

APPENDIX 3.11-B: AIRPORT OBSTRUCTIONS

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Introduction

Under the California Environmental Quality Act (CEQA) Guidelines, Appendix G (California Code of Regulations [Cal. Code. Regs.], tit. 14, Ch. 3, §§ 15000–15837) the following significance criterion applies to the California High-Speed Rail (HSR) Project:

For a project located within an airport land use plan or where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?

Safety hazards can include the development of land uses that are incompatible with airport operations or result in the imposition of airspace obstacles that represent hazards to aviation, and subsequently to people on the ground in areas exposed to aircraft overflight. The purpose of this appendix is to evaluate whether the San Jose to Central Valley Wye Project Extent (project) alternatives impinge upon the Federal Aviation Regulation (FAR) Part 77 imaginary airspace surfaces or airport impact areas for any airports in the project vicinity, thus constituting a potential impact under CEQA.

Four public or public-use airports and three heliports are located in the project vicinity. These airports and heliports are described in greater detail in the following sections. No privately operated airstrips were identified within 2 miles of the project alternatives' footprints.

Norman Y. Mineta San Jose International Airport

Norman Y. Mineta San Jose International Airport is an air carrier airport owned by the City of San Jose. The airport is located approximately 1.5 miles from downtown San Jose and approximately 0.3 mile from the project alternatives' footprints at an elevation of 62 feet above mean sea level (ASML), and covers approximately 1,050 acres. The airport operates three parallel runways—Runway 30R-121, Runway 30L-12R, and Runway 29-11. Traffic at the airport was forecast to increase from a recorded 188,462 operations in 2006 to a projected 330,000 operations by 2017. The 2017 estimate of 330,000 operations was extended to 2027 in the November 2015 update to the Airport Comprehensive Land Use Plan. (County of Santa Clara 2016a).

San Martin Airport

San Martin Airport is a general aviation airport owned by the County of Santa Clara. The airport is located approximately 0.25 mile from the project alternatives' footprints. The airport operates one 3,100-foot-long runway (Runway 14-32) and is forecast to increase from an estimated 56,000 operations in 2002 to 175,560 operations by 2022. The airport elevation is 281 feet AMSL.

Frazier Lake Airpark

Frazier Lake Airpark is a general aviation airport owned by the Frazier Lake Airpark Corporation. The airport is located approximately 0.15 mile from project alternatives' footprints. The airport operates two parallel runways, a 2,500-foot-long runway (Runway 5-23) and a 3,000-foot-long runway (Runway 5W-23W), and is forecast to increase from an estimated 9,800 operations in 1998 to 23,990 operations by 2020. The airport elevation is 153 feet AMSL.

Los Banos Municipal Airport

Los Banos Municipal Airport is a general aviation airport owned by the City of Los Banos and operated through the Public Works Department. The airport is located approximately 2 miles from the project alternatives' footprints. The airport operates one 3,800-foot-long runway (Runway 14-32) and is forecast to increase from an estimated 16,000 operations in 2010 to 21,000 operations by 2015. The airport elevation is 121 feet AMSL.

Airport Influence Areas

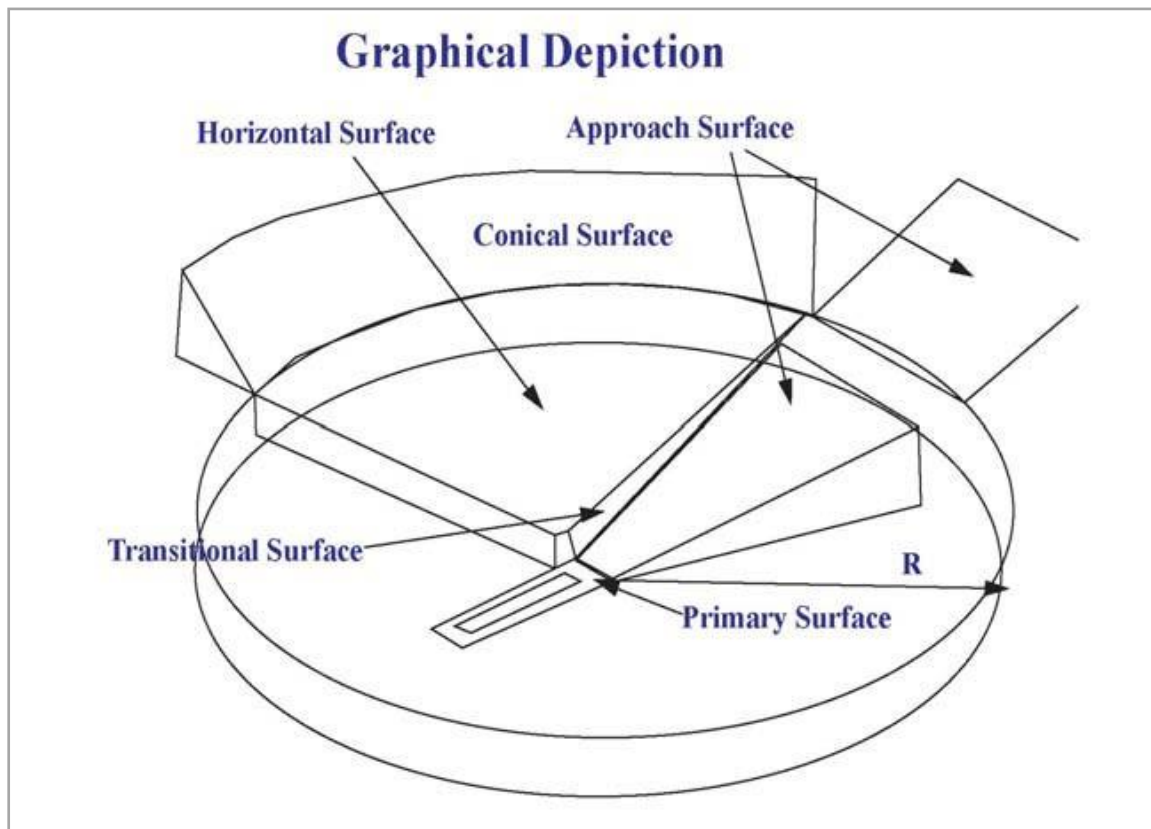
San Jose (Mineta) International Airport, San Martin (South County) Airport, Los Banos Airport, and Frazier Lake Airpark are subject to airport comprehensive land use plans (CLUP) (County of

Santa Clara 2016a, 2016b; County of San Benito 2001; County of Merced 2012). Each CLUP identifies the Airport Influence Area (AIA)—the geographic boundary of the airport land use compatibility plan (ALUCP)—and the FAR Part 77 and height restriction areas for each airport. Airport master plans and land use compatibility plans from county airport land use commissions regulate land use within airport safety zones to minimize airport hazards and risk of accidents. ALUCPs establish the AIA after a hearing and in consultation with the involved agencies, as required by California Public Utilities Code Section 21675(c). Proposed projects that encroach into an AIA defined in a CLUP are subject to review in accordance with procedures established in the CLUP.

Imaginary Surfaces

Terminal instrument procedures (TERPS) are instrument approach and departure procedures for both civilian and military airports. TERPS define imaginary surfaces to help develop instrument procedures and conduct obstacle analysis for instrument operations. For the purposes of identifying airspace obstacles for airports, the most commonly identified imaginary surfaces include those surfaces for civil aviation facilities defined under 14 Code of Federal Regulations (C.F.R.) Part 77 (Part 77) and TERPS. These imaginary surfaces for civil airports fall into five standard categories: primary, approach, transitional, horizontal, and conical. The size and shape of these surfaces can vary based on the runway category and the type of operating procedures available or planned for that runway. Examples of these surfaces are shown on Figure 1.

Under Part 77 standards for determining obstructions to airspace, an existing object, including a mobile object, would be an obstruction to air navigation if it penetrates the surface of a takeoff and landing area of an airport or any imaginary surface established for the airport (14 C.F.R. § 77.24).



Source: Washington Department of Transportation Aviation 2012

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Figure 1 Part 77 Airspace Surfaces

Subpart B, Notice of Construction or Alteration, of the Part 77 regulations requires that the FAA be notified of any proposed construction or alteration of objects within 20,000 feet of a runway and having a height that would exceed a 100:1 imaginary surface (1 foot upward per 100 feet of horizontal distance) beginning at the nearest point of the runway. This requirement applies to runways more than 3,200 feet in length (e.g., Norman Y. Mineta San Jose International Airport). For shorter runways, such as Los Banos Airport Runway 14-32, the notification surface has a 50:1 slope and extends 10,000 feet from the runway. Notification is required with regard to any public-use or military airport. Official determinations of the areas and elevations within which the federal notification requirements apply are subject to the authority of the FAA. The FAA may require filing of notices for proposed construction based on considerations other than the proposed height of the structure. For example, in some areas of complex airspace and high air traffic volumes, the FAA may be concerned about the potential for new construction of any height to interfere with electronic navigation aids. In these areas, FAA may also require notification of proposed construction projects (Caltrans 2011).

Analysis

This analysis considers the potential for hazards arising from portions of the project alternatives obstructing Part 77 airspace surfaces and other FAA notification requirements. This analysis also evaluates the project alternatives with respect to encroachment into the AIAs for each airport. For purposes of evaluating Part 77 surfaces, Part 77 airspace plans, height limit maps, and AIA plans for each of the airports were obtained from the latest versions of their respective ALUCPs (County of Santa Clara 2016a, 2016b; County of San Benito 2001; County of Merced 2012). The AIA airspace plans were georeferenced using ArcGIS 9.3 and overlaid with geographic information system (GIS) shape files representing the project alternatives for the purpose of identifying their location relative to each airport’s AIA. The online FAA Part 77 Notice Criteria Tool (FAA 2018) was also used to assess FAA notification requirements for proposed construction.

Table 1 shows the project alternatives’ encroachment areas in relation to the airports’ AIAs. For San Jose Airport, San Martin Airport, Frazier Lake Airpark, and Los Banos Municipal Airport, there were four AIAs included in the airport land use plans; A Request for Qualifications (RFQ) for Frazier Lake Airpark Land Use Compatibility Plan was submitted in August 2018, and will eventually include an updated AIA. Under Alternative 1, 121.3 acres of temporary construction area and 235.4 acres of permanent construction area are within the AIA for airports near the project alternatives. Under Alternative 2, 304.4 acres of temporary construction area and 308.4 acres of permanent construction area are within the AIA for airports near the project alternatives. Under Alternative 3, 170.1 acres of temporary construction area and 256.6 acres of permanent construction area are within the AIA for airports near the project alternatives. Under Alternative 4, 93.4 acres of temporary construction area and 214.4 acres of permanent construction area are within the AIA for airports near the project alternatives.

Table 1 Airport Influence Area Encroachment Area for Each Project Alternative

Airport	Encroachment Area (acres)							
	Alternative 1		Alternative 2		Alternative 3		Alternative 4	
	Temp.	Perm.	Temp.	Perm.	Temp.	Perm.	Temp.	Perm.
Mineta/San Jose International Airport	55.0	97.9	96.5	86.4	96.5	86.4	15.2	70.5
San Martin Airport	24.3	38.7	165.9	123.1	50.2	49.6	36.1	44.9
Frazier Lake Airpark	42.0	98.8	42.0	98.8	23.4	120.6	42.0	98.8
Los Banos Municipal Airport	0	0	0	0	0	0	0	0
Total	121.3	235.4	304.4	308.4	170.1	256.6	93.4	214.4

Sources: County of Santa Clara 2016a, 2016b
 Temp. = temporary
 Perm. = permanent

Signaling and train control elements within the right-of-way would include 10-foot-by-8-foot communications shelters or signal huts/bungalows that house signal relay components and microprocessor components, cabling to the field hardware and track, signals, and switch machines on the track. Communications towers within these facilities would be located near track switches and would be grouped with other traction power, maintenance, station, and similar HSR facilities where possible. Where communications towers cannot be located with traction power substations or other HSR facilities, the communications facilities would be located near the HSR corridor in a fenced area of approximately 20 feet by 15 feet. The communications towers for each project alternative are identified in Tables 2a–d.

Table 2a Part 77 Notification for Alternative 1

Airport	Communication Tower			
	City/Community	Alternative 1		
		Location	Height Exceedance	Navigation ¹
Norman Y. Mineta San Jose International Airport	Santa Clara	Radio Tower 2	61 ft	X
		Radio Tower 1	53 ft	X
	San Jose	Radio Tower 8	103 ft	X
		Radio Tower 6	96 ft	X
		Radio Tower 5	70 ft	X
		Radio Tower 3	67 ft	X
San Martin Airport	San Martin	Radio Tower 33	44 ft	N/A
		Radio Tower 31	43 ft	N/A
Frazier Lake Airpark	N/A	None	N/A	N/A
Los Banos Municipal Airport	N/A	None	N/A	N/A

Sources: FAA 2018

N/A = not applicable

ft = feet

¹ The FAA Part 77 Notice Criteria Tool indicates that the proposed structure is in proximity to a navigation facility and may impact the assurance of navigation signal reception, and is therefore requested to file in accordance with 77.9.

Table 2b Part 77 Notification for Alternative 2

Airport	Communication Tower			
	City/Community	Alternative 2		
		Location	Height Exceedance	Navigation ¹
Norman Y. Mineta San Jose International Airport	San Jose	Radio Tower 7	103 ft	X
		Radio Tower 6	96 ft	X
		Radio Tower 5	70 ft	X
		Radio Tower 3	67 ft	X
San Martin Airport	San Martin	Radio Tower 32	41 ft	N/A
		Radio Tower 30	43 ft	N/A
Frazier Lake Airpark	N/A	None	N/A	N/A
Los Banos Municipal Airport	N/A	None	N/A	N/A

Sources: FAA 2018

N/A = not applicable

ft = feet

¹ The FAA Part 77 Notice Criteria Tool indicates that the proposed structure is in proximity to a navigation facility and may impact the assurance of navigation signal reception, and is therefore requested to file in accordance with 77.9.

Table 2c Part 77 Notification for Alternative 3

Airport	Communication Tower			
	City/Community	Alternative 3		
		Location	Height Exceedance	Navigation ¹
Norman Y. Mineta San Jose International Airport	San Jose	Radio Tower 8	103 ft	X
		Radio Tower 6	96 ft	X
		Radio Tower 5	70 ft	X
		Radio Tower 3	67 ft	X
San Martin Airport	San Martin	Radio Tower 33	44 ft	N/A
		Radio Tower 31	43 ft	N/A
Frazier Lake Airpark	N/A	None	N/A	N/A
Los Banos Municipal Airport	N/A	None	N/A	N/A

Sources: FAA 2018

N/A = not applicable

ft = feet

¹ The FAA Part 77 Notice Criteria Tool indicates that the proposed structure is in proximity to a navigation facility and may impact the assurance of navigation signal reception, and is therefore requested to file in accordance with 77.9.

Table 2d Part 77 Notification for Alternative 4

Airport	Communication Tower			
	City/Community	Alternative 4		
		Location	Height Exceedance	Navigation ¹
Norman Y. Mineta San Jose International Airport	San Jose	Radio Tower 9	N/A	X
		Radio Tower 4	70 ft	X
San Martin Airport	San Martin	Radio Tower 29	24 ft	N/A
Frazier Lake Airpark	N/A	None	N/A	N/A
Los Banos Municipal Airport	N/A	None	N/A	N/A

Sources: FAA 2018

N/A = not applicable

ft = feet

¹The FAA Part 77 Notice Criteria Tool indicates that the proposed structure is in proximity to a navigation facility and may impact the assurance of navigation signal reception, and is therefore requested to file in accordance with 77.9.

Results

General Part 77 Notifications

The FAA Notice Criteria Tool indicated that for each proposed communication tower location that the “proposed structure is in proximity to a navigation facility and may impact the assurance of navigation signal reception” and that notifications should be filed for these structures in accordance with Part 77 (FAA 2018).

Norman Y. Mineta San Jose International Airport

All four project alternatives encroach into the AIA of San Jose International Airport (SJC), as shown in Table 1. All four project alternatives have communication towers located in Santa Clara (Radio Towers 1 and 2) and San Jose (Radio Towers 3 through 9) that would exceed Part 77 height restrictions near San Jose International Airport. The communication towers in Santa Clara and San Jose would be within the contour for Part 77 notification. According to the Part 77 Notice Criteria Tool, in Santa Clara, Radio Tower 1 would exceed height restrictions by 53 feet, and Radio Tower 2, by 61 feet. Both of the towers are in proximity to a navigation facility associated with the airport, and may affect the assurance of navigation signal reception. The nearest runway to the proposed communication towers is SJC Runway 12R/30L. The FAA Part 77 Notice Criteria Tool also indicates that the proposed communication towers would exceed an instrument approach area by 67, 70, 70, 96, 103, and 103 feet for Radio Towers 3, 4, 5, 6, 7, and 8, respectively, and an aeronautical study for each tower would need to be conducted to determine if the structure would exceed a standard of subpart C of 14 C.F.R. Part 77. Radio Tower 9 is in close proximity to a navigation facility associated with the airport, and may affect the assurance of navigation signal reception. The FAA Part 77 Notice Criteria Tool indicates that FAA notification would be required for approval of construction of the communication towers in Santa Clara and San Jose under all four alternatives.

San Martin Airport

All four project alternatives encroach into the AIA of San Martin Airport (E16), as shown in Table 1. All four project alternatives have communication towers located in San Martin (Radio Towers 29 through 33) that would exceed Part 77 height restrictions near San Martin Airport. The communication towers in San Martin would be within the contour for Part 77 notification. According to the Part 77 Notice Criteria Tool, the proposed communication towers would exceed an instrument approach by 24, 43, 43, 41, and 44 feet for Radio Towers 29, 30, 31, 32, and 33 respectively. An aeronautical study for each tower would need to be conducted to evaluate the proposal because the OEAAA source is not able to provide airport or runway data for San Martin

Airport. The nearest runway to the proposed communication tower locations is E16 Runway 14/32. The FAA Part 77 Notice Criteria Tool indicates that FAA notification would be required for approval of construction of the communication towers in San Martin under all four project alternatives.

Frazier Lake Airpark

Each of the four project alternatives encroaches into the AIA of Frazier Lake Airpark and all four project alternatives fall within the Part 77 defined horizontal surface zone for the airport. No structures proposed to be constructed for any of the project alternatives would exceed Part 77 height limits for Frazier Lake Airpark.

Los Banos Municipal Airport

None of the four project alternatives encroach into the AIA of Los Banos Municipal Airport. Each of the project alternatives fall within the Part 77 defined horizontal surface zone for the airport. No structures proposed to be constructed for any of the project alternatives would exceed Part 77 height limits for Los Banos Municipal Airport.

Heliports

Three privately-operated heliports in Santa Clara County are located within 2 miles of the project alternatives' footprints. These are located at the Santa Clara Towers building in San Jose, Santa Clara Valley Medical Center in San Jose, and St. Louise Hospital in Gilroy. The three heliports are rooftop facilities associated with medical center and residential high-rise properties and would not be affected by project construction and operations.

Privately-Operated Airstrips

No privately-operated airstrips were identified within 2 miles of the project alternatives' footprints for any of the project alternatives.

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