

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 SIGNIFICANCE CRITERIA

Federal Aviation Administration (FAA) Order 1050.1F has no established significance threshold for secondary (induced) impacts. The potential for secondary (induced) impacts that would be associated with the No Action Alternative and Alternatives B, D, or E are discussed below.

5.4.1.1 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.

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 family grouping of critical aircraft as described in more detail in Chapter Two, *Purpose and Need* and Appendix D-1, *Runway Length Analysis*. The Runway Safety Area (RSA) does not meet all Airport Reference Code B-II FAA airport design standards.

5.4.1.2 Future Conditions: 2024

Implementation of Alternative A (No Action) will have no effect on the number of operations at DVO. Likewise, an 1,100-foot runway extension (Alternatives B or D), or a 300-foot runway extension (Alternative E), 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-1 of this Supplement to the Final Environmental Impact Statement (SEIS), 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, D, or E. 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.

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, D, or E 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 SEIS addresses accommodating the most demanding aircraft grouping that makes substantial use of an airport, 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), Alternative D, or Alternative E would not result in significant secondary (induced) impacts.

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

**Alternative A:
No Action**

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

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

Implementation of Alternative B in 2024 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 2029 forecast was prepared. The 2029 forecast included a higher level of demand and changes in fleet mix as compared to 2024. 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 2029 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 2024, 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.

**Alternative E:
Extend Runway to the Northwest by 300 Feet**

Alternative E would extend the runway length to 3,600 feet. For the same reasons described for Alternative B above, implementation of Alternative E would not result in a significant impact associated with induced airport activity.

5.4.2 PATTERNS OF POPULATION AND GROWTH

5.4.2.1 Population and Growth Conditions

Marin County encompasses approximately 828 square miles. Based on the 2016 estimates by the American Community Survey, Marin County had a total estimated population of over 259,358 in 2016.² The San Francisco Bay Area, which includes nine counties including Marin, is currently experiencing a growth in population. Between 2010 and 2014, the population of the San Francisco Bay Area grew by five percent compared to a growth rate of 3.8 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 3.5 percent. While the number of residents increased by 3.5 percent in Marin County, employment only increased by one percent between 2010 and 2014. Marin County is projected to grow by an additional 9.8 percent between 2010 and 2040. The jurisdictions within the General Study Area (GSA) are expected to experience population growth at 17 percent and employment growth at nearly 7.5 percent during the same timeframe. This expected regional growth was considered during the Aviation Activity Forecast that identified the forecasted critical aircraft at DVO. **Table 5.4-1** and **Table 5.4-2** show these estimates for each jurisdiction within the GSA.

**Table 5.4-1
POPULATION ESTIMATES, 2010 TO 2040
Gross Field Airport**

PLACE	POPULATION			PERCENT GROWTH, 2010-2040
	2010	2014	2040 (projected)	
Marin County	252,286	261,104	277,087	9.8%
Sonoma County	483,541	497,957	583,517	20.7%
General Study Area Total	735,827	759,061	860,604	17.0%

Source: State of California, Department of Finance, *Population Projections for California and Its Counties 2010-2060*, Sacramento, California, March 2017.

² U.S. Census Bureau, 2016 American Community Survey, Annual Population Estimates online at www.factfinder.census.gov, accessed July 2018.

³ State of California, Department of Finance, *Population Projections for California and Its Counties 2010-2060*, Sacramento, California, March 2017. online at: <http://www.dof.ca.gov/Forecasting/Demographics/Projections/> accessed June 2018.

**Table 5.4-2
EMPLOYMENT ESTIMATES, 2010 TO 2040
Gross Field Airport**

PLACE	EMPLOYMENT			PERCENT GROWTH, 2010-2040
	2010	2014	2040 (projected)	
Marin County	125,177	126,429	133,400	6.6%
Sonoma County	233,182	235,040	251,760	8.0%
General Study Area Total	358,359	361,469	385,160	7.5%

Source: U.S. Census Bureau, 2006-2010 and 2010-2014 American Community Survey 5-Year Estimates online at www.factfinder.census.gov, accessed July 2018.
California Department of Transportation (CALTRANS), *California County Economic Forecasts: 2017-2050*, September 2017, accessed at <http://www.caltrans.ca.gov/hq/tpp/offices/>

5.4.2.2 Future Conditions: 2024

Alternative A: No Action

Alternative A (No Action) includes no development. Therefore, Alternative A would not result in 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 or development of additional residential areas. Therefore, Alternative B (Sponsor’s Proposed Project) would not result in 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 or development of additional residential areas. Therefore, Alternative D would not result in shifts in patterns of population movement or growth inside or outside of the GSA.

**Alternative E:
Extend Runway to the Northwest by 300 Feet**

The extension of Runway 13/31 300 feet to the northwest would not require the acquisition of residential properties or development of additional residential properties. Therefore, Alternative E would not result in shifts in patterns of population movement or growth inside or outside of the GSA.

5.4.3 PUBLIC SERVICE DEMANDS

5.4.3.1 Public Service Conditions

Fire protection services are provided by the Novato Fire Department. Station 62 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 and an ALS Paramedic Ambulance. Additional support can be supplied by any of the other four stations within the Novato Fire Department.⁴ 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

5.4.3.2 Future Conditions: 2024

**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 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 Alternative A (No Action) due to the lengthening and widening of the RSA.

⁴ Novato Fire Protection Division, *Fire Stations*, Available at: <http://www.novatofire.org/about-us/fire-stations/station-62-atherton>, accessed July 2018

⁵ City of Novato, *Existing Conditions Report*, published April 1, 2014.

Access beyond the runway to areas surrounding the Airport would not be different from Alternative A (No Action). 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 Alternative A (No Action) due to the lengthening and widening of the RSA. Access beyond the runway to areas surrounding the Airport would not be different from Alternative A (No Action). 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.

Alternative E:**Extend Runway to the Northwest by 300 Feet**

The extension of Runway 13/31 300 feet to the northwest 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 E, emergency vehicle access to both ends of the runway and the taxiway would be improved over Alternative A (No Action) due to the lengthening and widening of the RSA. Access beyond the runway to areas surrounding the Airport would not be different from Alternative A (No Action). 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 E would require relocation and possible upsizing of the water line prior to construction so that no interruption in fire protection services occurs. Therefore, Alternative E would not result in significant impacts to public service demands.

5.4.4 BUSINESS AND ECONOMIC ACTIVITY

5.4.4.1 Business and Economic Conditions

The City of Novato's labor force was 27,638 as of May 2016.⁶ Major employers include the Fireman's Fund Insurance Company, the Buck Institute for Age Research, and BioMarin Pharmaceutical.⁷

The workforce in Marin County has increased from 125,177 in 2010 to 126,429 in 2014. This reflects a one percent increase 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 Arts, Entertainment, and Recreation Services sector with a 9.8 percent increase between 2010 and 2014. The most significant decrease has been in the number of people employed in the Wholesale trade sector with a 23.3 percent decrease between 2010 and 2014.⁸

5.4.4.2 Future Conditions: 2024

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.

⁶ U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates online at www.factfinder.census.gov, accessed July 2018.

⁷ City of Novato, *Existing Conditions Report*, published April 1, 2014.

⁸ U.S. Census Bureau, 2006-2010 and 2010-2014 American Community Survey 5-Year Estimates online at www.factfinder.census.gov, accessed July 2018.

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.

**Alternative E:
Extend Runway to the Northwest by 300 Feet**

The extension of Runway 13/31 300 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 E 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.

Alternative E 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 E would not involve additional expansion or extension of infrastructure facilities or roadways that could induce unplanned growth adjacent to DVO. Thus, Alternative E is not anticipated to induce additional growth in the region.