SAMARITAN COURT MEDICAL OFFICE PROJECT AND
SAMARITAN MEDICAL CAMPUS MASTER PLAN
NOISE ASSESSMENT
SAN JOSÉ, CALIFORNIA

January 26, 2016

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INTRODUCTION

This report presents the results of the noise assessment completed for the Samaritan Court Medical Office Building project located at 2512 and 2506 Samaritan Court, and the Samaritan Medical Campus Master Plan that includes the Samaritan Court project and additional medical offices uses proposed at 2505 and 2577 Samaritan Drive in San José, California. The Master Plan project would allow for the development of up to 475,000 square feet of medical office uses. The project would also include construction of three parking garages.

The Setting Section of this report presents the fundamentals of environmental noise, a discussion of policies and standards applicable to the project, and the results of ambient noise monitoring survey made at the project site. The Impacts and Mitigation Measures Section of the report provides an evaluation of the potential significance of project-related noise impacts, and mitigation, where necessary, to reduce impacts to a less-than-significant level.

SETTING

Fundamentals of Environmental Noise

Noise may be defined as unwanted sound. Noise is usually objectionable because it is disturbing or annoying. The objectionable nature of sound could be caused by its pitch or its loudness. Pitch is the height or depth of a tone or sound, depending on the relative rapidity (frequency) of the vibrations by which it is produced. Higher pitched signals sound louder to humans than sounds with a lower pitch. Loudness is intensity of sound waves combined with the reception characteristics of the ear. Intensity may be compared with the height of an ocean wave in that it is a measure of the amplitude of the sound wave.

In addition to the concepts of pitch and loudness, there are several noise measurement scales which are used to describe noise in a particular location. A decibel (dB) is a unit of measurement which indicates the relative amplitude of a sound. The zero on the decibel scale is based on the lowest sound level that the healthy, unimpaired human ear can detect. Sound levels in decibels are calculated on a logarithmic basis. An increase of 10 decibels represents a ten-fold increase in acoustic energy, while 20 decibels is 100 times more intense, 30 decibels is 1,000 times more intense, etc. There is a relationship between the subjective noisiness or loudness of a sound and its intensity. Each 10 decibel increase in sound level is perceived as approximately a doubling of loudness over a fairly wide range of intensities. Technical terms are defined in Table 1.

There are several methods of characterizing sound. The most common in California is the A-weighted sound level (dBA). This scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. Representative outdoor and indoor noise levels in units of dBA are shown in Table 2. Because sound levels can vary markedly over a short period of time, a method for describing either the average character of the sound or the statistical behavior of the variations must be utilized. Most commonly, environmental sounds are described in terms of an average level that has the same acoustical energy as the summation of all the time-varying events. This energy-equivalent sound/noise descriptor is called L_eq. The most common averaging period is hourly, but L_eq can describe any series of noise events of arbitrary duration.
The scientific instrument used to measure noise is the *sound level meter*. Sound level meters can accurately measure environmental noise levels to within about plus or minus 1 dBA. Various computer models are used to predict environmental noise levels from sources, such as roadways and airports. The accuracy of the predicted models depends upon the distance the receptor is from the noise source. Close to the noise source, the models are accurate to within about plus or minus 1 to 2 dBA.

Since the sensitivity to noise increases during the evening and at night -- because excessive noise interferes with the ability to sleep -- 24-hour descriptors have been developed that incorporate artificial noise penalties added to quiet-time noise events. The *Community Noise Equivalent Level (CNEL)* is a measure of the cumulative noise exposure in a community, with a 5 dB penalty added to evening (7:00 pm - 10:00 pm) and a 10 dB addition to nocturnal (10:00 pm - 7:00 am) noise levels. The *Day/Night Average Sound Level (L_{dn} or DNL)* is essentially the same as CNEL, with the exception that the evening time period is dropped and all occurrences during this three-hour period are grouped into the daytime period.

**Fundamentals of Groundborne Vibration**

Ground vibration consists of rapidly fluctuating motions or waves with an average motion of zero. Several different methods are typically used to quantify vibration amplitude. One is the Peak Particle Velocity (PPV) and another is the Root Mean Square (RMS) velocity. The PPV is defined as the maximum instantaneous positive or negative peak of the vibration wave. The RMS velocity is defined as the average of the squared amplitude of the signal. The PPV and RMS vibration velocity amplitudes are used to evaluate human response to vibration. In this report, a PPV descriptor with units of mm/sec or in/sec is used to evaluate construction generated vibration for building damage and human complaints. Table 3 displays the reactions of people and the effects on buildings that continuous vibration levels produce. The annoyance levels shown in Table 3 should be interpreted with care since vibration may be found to be annoying at much lower levels than those shown, depending on the level of activity or the sensitivity of the individual. To sensitive individuals, vibrations approaching the threshold of perception can be annoying.

Low-level vibrations frequently cause irritating secondary vibration, such as a slight rattling of windows, doors, or stacked dishes. The rattling sound can give rise to exaggerated vibration complaints, even though there is very little risk of actual structural damage. In high noise environments, which are more prevalent where groundborne vibration approaches perceptible levels, this rattling phenomenon may also be produced by loud airborne environmental noise causing induced vibration in exterior doors and windows.

Construction activities can cause vibration that varies in intensity depending on several factors. The use of pile driving and vibratory compaction equipment typically generates the highest construction related groundborne vibration levels. Because of the impulsive nature of such activities, the use of the PPV descriptor has been routinely used to measure and assess groundborne vibration and almost exclusively to assess the potential of vibration to induce structural damage and the degree of annoyance for humans.
The two primary concerns with construction-induced vibration, the potential to damage a structure and the potential to interfere with the enjoyment of life are evaluated against different vibration limits. Studies have shown that the threshold of perception for average persons is in the range of 0.008 to 0.012 in/sec PPV. Human perception to vibration varies with the individual and is a function of physical setting and the type of vibration. Persons exposed to elevated ambient vibration levels, such as people in an urban environment, may tolerate a higher vibration level.

Structural damage can be classified as cosmetic only, such as minor cracking of building elements, or may threaten the integrity of the building. Safe vibration limits that can be applied to assess the potential for damaging a structure vary by researcher and there is no general consensus as to what amount of vibration may pose a threat for structural damage to the building. Construction-induced vibration that can be detrimental to the building is very rare and has only been observed in instances where the structure is at a high state of disrepair and the construction activity occurs immediately adjacent to the structure.

Railroad and light-rail operations are potential sources of substantial ground vibration depending on distance, the type and the speed of trains, and the type of railroad track. People’s response to ground vibration has been correlated best with the velocity of the ground. The velocity of the ground is expressed on the decibel scale. The reference velocity is $1 \times 10^{-6}$ in/sec RMS, which equals 0 VdB, and 1 in/sec equals 120 VdB. Although not a universally accepted notation, the abbreviation “VdB” is used in this document for vibration decibels to reduce the potential for confusion with sound decibels.

Typical background vibration levels in residential areas are usually 50 VdB or lower, well below the threshold of perception for most humans. Perceptible vibration levels inside residences are attributed to the operation of heating and air conditioning systems, door slams, and foot traffic. Construction activities, train operations, and street traffic are some of the most common external sources of vibration that can be perceptible inside residences. Table 4 illustrates some common sources of vibration and the association to human perception or the potential for structural damage.
<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decibel, dB</td>
<td>A unit describing, the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure. The reference pressure for air is 20 micro Pascals.</td>
</tr>
<tr>
<td>Sound Pressure Level</td>
<td>Sound pressure is the sound force per unit area, usually expressed in micro Pascals (or 20 micro Newtons per square meter), where 1 Pascal is the pressure resulting from a force of 1 Newton exerted over an area of 1 square meter. The sound pressure level is expressed in decibels as 20 times the logarithm to the base 10 of the ratio between the pressures exerted by the sound to a reference sound pressure (e.g., 20 micro Pascals). Sound pressure level is the quantity that is directly measured by a sound level meter.</td>
</tr>
<tr>
<td>Frequency, Hz</td>
<td>The number of complete pressure fluctuations per second above and below atmospheric pressure. Normal human hearing is between 20 Hz and 20,000 Hz. Infrasonic sound are below 20 Hz and Ultrasonic sounds are above 20,000 Hz.</td>
</tr>
<tr>
<td>A-Weighted Sound Level, dBA</td>
<td>The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise.</td>
</tr>
<tr>
<td>Equivalent Noise Level, $L_{eq}$</td>
<td>The average A-weighted noise level during the measurement period.</td>
</tr>
<tr>
<td>$L_{max}$, $L_{min}$</td>
<td>The maximum and minimum A-weighted noise level during the measurement period.</td>
</tr>
<tr>
<td>$L_{01}$, $L_{10}$, $L_{50}$, $L_{90}$</td>
<td>The A-weighted noise levels that are exceeded 1%, 10%, 50%, and 90% of the time during the measurement period.</td>
</tr>
<tr>
<td>Day/Night Noise Level, $L_{dn}$ or DNL</td>
<td>The average A-weighted noise level during a 24-hour day, obtained after addition of 10 decibels to levels measured in the night between 10:00 pm and 7:00 am.</td>
</tr>
<tr>
<td>Community Noise Equivalent Level, CNEL</td>
<td>The average A-weighted noise level during a 24-hour day, obtained after addition of 5 decibels in the evening from 7:00 pm to 10:00 pm and after addition of 10 decibels to sound levels measured in the night between 10:00 pm and 7:00 am.</td>
</tr>
<tr>
<td>Ambient Noise Level</td>
<td>The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.</td>
</tr>
<tr>
<td>Intrusive</td>
<td>That noise which intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Common Outdoor Activities</th>
<th>Noise Level (dBA)</th>
<th>Common Indoor Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jet fly-over at 1,000 feet</td>
<td>110 dBA</td>
<td>Rock band</td>
</tr>
<tr>
<td>Gas lawn mower at 3 feet</td>
<td>100 dBA</td>
<td></td>
</tr>
<tr>
<td>Diesel truck at 50 feet at 50 mph</td>
<td>90 dBA</td>
<td></td>
</tr>
<tr>
<td>Noisy urban area, daytime</td>
<td>80 dBA</td>
<td></td>
</tr>
<tr>
<td>Gas lawn mower, 100 feet</td>
<td>70 dBA</td>
<td>Food blender at 3 feet</td>
</tr>
<tr>
<td>Commercial area</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heavy traffic at 300 feet</td>
<td>60 dBA</td>
<td>Garbage disposal at 3 feet</td>
</tr>
<tr>
<td>Quiet urban daytime</td>
<td>50 dBA</td>
<td>Vacuum cleaner at 10 feet</td>
</tr>
<tr>
<td>Quiet urban nighttime</td>
<td>40 dBA</td>
<td>Normal speech at 3 feet</td>
</tr>
<tr>
<td>Quiet suburban nighttime</td>
<td>30 dBA</td>
<td>Large business office</td>
</tr>
<tr>
<td>Quiet rural nighttime</td>
<td>20 dBA</td>
<td>Dishwasher in next room</td>
</tr>
<tr>
<td></td>
<td>10 dBA</td>
<td>Theater, large conference room</td>
</tr>
<tr>
<td></td>
<td>0 dBA</td>
<td>Library</td>
</tr>
</tbody>
</table>

Source: Technical Noise Supplement (TeNS), California Department of Transportation, September 2013.
### TABLE 3  Reaction of People and Damage to Buildings From Continuous or Frequent Intermittent Vibration Levels

<table>
<thead>
<tr>
<th>Velocity Level, PPV (in/sec)</th>
<th>Human Reaction</th>
<th>Effect on Buildings</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.01</td>
<td>Barely perceptible</td>
<td>No effect</td>
</tr>
<tr>
<td>0.04</td>
<td>Distinctly perceptible</td>
<td>Vibration unlikely to cause damage of any type to any structure</td>
</tr>
<tr>
<td>0.08</td>
<td>Distinctly perceptible to strongly perceptible</td>
<td>Recommended upper level of the vibration to which ruins and ancient monuments should be subjected</td>
</tr>
<tr>
<td>0.1</td>
<td>Strongly perceptible</td>
<td>Virtually no risk of damage to normal buildings</td>
</tr>
<tr>
<td>0.3</td>
<td>Strongly perceptible to severe</td>
<td>Threshold for risk of damage to older residential dwellings such as plastered walls or ceilings</td>
</tr>
<tr>
<td>0.5</td>
<td>Severe - Vibrations considered unpleasant</td>
<td>Threshold at which there is a risk of damage to newer residential structures</td>
</tr>
</tbody>
</table>


### TABLE 4  Typical Levels of Groundborne Vibration

<table>
<thead>
<tr>
<th>Human/Structural Response</th>
<th>Velocity Level, VdB</th>
<th>Typical Events (50-foot setback)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Threshold, minor cosmetic damage</td>
<td>100</td>
<td>Blasting, pile driving, vibratory compaction equipment</td>
</tr>
<tr>
<td>Difficulty with tasks such as reading a video or computer screen</td>
<td>90</td>
<td>Heavy tracked vehicles (Bulldozers, cranes, drill rigs)</td>
</tr>
<tr>
<td>Residential annoyance, infrequent events</td>
<td>80</td>
<td>Commuter rail, upper range</td>
</tr>
<tr>
<td>Residential annoyance, occasional events</td>
<td></td>
<td>Rapid transit, upper range</td>
</tr>
<tr>
<td>Residential annoyance, frequent events</td>
<td></td>
<td>Commuter rail, typical Bus or truck over bump or on rough roads</td>
</tr>
<tr>
<td>Approximate human threshold of perception to vibration</td>
<td>70</td>
<td>Rapid transit, typical</td>
</tr>
<tr>
<td></td>
<td>60</td>
<td>Buses, trucks and heavy street traffic</td>
</tr>
<tr>
<td></td>
<td>50</td>
<td>Background vibration in residential settings in the absence of activity</td>
</tr>
</tbody>
</table>

Regulatory Criteria – Noise

The State of California and the City of San José have established plans and policies designed to limit noise exposure at noise sensitive land uses. These plans and policies are contained in the following documents: (1) the State California Environmental Quality Act (CEQA) Guidelines, Appendix G, (2) the California Building Cal Green Code, (3) the City of San José Noise Element of the General Plan, and (4) the City of San José Municipal Code.

**State CEQA Guidelines.** The CEQA contains guidelines to evaluate the significance of effects of environmental noise attributable to a proposed project. CEQA asks the following applicable questions. Would the project result in:

(a) Exposure of persons to or generation of noise levels in excess of standards established in the local General Plan or Noise Ordinance, or applicable standards of other agencies?

(b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

(c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

(d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

(e) 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, exposure of people residing or working in the project area to excessive noise levels?

(f) For a project within the vicinity of a private airstrip, exposure of people residing or working in the project area to excessive noise levels?

Of these guidelines, items (a), (b), (c), and (d) are applicable to the proposed project. Guidelines (e) and (f) are not applicable because the project is not located in the vicinity of any public airport or private airstrips.

**2010 California Building Cal Green Code.** The State of California established exterior sound transmission control standards for new non-residential buildings as set forth in the 2010 California Green Building Standards Code (Section 5.507.4.1 and 5.507.4.2). These standards were not altered in the 2013 revisions, and the sections that pertain to this project are as follows:

5.507.4.1 **Exterior noise transmission, prescriptive method.** Wall and roof-ceiling assemblies exposed to the noise source making up the building envelope shall meet a composite STC rating of at least 50 or a composite OITC rating of no less than 40, with exterior windows of a minimum STC of 40 or OITC of 30 when the building falls within the 65 dBA L_{dn} noise contour of a freeway or expressway, railroad, industrial source or fixed-guideway noise source, as determined by the local general plan noise element.

5.507.4.2 **Performance method.** For buildings located, as defined by Section 5.507.4.1, wall and roof-ceiling assemblies exposed to the noise source making up the building envelope shall be constructed to provide an interior noise environment attributable to
exterior sources that does not exceed an hourly equivalent noise level \((L_{eq(1-hr)})\) of 50 dBA in occupied areas during any hour of operation.

**City of San José General Plan.** The Environmental Leadership Chapter in The Envision San José 2040 General Plan sets forth policies related to noise and vibration control in the City of San José. The following policies are applicable to the proposed project:

**EC-1.1** Locate new development in areas where noise levels are appropriate for the proposed uses. Consider federal, State, and City noise standards and guidelines as a part of new development review. Applicable standards and guidelines for land uses in San José include:

**Interior Noise Levels**
- The City’s standard for interior noise levels in residences, hotels, motels, residential care facilities, and hospitals is 45 dBA \(L_{dn}\). Include appropriate site and building design, building construction and noise attenuation techniques in new development to meet this standard. For sites with exterior noise levels of 60 dBA \(L_{dn}\) or more, an acoustical analysis following protocols in the City-adopted California Building Code is required to demonstrate that development projects can meet this standard. The acoustical analysis shall base required noise attenuation techniques on expected Envision General Plan traffic volumes to ensure land use compatibility and General Plan consistency over the life of this plan.

**Exterior Noise Levels**
- The City’s acceptable exterior noise level objective is 70 dBA \(L_{dn}\) or less for office buildings (Table EC-1).

Table EC-1 establishes that office uses are considered “normally acceptable” where exterior noise exposures are 70 dBA \(L_{dn}\) or less. Where the exterior noise exposure is between 70 dBA and 80 dBA \(L_{dn}\), office uses are considered “conditionally acceptable” such that the “specified land use may be permitted only after detailed analysis of the noise reduction requirements and needed noise insulation features included in the design.” Office uses are considered “unacceptable” in noise environments exceeding 80 dBA \(L_{dn}\) because mitigation is usually not feasible to comply with noise element policies.

**EC-1.2** Minimize the noise impacts of new development on land uses sensitive to increased noise levels (Categories 1, 2, 3, and 6) by limiting noise generation and by requiring use of noise attenuation measures such as acoustical enclosures and sound barriers, where feasible. Category 1 land uses are residential, hotels and hospitals, category 2 uses are outdoor sports and recreation and parks, category 3 uses are schools, libraries, museums, and churches, and category 6 uses are public auditoriums, concert halls, and amphitheaters. The City considers significant noise impacts to occur if a project would:
  - Cause the \(L_{dn}\) at noise sensitive receptors to increase by five dBA \(L_{dn}\) or more where the noise levels would remain “Normally Acceptable”; or
  - Cause the \(L_{dn}\) at noise sensitive receptors to increase by three dBA \(L_{dn}\) or more where noise levels would equal or exceed the “Normally Acceptable” level.
EC-1.3 Mitigate noise generation of new nonresidential land uses to 55 dBA \( L_{dn} \) at the property line when located adjacent to existing or planned noise sensitive residential and public/quasi-public land uses.

EC-1.6 Regulate the effects of operational noise from existing and new industrial and commercial development on adjacent uses through noise standards in the City’s Municipal Code.

EC-1.7 Require construction operations within San José to use best available noise suppression devices and techniques and limit construction hours near residential uses per the City’s Municipal Code. The City considers significant construction noise impacts to occur if a project located within 500 feet of residential uses or 200 feet of commercial or office uses would:

- Involve substantial noise generating activities (such as building demolition, grading, excavation, pile driving, use of impact equipment, or building framing) continuing for more than 12 months.

For such large or complex projects, a construction noise logistics plan that specifies hours of construction, noise and vibration minimization measures, posting or notification of construction schedules, and designation of a noise disturbance coordinator who would respond to neighborhood complaints will be required to be in place prior to the start of construction and implemented during construction to reduce noise impacts on neighboring residents and other uses.

EC-2.3 Require new development to minimize vibration impacts to adjacent uses during demolition and construction. For sensitive historic structures, a vibration limit of 0.08 in/sec PPV will be used to minimize the potential for cosmetic damage to a building. A vibration limit of 0.20 in/sec PPV will be used to minimize the potential for cosmetic damage at buildings of normal conventional construction.

City of San José Municipal Code. The City’s Municipal Code contains a Zoning Ordinance that limits noise levels at adjacent properties. Chapter 20.30.700 states that sound pressure levels generated by any use or combination of uses on a property shall not exceed 55 dBA at any property line shared with land zoned for residential uses, except upon issuance and in compliance with a Conditional Use Permit.

The code is not explicit in terms of the acoustical descriptor associated with these noise level limits. A reasonable interpretation of this standard, which is based on similar codes of other Bay Area communities, would identify the ambient base noise level criteria as an average or median noise level \( (L_{eq}/L_{50}) \).

Existing Noise Environment

The project is made up of two separate sites, the Samaritan Court site and the Samaritan Medical Campus Master Plan site. The Samaritan Court site consists of approximately four acres on both
sides of Samaritan Court, southwest of Samaritan Drive. Medical office uses bound the project site to the north and east. Residential uses bound the project site to the west and south. The second site (part of the Samaritan Medical Campus Master Plan) consists of approximately nine acres fronting the north and east sides of Samaritan Drive. Medical and hospital uses bound the project site on all sides. The existing noise environment at both sites and in the vicinity results primarily from traffic on Samaritan Drive and State Route 85 (SR 85).

A noise monitoring survey was conducted between August 25, 2015 and August 27, 2015 to document existing noise conditions at the project site. The noise monitoring survey included two long-term noise measurements (LT-1 and LT-2) and five short-term measurements (ST-1 through ST-5). Noise measurement locations are shown in Figure 1.

Long-term noise measurement LT-1 was located at the southern property line of the Samaritan Court project site, adjacent to the residences that front Lost Oaks Drive. Noise levels measured at this site were primarily the result of distant traffic on Samaritan Drive. Hourly average noise levels typically ranged from 50 to 56 dBA $L_{eq}$ during the day and from 42 to 53 dBA $L_{eq}$ at night. The calculated day-night average noise level at this location was 56 dBA $L_{dn}$.

Long-term noise measurement LT-2 was located approximately 35 feet from the center of National Avenue, at the cul-de-sac of Cam Del Sol. The microphone was positioned about 12 feet above the ground. Noise levels measured at this site were primarily the result of traffic on National Avenue. Hourly average noise levels typically ranged from 58 to 62 dBA $L_{eq}$ during the day and 46 to 61 dBA $L_{eq}$ at night. The calculated day-night average noise level at this location was 63 dBA $L_{dn}$. Appendix 1 summarizes the data collected at the two long-term measurement sites.

Five attended short-term noise measurement were made to complete the August 2015 noise monitoring survey. Short-term noise measurement ST-1 was approximately 75 feet from the center of Samaritan Drive, adjacent to an existing medical office building located at 2504 Samaritan Drive. The ten-minute average noise level during the mid-day was 62 dBA $L_{eq}$. Short-term measurement ST-2 was located on the top level of the Samaritan Medical Center parking structure located at 2587 Samaritan Drive. This measurement location had an unobstructed view of SR 85 and the ten-minute average noise level was 75 dBA $L_{eq}$. ST-3 was located in the parking lot area located between existing medical offices at 2505 Samaritan Drive and the Good Samaritan Hospital to the east. The ten-minute average noise level at this location was 55 dBA $L_{eq}$. Measurement location ST-4 was located approximately 60 feet from the center of Samaritan Drive, across the street from 2516 Samaritan Drive. The average noise level was 65 dBA $L_{eq}$. Short-term noise measurement ST-5 was located across from 1496 National Avenue. The ten-minute average noise level at this location was 56 dBA $L_{eq}$. Table 5 summarizes the results of these measurements.
TABLE 5  Summary of Short-Term Noise Measurement Data

<table>
<thead>
<tr>
<th>Noise Measurement Location</th>
<th>( L_{\text{max}} )</th>
<th>( L_{(1)} )</th>
<th>( L_{(10)} )</th>
<th>( L_{(50)} )</th>
<th>( L_{(90)} )</th>
<th>( L_{\text{eq}} )</th>
<th>( L_{dn} )</th>
<th>Primary Noise Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>ST-1: ~75 feet from the center of Samaritan Drive. (8/25/2015, 1:40 pm -1:50 pm)</td>
<td>72</td>
<td>67</td>
<td>64</td>
<td>61</td>
<td>57</td>
<td>62</td>
<td>66</td>
<td>Samaritan Drive Traffic</td>
</tr>
<tr>
<td>ST-2: Top level of Samaritan Medical Center parking structure. (8/25/2015, 2:00 pm -2:10 pm)</td>
<td>78</td>
<td>77</td>
<td>76</td>
<td>75</td>
<td>73</td>
<td>75</td>
<td>76</td>
<td>SR 85 Traffic</td>
</tr>
<tr>
<td>ST-3: Parking lot area of medical offices and adjacent to the Good Samaritan Hospital. (8/27/2015, 12:00 pm -12:10 pm)</td>
<td>69</td>
<td>51</td>
<td>63</td>
<td>54</td>
<td>53</td>
<td>55</td>
<td>59</td>
<td>Parking Lot Noise</td>
</tr>
<tr>
<td>ST-4: ~60 feet from the center of Samaritan Drive. (8/27/2015, 12:20 pm -12:30 pm)</td>
<td>82</td>
<td>76</td>
<td>68</td>
<td>62</td>
<td>54</td>
<td>65</td>
<td>67</td>
<td>Samaritan Drive Traffic</td>
</tr>
<tr>
<td>ST-5: Across from 1496 National Avenue. (8/27/2015, 12:40 pm -12:50 pm)</td>
<td>66</td>
<td>64</td>
<td>60</td>
<td>52</td>
<td>47</td>
<td>56</td>
<td>60</td>
<td>National Avenue Traffic</td>
</tr>
</tbody>
</table>

Note: \( L_{dn} \) at the short-term site approximated by correlating the noise data to noise data collected at the long-term site during a corresponding time period.

FIGURE 1  Noise and Vibration Measurement Locations
NOISE IMPACTS AND MITIGATION MEASURES

Significance Criteria

Appendix G of the CEQA Guidelines states that a project would normally be considered to result in significant noise impacts if noise levels generated by the project conflict with adopted environmental standards or plans, if the project would generate excessive groundborne vibration levels, or if ambient noise levels at sensitive receptors would be substantially increased over a permanent, temporary, or periodic basis. The following criteria were used to evaluate the significance of environmental noise resulting from the project:

- A significant noise impact would be identified if the project would expose persons to or generate noise levels that would exceed applicable noise standards. For office noise and land use compatibility, exterior noise levels must be maintained at or below 70 dBA $L_{dn}$ and interior noise levels must be maintained at or below 45 dBA $L_{dn}$ or 50 dBA $L_{eq \,(hr)}$.
- Noise levels resulting from the operation of the project must be maintained at or below 55 dBA $L_{dn}$ at the property line when located adjacent to existing or planned noise sensitive residential and public/quasi-public land uses.
- A significant impact would be identified if the construction of the project would expose persons to excessive vibration levels. Groundborne vibration levels exceeding 0.2 in/sec PPV would have the potential to result in cosmetic damage to buildings located on parcels adjoining the project site.
- A significant impact would be identified if project operations or traffic would substantially increase noise levels at sensitive receptors in the vicinity. A substantial increase would occur if: a) the noise level increase is 5 dBA $L_{dn}$ or greater, with a future noise level of less than 60 dBA $L_{dn}$, or b) the noise level increase is 3 dBA $L_{dn}$ or greater, with a future noise level of 60 dBA $L_{dn}$ or greater.
- A significant noise impact would be identified if construction related noise would temporarily increase ambient noise levels at sensitive receptors. Hourly average noise levels exceeding 60 dBA $L_{eq}$, and the ambient by at least 5 dBA $L_{eq}$, for a period of one year or more, constitute a significant temporary noise increase at adjacent residential land uses.

Impact 1: Noise and Land Use Compatibility. Portions of office uses developed as part of the Master Plan would be exposed to exterior noise levels greater than 70 dBA $L_{dn}$, which exceed the noise and land use compatibility standards presented in the City of San José General Plan. This is a potentially significant impact.

Future Exterior Noise Environment – Samaritan Court Project
The future noise environment at the project site will result primarily from vehicular traffic along Samaritan Drive and National Avenue. Future transportation-related noise levels at the project site were calculated based on adjustments made to existing noise level data assuming future increased traffic along area roadways. Traffic noise levels along Samaritan Drive are calculated to increase by 2 to 3 dBA $L_{dn}$, and day-night average noise levels from Samaritan Drive traffic
are calculated to reach 68 to 69 dBA $L_{dn}$ at the proposed setback of medical office land uses nearest the roadway. Noise levels throughout the project site would be below the City of San José’s “normally acceptable” noise and land use compatibility goal of 70 dBA $L_{dn}$.

**Future Exterior Noise Environment – Samaritan Medical Office Master Plan**

The future noise environment at the project site will result primarily from vehicular traffic along Samaritan Drive and SR 85 to the north. Similarly to above, future transportation-related noise levels at the project site were calculated based on adjustments made to existing noise level data assuming future increased traffic along area roadways. Traffic noise levels along Samaritan Drive are calculated to increase by 2 to 3 dBA $L_{dn}$. Traffic noise levels along SR 85 are calculated to increase by 1 dBA $L_{dn}$. Day-night average noise levels are calculated to reach 68 to 69 dBA $L_{dn}$ and 76 dBA $L_{dn}$, respectively, at the setback of proposed buildings. Noise levels at the Samaritan Court portion of the Master Plan project would fall into the “normally acceptable” category for office noise and land use compatibility. The two medical office buildings proposed along the southern and western boundary of the Master Plan portion of the project, identified as Phase 1 and Phase 2 in the site plans will also fall into the “normally acceptable” category for office noise and land use compatibility. Future exterior noise levels at these office buildings are calculated to be 68 to 69 dBA $L_{dn}$ at the building setbacks. The medical office building proposed at the northern portion of the Master Plan project, adjacent to SR 85, will be exposed to future exterior noise levels of 76 dBA $L_{dn}$ and the nearest building setback. Noise levels at this office building would fall into the “conditionally acceptable” category for office noise and land use compatibility. No exterior outdoor use areas are proposed and the impact would be less-than-significant.

**Future Interior Noise Environment – Samaritan Court Project**

According to the City’s General Plan Noise Element, the two proposed medical office buildings are located outside the 65 dBA $L_{dn}$ 2035 contour line of SR 85, therefore, the Cal Green Code would not apply to the two office buildings. Furthermore, typical office construction attenuates exterior to interior noise by approximately 25 to 30 dBA and would be sufficient to reduce interior noise levels to less than 50 dBA $L_{eq(hr)}$.

**Future Interior Noise Environment – Samaritan Medical Office Master Plan**

According to the City’s General Plan Noise Element, the office building identified for Phase 3 falls within the 65 dBA $L_{dn}$ 2035 contour line of SR 85. The State of California requires that wall and roof-ceiling assemblies exposed to the adjacent roadways have a composite Sound Transmission Class (STC)\(^1\) rating of at least 50 or a composite Outdoor-Indoor Transmission Class (OITC) rating of no less than 40, with exterior windows of a minimum STC of 40 or OITC of 30 when the commercial property falls within the 65 dBA $L_{dn}$ noise contour for an expressway. The State also requires interior noise levels to be maintained at 50 dBA $L_{eq(hr)}$ or less during hours of operation at the proposed office building.

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\(^1\) **Sound Transmission Class (STC)** A single figure rating designed to give an estimate of the sound insulation properties of a partition. Numerically, STC represents the number of decibels of speech sound reduction from one side of the partition to the other. The STC is intended for use when speech and office noise constitute the principal noise problem.
The proposed office building would be partially shielded from SR 85 by existing office uses. However, the northern portion of the proposed office building would have direct line-of-sight to SR 85. The northern-facing side of the office building would be approximately 270 feet from the centerline of SR 85. At this distance, the lower level building façades would be exposed to future exterior noise levels ranging from 64 to 66 dBA $L_{eq(1-hr)}$. Exterior noise levels at upper levels of the proposed office building would be approximately 10 to 15 dBA higher because of the direct line-of-sight to SR 85. Detailed building plans are not available at this time. It is estimated that a wall assembly with an STC rating of at least 50 and window assemblies with an STC rating of at least 40 would provide at least 35 to 40 dBA of noise reduction in interior spaces, resulting in interior average daytime noise levels of less than 50 dBA $L_{eq}$. The inclusion of adequate forced-air mechanical ventilation systems is normally required so windows may be kept closed at the occupant’s discretion. The sound-rated construction materials established in the Cal Green Code in combination with forced-air mechanical ventilation would satisfy the threshold for the entire office building.

**Mitigation Measure 1:**

The following mitigation measures shall be included in the project design to maintain interior office noise levels at or below 50 dBA $L_{eq(1-hr)}$:

- Project-specific acoustical analyses are required to confirm that interior noise levels will be reduced to 50 dBA $L_{eq(1-hr)}$ or lower at the Phase 3 medical office building. The specific determination of what noise insulation treatments are necessary will be conducted during the final design phase of the project once building plans are available. Results of the analysis, including the description of the necessary noise control treatments, must be submitted to the City along with the building plans and approved prior to issuance of a building permit.

- Building sound insulation requirements would need to include the provision of forced-air mechanical ventilation for units throughout the site, so that windows could be kept closed at the occupant’s discretion to control noise.

The implementation of a combination of these feasible mitigations would reduce the impact to a less-than-significant level.

**Impact 2: Construction Vibration.** Vibration levels generated during demolition and construction activities may be perceptible at neighboring land uses, but would not be excessive or cause cosmetic or structural damage to buildings. This is a less-than-significant impact.

The construction of the project may generate perceptible vibration when heavy equipment or impact tools (e.g. jackhammers, etc.) are used in areas adjoining developed properties. Construction activities would include demolition of existing structures, excavation, grading, site preparation work, foundation work, and new building framing and finishing.

The City of San José requires that new development minimize vibration impacts to adjacent uses during demolition and construction activities. General Plan Policy EC-2.3 establishes a vibration
limit of 0.08 in/sec PPV for sensitive historic structures and 0.2 in/sec PPV for buildings of normal conventional construction.

No sensitive historic buildings or buildings that are documented to be structurally weakened adjoin the project site. Therefore, a groundborne vibration threshold of 0.2 in/sec PPV is used to assess the potential of project construction to result in a significant vibration impact at adjacent off-site residential and office buildings (i.e., residences south of the Samaritan Court project and office uses north of the project).

Table 6 presents typical vibration levels that could be expected from construction equipment at a distance of 25 feet. Project construction activities such as drilling, the use of jackhammers, rock drills and other high-power or vibratory tools, and rolling stock equipment (tracked vehicles, compactors, etc.) may generate substantial vibration in the immediate vicinity of the work area. Pile driving is not anticipated as a construction method for this project. Jackhammers typically generate vibration levels of 0.035 in/sec PPV and drilling typically generates vibration levels of 0.09 in/sec PPV at a distance of 25 feet. Vibration levels for construction activities would be expected to be below 0.2 in/sec PPV at distances of 30 feet or greater from the work area.

Existing residential land uses located south of the Samaritan Court project would be located approximately 45 feet from the proposed Phase 1 office building and 25 feet from the proposed parking garage. Vibration levels would be expected to be 0.09 in/sec PPV or less during typical construction activities. Vibration levels would be expected to be 0.02 in/sec PPV or less at the nearest medical office buildings, located 80 feet from the Master Plan project site during typical construction activities. These levels would be below the 0.2 in/sec PPV significance threshold. Vibration generated by construction activities near the common property line of adjacent residences and office uses would at times be perceptible but would not be expected to result in “architectural” damage to these buildings. As such, the potential vibration impacts due to construction activities associated with the project would be less-than-significant.
<table>
<thead>
<tr>
<th>Equipment</th>
<th>PPV at 25 ft. (in/sec)</th>
<th>Approximate L\text{v} at 25 ft. (VdB)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pile Driver (Impact)</td>
<td>upper range 1.158</td>
<td>112</td>
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<tr>
<td></td>
<td>typical 0.644</td>
<td>104</td>
</tr>
<tr>
<td>Pile Driver (Sonic)</td>
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<td>105</td>
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<tr>
<td></td>
<td>typical 0.170</td>
<td>93</td>
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<td>Clam shovel drop</td>
<td>0.202</td>
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<tr>
<td>Hydromill (slurry wall)</td>
<td>in soil 0.008</td>
<td>66</td>
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<tr>
<td></td>
<td>in rock 0.017</td>
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<tr>
<td>Vibratory Roller</td>
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<tr>
<td>Hoe Ram</td>
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<tr>
<td>Large bulldozer</td>
<td>0.089</td>
<td>87</td>
</tr>
<tr>
<td>Caisson drilling</td>
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<td>Loaded trucks</td>
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<td>Jackhammer</td>
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<td>79</td>
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<tr>
<td>Small bulldozer</td>
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<td>58</td>
</tr>
</tbody>
</table>


Mitigation Measure 2: None Required

Impact 3: Project-Generated Traffic Noise. Project-generated traffic would not substantially increase ambient noise levels at receptors in the project vicinity. This is a less-than-significant impact.

A significant impact would be identified if traffic generated by the project would substantially increase noise levels at sensitive receptors in the vicinity. A substantial increase would occur if: a) the noise level increase is 5 dBA L_{dn} or greater, with a future noise level of less than 60 dBA L_{dn}, or b) the noise level increase is 3 dBA L_{dn} or greater, with a future noise level of 60 dBA L_{dn} or greater.

Project traffic data at twenty one intersections were reviewed to calculate potential project-related traffic noise level increases along roadways serving the project site. Roadway link volumes for existing plus project, background, and background plus project traffic conditions were calculated and compared to existing conditions in order to calculate the anticipated noise level increase under each scenario, and the project’s relative contribution to this increase. A comparison of the “Existing” and “Existing Plus Project” traffic scenarios shows that, with the exception of Kinghurst Drive south of Samaritan Drive, traffic volumes on all roadways serving the project site would increase by less than 3 dBA L_{dn} as a result of the project. Increases of less than 3 dBA are not considered substantial.

The segment of Kinghurst Drive, south of Samaritan Drive, would provide access to the neighborhood located south of the Master Plan area. Project traffic is calculated to increase

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traffic noise levels along this portion of Kinghurst Drive by about 4 dBA L_{dn}. Outdoor activity areas at these residences are located at approximately 50 feet or greater from the centerline of the roadway. Based on noise data collected at LT-1 and modeled results using the Federal Highway Administrations Traffic Noise Model (TNM), existing noise levels generated by Kinghurst Drive are calculated to be approximately 53 dBA L_{dn} at a distance of 50 feet from the centerline of the roadway. Existing traffic noise levels along Kinghurst Drive are calculated to increase by 4 dBA L_{dn} with the operation of the project and reach 57 dBA L_{dn} at a distance of 50 feet. While the noise environment at existing residences in the project’s vicinity could noticeably increase due to project traffic noise, this increase would not exceed the 5 dBA L_{dn} threshold (where the future noise level is less than 60 dBA L_{dn}); therefore, the impact related to project generated traffic along Kinghurst Drive would be less-than-significant.

Mitigation Measure 3: None required.

Impact 4: Project-Generated Cumulative Traffic Noise. Project-generated traffic would not substantially increase ambient noise levels at receptors in the project vicinity. This is a less-than-significant impact.

A significant cumulative traffic noise impact would be identified if existing sensitive receptors would be exposed to substantial cumulative traffic noise levels increases and if the project would make a “cumulatively considerable” contribution to the overall traffic noise level increase. A substantial increase would occur if: a) the noise level increase is 5 dBA L_{dn} or greater, with a future noise level of less than 60 dBA L_{dn}, or b) the noise level increase is 3 dBA L_{dn} or greater, with a future noise level of 60 dBA L_{dn} or greater. A “cumulatively considerable” contribution would be defined as an increase of 1 dBA L_{dn} or more attributable solely to the project.

Cumulative traffic noise levels are not calculated to increase substantially along roadways serving the project site because of cumulative growth forecast in local General Plans. With the exception of Kinghurst Drive south of Samaritan Drive, as described in Impact 3, the project’s contribution to cumulative noise level increases would be less than 1 dBA L_{dn} along roadways surrounding the project area. This increase in noise would not be considered substantial. The project would not make a cumulatively considerable contribution to increased noise levels at noise sensitive receptors resulting from the build-out of the area.

Mitigation Measure 4: None required

Impact 5: Project Operational Noise. Use of the new parking structure with build-out of the project could generate noise in excess of the City’s noise limits. Noise levels from project mechanical equipment could exceed the City’s noise limits at nearby residential land uses. This is a potentially significant impact.

Parking Structure Noise- Samaritan Court Project
The City of San José limits operation noise at the property line of noise sensitive land uses to 55 dBA L_{eq (hr)}. The operation of the proposed 2.5 above grade parking structures are expected to be the predominant source of operational noise. Illingworth & Rodkin, Inc. conducted noise
measurements near a four-story parking structure in downtown Petaluma. Noise measurements were made of typical noise generating activities occurring on the various parking levels. At each parking level, a car door was opened and closed several times, the engine was started, and the auto’s horn was sounded. The noise sources were generated at the edge of each story and at a parking stall located about 50 feet from the edge. Noise measurements were also made as an auto traveled up and down the parking structure. The sounding of the auto’s horn was the nosiest. Maximum instantaneous noise levels, measured about 75 feet from the façade of the structure at ground level, typically ranged from 53 to 58 dBA. Sounding of the car horn typically ranged from 62 to 70 dBA. Hourly average noise levels resulting from these intermittent noise sources was approximately 55 dBA Leq.

The proposed Phase 1 parking structure would be located about 30 feet to the north of the property line of the nearest noise sensitive residential land uses. Maximum instantaneous noise levels from door slams, engine starts, and circulation would typically range from 61 to 66 dBA at the nearest residential property line located 30 feet south of the parking structure, and the sounding of the car horn would typically range from 70 to 78 dBA. Average noise levels resulting from these intermittent activities at the parking structure would be approximately 63 dBA Leq. As demonstrated in the summary of noise data collected at LT-1 (Appendix 1), maximum instantaneous noise levels resulting from distant traffic and existing on-site activity are typically 60 dBA or greater during daytime hours at existing residential land uses along Lost Oaks Drive and reach as high as 70 to 78 dBA Lmax regularly during the morning and evening hours. The southern façade of the parking garage is designed with concrete spandrel and opaque glass panels so that all south facing openings would be infilled with this window/wall system. This system would act as a solid barrier to provide sufficient shielding of project generated traffic noises at existing residential land uses along Lost Oaks Drive. The resulting hourly average noise levels resulting from project generated parking structure noise at the adjacent receptors to the south with the incorporation of the concrete spandrel wall would range from approximately 43 to 48 dBA Leq. This feature would reduce project generated maximum instantaneous noise levels at receptors to the south by approximately 15 to 20 dBA and, therefore, hourly average noise levels would not exceed 55 dBA Leq at the property line adjacent to noise sensitive receptors. This would be a less-than-significant impact.

The proposed Phase 1 and 2 parking structures would be located about 100 feet to the east of the property line of the nearest noise sensitive residential land uses. Maximum instantaneous noise levels from door slams, engine starts, and circulation would typically range from 51 to 56 dBA at the nearest residential property line located 100 feet west of the parking structure, and the sounding of the car horn would typically range from 60 to 68 dBA. Typical maximum instantaneous noise levels resulting from local traffic at measurement location LT-2 regularly exceed 75 dBA, and are typically 70 dBA or greater during daytime hours at existing residential land uses along National Avenue. Project-generated noises would be infrequent, would not be expected to cause an increase in daytime hourly average noise levels at nearby sensitive land uses, and would not be expected to exceed existing ambient maximum instantaneous noise levels resulting from National Avenue during the day.

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Parking Structure Noise- Samaritan Medical Office Master Plan
The operation of the proposed 5.5 level parking garage located north of Samaritan Drive would not be expected to cause an increase in daytime hourly average noise levels at distant sensitive land uses and would be a less-than-significant impact. Parking structure noise for the Samaritan Court portion of the Master Plan is discussed above.

Mechanical Equipment Noise- Samaritan Court Project
Rooftop mounted mechanical equipment at the Phase 1 medical office building would include heating, ventilating, and air conditioning (HVAC) equipment. Noise generated by such equipment varies significantly depending on the equipment type and size. Noise impacts would depend on system design level specifications including the equipment location, type, size, capacity, and enclosure design. These details are typically not available until later phases of the project design and development review process.

Based on measurements of rooftop equipment at similar office buildings in the region, noise levels resulting from HVAC equipment could be expected to reach 60 to 70 dBA at a distance of 15 feet. Due to the shielding from the roof of the office building and the increase in distance from the noise source, HVAC noise levels at the property line of the nearest residences, located 55 feet from the proposed equipment, would be expected to be less than 55 dBA and indistinguishable above the ambient noise environment.

In addition, two 750 KW emergency standby diesel generators are proposed to power the medical office buildings in the case of a power outage. The predominant noise source from these generators would be from the testing and operation of the standby diesel generators. The testing schedule is not known at this time but typically takes place on a monthly basis for approximately one hour. The generators would run continuously during power outages. The first generator is located along the north property line of the Phase 2 parking structure, approximately 170 feet to the nearest residential property line. The second generator is located at the southern property line, between the Phase 1 medical office building and parking structure. This generator is located approximately 35 feet from the residential property line located to the south. The proposed 750 KW generator at the north property line of the Phase 2 parking structure would be fitted with a standard acoustical enclosure and would produce a noise level of 75 dBA at 23 feet. The generator proposed at the southern property line, located between the Phase 1 medical office building and parking structure would be fitted with a custom acoustical enclosure that would produce a noise level of 55 dBA at 23 feet.

The City of San José Zoning Ordinance limits noise from mechanical equipment at residential land uses to 55 dBA L_{eq}. The noise level at the west property line would be 58 dBA L_{eq} assuming standard attenuation with distance. The noise level would be 51 dBA L_{eq} at the south property line. Without proper design, noise levels from the generator at the north property line would exceed the Zoning Ordinance at adjacent residential land uses. The City of San José General Plan Policy EC-1.3 limits noise generated by nonresidential land uses to 55 dBA L_{dn} at existing residential land uses. Assuming a testing schedule of one hour per month, the generator at the north property line would generate a 24-hour average noise level of 44 dBA L_{dn} at the nearest residential property line to the west. Using the same testing scenario and the custom acoustical enclosure, the generator at the south property line would generate a 24-hour average...
noise level of 37 dBA L_{dn} at the southern residential property line. Both generators would comply with the City of San José General Plan Policy EC-1.3.

**Mechanical Equipment Noise- Samaritan Medical Office Master Plan**

Rooftop mounted mechanical equipment at the three proposed medical office buildings would also likely include HVAC equipment. Noise generated by this equipment would vary depending on the equipment type and size but is not be expected to cause an increase in daytime hourly average noise levels at nearby sensitive land uses, and would not be expected to exceed existing ambient noise levels resulting from Samaritan Drive.

Three emergency standby diesel generators, one for each of the medical office buildings, are proposed to power the offices during a power outage. The Phase 1 office generator is located on the northwest corner of the building, the Phase 2 generator is located on the southeast corner of the building, and the Phase 3 generator is on the northeast corner of the building. The nearest noise sensitive receptor is located approximately 235 feet south of the Phase 2 generator. Using the standard generator enclosure assumed above, the maximum noise level at these receptors would be 55 dBA assuming standard attenuation with distance. Noise levels from periodic testing of the Phase 2 office generator would not exceed the Zoning Ordinance and ambient noise levels resulting from Samaritan Drive. Assuming a testing schedule of one hour per month, the Phase 2 generator at the south property line of the project would generate a 24-hour average noise level of 41 dBA L_{dn} at the nearest residential property line to the south. The Phase 2 generator would comply with the City of San José General Plan Policy EC-1.3. The emergency generators associated with the Phase 1 and 3 buildings are located at greater distances from nearby receptors or in acoustically shielded locations, resulting in noise levels below both the Zoning Ordinance and General Plan Policy.

**Mitigation Measure 5:**

The following mitigation measures shall be included in the project to reduce the impact to a less-than-significant level:

- Conduct all generator testing between the hours of 10:00 am and 4:00 pm to avoid noise-sensitive morning and evening hours. Notify adjacent land uses of the testing schedule.
- Conduct a design level acoustical analysis to ensure that standby diesel generator noise complies with the City of San José Municipal Code noise level limits at adjacent receptors. Possible mitigation would include:
  - Obtain and comply with the provisions of a Conditional Use Permit, which allows noise levels due to infrequent testing of standby diesel generators to exceed the Municipal Code noise thresholds.

**Impact 6: Temporary Construction Noise.** Noise generated by construction activities at the site would not be expected to adversely affect adjacent land uses. This is a significant and unavoidable impact.

The City of San José requires construction operations to use best available noise suppression devices and techniques and limit construction hours near residential uses per the City’s
Municipal Code. The City considers significant construction noise impacts to occur if a project located within 500 feet of residential uses or 200 feet of commercial or office uses would involve substantial noise generating activities (such as building demolition, grading, excavation, pile driving, use of impact equipment, or building framing) continuing for more than 12 months. For such large or complex projects, a construction noise logistics plan that specifies hours of construction, noise and vibration minimization measures, posting or notification of construction schedules, and designation of a noise disturbance coordinator who would respond to neighborhood complaints will be required to be in place prior to the start of construction and implemented during construction to reduce noise impacts on neighboring residents and other uses.

Noise impacts resulting from construction depend on the noise generated by various pieces of construction equipment, the timing and duration of noise generating activities, and the distance between construction noise sources and noise sensitive areas. Construction noise impacts primarily result when construction activities occur during noise-sensitive times of the day (e.g., early morning, evening, or nighttime hours), the construction occurs in areas immediately adjoining noise sensitive land uses, or when construction lasts over extended periods of time.

Construction activities generate considerable amounts of noise, especially during the demolition phase and the construction of project infrastructure when heavy equipment is used. The highest noise levels would be generated during demolition, site preparation, grading, excavation, and foundation construction when heavy equipment operates on site. Table 7 presents the typical range of hourly average noise levels generated by different phases of construction measured at a distance of 50 feet. Hourly average noise levels generated by demolition and construction are about 77 dBA to 89 dBA Leq measured at a distance of 50 feet from the center of a busy construction site. Maximum noise levels generated during project construction would typically range from 90 to 95 dBA Lmax assuming the operation of jackhammers and hoe rams at a distance of 50 feet. No pile driving activities will occur at the site. Construction generated noise levels drop off at a rate of about 6 dBA per doubling of distance between the source and receptor. Shielding provided by barriers or structures can provide an additional 5 to 10 dBA noise reduction at distant receivers.

Construction Noise- Samaritan Court Project
The Samaritan Court project is anticipated to be constructed in two phases, with each phase lasting approximately 16 months. Construction phases would include demolition, excavation, grading, building construction, paving, and architectural coating. Once construction moves indoors, minimal noise would be generated at off-site locations. Residential uses south of the site along Lost Oaks Drive and west of the site along National Avenue are as close as 55 feet from major construction areas, but a minimum distance of about 150 feet from the center of the construction site. During construction, noise level would be elevated at these nearby noise sensitive uses by about 20 to 30 dBA Leq during busy periods. Construction noise levels would at times be intrusive inside offices facing the project site and in exterior use areas at adjacent residences. Noise resulting from project construction activities substantially increase median and background noise levels over a period exceeding one construction season resulting in a significant temporary noise impact.
Construction Noise- Samaritan Medical Office Master Plan
The Samaritan Medical Office Master Plan project is anticipated to be constructed in five phases (two of which comprise the Samaritan Court project discussed above), with each phase of the Samaritan Drive office buildings/parking structure lasting approximately 24 months. Residential uses south of the site along Lost Oaks Drive are located as close as 220 feet from major construction areas. Hourly average noise levels generated by demolition and construction would typically range from about 64 to 76 dBA $L_{eq}$ at the nearest residential receptors to the south. Construction noise levels are anticipated to exceed 60 dBA $L_{eq}$ and the ambient by 5 dBA $L_{eq}$ throughout the duration of construction activities. The construction of the project would result in a substantial temporary noise level increase at neighboring noise-sensitive properties.

### TABLE 7  Typical Noise Level Range at 50 Feet from Construction Sites (dBA $L_{eq}$)

<table>
<thead>
<tr>
<th></th>
<th>Domestic Housing</th>
<th>Office Building, Hotel, Hospital, School, Public Works</th>
<th>Industrial Parking Garage, Religious Amusement &amp; Recreations, Store, Service Station</th>
<th>Public Works Roads &amp; Highways, Sewers, and Trenches</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>I</td>
<td>II</td>
<td>I</td>
<td>II</td>
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<tr>
<td>Ground Clearing</td>
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<td>Excavation</td>
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<td>Foundations</td>
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<td>Finishing</td>
<td>88</td>
<td>72</td>
<td>89</td>
<td>75</td>
</tr>
</tbody>
</table>

I - All pertinent equipment present at site.
II - Minimum required equipment present at site.

### Mitigation Measure 6:

Noise generated by construction activities would temporarily elevate noise levels at adjacent noise sensitive receptors and this would be considered a significant impact. Construction activities shall be conducted in accordance with the provisions of the City of San José and with the implementation of the following construction best management practices:

- The contractor shall use “new technology” power construction equipment with state-of-the-art noise shielding and muffling devices. All internal combustion engines used on the project site shall be equipped with adequate mufflers and shall be in good mechanical condition to minimize noise created by faulty or poorly maintained engines or other components.

- Locate stationary noise generating equipment as far as possible from sensitive receptors. Staging areas shall be located a minimum of 200 feet from noise sensitive receptors, such as residential uses.
The developer will implement the following measures to minimize construction noise impacts on the surrounding sensitive land uses to the fullest extent possible. The measures may include, but not be limited to, the following:

- Early and frequent notification and communication with the neighborhood of the construction activities and construction schedule.
- Prohibit unnecessary idling of internal combustion engines.
- Best available noise control practices (including mufflers, intake silencers, ducts, engine enclosures, and acoustically attenuating shields or shrouds) shall be used for all equipment and trucks in order to minimize construction noise impacts.
- If impact equipment (e.g., jack hammers, pavement breakers, or rock drills) is needed during Project construction, hydraulically or electric-powered equipment shall be used wherever feasible to avoid the noise associated with compressed-air exhaust from pneumatically powered tools. However, where use of pneumatically powered tools is unavoidable, an exhaust muffler on the compressed-air exhaust shall be used. External jackets on the tools themselves shall also be used if available and feasible.
- Locate equipment at the work area to maximize the distance to noise-sensitive receptors and to take advantage of any shielding that may be provided by other on-site equipment.
- Designate a “noise disturbance coordinator” who would be responsible for responding to any local complaints about construction noise. The disturbance coordinator would determine the cause of the noise complaints (e.g., beginning work too early, bad muffler, etc.) and institute reasonable measures warranted to correct the problem. A telephone number for the disturbance coordinator would be conspicuously posted at the construction site.

Erect temporary noise control barriers at the western and southern edge of the Samaritan Court construction site adjacent to the nearest existing residences. The barrier shall be designed of sufficient height (approximately 8 feet high) and length to intercept the line-of-sight between construction equipment and the residential structures. Suitable materials include but are not limited to quilted noise control blankets or plywood. The resulting temporary barrier would not need to be designed by a qualified acoustical consultant and can be constructed by the contractor. This temporary construction noise barrier is expected to reduce noise levels at the nearest sensitive receptors to the south by approximately 5 to 10 dBA.

Significance After Mitigation:

Although the above measures would reduce construction noise levels and the potential for offending noise sources at the project site, adjacent office and residential land uses would continue to be subject to construction noise levels that substantially exceed ambient median and background noise levels for over two years. The impact would remain significant and unavoidable.
Appendix 1: Daily Trend in Noise Levels

Noise Levels at LT-1
South End of Samaritan Court Project Site
August 25, 2015

Noise Levels at LT-1
South End of Samaritan Court Project Site
August 26, 2015

Ldn = 56 dBA
Noise Levels at LT-2
~ 35 Feet from the Center of National Ave
August 26, 2015

Noise Levels at LT-2
~ 35 Feet from the Center of National Ave
August 27, 2015

Ldn = 63 dBA