

- Project 5-A - Future Mixed-Use Development / Faculty Housing
- Project 5-C - Athletic Fields / Surface Parking

Implementation of feasible noise controls (Mitigation Measure 4.6-1b) would be adequate to reduce this impact to a less-than-significant level by reducing construction noise levels to 70 dBA or less, except at two locations (indicated in the column entitled, “Mitigated Exterior Leq”): (1) the adjacent movie theater complex to the south could be adversely affected by construction of Projects 3-D, 4-A, and 5-A; and (2) office buildings to the southeast (Yahoo) could be adversely affected by Project 5-A if impact equipment (e.g., jackhammers) were operated within 150 feet of these buildings. Since the movie theater complex does not have windows and office buildings have fixed (inoperable) windows and air conditioning, the potential for noise impacts would be less because interior noise levels could be maintained at acceptable levels since windows would not need to be opened for cooling or ventilation. Table 4.6-2 (right column) indicates that when these design factors are considered and feasible noise controls are implemented (Mitigation Measure 4.6-1b), interior noise levels at the movie theater complex and nearby office buildings could be maintained below 50 dBA for most types of construction equipment and below 55 dBA for impact equipment such as jackhammers, a *potentially significant temporary impact*. It should be noted that noise levels of 50 dBA are slightly higher than the 45-dBA interior noise criterion, but would only occur when heavy equipment is operated in close proximity to the receptor, not the entire duration of project construction. This temporary impact would be mitigated by implementation of feasible engine controls on trucks (Mitigation Measure 4.6-1b). While Table 4.6-2 identifies the noise impacts of the closest Master Plan projects to each receptor location, it should be noted that construction noise associated with any Master Plan project located within approximately 300 feet (400 feet from impact equipment) could exceed the 70-dBA speech interference criterion at the closest adjacent campus receptors, a *potentially significant temporary impact* if classes on campus are disrupted. For these projects, implementation of feasible engine and site management controls (Mitigation Measure 4.6-1b) would reduce noise levels to less-than-significant levels (below the 70-dBA speech interference criterion), if construction occurs near classrooms during school sessions.

Since this is a program-level document, haul routes in the campus vicinity have not been established. Table 4.6-2 indicates that noise generated by a single truck operating on a construction site could exceed the 70-dBA speech interference criterion at distances closer than 600 feet. However, implementation of feasible engine controls (Mitigation Measure 4.6-1b) would be adequate to reduce noise levels from a single passing truck to less-than-significant levels (below the 70-dBA speech interference criterion) as long as a minimum setback distance of 85 feet is maintained. As indicated in Table 4.6-2, there is only one area where this setback distance may not be maintained and it is when construction of future Mixed-Use Development (5-A) occurs. As indicated in the text above and Table 4.6-2, interior noise levels at the theaters (49 dBA or less) could be maintained even if trucks are operated within 85 feet. Temporary disruption could occur from passing trucks, a *potentially significant temporary impact*. This temporary impact would be mitigated by implementation of feasible engine controls on trucks (Mitigation Measure 4.6-1b).

Construction-related increases in truck traffic (outside of campus construction sites) would result in noise increases along haul routes. Factors used for estimating noise impacts from trucks include speed, load, terrain, and background noise levels. In areas with low background noise (typically 50 dBA, L_{eq}), one truck per hour would be noticeable. In slightly noisier environments (typically 60 dBA, L_{eq}), the threshold level is higher, and it would take 10 trucks per hour to noticeably increase noise exposures. In moderately noisy environments (typically 70 dBA, L_{eq}), a noise increase would be perceptible only with the addition of 100 trucks per hour (Caltrans, 1998). It is anticipated that haul and delivery trucks would use the Inner Loop Road and then possibly travel to the Mission College Boulevard Loop Road to access Great America Boulevard, the closest arterial road. From Great America Boulevard, trucks could access freeways to the north and south. Based on these criteria, increased truck noise on arterials and freeways would not be perceptible. However, truck noise may be noticeable on campus when trucks operate along the Inner Loop Road and at existing residences to the west when trucks operate along the Mission College Boulevard Loop Road, a *potentially significant impact*. The degree of impact would depend on the number of trucks as well as when and where trucks operated. It is assumed that truck operations will be limited on campus so as not to adversely affect campus operation. Prohibiting haul and delivery truck operations from the section of the Mission College Boulevard Loop Road during the more noise-sensitive hours (as required under Mitigation Measure 4.6-1b) would reduce this potential impact to a less-than-significant level.

Mitigation Measure 4.6-1a: Although construction of public school buildings is exempt from the Santa Clara Noise Ordinance time limits, the District will incorporate the following time limits into specifications for the following specific Master Plan projects to reduce potential impacts on residential receptors to the west:

- Construction of the soccer field (3-E) and athletic fields/surface parking lot (5-C) shall be restricted to the following Santa Clara Noise Ordinance time limits: 7:00 AM to 6:00 PM on weekdays and 9:00 AM to 6:00 PM on Saturdays.

Mitigation Measure 4.6-1b: The District will incorporate the following measures into specifications for all construction projects located within 300 feet of adjacent residential, commercial or office receptors or (within 400 feet wherever impact equipment such as jackhammers is proposed to be used):

- Feasible engine controls cost (e.g., improved mufflers, equipment redesign, use of silencers, shields, shrouds, ducts, and engine enclosures) shall be installed on construction equipment to achieve mitigated noise levels (with controls) listed in Table 4.6-1 (75 dBA [Leq] at 50 feet for all equipment and 80 dBA at 50 feet [Leq] for impact equipment such as jackhammers).
- If impact equipment (e.g., jack hammers, pavement breakers, or rock drills if needed) is used during project construction, employ hydraulically or electrical powered equipment wherever possible to avoid the noise associated with compressed-air exhaust from pneumatically powered tools. However, where use of pneumatically powered tools is unavoidable, use an exhaust muffler on the compressed-air exhaust (a muffler can lower noise levels from the exhaust by up to about 10 dBA). Use external jackets on the tools themselves, where

feasible, which could achieve a reduction of 5 dBA. Use quieter procedures, such as drilling rather than impact equipment, whenever feasible.

- Locate stationary noise sources as far from sensitive receptors as possible. If they must be located near existing receptors, ensure adequate muffling (with enclosures).
- Locate material stockpiles as well as maintenance/equipment staging and parking areas as far as practicable from residential receptors.
- Designate a complaint coordinator responsible for responding to noise complaints received during construction of each planned project. Post the name and phone number of the complaint coordinator conspicuously at construction areas. This person will be responsible for taking steps to resolve complaints, including periodic noise monitoring, if necessary. If construction noise is found to exceed ordinance limits, require the contractor to change work procedures to reduce noise to acceptable levels.
- Establish haul and delivery truck routes so that they avoid the section of the Mission College Boulevard loop road located along the western boundary during the evening and nighttime hours (7 PM to 7 AM, Monday through Saturday) as well as on Sundays.

Impact Significance After Mitigation: Less than significant.

OPERATIONAL NOISE

Impact 4.6-2: Traffic increases on local roadways due to projected increases in student enrollments and cumulative development would increase noise levels along these roads. (Less than Significant)

The project would result in traffic and associated noise increases on local roadways serving the site. Using noise modeling techniques specified by the Federal Highway Administration (FHWA-RD-77-108 with updated California Vehicle Noise Emission [CALVENO] factors) and traffic volumes in this report, existing and future noise levels on local roadways were estimated and they are presented in **Table 4.6-3**. As indicated in Table 4.6-4, traffic increases associated with approved projects (Existing Baseline conditions) would increase existing noise levels by 1.2 dBA or less along road links in the project vicinity where there are adjacent residential uses. By 2025, future traffic increases would result in noise increases along these links of 1.7 dBA or less. When project implementation is complete (2025), traffic noise increases due to the project would be 0.5 dBA or less over future baseline (2025) noise levels. Such incremental increases would not be considered significant when compared to the noticeability significance criterion (third criterion listed above).

Mitigation Measure 4.6-2: None required.

TABLE 4.6-3
TRAFFIC NOISE INCREASES

Road Link and Average Speed (mph)	Noise Level (Ldn) at 50 Feet from Roadway Centerline					
	Existing (2008)	Existing + Approved	Future Baseline (2025)	Change from Existing	Future (2025) + Project	Change from Future Baseline
Tasman Drive (East of Great America Boulevard) - 35 mph	68.6	69.1	69.8	1.1	69.8	0.0
Tasman Drive (East of Lawrence Expressway) - 40 mph	70.1	70.1	71.6	1.4	71.6	0.0
Lawrence Expressway (North of Sandia Avenue) - 50 mph	74.5	75.7	76.1	1.6	76.1	0.0
Lawrence Expressway (South of Sandia Avenue) - 50 mph	75.6	76.5	76.8	1.3	76.9	0.0
Sandia Avenue (East of Lawrence Expressway) - 25 mph	61.7	61.7	62.0	0.3	62.2	0.2
Lakehaven Drive (West of Lawrence Expressway) - 25 mph	63.4	63.4	63.5	0.1	63.5	0.0
Wildwood Avenue (West of Mission College Boulevard) - 35 mph	63.0	63.0	63.1	0.2	63.6	0.5
Bowers Avenue (South of Central Expressway) - 35 mph	69.5	70.0	70.8	1.4	70.9	0.0
San Tomas Expressway (South of Walsh Avenue) - 45 mph	73.7	74.3	75.4	1.7	75.4	0.0

SOURCE: Geier & Geier Consulting, Inc. (2008)

Impact 4.6-3: Implementation of the Master Plan would increase noise generated on campus. (Less than Significant)

Implementation of the proposed Master Plan would relocate campus departments located in the Main Building to the two Replacement Buildings (1-D and 1-E). Since the two replacement buildings would be located within the same central campus vicinity (inside the Inner Loop Road), proposed relocation would not significantly alter the campus noise environment, a *less-than-significant impact*. Campus departments located in other existing campus buildings would generally remain the same under the proposed Master Plan. Existing parking lots along the campus periphery also would not change under the proposed Master Plan.

The proposed Master Plan would expand the existing Physical Education Building (3-C), add a Soccer Field (3-E), and add an Indoor Pool facility (3-F), all in the western portion of the campus (within and outside the Inner Loop Road). Expansion of the Physical Education Building and addition of the Indoor Pool facility would expand indoor uses, and would not be expected to significantly alter the campus noise environment. The proposed Soccer Field would introduce a new noise source in the western portion of the campus. It would be located approximately 250 feet from existing residences to the west and would have the same setback from these residences as the existing baseball field. Residences located along the west side of Calabazas Creek and the Mission College campus are also protected by an existing masonry wall

that extends the length of the campus. Use of the proposed Soccer Field is not expected to significantly alter the local noise environment along the western campus boundary due to the presence of this noise wall as well as the presence of sports activities in this area of the campus, a *less-than-significant impact*. Programmed use of the baseball field (which has lighting for evening games) would not change under the Master Plan and use of the soccer field is expected to be similar to the baseball field. It should also be noted that the college will be able to control use of this field by scheduling games at appropriate times, in the event that any noise conflicts arise between future outdoor athletic activities and residences to the west.

Under the proposed Master Plan, mechanical systems that provide heating and air conditioning for each building on campus would be provided on all new buildings and expanded as necessary on existing buildings to accommodate planned building expansions. The Central Plant, which currently provides heating for the existing Gymnasium only, would be demolished (removing an existing noise source) and a new mechanical system would be installed at the existing Gymnasium. Heating, ventilation, and air conditioning systems can generate continuous noise levels of 60 to 75 dBA (Leq) at 50 feet, depending on the location, size of the unit as well as the baffling or screening incorporated into the design. Since the planned campus buildings would be located at least 550 feet from residential receptors to the west, mechanical equipment could generate noise levels of up to 54 dBA (Leq) at this distance. With ambient noise levels of approximately 65 dBA (CNEL) along the Mission College Loop Road, the addition of such equipment noise would increase noise levels along the western campus boundary by approximately 0.3 dBA, which would be imperceptible and considered *less than significant*. It should be noted that noise attenuation measures will be incorporated as necessary into the design of each building's mechanical systems.

Implementation of the Master Plan would not significantly alter existing traffic circulation patterns within and around the campus. However, implementation of the proposed Plan would result in traffic increases along the Mission College Boulevard Loop Road. Based on a comparison of driveway volumes for the Existing and Future (2025) with Project conditions (see Figures 4.4-3 and 4.4-7), traffic noise levels along the western section of the Mission College Boulevard Loop Road (west of the campus parking lots and along the western campus boundary) could increase from approximately 51 dBA to 56 dBA (CNEL) or up to 5 dBA, while traffic noise levels along the eastern segment of the Loop Road (between the campus entry and easternmost campus parking lot driveway) could increase by 2.5 dBA.

When compared to the noticeability significance criterion (third criterion listed above), the increase in traffic noise along the western section of the Loop Road would be potentially significant, while the traffic noise increase along the eastern section of the Loop Road would be less than significant. However, it is important to note that these incremental increases are attributable only to traffic noise on this road and do not reflect the actual change in the ambient noise environment. Noise measurements taken along the western project boundary (on the east side of Mission College Boulevard Loop Road) indicate much higher noise levels in this area (65 dBA, CNEL), most likely attributable to other major noise sources in the vicinity such as the SR 101 freeway located approximately 700 feet to the south as well as overflying

aircraft. In addition, there is a masonry wall located along the west side of Calabazas Creek and this helps to protect these residences from noise generated on campus or along the Mission College Boulevard Loop Road. When these other factors are considered, the estimated noise increases along the Loop Road would not significantly affect residential receptors to the west and would not significantly increase existing ambient noise levels along the western campus boundary. Therefore, traffic noise increases along the Mission College Boulevard Loop Road would have a *less-than-significant impact* on residential receptors to the west.

Mitigation Measure 4.6-3: None required.

NOISE COMPATIBILITY OF PROJECT BUILDINGS

Impact 4.6-4: Existing and future noise levels on the Mission College campus would be compatible with continued educational uses when compared to Santa Clara Land Use Compatibility Guidelines for Noise. (Less than Significant)

Table 4.6-1 indicates that existing noise levels on the West Valley College campus vary from 47 to 54 dBA (Leq) during the day (7 a.m. to 7 p.m.), 44 to 50 dBA (Leq) during the evening (7 p.m. to 10 p.m.), and 47 to 49 dBA (Leq) during the nighttime noise levels. It is estimated that noise levels on portions of the campus away from surrounding streets (where most campus buildings are located) are generally in the lower end of this range, while noise levels in areas of the campus near Fruitvale Avenue, Allendale Avenue, East/South College Circle, and campus parking lots are generally in the upper end of the measured range of noise levels. The lower end of the measured daytime and evening noise levels would be consistent with the City's outdoor noise standards of 50 dBA (day) and 45 dBA (evening) for schools. Since the school does not operate during the nighttime hours, consistency with this standard would not be pertinent.

The City of Santa Clara Land Use Compatibility Guidelines for Noise indicates that noise levels of up to 55 dBA (CNEL) are considered compatible with educational uses. In areas with noise levels between 55 and 70 dBA (CNEL), new educational development is considered conditionally acceptable, whereby noise attenuation measures should be incorporated into the design to reduce noise levels. Measured noise levels on campus indicate that noise levels in campus areas away from parking lots and roadways (50 dBA, Leq during the day, which would be approximately equivalent to 54 dBA [CNEL]⁵) is considered to be compatible with school uses, while existing noise levels of 65 and 67 dBA [CNEL] along the Mission College Boulevard Loop Road and in campus parking lots) are considered to be conditionally acceptable for school uses. Since the proposed Master Plan designates sports and parking uses along the Mission College Boulevard Loop Road and in campus areas located outside the Inner Loop Road, no noise compatibility problems would be anticipated and therefore, no noise mitigation is required.

⁵ Based on the difference between daytime Leq for the same hour and 24-hour CNEL that was measured at the western campus boundary.

Mitigation Measure 4.6-4: None required.

CUMULATIVE IMPACTS

Impact 4.6-5: Cumulative construction noise impacts could result if planned construction projects occurred in the same vicinity at the same time. In addition, cumulative traffic increases on local roadways would increase noise levels along local roads. (Less than Significant)

Construction. Cumulative construction noise impacts could result if construction of more than one of the planned projects occurred in the same vicinity at the same time. If this occurred some adjacent receptors could be subject to additive noise from more than one construction project at the same time. As indicated in Figure 3-3, projects in each sequence are located in the same general vicinity of the campus. All but one of the Sequence 1 projects are located in the northern portion of the campus, while all but one of the Sequence 2 projects are located in the central part of the campus. All but one of the Sequence 3 projects are located mostly in the western portion of the campus, while two of the three Sequence 4 projects are located in the southern portion of the campus. Sequence 5 projects have not been scheduled. Over the next 16 years (2009 to 2025), each sequence would occur for an average of four years. Therefore, in general, residential receptors could be exposed to cumulative increases in construction noise during Sequence 3, while the movie theaters to the south would be subject to cumulative construction noise increases during Sequence 4.

The projects with the most potential for cumulative noise impacts would be those requiring exterior construction activities (e.g., building demolition, building additions, and new building construction) and those with overlapping construction schedules. Although construction schedules have not been prepared for Master Plan projects, it will be important that schedules consider potential cumulative effects. Potential overlap in construction could result multiple pieces of heavy construction equipment being operated simultaneously as well as cumulative increases in delivery and haul trucks along designated haul routes. When schedules do not overlap, the cumulative effect of each sequence might be the duration of exposure for a particular exposure (e.g., one year for a single project versus four years for all the projects in a particular sequence). Since residential receptors to the west are located between 500 and 1,500 feet from Sequence 3 building construction projects, cumulative construction noise increases from several overlapping projects is not expected to exceed the 70-dBA speech interference criterion at these distances. Therefore, potential cumulative construction-related impacts at the residential receptors would relate primarily to truck traffic increases along the Mission College Boulevard Loop Road. Implementation of Mitigation Measure 4.6-1b would prohibit trucks on this road during the more noise-sensitive evening and nighttime hours and this measure would ensure that cumulative noise increases on this road do not result in noise impacts on these residential receptors that are cumulatively considerable.

Operation. When traffic noise increases from future growth is considered with project-related traffic noise increases, the cumulative noise increases would be 1.7 dBA or less over existing levels (Table 4.6-3). Such incremental increases would not be considered significant when compared to the noticeability significance criterion (third criterion listed above).

Mitigation Measure 4.6-5: None required.

REFERENCES - NOISE

California Department of Transportation (Caltrans). 1998. *Technical Noise Supplement, a Technical Supplement to the Traffic Noise Analysis Protocol*. October 1998. California Department of Transportation, Environmental Program, Environmental Engineering—Noise, Air Quality, and Hazardous Waste Management Office. Available online at www.dot.ca.gov/hq/env/noise/pub/Technical%20Noise%20Supplement.pdf. Accessed December 2005.

City of Santa Clara, 2008. *Santa Clara Municipal Code, Chapter 9.10, Regulation of Noise and Vibration*. Website Accessed on October 27, 2008:
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U.S. Department of Transportation, Federal Transit Administration, 2006. *Transit Noise and Vibration Impact Assessment*. May.

U.S. Environmental Protection Agency (USEPA), 1974. *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety (Condensed Version)*. Washington D.C.

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