the area. Similar to Alternative B, under Alternative D, emergency vehicle access to both ends of the runway and the taxiway would be improved over Existing Conditions (2008) due to the lengthening and widening of the RSA. Access beyond the runway to areas surrounding the Airport would not change from Existing Conditions (2008). Construction on the south end of the runway could impact an existing 8-inch diameter water line that currently provides water for fire protection to hydrants on the east side of the runway. Alternative B would require relocation and possible upsizing of the water line prior to construction so that no interruption in fire protection services occurs. Therefore, Alternative D would not result in significant impacts to public service demands.

5.4.4 BUSINESS AND ECONOMIC ACTIVITY

5.4.4.1 Existing Conditions

The City of Novato's labor force was 26,000 as of May 2009.⁴ Major employers include the Fireman's Fund Insurance Company, the Buck Institute for Age Research, small biotech firms, such as Biosearch Technologies and BioMarin Pharmaceutical, and several small technology companies, including 2K Marin, Radiant Logic, Imaagemovers Digital, and Sonic Solutions.

The workforce in Marin County has decreased from 137,700 in 2000 to 128,400 in 2007.⁵ This reflects a seven percent decrease in the total number of Marin County resident workers. The Service Providing sector comprises the largest share of workforce in the area. The largest growth has been in the Professional, Scientific and Technical Services sector with a 14.0 percent increase between 2003 and 2007. The most significant decrease has been in the number of people employed in the Durable Goods sector with a 40.0 percent decrease between 2003 and 2007.⁶

5.4.4.2 Future Conditions: 2018

Alternative A: No Action

Alternative A includes no new construction or changes in operating procedures. Therefore, this alternative would not result in significant impacts to business and economic activity.

Alternative B: Extend Runway to the Northwest by 1,100 Feet (Sponsor's Proposed Project)

The extension of Runway 13/31 1,100 feet to the northwest would result in a temporary increase in business and economic activity due to construction of the runway extension and parallel taxiway extension, RSA, and levee and drainage ditch realignment. The compensatory habitat mitigation and wetland mitigation described in Sections 5.9 and 5.10 that is needed to implement Alternative B would create additional temporary economic activity during the development and approval of the necessary mitigation area. This increase in economic activity would end after the construction was complete. In addition, Marin County intends to keep the Airport open for business during construction of the proposed runway extension. As a result, no loss of revenue for the airport-related businesses is anticipated.

⁴ Labor Force and Unemployment Rate for Cities and Census Designated Places, *California Employment Development Department*, online at www.labormarketinfo.edd.ca.gov

⁵ Labor Force and Unemployment Rate for Cities and Census Designated Places, *California Employment Development Department*, online at www.labormarketinfo.edd.ca.gov

⁶ *California Employment Development Department*, online at www.labormarketinfo.edd.ca.gov.

Alternative B would have the effect of allowing some existing aircraft that use the Airport that are currently weight restricted by the runway length to depart fully loaded. The project is not intended or expected to cause an unforecasted growth in aircraft operations at DVO. There are other airport facilities throughout the Bay Area region and since the availability of air service is not frequently cited as a constraint to the development of new housing or commercial areas, the extension of the runway would not be considered an action that would remove a significant constraint to regional development. Alternative B would not involve additional expansion or extension of infrastructure facilities or roadways that could induce unplanned growth adjacent to DVO. Thus, Alternative B is not anticipated to induce additional growth in the region.

Alternative D:

Extend Runway to the Southeast by 240 Feet and to the Northwest by 860 Feet

The extension of Runway 13/31 860 feet to the northwest and 240 feet to the southeast would result in a temporary increase in business and economic activity due to construction of the runway extension and parallel taxiway extension, RSA, and levee and drainage ditch realignment. The compensatory habitat mitigation and wetland mitigation described in Sections 5.9 and 5.10 that is needed to implement Alternative B would create additional temporary economic activity during the development and approval of the necessary mitigation area. This increase in economic activity would end after the construction was complete. Alternative D would have the effect of allowing some existing aircraft that use the Airport that are currently weight restricted by the runway length to depart fully loaded. The project is not intended or expected to cause an unforecasted growth in aircraft operations at DVO. There are other airport facilities throughout the Bay Area region and since the availability of air service is not frequently cited as a constraint to the development of new housing or commercial areas, the extension of the runway would not be considered an action that would remove a significant constraint to regional development. Alternative D would not involve additional expansion or extension of infrastructure facilities or roadways that could induce unplanned growth adjacent to DVO. Thus, Alternative D is not anticipated to induce additional growth in the region.