

5.18 CONSTRUCTION IMPACTS

This section provides a description of the general types and nature of construction and the measures proposed to minimize potential adverse effects under Alternative B (Sponsor's Proposed Project) and Alternative D proposed for Gness Field (DVO or Airport). Construction of new airport facilities can cause temporary impacts relative to air and water quality; soil erosion; ambient noise levels; hazardous materials and solid waste; fish, wildlife, and plants; surface transportation patterns; and socioeconomic conditions. However, the long-term impacts of project implementation are typically greater than the temporary impact of construction. Therefore, the purpose of the discussion of construction impacts as a separate section of the Environmental Impact Statement (EIS) is to summarize impacts from the various sections that have a relationship to construction.

5.18.1 REGULATORY SETTING

The requirement for a general description of the type and nature of construction proposed for a Federal action is given in Federal Aviation Administration (FAA) Order 1050.1E, Change 1, *Environmental Impacts: Policies and Procedures*.¹ The construction impacts section, when one is included in an EIS, should include the measures expected to minimize potential adverse effects caused by construction. Measures to minimize potential adverse effects by controlling pollution (including fugitive dust), erosion, and siltation is recommended in the FAA Advisory Circular, *Standards for Specifying Construction of Airports*.² While generally used as a guideline, the specifications are mandatory for the airport sponsor for airport construction funded under the Airport Improvement Program (AIP) or Passenger Facility Charges (PFC).

Construction impacts alone are unlikely to be significant relative to the requirements under the National Environmental Policy Act (NEPA). No significant impact thresholds are applicable except where noted in the evaluation discussions of air quality and water quality. A more thorough investigation of construction impacts is not required except under unusual circumstances where impacts cannot be mitigated and significant consequences would occur for any of the environmental resource categories. For the impact assessment, the potential impacts from the various sections that have a relationship to construction will be discussed.

5.18.1.1 Air Quality

The Clean Air Act Amendments of 1990 (CAA) requires an inventory of construction emissions for a Federal action in a nonattainment or maintenance area. Section 5.5, *Air Quality*, includes a discussion of the air quality status of Marin

¹ Federal Aviation Administration (FAA) Order 1050.1E, *Environmental Impacts: Policies and Procedures*, Section 5, *Construction Impacts* (2004).

² FAA Advisory Circular *Standards for Specifying Construction of Airports* (AC 150/5370-10D) Item P-156, *Temporary Air and Water pollution, Soil Erosion, and Siltation Control* (September 20, 2008).

County and notes the County is nonattainment for ozone and fine particulate matter (PM_{2.5}). As such, the project alternatives would be subject to the CAA General Conformity Rule. A thorough discussion of the rule and the inventory of construction emissions are required and are provided in Section 5.5, *Air Quality*, and Appendix F, *Air Quality*.

5.18.1.2 Water Quality

Adverse impacts to water quality due to erosion and subsequent sedimentation are primary concerns during an airport construction project. The increase in suspended sediment concentrations, caused by an increase of eroded materials entering waterways, could induce impacts on aquatic life in the vicinity of the Airport. Impacts could also result from pollutants released from construction materials and equipment, such as fuels, lubricants, bitumen, concrete, and wash water from concrete mixing. To prevent discharge of these materials into surface water and groundwater, construction activities would be undertaken in accordance with the Marin County Stormwater Ordinances,³ the Marin County Watershed Management Plan,⁴ and the Stormwater Quality Manual for Development Projects in Marin County.⁵

The primary mechanism for delivery of sediment from construction and borrow sources is stormwater runoff. Sediment yields and temporary increases in total suspended solids (TSS) from construction activities would depend on the effectiveness of erosion and sediment controls, fillslope and cutslope lengths, widths of existing buffers of vegetation, topographic benches and depressions that act as sinks for eroded material, and available sediment delivery pathways (e.g., ditches and culverts).

The USEPA regulates stormwater discharges through 40 Code of Federal Regulations (CFR) Part 122.26, *Storm Water Discharges*. Under Part 122.26, construction would require a National Pollutant Discharge Elimination System (NPDES) industrial stormwater permit. A permit may not be required if another individual or general NPDES permit already covers the construction discharge. Authorized under the Clean Water Act (CWA), the NPDES permit program controls water pollution by regulating the discharge of pollutants into waters of the U.S.

³ Marin County Stormwater Ordinances identified by the Marin County Stormwater Pollution Prevention Program: Title 23 NATURAL RESOURCES-Chapter 23.18 URBAN RUNOFF POLLUTION PREVENTION, Title 11 HARBORS AND WATERWAYS-Chapter 11.08 WATERCOURSE DIVISION OR OBSTRUCTION. On-line at:
<http://library.municode.com/index.aspx?clientId=16476&stateId=5&stateName=California> and www.mcstoppp.org, access October 18, 2011.

⁴ Marin County Watershed Management Plan, 2004, On-line at:
http://www.co.marin.ca.us/depts/CD/main/comdev/Watershed/WMP_Pt1.pdf, access October 18, 2011.

⁵ Stormwater Quality Manual for Development Projects in Marin County, February 2008, Prepared by the Marin County Stormwater Pollution Prevention Program (MCSTOPPP), On-line at:
http://www.mcstoppp.org/acrobat/GuidanceforApplicantsv_2-5-08.pdf, access October 18, 2011.

The NPDES program is implemented on the state level by the California Water Resources Control Board (CWRCB). According to the California Construction Stormwater Program, dischargers whose projects disturb one or more acres are required to obtain coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity. To comply with state and Federal regulations, Marin County would be required to obtain coverage under the Construction General Permit Order 2009-0009-DWQ (effective July 1, 2010). The permit would require the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP) that specifies Best Management Practices (BMPs), including erosion and sediment control, to reduce or eliminate construction-related impacts on receiving water quality.

5.18.2 GENERAL TYPE AND NATURE OF CONSTRUCTION

Alternative A (No Action) includes no construction activities or development of any kind. Therefore, no construction program would be implemented.

Both Alternatives B and D would result in an extension of Runway 13/31 by 1,100 feet. Both alternatives would also require an extension of the parallel taxiway and an extension of the levee and ditch system that protects the Airport from flooding. The general type and nature of construction would be the same under both of the project alternatives. Construction tasks would include:

- Land clearing, grading, and site preparation, including excavation and phased filling to create runway pad, and hauling aggregate material to the site to construct the subbase and base of the runway and taxiway extensions;
- Construction of the runway and taxiway extensions to meet FAA standards for airport construction; includes installation of utilities (drains and lights) and overlay of asphalt for paving;
- Preparation of the Runway Safety Areas (RSAs) at the end of both runways; and
- Extension of the existing levee and drainage ditch adjacent to the runways requiring excavation and transport of fill material.

Construction of the project alternatives would involve using typical construction vehicles. The number of vehicles would vary due to project timing, funding, budget constraints, weather, scope of work, and other unforeseen factors, but the types of equipment would remain relatively constant. Equipment common to the project alternatives would be backhoes, bulldozers, dump trucks, excavators, graders, loaders, rollers, and scrapers, and asphalt pavers. Some equipment may have a unique purpose suited only to a specific element of the project.

A comprehensive evaluation of the characteristics of construction for both project alternatives is provided in Appendix F, which is based on the Marin County's *Preliminary Design Report: Runway Extension for Gness Field*.⁶

⁶ County of Marin Department of Public Works, *Preliminary Design Report: Runway Extension for Gness Field*, FAA AIP Project No. 3-06-0167-08 (December 20, 2002).

The remainder of this section discusses the project alternatives separately for 2018 and 2023, including a summary of the potential construction impacts.

5.18.3 FUTURE CONDITIONS: 2018

This section describes the construction activity that is anticipated to take place through 2018, which represents the first year that the Sponsor's Proposed Project or its alternatives would be operational.

Alternative A: No Action

Alternative A includes no development or construction. Therefore, there would be no potential for significant construction impacts.

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

This alternative includes a proposed 1,100-foot extension of Runway 13/31 to the northwest and the equal extension of the parallel taxiway adjacent to the runway extension. The alternative also proposes the construction of a 240-foot RSA extending beyond each of the runway ends and an expansion of the levee and drainage ditch to allow for the extension of the runway to the north.

Air Quality: Airport construction activities would have a short-term adverse impact on air quality. Air pollution during the construction period would be a consequence of direct emissions from construction equipment and fugitive dust created due to ground disturbance. The evaluation of construction emissions showed the annual net emissions would be below the *de minimis* thresholds established under the CAA conformity rules and below California's Bay Area Air Quality Management District's thresholds of significance. Therefore, construction would not cause a significant adverse air quality impact.

While no significant adverse air quality impacts are anticipated, measures would be applied to the extent possible by Marin County during construction to limit emissions of dust and other fugitive particulate matter. Best Management Practices would be incorporated into the project construction plan in accordance with FAA Advisory Circular, *Standards for Specifying Construction of Airports*,⁷ which describes the following as acceptable methods of controlling dust and other air pollutants:

- Minimizing the area of erodible earth;
- Applying temporary mulch with or without seeding;

⁷ FAA Advisory Circular *Standards for Specifying Construction of Airports* (AC 150/5370-10D) Item P-156, *Temporary Air and Water pollution, Soil Erosion, and Siltation Control* (September 20, 2008).

- Using water sprinkler trucks;
- Using covers over the cargo area of haul trucks;
- Using dust palliatives or penetration asphalt on haul roads; and
- Using plastic sheet coverings.

See Appendix F for additional State of California mitigation measures. Marin County has the authority to limit the surface area of erodible earth exposed by clearing and grubbing, by excavation, and fill operations. The project construction contractor would be required by Marin County to incorporate all permanent air pollution control features into the project at the earliest practicable date as outlined in the project schedule. Temporary air pollution control measures would be used to correct conditions that develop during construction that were not foreseen during the design stage or that are needed temporarily to control erosion that develops during normal construction practices, but are not associated with permanent control features of the project.

Water Quality: Alternative B would disturb approximately 23.35 acres for the extension of the runway of which 22.93 acres is plant and wildlife habitat and 0.42 acres is paved area. This area of disturbance allows for the runway and taxiway extension, an RSA extending beyond both runway ends, expansion of the levee and drainage ditch, and an area adjacent to both runway ends for staging of construction equipment. Because the project would disturb more than one acre of land, Marin County would be required to obtain coverage under the Construction General Permit Order 2009-0009-DWQ (effective July 1, 2010). The permit would require the development and implementation of a SWPPP that specifies erosion and sediment control BMPs to reduce or eliminate construction-related impacts on receiving water quality. Refer to Section 5.6, *Water Quality*, for additional details.

Under Alternative B, the levee and drainage ditches extending beyond the northwest end of existing Runway 13 would be modified to allow for construction of the extended runway and taxiway. Measures to protect water quality during construction of the extension are outlined in FAA Advisory Circular, *Standards for Specifying Construction of Airports*.⁸ Marin County would direct the contractor to provide immediate permanent or temporary control measures to minimize contamination of adjacent streams or other watercourses, lake, ponds, or other areas of water impoundment.

Soil Erosion: Construction under Alternative B could cause soil erosion requiring control measures to avoid impacts to drainage systems and water quality. During the site-preparation phase of construction, existing land would be cleared and excavation would occur to remove any existing pavement, vegetation, or utility

⁸ FAA Advisory Circular *Standards for Specifying Construction of Airports* (AC 150/5370-10D) Item P-156, *Temporary Air and Water pollution, Soil Erosion, and Siltation Control* (September 20, 2008).

lines. BMPs described in FAA Advisory Circular, *Standards for Specifying Construction of Airports*⁹ would be incorporated into the proposed project construction planning as needed to control and minimize soil erosion. Marin County would be required to incorporate all permanent soil erosion control features into the project at the earliest practicable date as outlined in the project schedule. Temporary erosion control measures would be used to correct conditions that develop during construction that were not foreseen during the design stage or that are needed temporarily to control erosion that develops during normal construction practices, but are not associated with permanent control features of the project. In the case of any conflict between standard requirements and other regulatory standards, the pollution control regulations and laws that are the most stringent would be applied.

Further potential construction impacts would be reduced through the implementation of an erosion and sediment control plan as described in an approved SWPPP. The primary mechanism for delivery of sediment from construction and borrow sources is in stormwater runoff. Sediment yields and temporary increases in TSS from construction activities would depend on the effectiveness of erosion and sediment controls, fillslope and cutslope lengths, widths of existing buffers of vegetation, topographic benches and depressions that act as sinks for eroded material, and available sediment delivery pathways (e.g., ditches and culverts). Elements of an erosion and sediment control plan would include an interconnected system of erosion and stormwater runoff controls, including structural erosion control methods, such as phased clearing and grading, confining construction to the dry season whenever possible, sediment traps and ponds, interceptor dikes and swales, mulching, filter fabric fencing, hydroseeding, and terracing. Although implementation of an effective erosion and sediment control plan would not remove all TSS, it is expected to successfully mitigate potential TSS loading and temporary construction impacts on the water quality within the Airport environs.

Noise: Noise impacts may occur when there is the use of heavy construction equipment. Earthwork and site preparation activities would result in elevated levels of noise generated by the types of equipment used on most construction sites. Noise from this equipment would vary from model to model, and would change according to the operation involved. Noise levels resulting from operation of construction equipment are generally higher than those generated by normal traffic flows. However, noise generated by construction activities at DVO would be localized and would often be overshadowed by other noises from the freeway, railroad and by aircraft. Since existing Runway 13/31 would remain operational during many stages of construction, there would be little to no effect on aircraft noise impacts outside the construction area.

⁹ FAA Advisory Circular *Standards for Specifying Construction of Airports* (AC 150/5370-10D) Item P-156, *Temporary Air and Water pollution, Soil Erosion, and Siltation Control* (September 20, 2008).

Table 5.18-1 depicts an estimate of the typical sound level energy from typical units of construction equipment at various distances from that equipment. The total sound energy is essentially a product of a machine's sound level, the number of such units in service, and the average time the units operate. Although pile drivers and rock drills produce the highest sound levels, dump trucks, air compressors, and concrete mixers, due to their greater number and/or longer operating times, produce the most total sound energy.¹⁰ The likelihood of off-Airport construction-related noise impacts is extremely low because of the distance from construction noise sources to the residential areas or other noise-sensitive areas and the masking effect from noise generated by other sources in the area, such as Highway 101. See Chapter Four *Affected Environment*, Section 4.2.1 *Existing Land Use* for the nearest residential areas and other noise-sensitive areas.

**Table 5.18-1
CONSTRUCTION EQUIPMENT NOISE
Gross Field Airport**

Construction Equipment	Maximum Sound Level (dBA) at 50 feet	Sound Level (dBA) at Receiver by Distance (feet)					
		1,000	2,500	5,000	7,500	10,000	15,000
Dump Truck	88	62	54	48	44	42	38
Portable Air Compressor	81	55	47	41	37	35	31
Concrete Mixer (truck)	85	59	51	45	41	39	35
Jackhammer	88	62	54	48	44	42	38
Scraper	88	62	54	48	44	42	38
Dozer	87	61	53	47	43	41	37
Paver	89	63	55	49	45	43	39
Generator	76	50	42	36	32	30	26
Pile Driver	101	75	67	61	57	55	51
Rock Drill	98	72	64	58	54	52	48
Pump	76	50	42	36	32	30	26
Pneumatic Tools	85	59	51	45	41	39	35
Backhoe	85	59	51	45	41	39	35

Source: May, D.S.N., Editor, 1978. *Handbook of Noise Assessments*, Page 215. Van Nostrand Reinhold Company, New York. Computations of typical noise at 8,000 feet by Landrum & Brown, 2005 using the following equation, which is based on a standard fall-off rate of noise (approximately six dBA per doubling of distance): $N_r = N_{r_1} + 20 \cdot \log(r/r_1)$; where N_{r_1} is the known noise level at a given distance (r_1), and N_r is the unknown noise level at the known distance r .

Hazardous Materials and Solid Waste: A relatively small amount of solid waste would be generated from construction under Alternative B. The majority of waste material would result from the removal of any material to accommodate the proposed new airfield pavement. No structures would need to be demolished or removed from the site. The assessment of potential impacts related to hazardous

¹⁰ *Handbook of Noise Assessments*, May 1978, D. N. Editor, Van Nostrand Reinhold Company, New York.

waste and solid waste concluded that no significant impacts would occur as a result of this alternative. Additional information on known or potential hazardous waste located in and around the construction sites is included in Section 5.17, *Hazardous Materials, Pollution Prevention, and Solid Waste*.

All construction waste would be disposed of in accordance with all applicable state and Federal regulations at appropriate permitted facilities. Clean construction debris (concrete, asphalt, etc.) would be used as fill at the Airport or hauled off-site, as needed, in accordance with present BMPs and all applicable laws.

Per FAA Order 1050.1E, Change 1, in the event of a release of hazardous waste or a hazardous substance (including petroleum products), the National Response Center would be contacted (1-800-424-8802) and provided details of the incident and measures taken to reduce the effects of the release.¹¹ In the event that hazardous substances or waste are identified within the construction site, construction activity in that location would stop and consultation with the appropriate state agency or U.S. Environmental Protection Agency (USEPA) would be initiated by Marin County.

Fish, Wildlife, and Plants: Construction under this alternative would cause the remove of annual grassland and wetland habitat. As discussed in Chapter Five, *Environmental Consequences*, Section 5.9 *Fish, Wildlife, and Plants*, a biological resources assessment was completed to evaluate the potential for existence of Federal and State of California protected plant or animal species, and their respective habitats.

Based on a records search of the California Natural Diversity Database (CNDDDB), the U.S. Fish and Wildlife Service (USFWS) list, and informal consultation with the USFWS, although no special-status animal species are known to occur on the site or in the immediate vicinity of DVO, the USFWS has determined that the brackish marsh areas that surround the Airport should be considered marginal habitat for the Federally-endangered salt marsh harvest mouse (*Reithrodontomys raviventris*) and for the Federally-endangered California clapper rail (*Rallus longirostris obsoletus*). The USFWS has also determined that there is low potential for the California red-legged frog (*Rana aurora draytonii*) to be present onsite during the winter months. The FAA has concurred with this determination (See Appendix I, *Biological Resources*). There would be no significant impact to any fish species or essential fish habitat. Several State of California special status species were observed in the area around the Airport.

See Section 5.9.5 for the construction-related precautions that would be taken. Therefore, no significant impacts to fish, wildlife, and plants are expected due to construction activities.

¹¹ FAA Order 1050.1E Change 1 Environmental Impacts: Policies and Procedures. 10.2 FAA Responsibilities 10.2d.(4). March 20 2006

Surface Transportation: The construction of this proposed alternative would result in increased construction-related traffic in the vicinity of the Airport. Temporary construction impacts could include increased traffic congestion caused by truck traffic and additional construction worker vehicles along area roadways. A construction management plan would be prepared based on the haul plan of the selected contractor, specifying hours of operation, haul routes, and other controls regarding minimizing traffic during peak traffic hours. Because most of the construction activity would occur on existing Airport-owned property with access along a highway frontage road and, with convenient access to Highway 101, it is anticipated that construction vehicles would not disrupt residential neighborhoods or local businesses. If it becomes necessary for large numbers of construction vehicles to travel through local streets, standard traffic engineering techniques would be used to maintain traffic during construction. Section 5.3, *Socioeconomic Impacts, Environmental Justice and Children's Environmental Health and Safety Risks Section 5.3.1.3 Disruptions of Local Traffic Patterns*, assessed the potential for impacts on local roadways related to construction vehicles and found that the additional vehicles associated with the construction activity would not result in a significant impact.

Socioeconomic Impacts: Socioeconomic impacts include the direct and indirect consequences of construction projects. Direct impacts associated with Alternative B could include the employment and payroll of construction workers and other personnel associated with the project, as well as related capital expenditures for materials and equipment. Indirect impacts are those impacts that support project construction, such as increased employment, payroll, and expenditures of local building supply companies.

Construction can also induce socioeconomic impacts resulting in increased activity in the service sectors of the local economy such as gas stations, restaurants, and supermarkets. The higher levels of employment and greater amounts of disposable income spent by construction related workers in the local economy would generate more employment and activity in these service sectors. Socioeconomic impacts of construction are generally short-term and temporary in nature, as is the case for most other construction impacts. Section 5.3, *Socioeconomic Impacts, Environmental Justice, and Children's Environmental Health and Safety Risks* assessed the potential for adverse socioeconomic impacts related to this alternative and found that no significant impacts would occur and in fact there may be temporary increases in economic activity as a result of the project.

Airport Operations During Construction: Construction related operational impacts are not expected to result in significant long-term changes in runway usage or taxi patterns. A detailed construction phasing plan would be developed to allow the construction activities to proceed without causing substantial airfield delays and congestion. As a result, no significant change in Airport operations is expected during construction.

Construction Resources: Materials used to construct the proposed alternative represent an irretrievable and irreversible commitment of resources. It is anticipated that the construction would require common paving materials such as gravel, concrete, asphalt, etc. Section 5.15, *Energy Supply, Natural Resources, and Sustainable Design* estimated the type and amount of construction materials required for Alternative B and concluded that the materials are generally available locally and are not expected to be needed in such a magnitude as to adversely affect long-term supplies locally or in the surrounding areas. As a result, no significant impact to construction resources is anticipated.

Alternative D:

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

This alternative includes the proposed 860-foot extension of Runway 13 and the 240-foot extension of Runway 31, for a total runway extension of 1,100 feet. This is the same total runway extension as described for Alternative B. Alternative D includes the construction of extensions to the parallel taxiways adjacent to the runway extensions to the full length of the extended runway. All potential impacts from construction would be the same for this alternative as described for Alternative B except for the total area of disturbance and the impact to water quality.

Air Quality: Requirements for the evaluation of construction emissions and measures applicable for the control of fugitive emissions is the same as described for Alternative B.

Water Quality: Alternative D would disturb approximately 27.38 acres for the extension of the runway of which 26.31 acres is plant and wildlife habitat and 1.07 acres is paved area. This area of disturbance allows for the runway and taxiway extension, an RSA extending beyond both runway ends, expansion of the levee and drainage ditch, and an area adjacent to both runway ends for staging of construction equipment. Because the project would disturb more than one acre of land, Marin County would be required to obtain coverage under the Construction General Permit Order 2009-0009-DWQ (effective July 1, 2010). The permit would require the development and implementation of a SWPPP that specifies erosion and sediment control BMPs to reduce or eliminate construction-related impacts on receiving water quality. Refer to Section 5.6, *Water Quality*, for additional details.

Under this alternative the levee and drainage ditches extending beyond the northwest end of existing Runway 13 would be modified to allow for construction of the extended runway and taxiway. Measures to protect water quality during construction of the extension are outlined in FAA Advisory Circular, *Standards for Specifying Construction of Airports*.¹² Marin County would direct the contractor to

¹² FAA Advisory Circular *Standards for Specifying Construction of Airports* (AC 150/5370-10D) Item P-156, *Temporary Air and Water pollution, Soil Erosion, and Siltation Control* (September 20, 2008).

provide immediate permanent or temporary control measures to minimize contamination of adjacent streams or other watercourses, lake, ponds, or other areas of water impoundment. BMPs described in the circular would be incorporated into the proposed project construction planning as needed. The assessment of potential impacts related to water quality concluded that no significant impacts would occur as a result of this alternative.

Soil Erosion: Potential impacts to soil erosion under this alternative would be the same as discussed under Alternative B.

Noise: Potential noise impacts under this alternative would be the same as discussed under Alternative B.

Hazardous Materials and Solid Waste: Potential impacts from hazardous materials and solid waste would be the same as described under Alternative B.

Fish, Wildlife, and Plants: Potential impacts to Fish, Wildlife, and Plants around the Airport would be the same as described under Alternative B.

Surface Transportation: Potential impacts to surface transportation would be the same as described under Alternative B.

Socioeconomic Impacts: Potential impacts to socioeconomic conditions around the Airport would be the same as described under Alternative B.

Airport Operations During Construction: Operation of the Airport during construction of this alternative would be the same as described for Alternative B.

Construction Resources: The type of construction activities and materials used to construct this alternative would be the same as discussed under Alternative B.

5.18.4 FUTURE CONDITIONS: 2023

There are no construction activities associated with Alternatives A, B, or D in 2023. Therefore, no impacts due to construction activities would occur in 2023.

THIS PAGE INTENTIONALLY LEFT BLANK