

Appendix G

Review of Existing Noise Conditions



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MEMORANDUM

Date: 7/26/2019
To: Dawn Marple, Provost & Pritchard
From: Kurt Legleiter
Subject: Virginia Smith Trust Property –Review of Existing Noise Conditions

Overview of Previously Prepared Environmental Documents

In 2002, in conjunction with the *Long Range Development Plan (LRDP) Draft Environmental Impact Report (DEIR) (2002)* for University of California Merced (UCM) evaluated the environmental impacts for future development of the UCM campus, including the development of UCM Phase 1. The Phase 1 Campus, as defined in the 2002 LRDP EIR, consisted of the development of campus facilities on a 104-acre portion of a 197-acre site with an enrollment level of about 3,600 FTE students. The *University Campus Plan (UCP) DEIR (2004)* evaluated the phased future development of the UCM, which included a mix of proposed residential, commercial, educational, and retail uses. Most recently, the UC Merced and *University Community Project (UCM & UCP) EIS/EIR (2009)* was prepared. The UCM & UCP EIS/EIR addressed the 2009 Long Range Development Plan for the UCM campus, which included a projected student body of 25,000 full-time equivalent students on up to 815 acres of land. The UCM & UCP EIS/EIR also addressed potential impacts associated with the future phased development of the UCM 2020 Project. The UCM & UCP EIS/EIR has been amended several times in the years since to facilitate implementation of the revised UCM 2020 Project.

Existing Noise Conditions & Regulatory Framework

Ambient Noise Conditions

To document existing ambient noise levels in the Virginia Smith Trust (VST) area, short-term ambient noise measurements were conducted on May 21, 2019 using a Larson Davis Laboratories, Type I, Model 820 integrating sound-level meter. The meter was calibrated before use and is certified to be in compliance with ANSI specifications. Measured ambient noise levels are summarized in Table 1.

As indicated in Table 1, measured daytime ambient noise levels in the VST area ranged from approximately 57 to 70 dBA L_{eq} . Ambient noise levels within the VST area are predominantly influenced by vehicle traffic on area roadways. Ambient noise levels during the evening and nighttime hours are generally 5 to 10 dB lower than daytime noise levels. No major freeways, railroads, or airports were identified in the area that currently affect ambient noise levels.

Traffic Noise Levels

As noted above, ambient noise levels in the VST area are predominantly influenced by vehicle traffic on area roadways. Based on the traffic noise modeling conducted for the UCM & UCP EIS/EIR, which is the most recent environmental document prepared in the area, predicted year 2008 traffic noise levels for Yosemite Avenue, east of Lake Road, and Lake Road, north of Yosemite Avenue, were 55 dBA L_{dn} at 100 feet from the roadway



Table 1. Summary of Measured Ambient Noise Levels

Location	Monitoring Period	Noise Levels (dBA)	
		L _{eq}	L _{max}
Yosemite Avenue, 310 feet East of Lake Road. Approximately 30 feet from the road centerline.	10:30-10:40 a.m.	69.8	81.4
Lake Road at Cardella Road. Approximately 24 feet from the road centerline.	10:50-11:00 a.m.	69.9	78.3
Lake Road at Park Entrance, North of Bellevue Road. Approximately 20 feet from the road centerline.	11:07 -11:20 a.m.	56.7	68.3
Yosemite Avenue, 2,100 feet East of Kibby Road. Approximately 30 feet from the road centerline.	11:30 -11:40 a.m.	69.3	85.7
<i>Ambient noise measurements were conducted on May 21, 2019 using a Larson Davis Laboratories, Type I, Model 820 integrating sound-level meter.</i>			

centerlines. Noise levels in the VST area were also evaluated in the 2030 Merced County General Plan (MCGP) DEIR (2013)¹. Based on the traffic noise modeling conducted for the 2030 MCGP, predicted traffic noise levels for Yosemite Avenue, east of Lake Road was 57 dBA L_{dn} at 100 feet from the roadway centerline. Projected future year 2030 traffic noise levels at 100 feet from the roadway centerline for this same roadway segment were projected to increase to approximately 61 dBA L_{dn}. Traffic noise levels for Lake Road were not evaluated in the 2030 MCGP DEIR.

Aircraft Noise Levels

The nearest public-use airports include the Merced County Castle Airport, which is located approximately 6 miles to the west, and the Merced Regional Airport, which is located approximately 5 miles to the southwest. The VST area is not located within the projected 65 dBA CNEL contours or within an airport land use planning area of these airports. However, a private airstrip is located near the eastern boundary of the VST area, which could contribute intermittently to increases in ambient noise levels in the VST area.

Regulatory Framework

The existing regulatory framework identified in the LRDP DEIR and the UCP DEIR included noise standards identified in the County of Merced Year 2000 General Plan, which was adopted in 1980. The UCM & UCP EIS/EIR included these same County noise standards, as well as, additional noise standards identified in the City of Merced Vision 2015 General Plan, which was adopted in 1997.

Merced County 2030 General Plan

The 2030 Merced County General Plan (MCGP) was adopted on December 10, 2013². The Health and Safety Element of the 2030 MCGP contains noise policies and standards intended to reduce noise exposure for noise-sensitive land uses exposed to transportation and non-transportation noise sources. The County's noise standards for transportation and non-transportation noise sources are summarized in Tables 2 and 3, respectively.

¹ Merced County. 2013. Merced County 2030 General Plan. <https://www.co.merced.ca.us/100/General-Plan>.

² Merced County. 2013. Merced County 2030 General Plan. <https://www.co.merced.ca.us/100/General-Plan>



Table 2. Merced County General Plan Noise Standards for Transportation Noise Sources

Land Use	Sensitive Outdoor Area (dBA L _{dn})	Sensitive Interior Area (dBA L _{dn})	Notes
All Residential	65	45	3
Transient Lodging	65	45	3,4
Hospitals & Nursing Homes	65	45	3,4,5
Theaters & Auditoriums	--	35	4
Churches, Meeting Halls, Schools, Libraries, etc.	65	40	4
Office Buildings	65	45	4
Commercial Buildings	--	50	4
Playgrounds, Parks, etc.	70	--	
Industry	65	50	4
Notes: 1. Sensitive Outdoor Areas include primary outdoor activity areas associated with any given land use at which noise-sensitivity exists and the location at which the County's exterior noise level standards are applied. 2. Sensitive Interior Areas includes any interior area associated with any given land use at which noise-sensitivity exists and the location at which the County's interior noise level standards are applied. Examples of sensitive interior spaces include, but are not limited to, all habitable rooms of residential and transient lodging facilities, hospital rooms, classrooms, library interiors, offices, worship spaces, theaters. Interior noise level standards are applied within noise-sensitive areas of the various land uses with windows and doors in the closed positions. 3. Railroad warning horn usage shall not be included in the computation of L _{dn} . 4. Only the interior noise level standard shall apply if there are no sensitive exterior spaces proposed for these uses. 5. Since hospitals are often noise-generating uses, the exterior noise level standards are applicable only to clearly identified areas designated for outdoor relaxation by either hospital staff or patients. Source: County of Merced 2030 General Plan (2013)			

Merced County Code

Merced County Code Section 18.41, Performance Standards, of the County Code exempts construction activities from noise limits and limits construction activities to the daytime hours between 7:00 a.m. and 6:00 p.m.. In addition, all construction equipment must be properly muffled and maintained to minimize noise levels. This ordinance also limits operational noise from mechanical equipment, buzzers, bells, loudspeakers, and other noise generating devices. Operational non-transportation noise levels for properties located adjacent to residential development are not allowed to exceed 65 dBA L_{dn} or 75 dBA L_{max} at the property line. Noise adjacent to non-residential land uses is limited to 70 dBA L_{dn} and 80 dBA L_{max}.

City of Merced General Plan

The City of Merced 2030 General Plan (GP)³ was adopted in 2012⁴. The 2030 GP contains noise policies and standards intended to reduce noise exposure for noise-sensitive land uses exposed to transportation and non-transportation noise sources. The City's noise standards for transportation and non-transportation noise sources are summarized in Tables 4 and 5, respectively.

³ City of Merced. 2012. City of Merced 2030 General Plan.

https://www.cityofmerced.org/depts/cd/planning/merced_vision_2030_general_plan.asp.

⁴ Merced County. 2013. Merced County 2030 General Plan. <https://www.co.merced.ca.us/100/General-Plan>



Table 3. Merced County General Plan Noise Standards for Non-Transportation Noise Sources

Land Use	Outdoor Area (dBA L ₅₀ /L _{max})		Interior Area (dBA L ₅₀ /L _{max})	Notes
	Daytime	Nighttime	Daytime or Nighttime	
All Residential	55/75	50/70	35/55	
Transient Lodging	55/75	--	35/55	4
Hospitals & Nursing Homes	55/75	--	35/55	5,6
Theaters & Auditoriums	--	--	30/50	6
Churches, Meeting Halls, Schools, Libraries, etc.	55/75	--	35/60	6
Office Buildings	60/75	--	45/65	6
Commercial Buildings	--	--	45/65	6
Playgrounds, Parks, etc.	65/75	--	--	6
Industry	60/80	--	50/70	6

Notes:

1. These standards shall be reduced by 5 dB for sounds consisting primarily of speech or music, and for recurring impulsive sounds. If the existing ambient noise level exceeds the standards in this table, then the noise level standards shall be increased at 5 dB increments to encompass the ambient.
2. Sensitive Outdoor Areas include primary outdoor activity areas associated with any given land use at which noise-sensitivity exists and the location at which the County's exterior noise level standards are applied.
3. Sensitive Interior Areas includes any interior area associated with any given land use at which noise-sensitivity exists and the location at which the County's interior noise level standards are applied. Examples of sensitive interior spaces include, but are not limited to, all habitable rooms of residential and transient lodging facilities, hospital rooms, classrooms, library interiors, offices, worship spaces, theaters. Interior noise level standards are applied within noise-sensitive areas of the various land uses with windows and doors in the closed positions.
4. Outdoor activity areas of transient lodging facilities are not commonly used during nighttime hours.
5. Since hospitals are often noise-generating uses, the exterior noise level standards are applicable only to clearly identified areas designated for outdoor relaxation by either hospital staff or patients.
6. The outdoor activity areas of these uses (if any), are not typically used during nighttime hours.
7. Where median (L50) noise level data is not available for a particular noise source, average (Leq) values may be substituted for the standards of this table provided the noise source in question operates for at least 30 minutes of an hour. If the source operates for at least 30 minutes. If the source operates less than 30 minutes the maximum noise level standards shown shall apply.

Source: County of Merced 2030 General Plan (2013)

Table 4. City of Merced General Plan Noise Standards for Non-Transportation Noise Sources

Noise Level Descriptor	Daytime	Nighttime
Hourly Leq, dB	55	45

Notes:

Each of the noise levels specified above shall be lowered by 5 dB for simple tone noises, noises consisting primarily of speech or music, or for recurring impulsive noises (e.g., humming sounds, outdoor speaker systems). These noise level standards do not apply to residential units established in conjunction with industrial or commercial uses (e.g., caretaker dwellings).

Source: City of Merced 2030 General Plan (2012)



Table 5. City of Merced General Plan Noise Standards for Transportation Noise Sources

Land Use	Outdoor Activity Areas ¹ (dBA CNEL/L _{dn})			Interior Spaces	
	Roadways	Railroads	Aircraft	dBA CNEL/L _{dn}	dBA L _{eq} ²
All Residential	60/65 ³	65 ⁵	60 ³	45	--
Transient Lodging	65	65 ^{4,5}	65	45	--
Hospitals & Nursing Homes	60 ³	65 ⁵	60 ³	45	--
Theaters, Auditoriums, Music Halls	--	--	--	--	35
Churches, Meeting Halls	60 ³	65 ⁵	60 ³	--	40
Office Buildings	--	--	--	--	45
Schools, Libraries, Museums	--	--	--	--	45
Playgrounds, Neighborhood Parks	70	70	75	--	--

Notes:
 1 Where the location of outdoor activity areas is unknown, the exterior noise level standard shall be applied to the property line of the receiving land use. Where it is not practical to mitigate exterior noise levels at patio or balconies of apartment complexes, a common area such as a pool or recreation area may be designated as the outdoor activity area.
 2 As determined for a typical worst-case hour during periods of use.
 3 Where it is not possible to reduce noise in outdoor activity areas to 60 dB Ldn/CNEL or less using a practical application of the best-available noise reduction measures, an exterior noise level of up to 65 dB Ldn/CNEL may be allowed provided that available exterior noise level reduction measures have been implemented and interior noise levels are in compliance with this table. For residential uses located adjacent to major roadways such as S.R. 99, S.R. 59, and S.R. 140, the normally acceptable exterior noise level is 65 dB Ldn/CNEL.
 4 In the case of hotel/motel facilities or other transient lodging, outdoor activity areas such as pool areas may not be included in the project design. In these cases, only the interior noise level criterion will apply.
 5 Where it is not possible to reduce noise in outdoor activity areas to 65 dB Ldn/CNEL or less using a practical application of the best-available noise reduction measures, an exterior noise level of up to 70 dB Ldn/CNEL may be allowed provided that available exterior noise level reduction measures have been implemented and interior noise levels are in compliance with this table.
 Source: City of Merced 2030 General Plan (2012)



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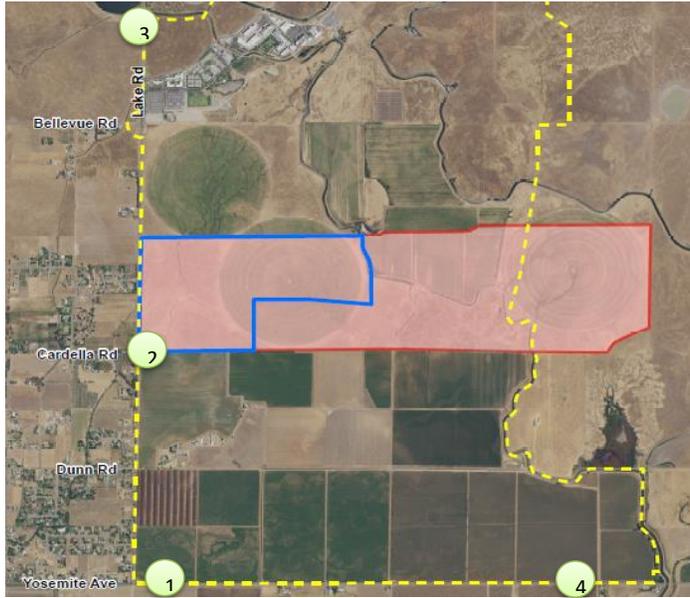
APPENDIX A

Noise Monitoring Surveys



NOISE MEASUREMENT SURVEY FORM

DATE: 21-May-19
 NOISE MONITORING LOCATION: VIRGINIA SMITH TRUST



MET CONDITIONS: TEMP: 63 F. HUMIDITY: 60% WIND SPEED: 4-5 MPH SKY: OVERCAST GROUND: DRY
 NOISE MONITORING EQUIPMENT: LARSON DAVIS MODEL 820 LXT, TYPE I SLM
 CALIBRATED PRIOR TO AND UPON COMPLETION OF MEASUREMENTS: YES

LOCATION	MONITORING PERIOD	LOCATION DESCRIPTION	NOISE LEVEL		NOTES
			LEQ	LMAX	
1	1030-1040	YOSEMITE AVE ~30' FROM ROAD CL	69.8	81.4	VEH. TRAFFIC PRIMARY
2	1050-1100	LAKE ROAD AT CARDELA ~24' FROM ROAD CL	69.9	78.3	VEH. TRAFFIC PRIMARY
3	1107-1120	LAKE ROAD AT PARK ENTRANCE ~20' FROM ROAD CL	56.7	68.3	VEH. TRAFFIC PRIMARY
4	1130-1140	YOSEMITE AVE ~30' FROM ROAD CL	69.3	85.7	VEH. TRAFFIC PRIMARY
10-MINUTE TRAFFIC COUNTS					
1	LDA=18; MDT=2; HDT=0. AVG SPEED=55 MPH				
2	LDA=26; MDT=3; HDT=2; BUS=1. AVG SPEED=55 MPH				
4	LDA=23; MDT=1; HDT=1. AVG SPEED=55 MPH				

