# Appendix F

Environmental Noise Assessment

Environmental Noise Assessment

# Dignity Health Folsom Ranch Medical Center

City of Folsom, California

BAC Job # 2021-019

Prepared For:

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April 12, 2021

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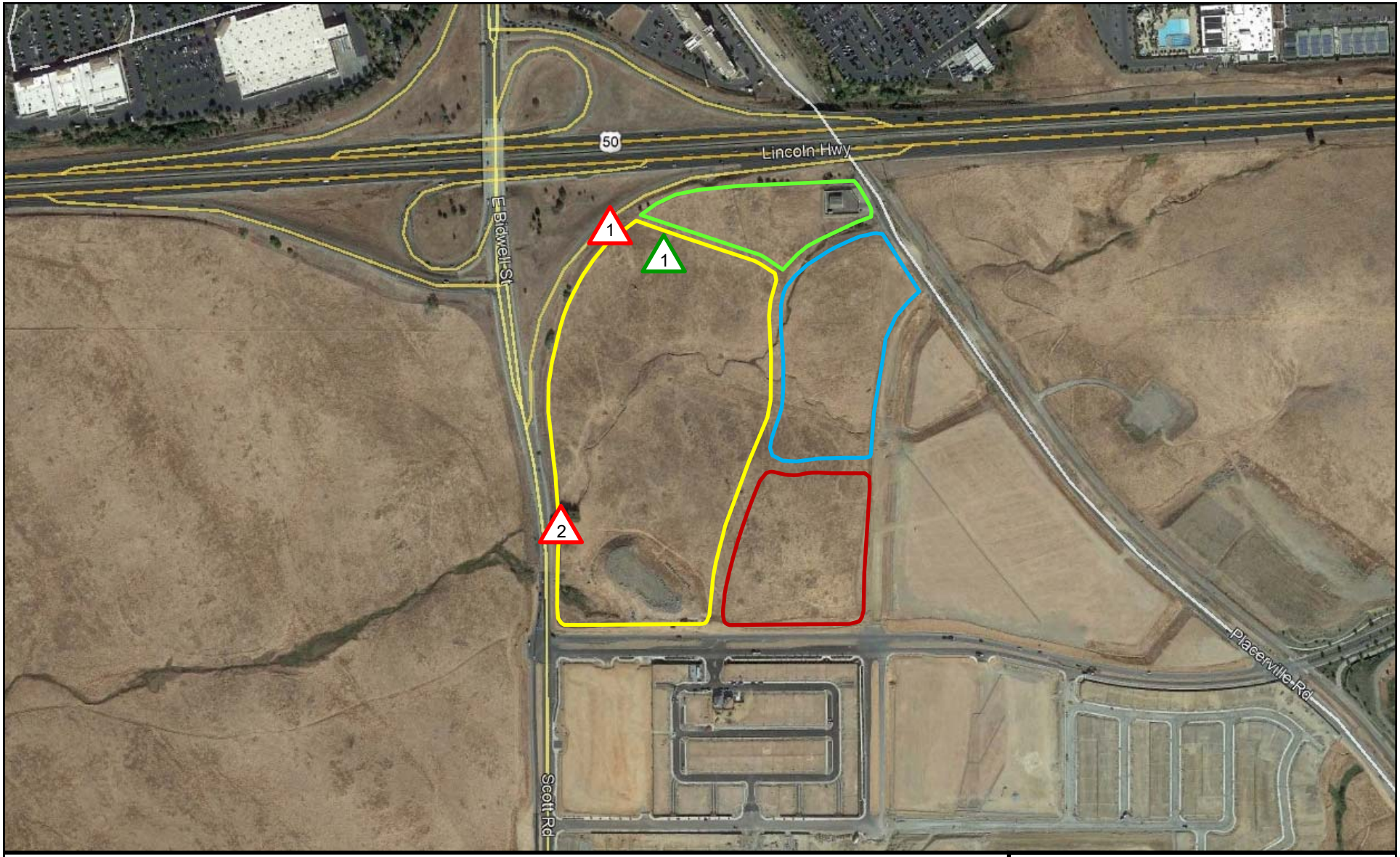
# Introduction & Project Description

Dignity Health proposes to develop the Folsom Ranch Medical Center (project) within the Folsom Plan Area (FPA). The project area is located south of U.S. 50 between East Bidwell Street and Placerville Road. The project area and site plan are shown on Figures 1 and 2, respectively. The project also includes off-site improvements to the west of East Bidwell Road related to project infrastructure improvements.

The medical center is proposed on the Parcel identified in the Folsom Specific Plan Area Specific Plan (FPASP) as Parcel 85a, in the northeastern portion of the FPASP area. Parcel 85a was subdivided by an approved parcel map into four parcels, with the project site identified as "Parcel 1" within FPASP Parcel 85a, as indicated on Figure 2. Parcel 2 is planned for a hotel use and Parcels 3 and 4 are planned for multifamily residential uses. The project includes roadway and grading improvements on all parcels within Parcel 85a, and off-site improvements related to but does not include the development of Parcels 2, 3, or 4. Single-family residential uses are currently being constructed south of Alder Creek Parkway as part of a different development.

This noise assessment was prepared to evaluate compliance of the proposed project with the applicable mitigation measures identified in the FPA EIR. Those mitigation measures are addressed in detail later in this analysis.

This analysis focuses on noise generated by increases in off-site traffic due to the project, on-site parking lot activities, on-site truck circulation, loading dock operations, and mechanical equipment. Noise generated by operation of the proposed helipad is evaluated by others.




***Legend***

- Medical Center Boundary
- Future Hotel Boundary
- # Long-Term Monitoring Site
- Future Multi-Family Housing Boundary
- # Short-Term Monitoring Site
- Future Multi-Family Housing Boundary

N

Scale (Feet)

0 500 1000

# Folsom Ranch Medical Center

Folsom, CA

Project Boundary & Noise Survey Locations

Figure 1

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# Figure 2
## Folsom Ranch Medical Center - Site Plan
## Folsom, CA


Recommended Minimum STC-35 Windows

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# Noise Fundamentals and Terminology

Noise is often described as unwanted sound. Sound is defined as any pressure variation in air that the human ear can detect. If the pressure variations occur frequently enough (at least 20 times per second), they can be heard and are designated as sound. Definitions of acoustical terminology used in this report are provided in Appendix A.

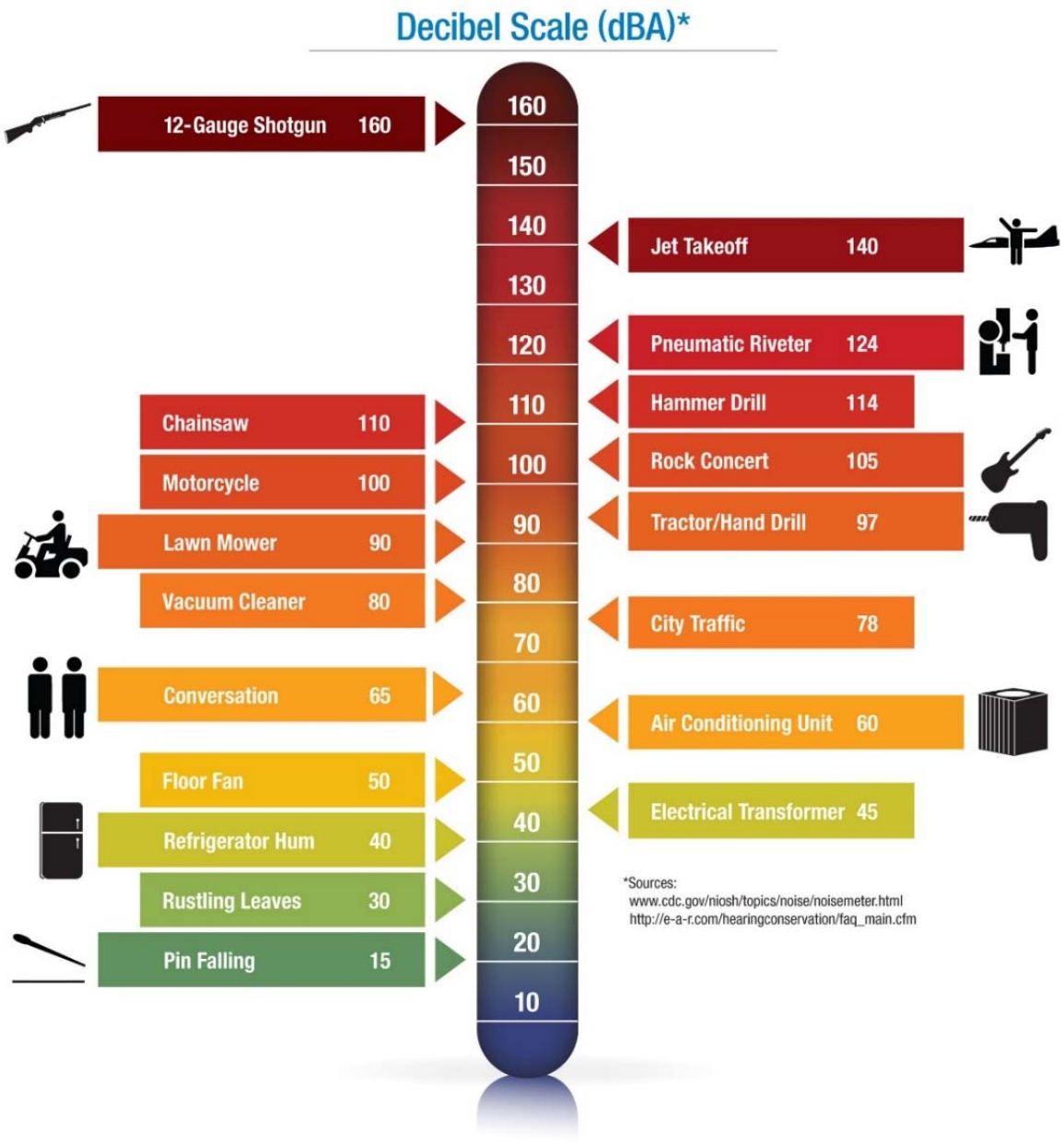
Measuring sound directly in terms of pressure would require a very large and awkward range of numbers. To avoid this, the decibel scale was devised. The decibel scale uses the hearing threshold (20 micropascals of pressure) as a point of reference, defined as 0 dB. Other sound pressures are then compared to the reference pressure, and the logarithm is taken to keep the numbers in a practical range. The decibel scale allows a million-fold increase in pressure to be expressed as 120 dB. Another useful aspect of the decibel scale is that changes in decibel levels correspond closely to human perception of relative loudness. Noise levels associated with common noise sources are provided in Figure 3.

The perceived loudness of sounds is dependent upon many factors, including sound pressure level, frequency content, ambient noise conditions, and whether the noise source is steady-state or time-varying. Within the usual range of environmental noise levels, perception of loudness is relatively predictable and can be approximated by filtering the frequency response of a sound level meter by means of the standardized A-weighting network. There is a strong correlation between A-weighted sound levels (expressed as dBA) and community response to noise. For this reason, the A-weighted sound level has become the standard tool of environmental noise assessment. All noise levels described in this report are A-weighted levels.

Community noise is commonly described in terms of the ambient noise level, which is defined as the all-encompassing noise level associated with a given noise environment. A common statistical tool to measure the ambient noise level is the average, or equivalent sound level ($L_{eq}$). The Hourly $L_{eq}$ (equivalent sound level over a 60 minute period) is the foundation of the Day/Night Average Level ($L_{dn}$) and shows very good correlation with community response to noise. The $L_{dn}$ is based on the average sound level over a 24-hour day, with +10 decibel weightings (penalties) applied to sounds during nighttime hours (10 p.m. - 7 a.m.). The nighttime penalties are based on the fact that those periods are more noise-sensitive than daytime hours.

Noise standards presented in terms of $L_{dn}$ are used in the City of Folsom to evaluate the noise generation of transportation noise sources (i.e., traffic, railroad & aircraft noise). For non-transportation noise sources, such as those associated with the proposed project, the City's General Plan noise standards are expressed in terms of hourly average noise levels ($L_{eq}$) and instantaneous maximum noise levels ($L_{max}$). The City of Folsom General Plan noise standards are presented in detail in a later section of this report.

**Figure 3**
**Noise Levels Associated with Common Noise Sources**



# Criteria for Acceptable Noise Exposure

## Folsom South of U.S. Highway 50 Specific Plan Noise Mitigation Measures

The Folsom South of U.S. Highway 50 Specific Plan Mitigation Monitoring and Reporting Program (MMRP) contains noise mitigation measures related to noise. Mitigation Measures 3A.11-1 and 3A.11-3 prescribe specific measures to attenuate noise and vibration associated with construction within the Plan Area. These mitigation measures will be implemented by the project applicant during project construction and are, therefore, not addressed in this evaluation.

Mitigation Measures 3A.11-4 and 3A.11-5 pertain to the noise generation of off-site traffic and on-site (stationary) noise sources, and require development of project-specific noise attenuation measures prior to commencement of project construction activities. The focus of this evaluation is on achieving compliance with MM 3A.11-4 and 3A.11-5. Those mitigation measures are provided below.

**MM 3A.11-4 Implement Measures to Prevent Exposure of Sensitive Receptors to Increases in Noise from Project-Generated Operational Traffic on Off-Site and On-Site Roadways.**

To meet applicable noise standards as set forth in the appropriate General Plan or Code (e.g., City of Folsom, County of Sacramento, and County of El Dorado) and to reduce increases in traffic-generated noise levels at noise-sensitive uses, the project applicant(s) of all project phases shall implement the following:

- Obtain the services of a consultant (such as a licensed engineer or licensed architect) to develop noise-attenuation measures for the proposed construction of on-site noise-sensitive land uses (i.e., residential dwellings and school classrooms) that will produce a minimum composite Sound Transmission Class (STC) rating for buildings of 30 or greater, individually computed for the walls and the floor/ceiling construction of buildings, for the proposed construction of on-site noise-sensitive land uses (i.e., residential dwellings and school classrooms).

- Prior to submittal of tentative subdivision maps and improvement plans, the project applicant(s) shall conduct a site-specific acoustical analysis to determine predicted roadway noise impacts attributable to the project, taking into account site-specific conditions (e.g., site design, location of structures, building characteristics). The acoustical analysis shall evaluate stationary- and mobile-source noise attributable to the proposed use or uses and impacts on nearby noise-sensitive land uses, in accordance with adopted City noise standards. Feasible measures shall be identified to reduce project-related noise impacts. These measures may include, but are not limited to, the following:

    - limiting noise-generating operational activities associated with proposed commercial land uses, including truck deliveries;

- constructing exterior sound walls;
- constructing barrier walls and/or berms with vegetation;
- using "quiet pavement" (e.g., rubberized asphalt) construction methods on local roadways; and,
- using increased noise-attenuation measures in building construction (e.g., dual-pane, sound-rated windows; exterior wall insulation).

**MM 3A.11-5 Implement Measures to Reduce Noise from Project-Generated Stationary Sources.**

The project applicant(s) for any particular discretionary development project shall implement the following measures to reduce the effect of noise levels generated by on-site stationary noise sources that would be located within 600 feet of any noise-sensitive receptor:

- Routine testing and preventive maintenance of emergency electrical generators shall be conducted during the less sensitive daytime hours (i.e., 7:00 a.m. to 6:00 p.m.). All electrical generators shall be equipped with noise control (e.g., muffler) devices in accordance with manufacturers' specifications.
- External mechanical equipment associated with buildings shall incorporate features designed to reduce noise emissions below the stationary noise source criteria. These features may include, but are not limited to, locating generators within equipment rooms or enclosures that incorporate noise-reduction features, such as acoustical louvers, and exhaust and intake silencers. Equipment enclosures shall be oriented so that major openings (i.e., intake louvers, exhaust) are directed away from nearby noise-sensitive receptors.
- Parking lots shall be located and designed so that noise emissions do not exceed the stationary noise source criteria established in this analysis (i.e., 50 dB for 30 minutes in every hour during the daytime [7 a.m. to 10 p.m.] and less than 45 dB for 30 minutes of every hour during the nighttime [10 p.m. to 7 a.m.]). Reduction of parking lot noise can be achieved by locating parking lots as far away as feasible from noise sensitive land uses or using buildings and topographic features to provide acoustic shielding for noise-sensitive land uses.
- Loading docks shall be located and designed so that noise emissions do not exceed the stationary noise source criteria established in this analysis (i.e., 50 dB for 30 minutes in every hour during the daytime [7 a.m. to 10 p.m.] and less than 45 dB for 30 minutes of every hour during the nighttime [10 p.m. to 7 a.m.]). Reduction of loading dock noise can be achieved by locating loading docks as far away as possible from noise sensitive land uses, constructing noise barriers between loading docks and noise-sensitive land uses, or using buildings and topographic features to provide acoustic shielding for noise-sensitive land uses.

As noted above, Mitigation Measures 3A.11-4 and 3A.11-5 require compliance with adopted City of Folsom noise standards. The City of Folsom noise standards which would be specifically applicable to implementation of these mitigation measures are contained within the City's General Plan Safety and Noise Element of the General Plan (for off-site traffic noise sources) and within the City's Municipal Code Noise Ordinance for on-site (stationary) noise sources. The sections of the City's General Plan and Municipal Code which are pertinent to this evaluation are reproduced below.

## Folsom 2035 General Plan

The Safety and Noise Element of the Folsom 2035 General Plan establishes acceptable exterior and interior noise level criteria for various land uses affected by transportation noise sources (i.e., traffic on public roadways). The General Plan noise compatibility standards have been reproduced and are provided below in Table 1.

**Table 1**
**Noise Compatibility Standards**

| Land Use | Exterior Noise Level Standard for Outdoor Activity Areas[a] $L_{dn}$ / CNEL | Interior Noise Level Standard $L_{dn}$ / CNEL | Interior Noise Level Standard $L_{eq}$ |
|---|---|---|---|
| Residential (Low Density Residential, Duplex, Mobile Homes) | 60[c] | 45 | N/A |
| Residential (Multi-Family) | 65[d] | 45 | N/A |
| Transient Lodging (Motels/Hotels) | 65[d] | 45 | N/A |
| Mixed-Use Developments | 70 | 45 | N/A |
| Schools, Libraries, Churches, Hospitals, Nursing Homes, Museums | 70 | 45 | N/A |
| Theaters, Auditoriums | 70 | N/A | 35 |
| Playgrounds, Neighborhood Parks | 70 | N/A | N/A |
| Golf Courses, Riding Stables, Water Recreation, Cemeteries | 75 | N/A | N/A |
| Office Buildings, Business Commercial and Professional | 70 | N/A | 45 |
| Industrial, Manufacturing, and Utilities | 75 | N/A | 45 |

Where a proposed use is not specifically listed on this table, the use shall comply with the noise exposure standards for the nearest similar use as determined by the Community Development Department.

[1] Outdoor activity areas for residential developments are considered to be the backyard patios or decks of single-family residential units, and the patios or common areas where people generally congregate for multi-family development. Outdoor activity areas for non-residential developments are considered to be those common areas where people generally congregate, including outdoor seating areas. Where the location of outdoor activity areas is unknown, the exterior noise standard shall be applied to the property line of the receiving land use.

[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 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.

[4] 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 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: Folsom 2035 General Plan, Table SN-1*

## Folsom Municipal Code

Chapter 8.42 (Noise Control) of the Folsom Municipal Code establishes performance standards for non-transportation (stationary) noise sources, such as those proposed by on-site operations (i.e., parking lot movements, truck deliveries, mechanical equipment).

The City's Municipal Code noise level performance standards are provided below in Table 2 for the exterior spaces of noise-sensitive land uses. The Table 2 standards are provided in terms of $L_n$ levels based on the duration of time the sound source is present during an hour. The Table 2 standards include adjustments for the time of day the noise occurs, the duration of intrusive sound, and the characteristics of the noise (e.g., impulsive, tonal, speech or music, etc.).

**Table 2**
**Exterior Hourly Noise Level Performance Standards for Stationary Noise Sources**

| Cumulative Minutes/Hour of Noise Generation ($L_n$)[1] | Exterior Noise Level Standards (dBA)[2,3] | |
|---|---|---|
| | Daytime (7am to 10pm) | Nighttime (10pm to 7am) |
| 30 ($L_{50}$) | 50 | 45 |
| 15 ($L_{25}$) | 55 | 50 |
| 5 ($L_8$) | 60 | 55 |
| 1 ($L_2$) | 65 | 60 |
| 0 ($L_{max}$) | 70 | 65 |

[1] Ln means the percentage of time the noise level is exceeded during an hour. $L_{50}$ means the level exceeded 50% of the hour, $L_{25}$ is the level exceeded 25% of the hour, etc.

[2] In the event the measured ambient noise level exceeds the applicable noise level standard in any category above, the applicable standard shall be adjusted so as to equal the ambient noise level.

[3] Each of the noise level standards specified above shall be reduced by 5 dBA for simple tone noises, noises consisting primarily of speech or music, or for recurring noises.

*Source: Folsom Municipal Code, Section 8.42.040, Table 8.42.040*

The City's Municipal Code noise level performance standards for interior spaces of noise-sensitive land uses are provided below in Table 3. The Table 3 standards are provided in terms of $L_n$ levels based on the duration of time the sound source is present during an hour. The Table 3 standards include adjustments for the time of day the noise occurs, the duration of intrusive sound, and the characteristics of the noise (e.g., impulsive, tonal, speech or music, etc.).

The Table 3 standards are technically specified as being applicable to noise generated within one dwelling unit affecting the interior space of another dwelling unit. But since the Table 3 standards establish acceptable interior noise exposure limits for sensitive uses, they are considered appropriate for use in assessing noise impacts associated with on-site stationary noise sources at interior areas of noise sensitive spaces.

**Table 3**
**Interior Hourly Noise Level Performance Standards for Stationary Noise Sources**

| Cumulative Minutes/Hour of Noise Generation ($L_n$)[1] | Interior Noise Level Standards (dBA)[2,3] | |
|---|---|---|
| | Daytime (7am to 10pm) | Nighttime (10pm to 7am) |
| 5 ($L_8$) | 45 | 35 |
| 1 ($L_2$) | 50 | 40 |
| 0 ($L_{max}$) | 55 | 45 |

[1] Ln means the percentage of time the noise level is exceeded during an hour. L08 means the level exceeded 8% of the hour, $L_{02}$ is the level exceeded 2% of the hour, etc.

[2] In the event the measured ambient noise level exceeds the applicable noise level standard in any category above, the applicable standard shall be adjusted so as to equal the ambient noise level.

[3] Each of the noise level standards specified above shall be reduced by 5 dBA for simple tone noises, noises consisting primarily of speech or music, or for recurring noises.

*Source: Folsom Municipal Code, Section 8.42.050, Table 8.42.050*

## Criteria for Determining Significant Increases in Off-Site Traffic Noise Levels

The City of Folsom General Plan and Municipal Code do not contain policies or standards which provide guidance for criteria used to determine the significance of project-related noise level increases. Changes in noise levels for similar sources (i.e., traffic noise level increases) are considered to be imperceptible where the increase is 1 dB, just barely perceptible for an increase of 3 dB, clearly noticeable for a 6 dB increase, and approximately twice as loud for a 10 dB increase (Egan, Architectural Acoustics, J. Ross, 2007, p 21). As a result, noise level increases of 3-5 dB are frequently used as criteria to evaluate the significance of project-related noise increases.

The Federal Interagency Commission on Noise (FICON) has developed a graduated scale for use in the assessment of project-related noise level increases which provides more specific direction. The criteria shown in Table 4 were developed by FICON as a means of developing thresholds for impact identification for project-related noise level increases. The FICON standards have been used extensively in recent years in the preparation of the noise sections of Environmental Impact Reports that have been certified in many California cities and counties.

**Table 4**
**Significance of Changes in Cumulative Noise Exposure**

| Ambient Noise Level Without Project ($L_{dn}$ or CNEL) | Change in Ambient Noise Level Due to Project |
|---|---|
| <60 dB | +5.0 dB or more |
| 60 to 65 dB | +3.0 dB or more |
| >65 dB | +1.5 dB or more |

*Source: Federal Interagency Committee on Noise (FICON)*

Based on the FICON research shown in Table 4, a 5 dB increase in noise levels due to a project is required for a finding of significant noise impact where ambient noise levels without the project are less than 60 dB $L_{dn}$. Where pre-project ambient conditions are between 60 and 65 dB $L_{dn}$, a 3 dB increase is applied as the standard of significance. Finally, in areas exposed baseline noise levels in excess of 65 dB $L_{dn}$, a 1.5 dB increase is considered by FICON as the threshold of significance.

## Summary of Noise Standards Applicable to the Proposed Project

A summary of the requirements of Mitigation Measures 3A.11-4 and 3A.11-5 relative to the adopted City of Folsom noise standards is as follows:

1. Noise generated by off-site traffic shall not exceed the noise compatibility standards of Table 1 at noise-sensitive exterior or interior spaces located within the project site.

2. If project-generated traffic noise is predicted to exceed the noise compatibility standards of Table 1 at nearby noise-sensitive land uses, feasible measures shall be implemented to reduce project-related noise impacts to a state of compliance with the Table 1 standards.

3. If project-generated traffic noise level increases are predicted to exceed the significance criteria identified in Table 4 at nearby noise-sensitive land uses, feasible measures shall be implemented to reduce project-generated noise level increase to levels below the Table 4 criteria.

4. If stationary noise sources attributable to the project are projected to exceed the Table 2 standards at sensitive exterior areas or the Table 3 standards at sensitive interior areas of either on-site or off-site uses, feasible noise attenuation measures shall be developed to achieve compliance with the Table 2 or Table 3 standards at the sensitive land use.

# Existing Noise Environment in the Project Vicinity

The existing noise environment in the project vicinity is defined primarily by traffic on Highway 50, East Bidwell Road, and Placerville Road (future Savannah Parkway). In addition, local construction activities within the Specific Plan Area contribute to the existing ambient noise environment on a localized basis. Finally, aircraft operations associated with Mather Airport contribute to the local ambient noise environment on an intermittent basis.

## Existing Overall Ambient Noise Environment

To quantify existing ambient noise levels in the immediate project vicinity, BAC conducted continuous noise level measurements at the two locations shown on Figure 1 between March 26th and March 29th, 2021, a period of 96 consecutive hours. In addition, short-term Highway 50 traffic noise level measurements were conducted from the location indicated on Figure 1 on March 25th with simultaneous microphone heights of 5, 15 and 25 feet above ground to identify changes in noise exposure at elevated positions for subsequent use in evaluating exposure at upper floors of project buildings. Photographs of the ambient noise measurement locations are provided in Appendix B.

Larson Davis Laboratories (LDL) Model 820 precision integrating sound level meters were used to complete the ambient noise level measurement surveys for this project. The meters were calibrated before use with an LDL Model CAL200 acoustical calibrator to ensure the accuracy of the measurements. The equipment used meets all pertinent specifications of the American National Standards Institute for Type 1 sound level meters (ANSI S1.4). The noise measurements were conducted in accordance with the City of Folsom Municipal Code noise measurement criteria (Section 8.42.030).

The noise level measurement results are summarized in Table 5. Detailed ambient noise measurement results are provided in Appendices C and D.

**Table 5**
**Ambient Noise Monitoring Results Summary**
**Dignity Health Folsom Ranch Medical Center Project Vicinity**

| | | Daytime (7 am – 10 pm) | | Nighttime (10 pm – 7 am) | | |
|---|---|---|---|---|---|---|
| **Site** | **Date** | **$L_{50}$** | **$L_{max}$** | **$L_{50}$** | **$L_{max}$** | **$L_{dn}$** |
| 1 | 3/26/2021 | 61 | 75 | 50 | 70 | 65 |
| | 3/27/2021 | 58 | 75 | 47 | 69 | 62 |
| | 3/28/2021 | 56 | 76 | 44 | 70 | 60 |
| | 3/29/2021 | 59 | 75 | 46 | 71 | 62 |
| | **Site 1 Averages** | **58** | **75** | **47** | **70** | **62** |
| 2 | 3/26/2021 | 62 | 80 | 55 | 75 | 66 |
| | 3/27/2021 | 58 | 79 | 55 | 73 | 65 |
| | 3/28/2021 | 58 | 79 | 55 | 74 | 64 |
| | 3/29/2021 | 60 | 79 | 54 | 77 | 66 |
| | **Site 2 Averages** | **59** | **79** | **55** | **75** | **65** |

Source: Bollard Acoustical Consultants, Inc. (BAC) 2021

The results of the ambient noise survey were used to both assist in the establishment of baseline conditions at the project site and for checking the accuracy of the Federal Highway Administration Highway Traffic Noise Prediction Model (FHWA-RD-77-108) in predicting traffic noise exposure in the immediate project vicinity. The Table 5 data indicate that baseline ambient conditions along the northern and western site boundaries are elevated. This result is expected due to the proximity of the measurement sites to East Bidwell Road and Highway 50.

## Existing Mather Airport Aircraft Noise Environment at the Project Site

The project site is located approximately 10 miles northeast of Mather Airport. The Mather Airport Theoretical Capacity noise contours are illustrated in Appendix E. Examination of the Appendix E contours indicates that the easternmost extent of the Airport's 60 dB CNEL noise contour terminates west of Aerojet Drive, which is approximately 5.7 miles west of the project site. As a result, although overflights of the project area occur which can result in short-term increases in ambient noise levels, the project site is located well outside of the Mather Airport 60 dB CNEL contour.

## Existing Traffic Noise Environment in the Project Vicinity

The Federal Highway Administration Highway Traffic Noise Prediction Model (FHWA-RD-77-108) was used to predict traffic noise levels at the project site. The FHWA Model is based upon the CALVENO noise emission factors for automobiles, medium trucks and heavy trucks, with consideration given to vehicle volume, speed, roadway configuration, distance to the receiver, and the acoustical characteristics of the site. The FHWA Model was developed to predict hourly $L_{eq}$ values for free-flowing traffic conditions and is considered to be accurate within 1.5 dB in most situations.

The FHWA Model accuracy in predicting existing traffic noise levels at the project site was evaluated by comparing traffic noise levels measured at the long-term noise measurement sites against existing traffic noise levels predicted using the FHWA Model. Inputs to the FHWA Model were obtained from the project traffic study (DKS, February 2021), from published Caltrans truck traffic counts, and from future highway 50 traffic projections contained in the Folsom South of 50 Specific Plan EIR. Appendix F contains the FHWA traffic noise prediction model inputs for all scenarios.

The calibration procedure indicated that measured existing East Bidwell Street traffic noise levels were within 1 dB of traffic noise levels predicted using the FHWA Model. As a result, no calibration offset to the FHWA Model was warranted for the prediction of future East Bidwell traffic noise levels in the project vicinity. Measured Highway 50 traffic noise levels were 3 dB lower than levels predicted using the FHWA Model. This difference was due to partial shielding of Highway 50 traffic noise levels at long-term measurement Site 1 caused by the East Bidwell interchange. Because the overall project site would not experience this same degree of shielding, the FHWA Model was used without adjustment to predict future ground-floor Highway 50 traffic noise levels in the immediate project vicinity.

The results of the short-term traffic noise level measurements indicated that the Highway 50 traffic noise levels measured 25 feet above existing ground (with a clear view of Highway 50), were 3.5 dB higher than levels measured 5 feet above existing ground during the same period. As a result, this analysis applies a +4 dB offset to predicted upper floor Highway 50 traffic noise levels at the elevated floors of the proposed Medical Office Buildings (MOBs), Hospital, and future hotel site to account for the decreased shielding and reduced ground absorption at those locations.

Table 6 shows the predicted existing noise levels at existing and proposed future noise-sensitive locations in the immediate project vicinity. Upper floor noise levels at the proposed MOBs and Hospital would be approximately 4 dB higher than those shown in Table 6. Because construction of several of the internal roadway segments has yet to be completed, only existing traffic noise levels for segments for which existing traffic data was provided in the project traffic study could be computed for the roadway segments/locations identified in Table 6.

**Table 6**
**Predicted Existing Traffic Noise Levels – Ldn, dB**
**Dignity Health Folsom Ranch Medical Center Project Vicinity Roadways**

| Segment | Roadway Name | Segment Description / Location | Ldn, dB[1] | Distance to Ldn Contours, ft[2] 70 dB | 65 dB | 60 dB |
|---|---|---|---|---|---|---|
| 1 | Alder Creek | Bidwell to McCarthy | 45 | 5 | 10 | 22 |
| 2 | Alder Creek | McCarthy to Westwood | n/a | n/a | n/a | n/a |
| 3 | Alder Creek | Westwood to Placerville | n/a | n/a | n/a | n/a |
| 4 | McCarthy | Alder Creek to Placerville | n/a | n/a | n/a | n/a |
| 5 | Westwood | Alder Creek to Mercy | n/a | n/a | n/a | n/a |
| 6 | Westwood | Mercy to Placerville | n/a | n/a | n/a | n/a |
| 7 | East Bidwell | Highway 50 to Alder Creek - MOB 1 | 51 | 44 | 94 | 202 |
| 8 | East Bidwell | Highway 50 to Alder Creek - Hospital | 57 | 44 | 94 | 202 |
| 9 | East Bidwell | Highway 50 to Alder Creek - MOB 2 | 57 | 44 | 94 | 202 |
| 10 | Placerville Road | McCarthy to Westwood | n/a | n/a | n/a | n/a |
| 11 | Highway 50 | East Bidwell to Placerville - Hospital | 69 | 309 | 667 | 1,436 |
| 12 | Highway 50 | East Bidwell to Placerville - MOB 1 | 71 | 309 | 667 | 1,436 |
| 13 | Highway 50 | East Bidwell to Placerville - MOB 2 | 60 | 309 | 667 | 1,436 |
| 14 | Highway 50 | East Bidwell to Placerville - Hotel | 74 | 309 | 667 | 1,436 |
| 15 | Highway 50 | Multi-Family Parcel North | 72 | 309 | 667 | 1,436 |

1. n/a: Existing roadway construction not yet completed or no data provided in project traffic study.
2. Distances to Ldn contours are for ground-level receptors and do not account for shielding by existing barriers or topography.

*Source: FHWA Highway Traffic Noise Prediction Model (FHWA-RD-77-108) with inputs shown in Appendix F.*

# Future Traffic Noise Exposure

## Cumulative Traffic Noise Level Increases due to the Project

The FHWA Model was used with future (cumulative no-project and project) traffic data shown in Appendix F to predict future traffic noise exposure at the nearest existing and proposed noise-sensitive land uses to the project site. The future traffic noise levels and increase in noise levels resulting from the project are provided in Table 7.

The results presented in Table 7 include consideration of the shielding provided by the existing 8-foot tall masonry wall located on the south side of Alder Creek Parkway and reflect higher noise levels predicted at the elevated floors of the MOB's, Hospital and hotel.

The Table 7 data indicate that the project's contribution to the cumulative traffic noise environment is not considerable at either the project site or any of the nearby existing or proposed sensitive land uses. This is because the project-related traffic noise level increases are below the significance criteria identified in Table 4. As a result, no traffic noise attenuation measures would be required of this project to achieve compliance with Mitigation Measures 3A.11-4 and 3A.11-5.

The significance of the predicted absolute traffic noise levels relative to the City of Folsom General Plan standards at the noise-sensitive areas of the project site are discussed in the next section.

**Table 7**
**Predicted Cumulative Traffic Noise Levels with and without the Project – Ldn, dB**
**Dignity Health Folsom Ranch Medical Center Project Vicinity Roadways**

| Segment | Roadway Name | Segment Description / Location | No-Project | With Project | Increase | Increase Significant? |
|---|---|---|---|---|---|---|
| 1 | Alder Creek | Bidwell to McCarthy | 55.4 | 57.2 | 1.9 | No |
| 2 | Alder Creek | McCarthy to Westwood | 60.9 | 61.0 | 0.2 | No |
| 3 | Alder Creek | Westwood to Placerville | 60.4 | 60.6 | 0.1 | No |
| 4 | McCarthy | Alder Creek to Placerville | n/a | 60.9 | n/a | No |
| 5 | Westwood | Alder Creek to Mercy | 57.0 | 57.0 | 0.0 | No |
| 6 | Westwood | Mercy to Placerville | 57.0 | 57.0 | 0.0 | No |
| 7 | East Bidwell | Highway 50 to Alder Creek - MOB 1 | 56.5 | 57.1 | 0.6 | No |
| 8 | East Bidwell | Highway 50 to Alder Creek - Hospital | 62.6 | 63.2 | 0.6 | No |
| 9 | East Bidwell | Highway 50 to Alder Creek - MOB 2 | 62.6 | 63.2 | 0.6 | No |
| 10 | Placerville Road | McCarthy to Westwood | 59.9 | 60.0 | 0.1 | No |
| 11 | Highway 50 | East Bidwell to Placerville - Hospital | 71.1 | 71.3 | 0.3 | No |
| 12 | Highway 50 | East Bidwell to Placerville - MOB 1 | 72.8 | 73.0 | 0.3 | No |
| 13 | Highway 50 | East Bidwell to Placerville - MOB 2 | 61.8 | 62.1 | 0.3 | No |
| 14 | Highway 50 | East Bidwell to Placerville - Hotel | 76.3 | 76.6 | 0.3 | No |
| 15 | Highway 50 | Multi-Family Parcel North | 70.4 | 70.7 | 0.3 | No |

1. n/a: Existing roadway construction not yet completed or no data provided in project traffic study.
2. Distances to Ldn contours are for ground-level receptors and do not account for shielding by existing barriers or topography.

*Source: FHWA Highway Traffic Noise Prediction Model (FHWA-RD-77-108) with inputs shown in Appendix F.*

## Cumulative Traffic Noise Levels at Noise-Sensitive Areas of the Project Site

The project is not proposing any noise-sensitive exterior areas. As a result, the analysis of compliance with City of Folsom noise standards focuses on the noise-sensitive interior areas of the MOBs and Hospital.

The FHWA Model was used with future (cumulative + project) traffic data shown in Appendix F to predict future traffic noise exposure at the proposed exterior building facades of the noise-sensitive structures proposed on the Medical Center project site (MOBs and Hospital). To predict future interior noise levels within those buildings, an offset of -30 dB was applied to the predicted exterior building façade noise levels to account for the noise reduction provided by the building envelopes.

The future traffic noise levels at the building facades and noise-sensitive interior spaces of the project buildings are provided in Table 8. The results of the long-term noise monitoring surveys indicate that existing peak hour average noise levels were essentially equal to computed $L_{dn}$ values. As a result, future peak hour average noise levels were assumed to be equivalent to future noise levels described in terms of $L_{dn}$.

**Table 8**
**Predicted Cumulative Traffic Noise Exposure at Nearest Building Facades and Interior Spaces**
**Dignity Health Folsom Ranch Medical Center Project Buildings**

| Roadway | Building | Exterior Façade Level[1] | Interior Space Level[1] | Interior Standard[2] | Standard Exceeded? |
|---|---|---|---|---|---|
| East Bidwell | Highway 50 to Alder Creek - MOB 1 | 57 | 27 | 45 | No |
| East Bidwell | Highway 50 to Alder Creek - Hospital | 63 | 33 | 45 | No |
| East Bidwell | Highway 50 to Alder Creek - MOB 2 | 63 | 33 | 45 | No |
| Highway 50 | East Bidwell to Placerville – MOB 1 | 73 | 43 | 45 | No |
| Highway 50 | East Bidwell to Placerville – Hospital | 71 | 41 | 45 | No |
| Highway 50 | East Bidwell to Placerville - MOB 2 | 62 | 32 | 45 | No |

1. All noise levels are expressed in terms of Ldn and Leq, which are equivalent for this project.
2. The interior noise standard for interior spaces of hospitals is 45 dB Ldn and the standard applicable at interior spaces of office buildings is 45 dB Leq.

*Source: FHWA Highway Traffic Noise Prediction Model (FHWA-RD-77-108) with inputs shown in Appendix F.*

The future interior traffic noise levels presented in Table 8 for the noise-sensitive areas of the MOBs and Hospital are predicted to be satisfactory relative to the City of Folsom General Plan interior noise level standards shown in Table 1 assuming the proposed construction provides 30 dB of exterior to interior traffic noise attenuation. This degree of noise attenuation is predicted to be achieved with standard commercial construction in accordance with building code requirements. As a result, no additional traffic noise attenuation measures would be required of the project MOBs or Hospital building to achieve compliance with Mitigation Measures 3A.11-4 and 3A.11-5.

## On-Site Project Noise Sources

The primary on-site noise sources associated with operations of the proposed MOBs and Hospital include parking lot movements, heavy truck circulation, loading dock operations, central plant equipment, and heating, ventilating, and air conditioning (HVAC) equipment associated with the MOBs. Ambulances will also generate noise while arriving and departing the site but noise generated by ambulances sirens is exempt from the Folsom Noise Ordinance and are a common component of community noise. Each of these noise sources is evaluated in the following sections:

### Parking Lot Operations

The project site is surrounded with parking spaces, as indicated in Figure 2. The project is proposing approximately 1,275 parking spaces. The level of noise received within project buildings and at neighboring sensitive uses will vary by location and level of parking lot activity occurring in proximity to the sensitive uses during a peak hour condition. Human nature dictates that the parking spaces closest to the MOBs and hospital will be used first with more distant spaces utilized only when spaces closer to the building being visited are unavailable.

As a means of determining potential noise exposure due to project parking lot activities, Bollard Acoustical Consultants, Inc. (BAC) utilized specific parking lot noise level measurements conducted by BAC. Specifically, a series of individual noise measurements were conducted of multiple vehicle types arriving and departing a parking area, including engines starting and stopping, car doors opening and closing, and persons conversing as they entered and exited the vehicles. The results of those measurements revealed that individual parking lot movements generated mean noise levels of approximately 70 dB SEL at a reference distance of 50 feet. The maximum noise level associated with parking lot activity typically was 65 dB $L_{max}$ at the same 50 foot reference distance.

To compute hourly average ($L_{eq}$) noise levels generated by parking lot activities, the approximate number of hourly operations in any given area and distance to the effective noise center of those activities is required. The parking areas proposed nearest to the hospital and MOBs were separated into discrete quadrants, as noise from the northernmost parking area will not contribute to noise generated at the southernmost parking area located approximately 1,500 feet away.

The project traffic analysis indicates that approximately 9,000 daily trips would be generated by the project during weekday periods. Assuming 10% of those trips occur during a peak hour, the project would generate approximately 900 peak hour parking lot movements overall. For a conservative estimate of parking lot activity, BAC assumed approximately 1,000 parking lot movements in a busy hour, distributed equally between the various parking spaces proposed on the site. The hourly average noise level generated by parking lot movements is computed using the following formula:

$$Peak\ Hour\ L_{eq} = 70+10*log\ (N) - 35.6$$

Where 70 is the mean Sound Exposure Level (SEL) for an automobile parking lot arrival or departure, N is the number of parking lot operations in a given hour, and 35.6 is 10 times the logarithm of the number of seconds in an hour.

The City's interior noise standards shown in Table 3 are expressed in terms of $L_{08}$ (source of noise present for at least 5 minutes per hour) and $L_{max}$ (noise present for any duration). Because parking lot activity would be fairly constant during the peak hour, the $L_{eq}$ computed using the formula above was conservatively used to establish $L_{08}$ levels for peak hour parking lot activity.

Using the information provided above, and assuming standard decay rate of -6 dB per doubling of distance between the source and receiver, peak hour parking area noise exposure at the interior areas of the nearest existing and proposed residential uses as well as on-site buildings were computed and the results of those calculations are presented in Table 9. It should be noted that a -30 dB offset was applied to the predicted levels to account for the minimum noise attenuation provided by the Hospital, MOBs, and future hotel use. For the existing residences to the south (currently under construction), and proposed residential uses to the east, a -25 dB offset was applied to the predicted levels to account for the minimum noise attenuation provided by the new residential construction.

**Table 9**
**Predicted Peak-Hour Parking Area Noise Generation at Interior Spaces of Nearest Sensitive Uses**

| | Predicted Level[3] | | Daytime Standard | | Nighttime Standard | | |
|---|---|---|---|---|---|---|---|
| Receptor | $L_{08}$[1] | $L_{max}$[2] | $L_{08}$ | $L_{max}$ | $L_{08}$ | $L_{max}$ | Standard Exceeded? |
| MOB 1 | 17 | 35 | 45 | 55 | 35 | 45 | No |
| MOB 1 | 20 | 41 | | | | | No |
| Hospital | 15 | 41 | | | | | No |
| SFR to South | 14 | 26 | | | | | No |
| MFT to East | 16 | 30 | | | | | No |
| Hotel to North | 16 | 27 | | | | | No |

[1] Distance measured from effective noise center of nearest parking area for $L_{08}$ calculations, not the nearest parking space, to the building indicated.

[2] Distance measured from nearest parking space for $L_{max}$ calculations, not center of parking area.

[3] Predicted noise levels include an adjustment of -30 dB for commercial buildings and -25 dB for residential buildings to account for noise-attenuation by the building façades at the receptor locations.

*Source: Bollard Acoustical Consultants, Inc. (2021)*

The Table 9 data indicate that noise generated by parking lot movements would be satisfactory at the noise-sensitive interior spaces of the nearest receptors to the project parking areas. As a result, no noise attenuation measures would be required of the project to achieve compliance with Mitigation Measures 3A.11-4 and 3A.11-5.

## On-Site Truck Circulation

As indicated on Figure 2, the hospital loading docks will be positioned on the west side of the hospital. The distance from on-site truck circulation routes to the nearest potentially affected sensitive spaces would vary depending on the route used by delivery trucks to access the loading dock area.

According to the project transportation engineer, the project would generate approximately 69 daily truck deliveries. While the specific breakdown of medium-duty (2 axle) and heavy-duty (3 or more axles) trucks to be used for these deliveries is not precisely known, for purposes of this study it was conservatively assumed that 100% of the delivery trucks would be heavy-duty trucks. According to the project site plan shown in Figure 2, 3 heavy truck loading docks are proposed behind the Hospital. For a conservative estimate of hourly heavy truck circulation, it was assumed that 6 heavy-duty trucks could arrive or depart the site during a busy hour.

BAC utilized single-event passby noise tests of slow-moving heavy trucks conducted by BAC to quantify the noise emissions of heavy truck passbys for this project. The tests were conducted at the West El Camino truck stop in Sacramento under very controlled conditions. The measurements focused on heavy truck pass-by both with and without refrigeration units on their trailers. The measurements were conducted at a reference distance of 50 feet at a location suitable for isolation of individual passby events.

During the truck passbys, Larson-Davis Laboratories Model 820 and 2900 sound level meters and frequency analyzers were used to quantify noise levels and event frequency content in for each event.

The results of the heavy truck measurements indicated that maximum noise levels ranged from 69 to 77 dB $L_{max}$, with a mean of 74 dB. Truck passby levels measured in terms of Sound Exposure Levels (SEL) ranged from 77 to 85 dB, with a mean of 83 dB SEL. For this assessment, an SEL of 83 dB and an $L_{max}$ of 74 dB was used at a reference level of 50 feet to assess truck circulation noise levels at the nearest sensitive receptors. Because no sensitive areas are proposed as part of the project, this analysis focuses on noise-sensitive interior areas of the nearby sensitive receptors, similar to the parking lot movement assessment in the previous section. Table 10 contains the predicted noise levels at the nearest sensitive receptors associated with on-site truck circulation at the project site.

**Table 10**
**Predicted Peak-Hour Truck Circulation Noise Generation at Interior Spaces of Nearest Sensitive Uses**

| | Predicted Level | | Daytime Standard | | Nighttime Standard | | |
|---|---|---|---|---|---|---|---|
| **Receptor** | **$L_{08}$** | **$L_{max}$** | **$L_{08}$** | **$L_{max}$** | **$L_{08}$** | **$L_{max}$** | **Standard Exceeded?** |
| MOB 1 | 26 | 45 | 45 | 55 | 35 | 45 | No |
| MOB 1 | 27 | 46 | | | | | Yes |
| Hospital | 27 | 46 | | | | | Yes |
| SFR to South | 15 | 29 | | | | | No |
| MFT to East | 25 | 43 | | | | | No |
| Hotel to North | 11 | 26 | | | | | No |

[4] Distance measured from effective noise center of nearest parking area, not the nearest parking space, to the building indicated.
[5] Predicted noise levels include an adjustment of -30 dB to account for noise-attenuation by the building façades at the receptor locations.
*Source: Bollard Acoustical Consultants, Inc. (2021)*

The Table 10 data indicate that, with the exception of nighttime truck passbys in close proximity to the northern façade of the Hospital and southern façade of MOB-1 (northern MOB), truck circulation noise levels are predicted to be satisfactory within interior areas of the on-site and off-site sensitive uses. Due to the proximity of the haul routes to the northern façade of the Hospital and southern façade of MOB-1, predicted maximum passby noise levels could exceed the City's maximum interior noise level criteria within those spaces. If MOB 1 operations are limited to daytime hours (7 am – 10 pm), no exceedance of the City's noise standard would be identified at that location. At sensitive spaces located along the northern façade of the Hospital building, the City's interior noise standard could be exceeded by approximately 1 dB. This is a relatively minor exceedance but sound attenuation options may be required on the northern façade of the Hospital to ensure maximum noise levels adjacent to the truck passby route during nighttime hours are acceptable within the Hospital. The following sound attenuation options could be utilized to ensure compliance with Mitigation Measures 3A.11-4 and 3A.11-5.

### Truck Passby Sound Attenuation Measures

1. Windows on the northern façade of the hospital shall be upgraded to STC 35.

   OR

2. Heavy trucks should not utilize the drive aisle located immediately north of the Hospital during nighttime hours.

## Loading Dock Activity

Noise generated by loading dock activity is somewhat different than the noise generation of on-site truck circulation. This is because the loading dock area requires trucks to stop and back into the dock area. These activities generate sound due to air brakes as well as backup warning devices (beepers, typically).

To quantify the noise generation of typical loading dock operations, BAC utilized filed data collected at various loading docks in recent years. Figures 4 and 5 show photographs of loading dock noise measurement sites.

**Figure 4 –Southport Industrial Park Noise Measurement Site**

**Figure 5 – Patterson Distribution Facility Noise Measurement Site**

BAC's measurement data indicates that typical loading dock operations at the hospital during busy hours can be expected to generate average and maximum noise levels of approximately 60 dB $L_{eq}$ and 75 dB $L_{max}$ at a distance of 100 feet from the loading dock. These levels were projected to the interiors of the nearest sensitive receptors assuming a 6 dB decrease per doubling of distance from the dock area. The results of this analysis are provided in Table 11.

**Table 11**
**Predicted Peak-Hour Loading Dock Noise Generation at Interior Spaces of Nearest Sensitive Uses**

| | Predicted Level | | Daytime Standard | | Nighttime Standard | | |
|---|---|---|---|---|---|---|---|
| **Receptor** | **$L_{08}$** | **$L_{max}$** | **$L_{08}$** | **$L_{max}$** | **$L_{08}$** | **$L_{max}$** | **Standard Exceeded?** |
| MOB 1 | 17 | 34 | 45 | 55 | 35 | 45 | No |
| MOB 1 | 14 | 30 | | | | | No |
| Hospital | 28 | 48 | | | | | Yes |
| SFR to South | 14 | 28 | | | | | No |
| MFT to East | 18 | 33 | | | | | No |
| Hotel to North | 13 | 29 | | | | | No |

1. Distances were measured from the center of the nearest on-site route which would likely be utilized for heavy truck deliveries.

*Source: Bollard Acoustical Consultants, Inc. (2021)*

The Table 11 data indicate that, with the exception of nighttime loading dock operations affecting a portion of the western hospital façade, noise generated by loading dock operations is predicted to be satisfactory relative to City of Folsom noise standards. Due to the proximity of the loading dock to the western Hospital building façade, maximum loading dock noise levels could exceed the City's maximum interior noise level criteria within sensitive areas of the hospital located adjacent to the loading dock area. The following sound attenuation options could be utilized to ensure compliance with Mitigation Measures 3A.11-4 and 3A.11-5.

### Loading Dock Sound Attenuation Measure

1. If noise-sensitive areas of the hospital are located directly adjacent to the loading dock area, windows on the western façade of the hospital within 100 feet of the loading docks shall be upgraded to STC 35.

## Central Plant Operations

The central plant is an approximately 20,000 square foot building proposed near the western boundary of the site, approximately 75 feet from the future wing of the Hospital, as indicated in Figure 2. The significant noise-generating mechanical equipment (pumps, boilers, compressors, generators, etc.) associated with hospital operations will be housed within the central plant. The noise generation of the specific equipment to be housed within the central plant will depend on the equipment type, size, and operating cycles. BAC file data for large emergency generators indicates average noise exposure within the generator room can reach 105 to 110 dBA. Because the hospital mechanical equipment will be housed inside the central plant building, the shell of that building is anticipated to significantly contain mechanical equipment noise generated inside the central plant. Although the specific interior configuration and proposed construction of the central plant building are unknown at this time, provided the central plant building provides at least 50 dBA of sound attenuation in the 63 to 4,000 Hertz frequency bands, satisfaction with the City's noise standards is expected within the Hospital and MOBs, as well as at all nearby sensitive off-site locations.

## Rooftop Mechanical Equipment Operations

Although the majority of the mechanical equipment associated with hospital operations will be housed within the central plant building, the heating and cooling requirements of the MOBs could be satisfied with packaged rooftop systems. Assuming 1 ton of HVAC capacity would be required per approximately 300 square feet of MOB office space, approximately 200 tons of cooling capacity would be required of the rooftop systems on each MOB.

According to the publication, *Noise Control for Buildings and Manufacturing Plants* (BBN, Inc.), the A-weighted sound power level of packaged HVAC rooftop units can be calculated using the formula: $L_w=81+12 * \log_{10}(CC)$, where CC is the cooling capacity in tons. The resulting sound power level per MOB rooftop computes to 108 dBA.

At the nearest building to the MOBs and the proposed Hospital, the predicted exterior noise level at the upper floor building façades could be approximately 60 dBA. Because the Hospital is proposed to be 6 stories, the upper floors of the hospital would not have the benefit of screening of MOB rooftop HVAC equipment by the MOB building parapets. Nonetheless, after consideration of the noise attenuation provided by the hospital building envelope (estimated at a minimum of 30 dBA), noise generated by rooftop equipment at the MOBs would be reduced to approximately 30 dBA within the Hospital, which is well below the City's interior noise requirements.

At the neighboring single-family and multi-family residential uses, the elevated positions of the MOB rooftop HVAC equipment and screening by the rooftop parapet is expected to provide an additional 10 dB of noise attenuation. In addition, the neighboring uses would be located farther from the MOBs than the proposed Hospital, so the noise from the MOB rooftop mechanical equipment would be further reduced by the additional distance. At the exterior areas of the nearest off-site sensitive receptors, noise generated by MOB rooftop HVAC equipment is predicted to be approximately 45 dB $L_{eq}$ or less. Within the residences, noise levels would be

decreased by an additional 25 dB due to attenuation by the residential building envelope. These levels would be considered satisfactory relative to City of Folsom interior and exterior noise criteria. As a result, no additional attenuation of MOB rooftop mechanical equipment would be required to satisfy Mitigation Measures 3A.11-4 and 3A.11-5.

## Conclusions and Recommendations

The Dignity Health Medical Campus is not predicted to generate significant increases in off-site traffic noise levels at existing or proposed noise-sensitive land uses in the immediate project vicinity. In addition, on-site activities are not predicted to result in exceedance of City of Folsom General Plan or Noise Ordinance standards at any existing or future off-site sensitive receptor locations. However, noise generated by onsite heavy truck circulation and loading dock operations could cause interior levels within the hospital to exceed the City's 45 dB $L_{max}$ nighttime interior noise level standard. Because the identified potential exceedances of the City's noise standard only range from 1 to 3 dB, a substantial level of sound attenuation would not be required to ensure compliance with the City's nighttime interior noise standards. Those required sound attenuation measures are as follows:

### Truck Passby Sound Attenuation Measures

1. Windows on the northern façade of the hospital shall be upgraded to STC 35.

   OR

2. Heavy trucks should not utilize the drive aisle located immediately north of the Hospital during nighttime hours.

### Loading Dock Sound Attenuation Measure

1. If noise-sensitive areas of the hospital are located directly adjacent to the loading dock area, windows on the western façade of the hospital within 100 feet of the loading docks shall be upgraded to STC 35.

Following implementation of these sound attenuation measures, no additional noise attenuation measures would be required of the project to achieve compliance with Mitigation Measures 3A.11-4 and 3A.11-5.

This concludes BAC's noise assessment for the Dignity Health Folsom Ranch Medical Center in the City of Folsom, California. Please contact BAC at (916) 663-0500 or PaulB@bacnoise.com with comments or questions regarding this evaluation.

## Appendix A
## Acoustical Terminology

**Acoustics** The science of sound.

**Ambient Noise** The distinctive acoustical characteristics of a given space consisting of all noise sources audible at that location. In many cases, the term ambient is used to describe an existing or pre-project condition such as the setting in an environmental noise study.

**Attenuation** The reduction of an acoustic signal.

**A-Weighting** A frequency-response adjustment of a sound level meter that conditions the output signal to approximate human response.

**Decibel or dB** Fundamental unit of sound. A Bell is defined as the logarithm of the ratio of the sound pressure squared over the reference pressure squared. A Decibel is one-tenth of a Bell.

**CNEL** Community Noise Equivalent Level. Defined as the 24-hour average noise level with noise occurring during evening hours (7 - 10 p.m.) weighted by a factor of three and nighttime hours weighted by a factor of 10 prior to averaging.

**Frequency** The measure of the rapidity of alterations of a periodic signal, expressed in cycles per second or hertz.

**IIC** Impact Insulation Class (IIC): A single-number representation of a floor/ceiling partition's impact generated noise insulation performance. The field-measured version of this number is the FIIC.

**$L_{dn}$** Day/Night Average Sound Level. Similar to CNEL but with no evening weighting.

**$L_{eq}$** Equivalent or energy-averaged sound level.

**$L_{max}$** The highest root-mean-square (RMS) sound level measured over a given period of time.

**Loudness** A subjective term for the sensation of the magnitude of sound.

**Masking** The amount (or the process) by which the threshold of audibility is for one sound is raised by the presence of another (masking) sound.

**Noise** Unwanted sound.

**Peak Noise** The level corresponding to the highest (not RMS) sound pressure measured over a given period of time. This term is often confused with the "Maximum" level, which is the highest RMS level.

**$RT_{60}$** The time it takes reverberant sound to decay by 60 dB once the source has been removed.

**STC** Sound Transmission Class (STC): A single-number representation of a partition's noise insulation performance. This number is based on laboratory-measured, 16-band (1/3-octave) transmission loss (TL) data of the subject partition. The field-measured version of this number is the FSTC.



***Legend***

A: Measurement Site 1: East of E Bidwell St
B: Measurement Site 2: Southeast Highway 50 On-Ramp from E Bidwell St

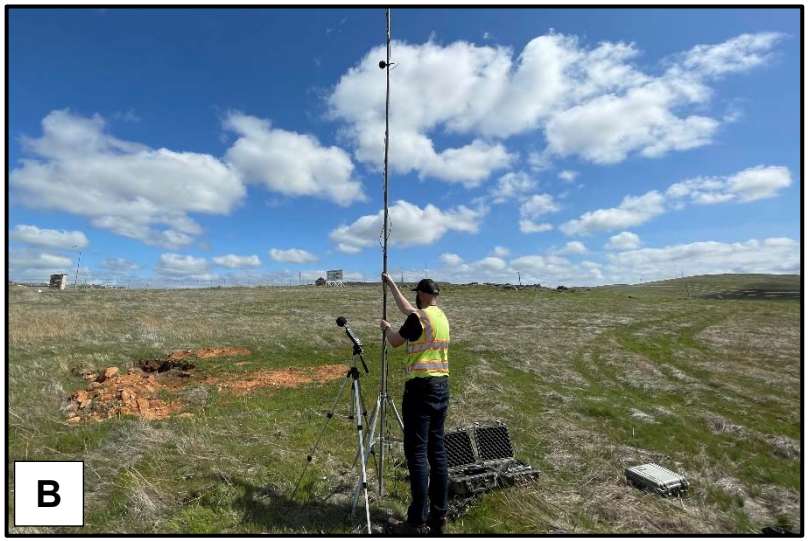
# Folsom Ranch Medical Center

Folsom, California

Photographs of Survey Locations

Appendix B-1

BOLLARD Acoustical Consultants



***Legend***

A: Elevated Noise Measurements – Facing West
B: Elevated Noise Measurements – Facing East
C: Elevated Noise Measurements – Facing North

# Folsom Ranch Medical Center

Folsom, California

Photographs of Survey Locations

Appendix B-2

BOLLARD Acoustical Consultants

# Appendix C-1
# Ambient Noise Monitoring Results
# Dignity Health Hospital Project Vicinity - Site 1
# Friday, March 26, 2021

| Hour | Leq | Lmax | L50 | L90 |
|---|---|---|---|---|
| 12:00 AM | 49 | 64 | 42 | 38 |
| 1:00 AM | 49 | 66 | 45 | 41 |
| 2:00 AM | 50 | 69 | 46 | 42 |
| 3:00 AM | 51 | 67 | 47 | 44 |
| 4:00 AM | 54 | 70 | 50 | 46 |
| 5:00 AM | 58 | 70 | 56 | 51 |
| 6:00 AM | 63 | 84 | 62 | 56 |
| 7:00 AM | 64 | 74 | 63 | 59 |
| 8:00 AM | 63 | 76 | 63 | 57 |
| 9:00 AM | 62 | 71 | 61 | 54 |
| 10:00 AM | 62 | 71 | 61 | 53 |
| 11:00 AM | 62 | 76 | 60 | 53 |
| 12:00 PM | 61 | 72 | 60 | 52 |
| 1:00 PM | 63 | 87 | 60 | 53 |
| 2:00 PM | 62 | 73 | 61 | 55 |
| 3:00 PM | 63 | 83 | 62 | 58 |
| 4:00 PM | 63 | 80 | 62 | 58 |
| 5:00 PM | 63 | 77 | 62 | 57 |
| 6:00 PM | 62 | 71 | 61 | 55 |
| 7:00 PM | 61 | 71 | 60 | 54 |
| 8:00 PM | 61 | 72 | 60 | 53 |
| 9:00 PM | 59 | 73 | 57 | 51 |
| 10:00 PM | 58 | 69 | 54 | 49 |
| 11:00 PM | 55 | 69 | 51 | 47 |

| | Statistical Summary | | | | | |
|---|---|---|---|---|---|---|
| | Daytime (7 a.m. - 10 p.m.) | | | Nighttime (10 p.m. - 7 a.m.) | | |
| | High | Low | Average | High | Low | Average |
| Leq (Average) | 64 | 59 | 62 | 63 | 49 | 57 |
| Lmax (Maximum) | 87 | 71 | 75 | 84 | 64 | 70 |
| L50 (Median) | 63 | 57 | 61 | 62 | 42 | 50 |
| L90 (Background) | 59 | 51 | 55 | 56 | 38 | 46 |

| | |
|---|---|
| Computed Ldn, dB | 65 |
| % Daytime Energy | 85% |
| % Nighttime Energy | 15% |

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# Appendix C-2
# Ambient Noise Monitoring Results
# Dignity Health Hospital Project Vicinity - Site 1
# Saturday, March 27, 2021

| Hour | Leq | Lmax | L50 | L90 |
|---|---|---|---|---|
| 12:00 AM | 52 | 69 | 47 | 43 |
| 1:00 AM | 50 | 65 | 44 | 41 |
| 2:00 AM | 47 | 66 | 42 | 38 |
| 3:00 AM | 47 | 64 | 43 | 39 |
| 4:00 AM | 50 | 66 | 46 | 40 |
| 5:00 AM | 54 | 68 | 47 | 40 |
| 6:00 AM | 59 | 78 | 55 | 47 |
| 7:00 AM | 61 | 72 | 59 | 53 |
| 8:00 AM | 60 | 71 | 58 | 51 |
| 9:00 AM | 60 | 82 | 58 | 47 |
| 10:00 AM | 59 | 75 | 58 | 49 |
| 11:00 AM | 59 | 77 | 58 | 50 |
| 12:00 PM | 59 | 77 | 58 | 49 |
| 1:00 PM | 59 | 76 | 58 | 50 |
| 2:00 PM | 59 | 79 | 58 | 48 |
| 3:00 PM | 59 | 77 | 58 | 49 |
| 4:00 PM | 58 | 73 | 57 | 47 |
| 5:00 PM | 59 | 74 | 58 | 48 |
| 6:00 PM | 59 | 72 | 57 | 47 |
| 7:00 PM | 61 | 71 | 59 | 51 |
| 8:00 PM | 59 | 72 | 57 | 49 |
| 9:00 PM | 58 | 73 | 55 | 48 |
| 10:00 PM | 57 | 77 | 51 | 46 |
| 11:00 PM | 54 | 71 | 50 | 45 |

| | Statistical Summary | | | | | |
|---|---|---|---|---|---|---|
| | Daytime (7 a.m. - 10 p.m.) | | | Nighttime (10 p.m. - 7 a.m.) | | |
| | High | Low | Average | High | Low | Average |
| Leq (Average) | 61 | 58 | 59 | 59 | 47 | 54 |
| Lmax (Maximum) | 82 | 71 | 75 | 78 | 64 | 69 |
| L50 (Median) | 59 | 55 | 58 | 55 | 42 | 47 |
| L90 (Background) | 53 | 47 | 49 | 47 | 38 | 42 |

| | |
|---|---|
| Computed Ldn, dB | 62 |
| % Daytime Energy | 86% |
| % Nighttime Energy | 14% |

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# Appendix C-3
# Ambient Noise Monitoring Results
# Dignity Health Hospital Project Vicinity - Site 1
# Sunday, March 28, 2021

| Hour | Leq | Lmax | L50 | L90 |
|---|---|---|---|---|
| 12:00 AM | 53 | 77 | 46 | 42 |
| 1:00 AM | 50 | 65 | 43 | 40 |
| 2:00 AM | 49 | 72 | 42 | 38 |
| 3:00 AM | 48 | 64 | 41 | 36 |
| 4:00 AM | 47 | 68 | 41 | 35 |
| 5:00 AM | 51 | 65 | 45 | 40 |
| 6:00 AM | 54 | 68 | 49 | 44 |
| 7:00 AM | 57 | 72 | 54 | 49 |
| 8:00 AM | 58 | 71 | 55 | 47 |
| 9:00 AM | 59 | 75 | 57 | 45 |
| 10:00 AM | 60 | 84 | 57 | 48 |
| 11:00 AM | 58 | 76 | 57 | 46 |
| 12:00 PM | 59 | 76 | 57 | 47 |
| 1:00 PM | 60 | 83 | 57 | 47 |
| 2:00 PM | 58 | 81 | 56 | 45 |
| 3:00 PM | 58 | 81 | 56 | 46 |
| 4:00 PM | 58 | 78 | 56 | 46 |
| 5:00 PM | 58 | 71 | 56 | 45 |
| 6:00 PM | 58 | 74 | 56 | 45 |
| 7:00 PM | 59 | 80 | 57 | 47 |
| 8:00 PM | 58 | 77 | 56 | 47 |
| 9:00 PM | 55 | 68 | 51 | 46 |
| 10:00 PM | 54 | 77 | 47 | 43 |
| 11:00 PM | 52 | 76 | 46 | 43 |

| | Statistical Summary | | | | | |
|---|---|---|---|---|---|---|
| | Daytime (7 a.m. - 10 p.m.) | | | Nighttime (10 p.m. - 7 a.m.) | | |
| | High | Low | Average | High | Low | Average |
| Leq (Average) | 60 | 55 | 58 | 54 | 47 | 51 |
| Lmax (Maximum) | 84 | 68 | 76 | 77 | 64 | 70 |
| L50 (Median) | 57 | 51 | 56 | 49 | 41 | 44 |
| L90 (Background) | 49 | 45 | 46 | 44 | 35 | 40 |

| | |
|---|---|
| Computed Ldn, dB | 60 |
| % Daytime Energy | 89% |
| % Nighttime Energy | 11% |

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# Appendix C-4
# Ambient Noise Monitoring Results
# Dignity Health Hospital Project Vicinity - Site 1
# Monday, March 29, 2021

| Hour | Leq | Lmax | L50 | L90 |
|---|---|---|---|---|
| 12:00 AM | 49 | 71 | 42 | 37 |
| 1:00 AM | 45 | 63 | 40 | 34 |
| 2:00 AM | 48 | 69 | 41 | 34 |
| 3:00 AM | 51 | 80 | 41 | 36 |
| 4:00 AM | 52 | 68 | 46 | 41 |
| 5:00 AM | 55 | 71 | 48 | 41 |
| 6:00 AM | 60 | 75 | 59 | 52 |
| 7:00 AM | 62 | 81 | 61 | 55 |
| 8:00 AM | 60 | 71 | 59 | 51 |
| 9:00 AM | 60 | 74 | 58 | 49 |
| 10:00 AM | 60 | 72 | 59 | 49 |
| 11:00 AM | 60 | 74 | 59 | 50 |
| 12:00 PM | 61 | 77 | 59 | 52 |
| 1:00 PM | 61 | 83 | 60 | 53 |
| 2:00 PM | 61 | 71 | 60 | 55 |
| 3:00 PM | 63 | 82 | 61 | 57 |
| 4:00 PM | 62 | 75 | 61 | 56 |
| 5:00 PM | 62 | 73 | 61 | 57 |
| 6:00 PM | 61 | 75 | 60 | 54 |
| 7:00 PM | 60 | 80 | 58 | 52 |
| 8:00 PM | 58 | 71 | 56 | 51 |
| 9:00 PM | 56 | 70 | 53 | 48 |
| 10:00 PM | 54 | 70 | 49 | 44 |
| 11:00 PM | 53 | 75 | 47 | 43 |

| | Statistical Summary | | | | | |
|---|---|---|---|---|---|---|
| | Daytime (7 a.m. - 10 p.m.) | | | Nighttime (10 p.m. - 7 a.m.) | | |
| | High | Low | Average | High | Low | Average |
| Leq (Average) | 63 | 56 | 61 | 60 | 45 | 54 |
| Lmax (Maximum) | 83 | 70 | 75 | 80 | 63 | 71 |
| L50 (Median) | 61 | 53 | 59 | 59 | 40 | 46 |
| L90 (Background) | 57 | 48 | 53 | 52 | 34 | 40 |

| | |
|---|---|
| Computed Ldn, dB | 62 |
| % Daytime Energy | 89% |
| % Nighttime Energy | 11% |

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# Appendix C-5
# Ambient Noise Monitoring Results
# Dignity Health Hospital Project Vicinity - Site 2
# Friday, March 26, 2021

| Hour | Leq | Lmax | L50 | L90 |
|---|---|---|---|---|
| 12:00 AM | 54 | 70 | 52 | 45 |
| 1:00 AM | 52 | 71 | 50 | 45 |
| 2:00 AM | 53 | 73 | 50 | 46 |
| 3:00 AM | 54 | 74 | 51 | 46 |
| 4:00 AM | 56 | 75 | 54 | 49 |
| 5:00 AM | 60 | 76 | 59 | 54 |
| 6:00 AM | 64 | 88 | 62 | 59 |
| 7:00 AM | 65 | 78 | 63 | 61 |
| 8:00 AM | 64 | 80 | 62 | 59 |
| 9:00 AM | 63 | 81 | 61 | 59 |
| 10:00 AM | 63 | 78 | 61 | 59 |
| 11:00 AM | 62 | 81 | 60 | 58 |
| 12:00 PM | 63 | 79 | 60 | 58 |
| 1:00 PM | 64 | 77 | 62 | 59 |
| 2:00 PM | 64 | 77 | 62 | 59 |
| 3:00 PM | 65 | 84 | 64 | 61 |
| 4:00 PM | 65 | 83 | 64 | 61 |
| 5:00 PM | 65 | 76 | 64 | 61 |
| 6:00 PM | 65 | 85 | 63 | 60 |
| 7:00 PM | 62 | 78 | 61 | 59 |
| 8:00 PM | 62 | 78 | 61 | 58 |
| 9:00 PM | 62 | 79 | 60 | 57 |
| 10:00 PM | 60 | 74 | 58 | 56 |
| 11:00 PM | 58 | 74 | 57 | 53 |

| | Statistical Summary | | | | | |
|---|---|---|---|---|---|---|
| | Daytime (7 a.m. - 10 p.m.) | | | Nighttime (10 p.m. - 7 a.m.) | | |
| | High | Low | Average | High | Low | Average |
| Leq (Average) | 65 | 62 | 64 | 64 | 52 | 59 |
| Lmax (Maximum) | 85 | 76 | 80 | 88 | 70 | 75 |
| L50 (Median) | 64 | 60 | 62 | 62 | 50 | 55 |
| L90 (Background) | 61 | 57 | 59 | 59 | 45 | 50 |

| | |
|---|---|
| Computed Ldn, dB | 66 |
| % Daytime Energy | 84% |
| % Nighttime Energy | 16% |

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# Appendix C-6
# Ambient Noise Monitoring Results
# Dignity Health Hospital Project Vicinity - Site 2
# Saturday, March 27, 2021

| Hour | Leq | Lmax | L50 | L90 |
|---|---|---|---|---|
| 12:00 AM | 56 | 76 | 54 | 49 |
| 1:00 AM | 55 | 71 | 53 | 45 |
| 2:00 AM | 54 | 68 | 52 | 42 |
| 3:00 AM | 54 | 68 | 51 | 42 |
| 4:00 AM | 55 | 70 | 53 | 44 |
| 5:00 AM | 59 | 76 | 57 | 50 |
| 6:00 AM | 63 | 84 | 60 | 56 |
| 7:00 AM | 64 | 86 | 62 | 59 |
| 8:00 AM | 62 | 82 | 60 | 55 |
| 9:00 AM | 60 | 78 | 56 | 53 |
| 10:00 AM | 60 | 83 | 56 | 53 |
| 11:00 AM | 60 | 75 | 56 | 53 |
| 12:00 PM | 61 | 80 | 56 | 53 |
| 1:00 PM | 61 | 78 | 56 | 53 |
| 2:00 PM | 60 | 73 | 57 | 53 |
| 3:00 PM | 62 | 86 | 57 | 53 |
| 4:00 PM | 61 | 77 | 57 | 54 |
| 5:00 PM | 61 | 78 | 58 | 55 |
| 6:00 PM | 61 | 78 | 58 | 55 |
| 7:00 PM | 62 | 77 | 61 | 57 |
| 8:00 PM | 62 | 79 | 61 | 58 |
| 9:00 PM | 62 | 77 | 61 | 57 |
| 10:00 PM | 61 | 77 | 60 | 56 |
| 11:00 PM | 59 | 70 | 58 | 53 |

| | Statistical Summary | | | | | |
|---|---|---|---|---|---|---|
| | Daytime (7 a.m. - 10 p.m.) | | | Nighttime (10 p.m. - 7 a.m.) | | |
| | High | Low | Average | High | Low | Average |
| Leq (Average) | 64 | 60 | 61 | 63 | 54 | 58 |
| Lmax (Maximum) | 86 | 73 | 79 | 84 | 68 | 73 |
| L50 (Median) | 62 | 56 | 58 | 60 | 51 | 55 |
| L90 (Background) | 59 | 53 | 55 | 56 | 42 | 49 |

| | |
|---|---|
| Computed Ldn, dB | 65 |
| % Daytime Energy | 77% |
| % Nighttime Energy | 23% |

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# Appendix C-7
# Ambient Noise Monitoring Results
# Dignity Health Hospital Project Vicinity - Site 2
# Sunday, March 28, 2021

| Hour | Leq | Lmax | L50 | L90 |
|---|---|---|---|---|
| 12:00 AM | 59 | 79 | 56 | 50 |
| 1:00 AM | 56 | 69 | 54 | 47 |
| 2:00 AM | 55 | 75 | 53 | 43 |
| 3:00 AM | 54 | 68 | 52 | 42 |
| 4:00 AM | 55 | 75 | 52 | 42 |
| 5:00 AM | 57 | 73 | 55 | 47 |
| 6:00 AM | 58 | 70 | 57 | 51 |
| 7:00 AM | 61 | 75 | 60 | 56 |
| 8:00 AM | 60 | 77 | 59 | 55 |
| 9:00 AM | 60 | 74 | 57 | 54 |
| 10:00 AM | 62 | 85 | 57 | 54 |
| 11:00 AM | 61 | 79 | 57 | 53 |
| 12:00 PM | 60 | 73 | 57 | 54 |
| 1:00 PM | 61 | 78 | 57 | 54 |
| 2:00 PM | 61 | 85 | 57 | 54 |
| 3:00 PM | 60 | 78 | 56 | 53 |
| 4:00 PM | 61 | 85 | 56 | 53 |
| 5:00 PM | 60 | 81 | 56 | 53 |
| 6:00 PM | 60 | 75 | 57 | 54 |
| 7:00 PM | 63 | 83 | 61 | 58 |
| 8:00 PM | 62 | 80 | 61 | 58 |
| 9:00 PM | 61 | 78 | 59 | 55 |
| 10:00 PM | 59 | 73 | 58 | 53 |
| 11:00 PM | 58 | 83 | 55 | 50 |

| | Statistical Summary | | | | | |
|---|---|---|---|---|---|---|
| | Daytime (7 a.m. - 10 p.m.) | | | Nighttime (10 p.m. - 7 a.m.) | | |
| | High | Low | Average | High | Low | Average |
| Leq (Average) | 63 | 60 | 61 | 59 | 54 | 57 |
| Lmax (Maximum) | 85 | 73 | 79 | 83 | 68 | 74 |
| L50 (Median) | 61 | 56 | 58 | 58 | 52 | 55 |
| L90 (Background) | 58 | 53 | 54 | 53 | 42 | 47 |

| | |
|---|---|
| Computed Ldn, dB | 64 |
| % Daytime Energy | 80% |
| % Nighttime Energy | 20% |

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# Appendix C-8
# Ambient Noise Monitoring Results
# Dignity Health Hospital Project Vicinity - Site 2
# Monday, March 29, 2021

| Hour | Leq | Lmax | L50 | L90 |
|---|---|---|---|---|
| 12:00 AM | 54 | 67 | 52 | 45 |
| 1:00 AM | 54 | 71 | 51 | 39 |
| 2:00 AM | 54 | 75 | 50 | 42 |
| 3:00 AM | 58 | 86 | 51 | 43 |
| 4:00 AM | 57 | 75 | 55 | 50 |
| 5:00 AM | 60 | 78 | 58 | 54 |
| 6:00 AM | 64 | 86 | 63 | 60 |
| 7:00 AM | 63 | 83 | 61 | 59 |
| 8:00 AM | 60 | 76 | 58 | 55 |
| 9:00 AM | 60 | 76 | 56 | 54 |
| 10:00 AM | 60 | 78 | 57 | 54 |
| 11:00 AM | 61 | 81 | 59 | 56 |
| 12:00 PM | 62 | 80 | 60 | 58 |
| 1:00 PM | 63 | 80 | 61 | 58 |
| 2:00 PM | 64 | 84 | 62 | 59 |
| 3:00 PM | 64 | 80 | 63 | 60 |
| 4:00 PM | 64 | 82 | 62 | 60 |
| 5:00 PM | 64 | 78 | 63 | 60 |
| 6:00 PM | 63 | 79 | 61 | 58 |
| 7:00 PM | 61 | 78 | 59 | 56 |
| 8:00 PM | 60 | 71 | 58 | 55 |
| 9:00 PM | 58 | 73 | 56 | 53 |
| 10:00 PM | 56 | 73 | 54 | 50 |
| 11:00 PM | 56 | 78 | 52 | 47 |

| | Statistical Summary | | | | | |
|---|---|---|---|---|---|---|
| | Daytime (7 a.m. - 10 p.m.) | | | Nighttime (10 p.m. - 7 a.m.) | | |
| | High | Low | Average | High | Low | Average |
| Leq (Average) | 64 | 58 | 62 | 64 | 54 | 58 |
| Lmax (Maximum) | 84 | 71 | 79 | 86 | 67 | 77 |
| L50 (Median) | 63 | 56 | 60 | 63 | 50 | 54 |
| L90 (Background) | 60 | 53 | 57 | 60 | 39 | 48 |

| | |
|---|---|
| Computed Ldn, dB | 66 |
| % Daytime Energy | 80% |
| % Nighttime Energy | 20% |

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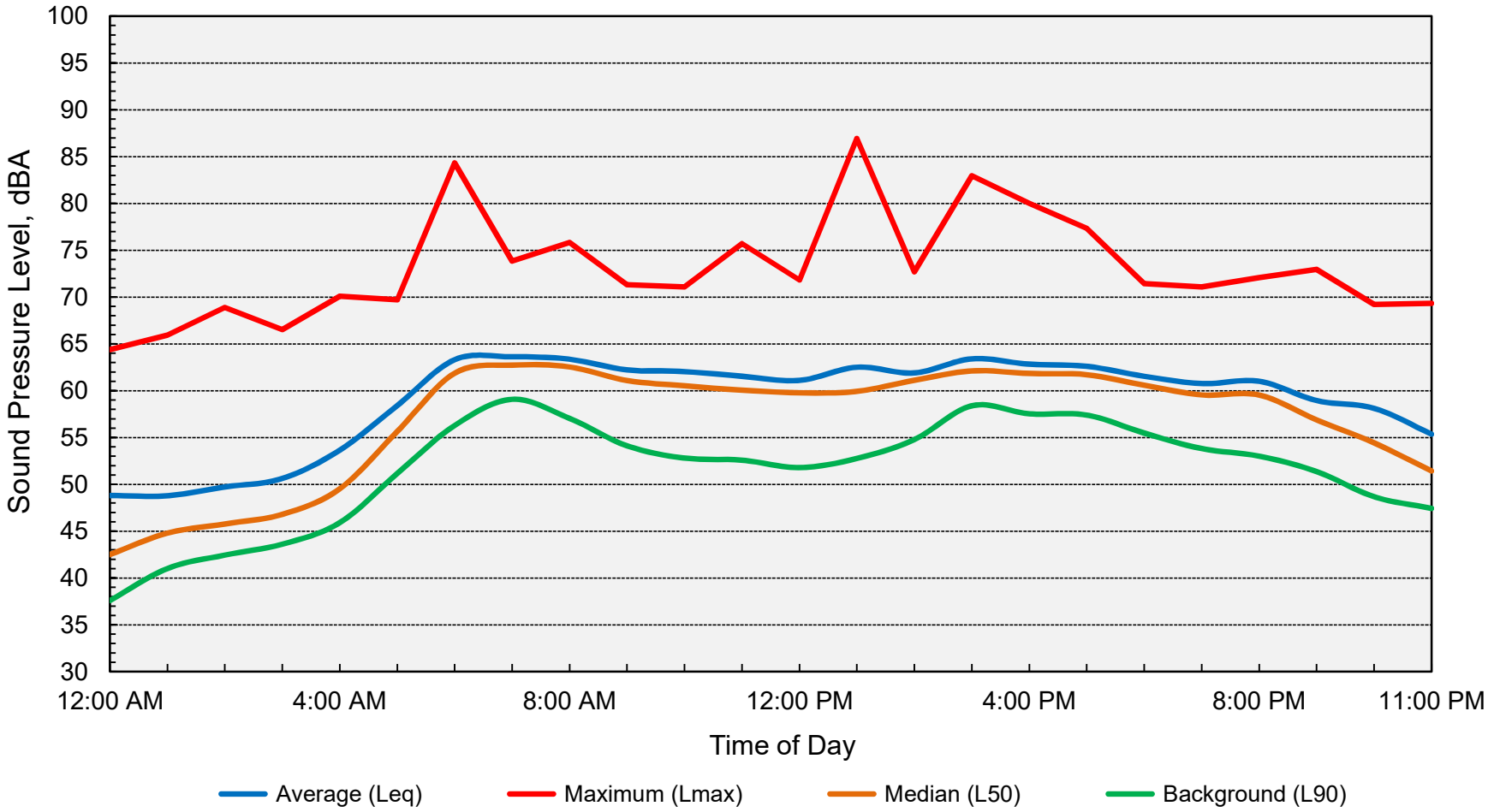
**Appendix D-1**
**Ambient Noise Monitoring Results**
**Dignity Health Hospital Project Vicinity - Site 1**
**Friday, March 26, 2021**




**Computed Ldn = 65 dB**

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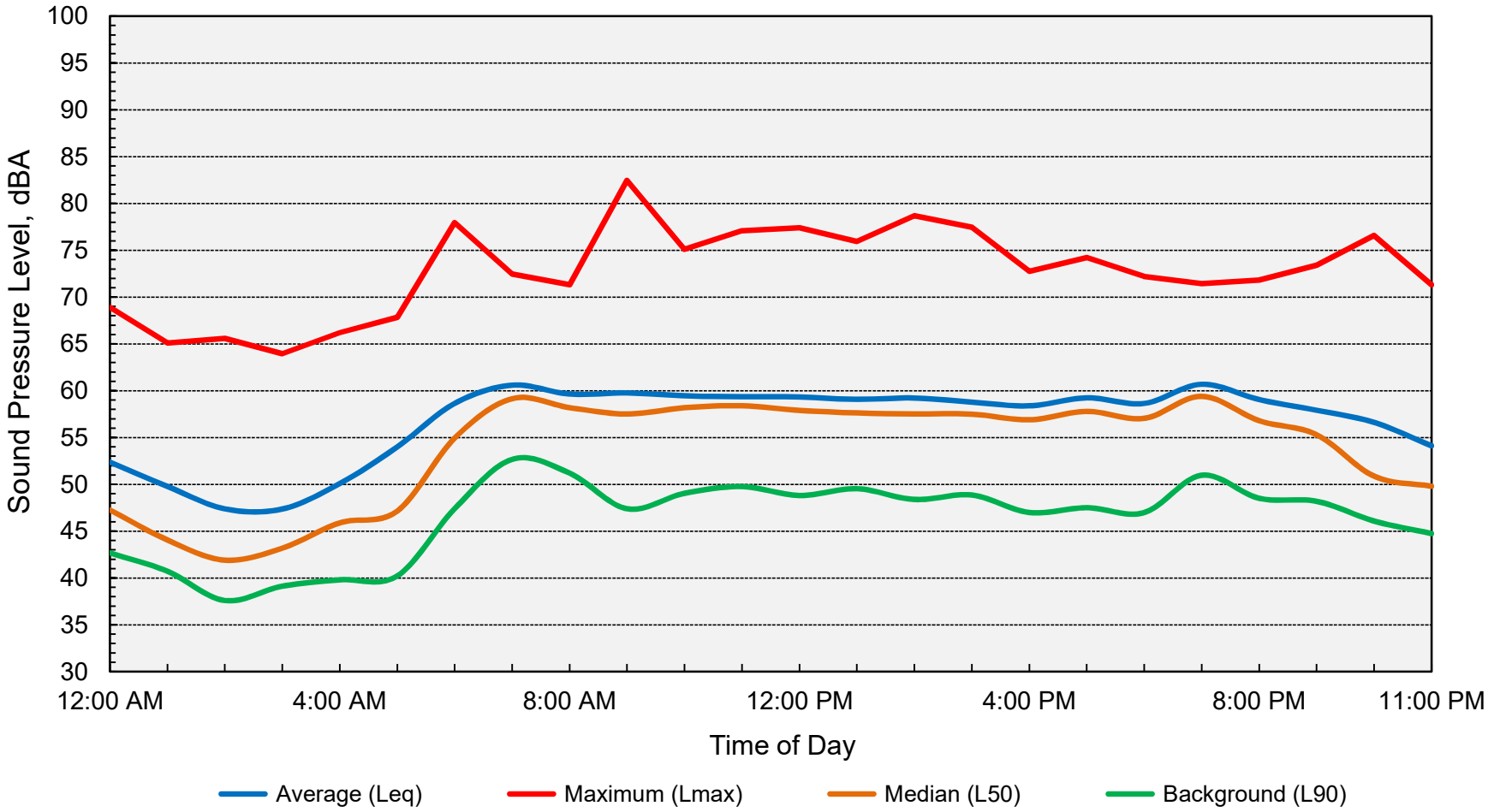
**Appendix D-2**
**Ambient Noise Monitoring Results**
**Dignity Health Hospital Project Vicinity - Site 1**
**Saturday, March 27, 2021**




**Computed Ldn = 62 dB**

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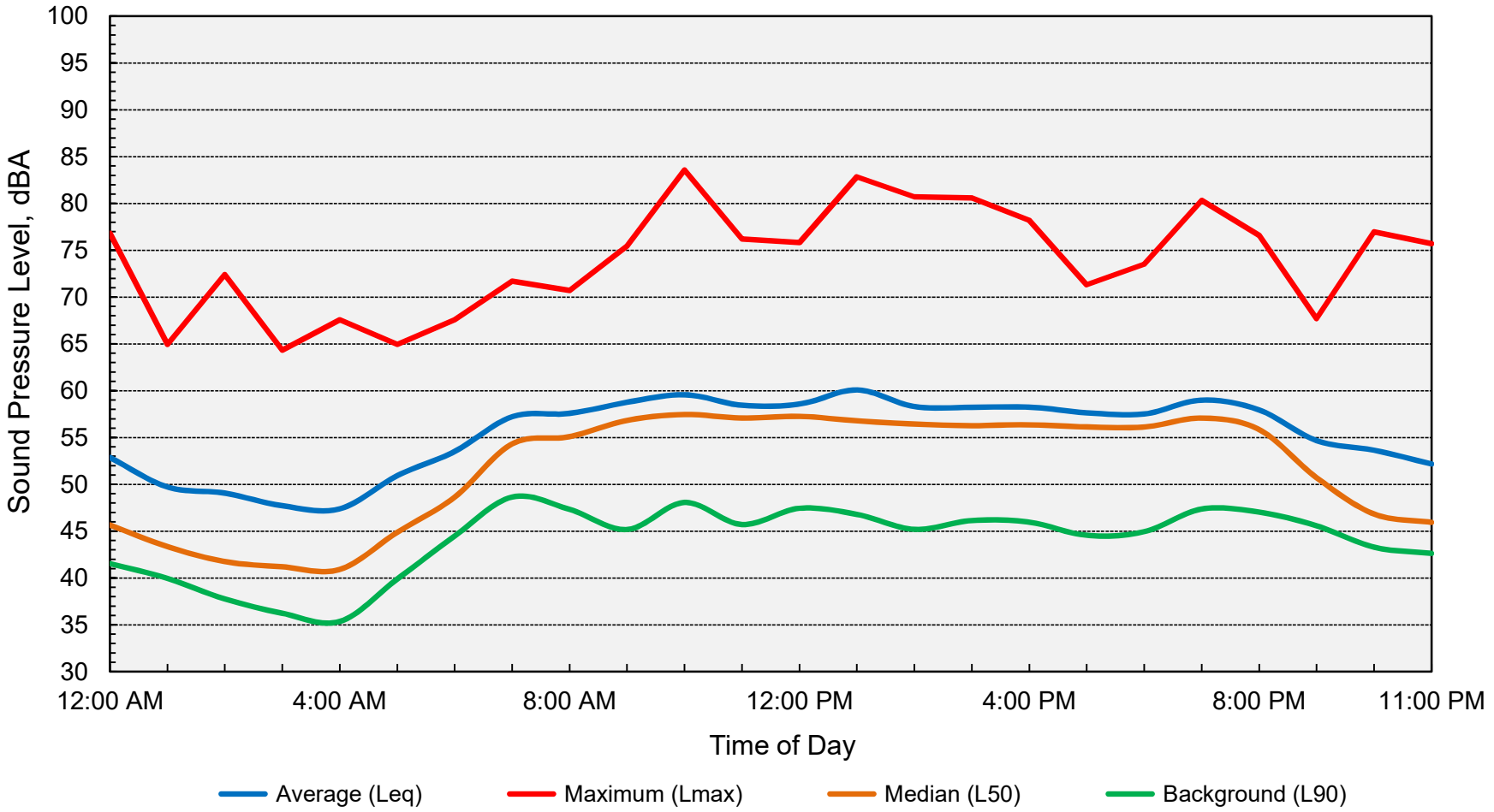
**Appendix D-3**
**Ambient Noise Monitoring Results**
**Dignity Health Hospital Project Vicinity - Site 1**
**Sunday, March 28, 2021**




**Computed Ldn = 60 dB**

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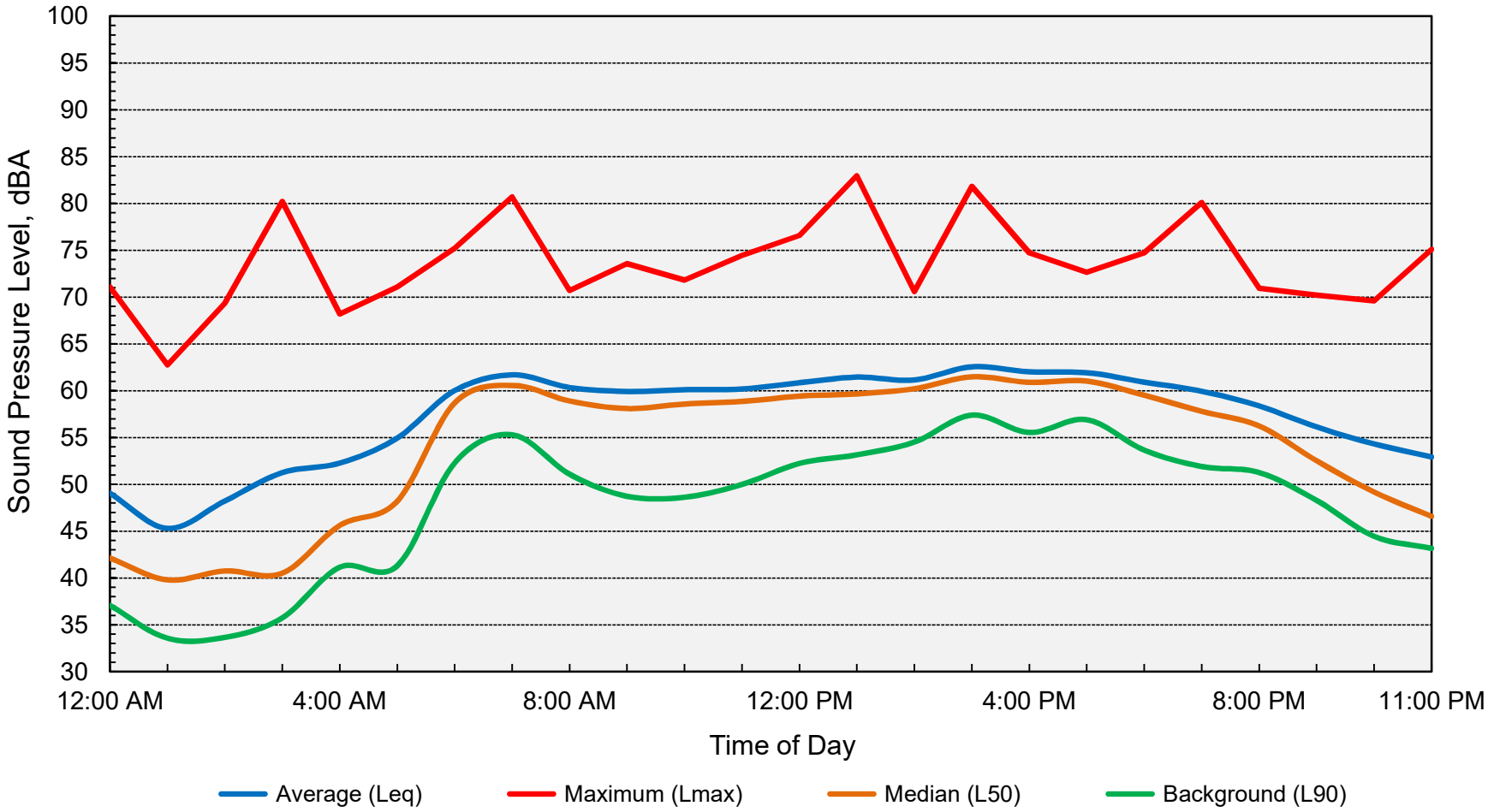
**Appendix D-4**
**Ambient Noise Monitoring Results**
**Dignity Health Hospital Project Vicinity - Site 1**
**Monday, March 29, 2021**




**Computed Ldn = 62 dB**

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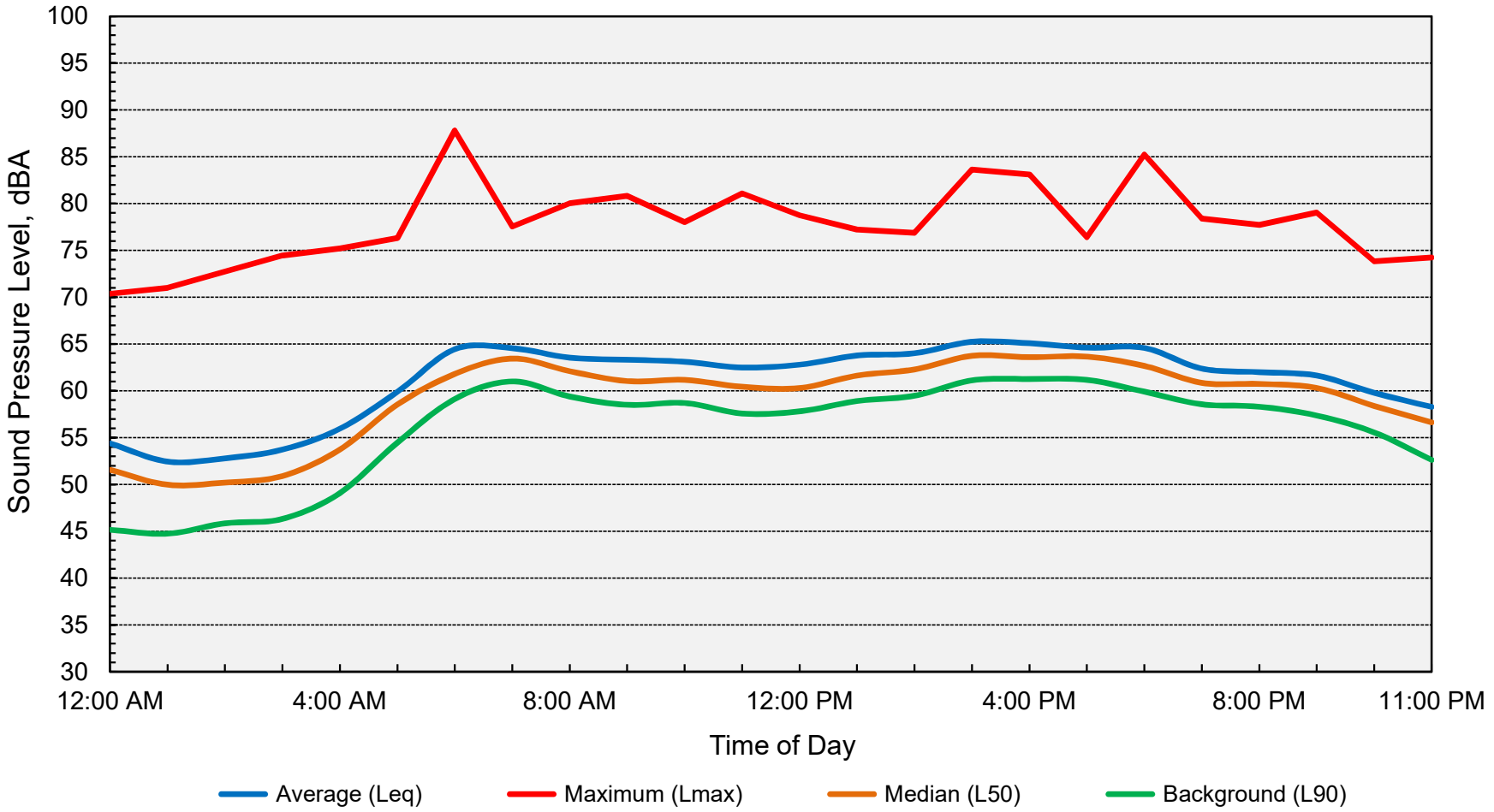
**Appendix D-5**
**Ambient Noise Monitoring Results**
**Dignity Health Hospital Project Vicinity - Site 2**
**Friday, March 26, 2021**




**Computed Ldn = 66 dB**

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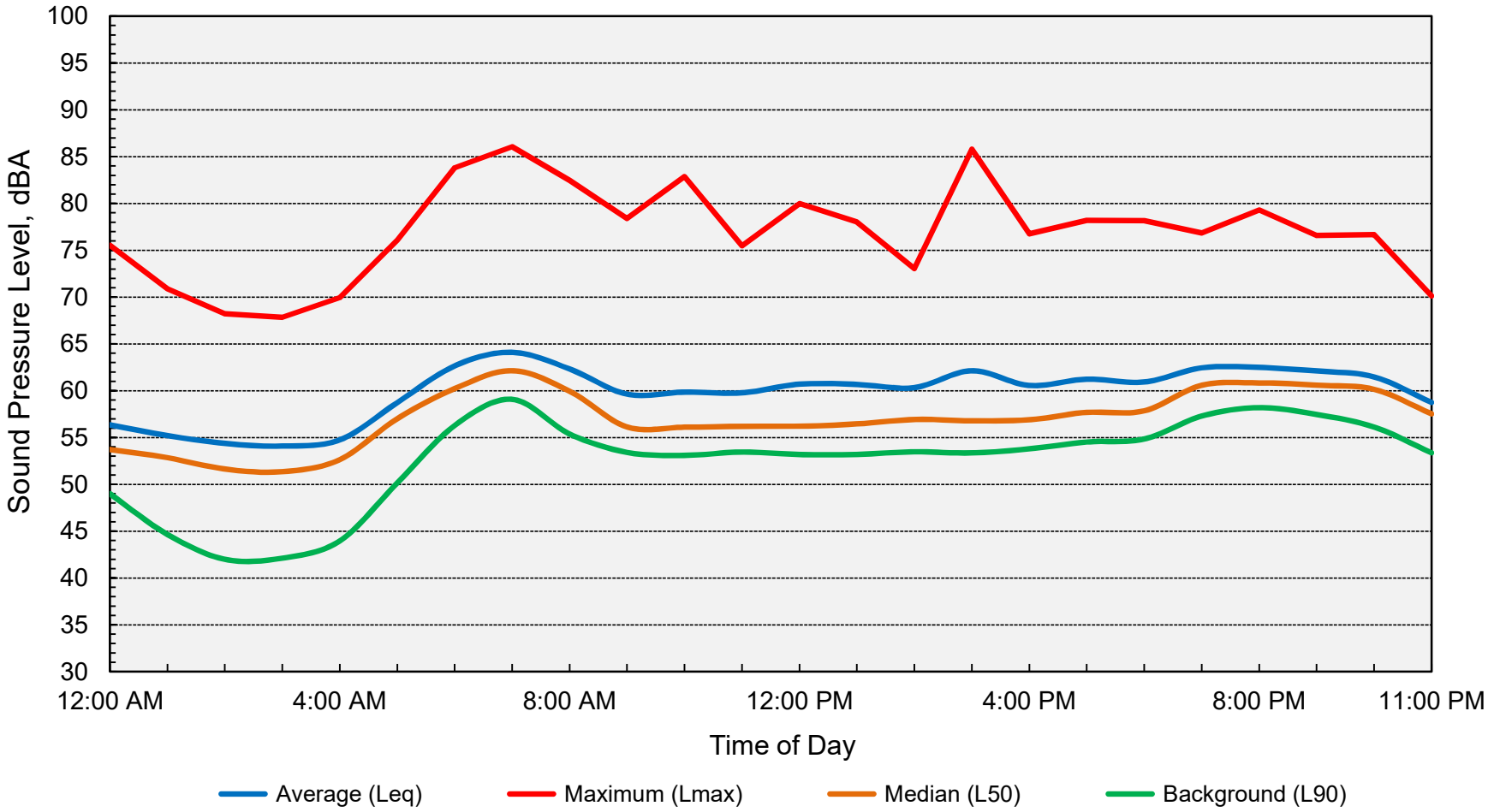
**Appendix D-6**
**Ambient Noise Monitoring Results**
**Dignity Health Hospital Project Vicinity - Site 2**
**Saturday, March 27, 2021**




**Computed Ldn = 65 dB**

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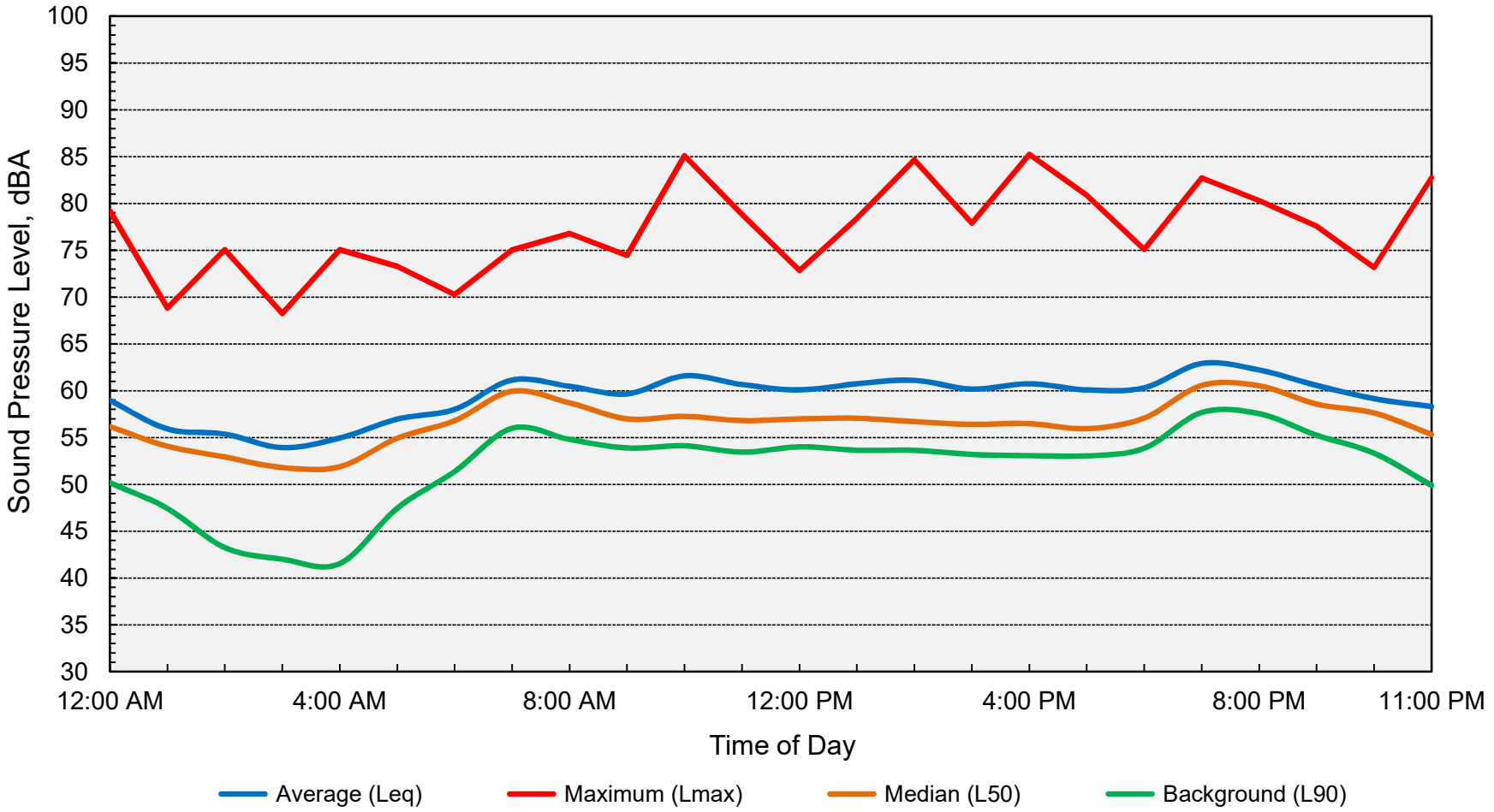
**Appendix D-7**
**Ambient Noise Monitoring Results**
**Dignity Health Hospital Project Vicinity - Site 2**
**Sunday, March 28, 2021**




**Computed Ldn = 64 dB**

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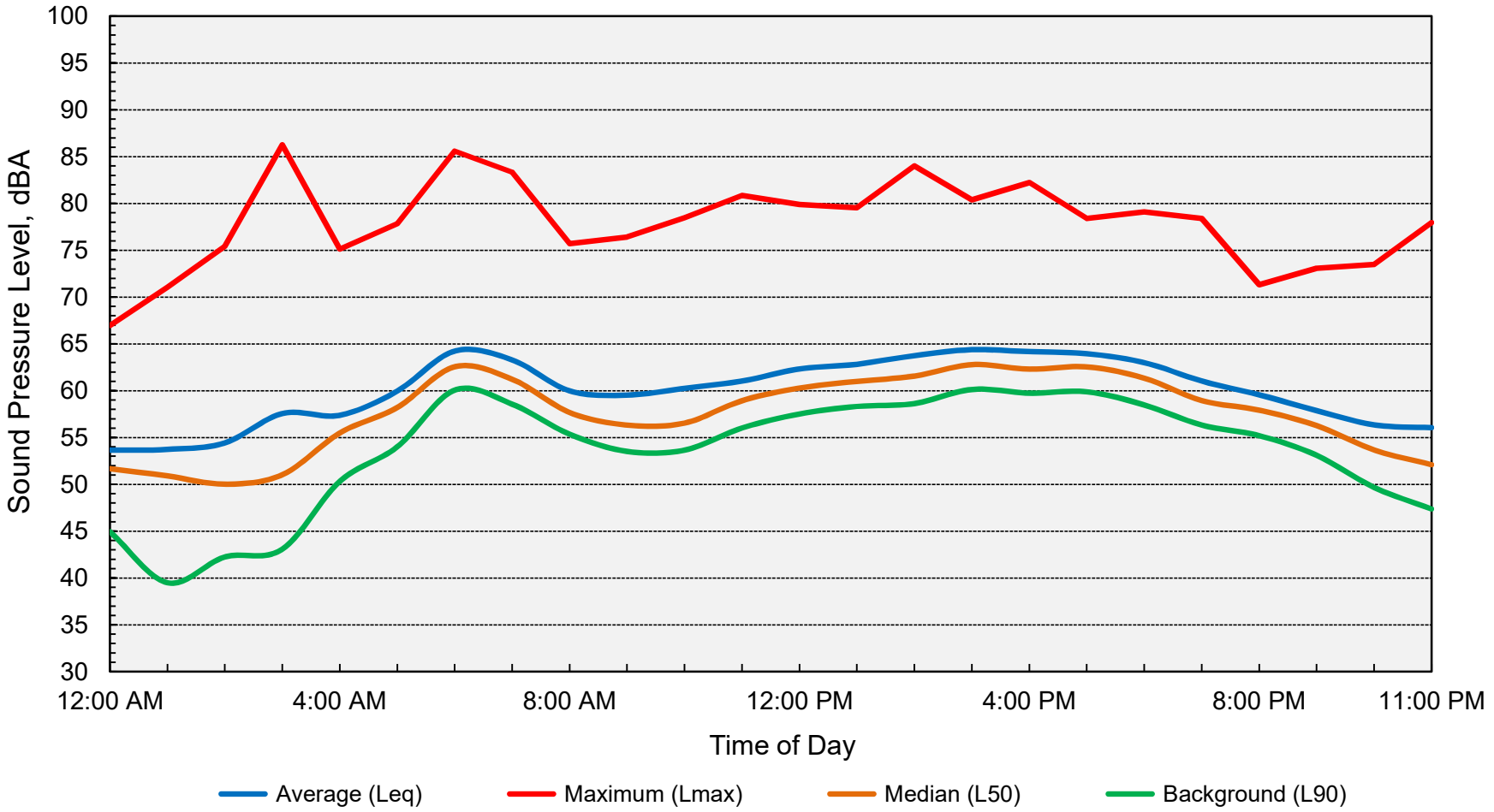
**Appendix D-8**
**Ambient Noise Monitoring Results**
**Dignity Health Hospital Project Vicinity - Site 2**
**Monday, March 29, 2021**




**Computed Ldn = 66 dB**

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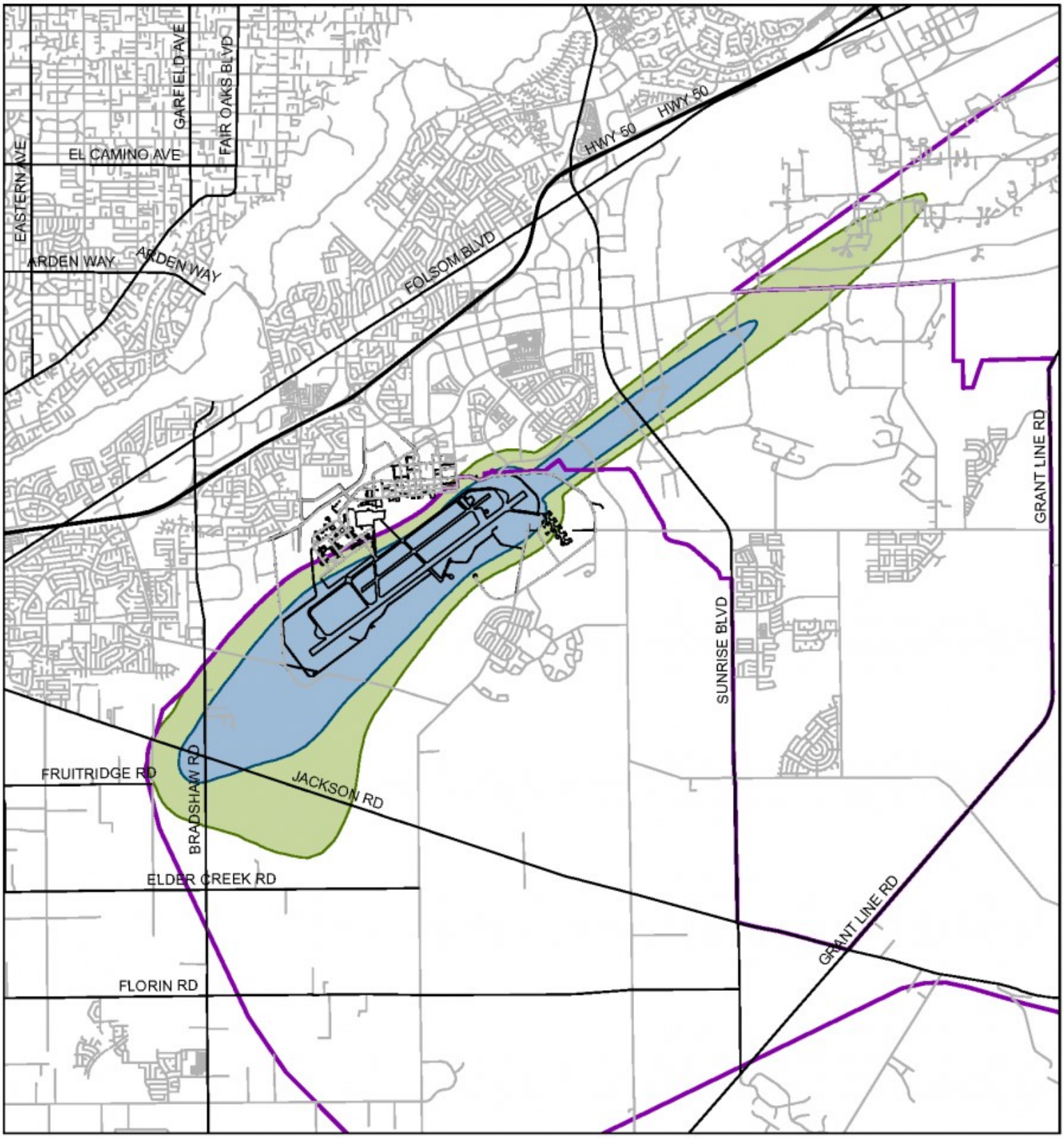
# Appendix E

## Mather Airport
## Land Use Compatibility Planning Noise Contours




SACRAMENTO COUNTY

Nautical Miles
0 0.5 1 2

N
W E
S

**LEGEND**

MHR Airport Planning Policy Area (APPA) Boundary

**MHR Land Use Compatibility Planning Noise Contours**

60 CNEL Contour

65 CNEL Contour

**Appendix F-1**

## FHWA-RD-77-108 Highway Traffic Noise Prediction Model
## Data Input Sheet

Project #: 2021-019 Dignity Health
Description: Existing No Project
Ldn/CNEL: Ldn
Hard/Soft: Soft

| Segment | Roadway Name | Segment Description | ADT | Day % | Eve % | Night % | % Med. Trucks | % Hvy. Trucks | Speed | Distance | Offset (dB) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Alder Creek | Bidwell to McCarthy | 870 | 80 | | 20 | 2 | 1 | 35 | 95 | -6 |
| 2 | Alder Creek | McCarthy to Westwood | n/a | 80 | | 20 | 2 | 1 | 35 | 95 | 0 |
| 3 | Alder Creek | Westwood to Placerville | n/a | 80 | | 20 | 2 | 1 | 35 | 95 | 0 |
| 4 | McCarthy | Alder Creek to Placerville | n/a | 80 | | 20 | 2 | 1 | 30 | 60 | 0 |
| 5 | Westwood | Alder Creek to Mercy | n/a | 80 | | 20 | 2 | 1 | 30 | 60 | 0 |
| 6 | Westwood | Mercy to Placerville | n/a | 80 | | 20 | 2 | 1 | 30 | 60 | 0 |
| 7 | East Bidwell | Highway 50 to Alder Creek - MOB 1 | 9,895 | 80 | | 20 | 2 | 1 | 50 | 760 | 0 |
| 8 | East Bidwell | Highway 50 to Alder Creek - Hospital | 9,895 | 80 | | 20 | 2 | 1 | 50 | 300 | 0 |
| 9 | East Bidwell | Highway 50 to Alder Creek - MOB 2 | 9,895 | 80 | | 20 | 2 | 1 | 50 | 300 | 0 |
| 10 | Placerville Road | McCarthy to Westwood | n/a | 80 | | 20 | 2 | 1 | 45 | 90 | 0 |
| 11 | Highway 50 | East Bidwell to Placerville - Hospital | 87,000 | 80 | | 20 | 3 | 2 | 65 | 670 | 4 |
| 12 | Highway 50 | East Bidwell to Placerville - MOB 1 | 87,000 | 80 | | 20 | 3 | 2 | 65 | 515 | 4 |
| 13 | Highway 50 | East Bidwell to Placerville - MOB 2 | 87,000 | 80 | | 20 | 3 | 2 | 65 | 1500 | 0 |
| 14 | Highway 50 | East Bidwell to Placerville - Hotel | 87,000 | 80 | | 20 | 3 | 2 | 65 | 300 | 4 |
| 15 | Highway 50 | Multi-Family Parcel North | 87,000 | 80 | | 20 | 3 | 2 | 65 | 400 | 0 |

**Appendix F-2**

## FHWA-RD-77-108 Highway Traffic Noise Prediction Model
## Data Input Sheet

Project #: 2021-019 Dignity Health
Description: Cumulative No Project
Ldn/CNEL: Ldn
Hard/Soft: Soft

| Segment | Roadway Name | Segment Description or Location | ADT | Day % | Eve % | Night % | % Med. Trucks | % Hvy. Trucks | Speed | Distance | Offset (dB) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Alder Creek | Bidwell to McCarthy | 10,365 | 80 | | 20 | 2 | 1 | 35 | 95 | -6 |
| 2 | Alder Creek | McCarthy to Westwood | 9,195 | 80 | | 20 | 2 | 1 | 35 | 95 | 0 |
| 3 | Alder Creek | Westwood to Placerville | 8,370 | 80 | | 20 | 2 | 1 | 35 | 95 | 0 |
| 4 | McCarthy | Alder Creek to Placerville | n/a | 80 | | 20 | 2 | 1 | 30 | 60 | 0 |
| 5 | Westwood | Alder Creek to Mercy | 2,400 | 80 | | 20 | 2 | 1 | 30 | 60 | 0 |
| 6 | Westwood | Mercy to Placerville | 2,400 | 80 | | 20 | 2 | 1 | 30 | 60 | 0 |
| 7 | East Bidwell | Highway 50 to Alder Creek - MOB 1 | 32,260 | 80 | | 20 | 2 | 1 | 50 | 760 | 0 |
| 8 | East Bidwell | Highway 50 to Alder Creek - Hospital | 32,260 | 80 | | 20 | 2 | 1 | 50 | 300 | 0 |
| 9 | East Bidwell | Highway 50 to Alder Creek - MOB 2 | 32,260 | 80 | | 20 | 2 | 1 | 50 | 300 | 0 |
| 10 | Placerville Road | McCarthy to Westwood | 3,720 | 80 | | 20 | 2 | 1 | 45 | 90 | 0 |
| 11 | Highway 50 | East Bidwell to Placerville - Hospital | 141,000 | 80 | | 20 | 3 | 2 | 65 | 670 | 4 |
| 12 | Highway 50 | East Bidwell to Placerville - MOB 1 | 141,000 | 80 | | 20 | 3 | 2 | 65 | 515 | 4 |
| 13 | Highway 50 | East Bidwell to Placerville - MOB 2 | 141,000 | 80 | | 20 | 3 | 2 | 65 | 1500 | 0 |
| 14 | Highway 50 | East Bidwell to Placerville - Hotel | 141,000 | 80 | | 20 | 3 | 2 | 65 | 300 | 4 |
| 15 | Highway 50 | Multi-Family Parcel North | 141,000 | 80 | | 20 | 3 | 2 | 65 | 400 | 0 |

**Appendix F-3**

## FHWA-RD-77-108 Highway Traffic Noise Prediction Model
## Data Input Sheet

Project #: 2021-019 Dignity Health
Description: Cumulative Plus Project
Ldn/CNEL: Ldn
Hard/Soft: Soft

| Segment | Roadway Name | Segment Description | ADT | Day % | Eve % | Night % | % Med. Trucks | % Hvy. Trucks | Speed | Distance | Offset (dB) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Alder Creek | Bidwell to McCarthy | 15,900 | 80 | | 20 | 2 | 1 | 35 | 95 | -6 |
| 2 | Alder Creek | McCarthy to Westwood | 9,575 | 80 | | 20 | 2 | 1 | 35 | 95 | 0 |
| 3 | Alder Creek | Westwood to Placerville | 8,660 | 80 | | 20 | 2 | 1 | 35 | 95 | 0 |
| 4 | McCarthy | Alder Creek to Placerville | 5,935 | 80 | | 20 | 2 | 1 | 30 | 60 | 0 |
| 5 | Westwood | Alder Creek to Mercy | 2,400 | 80 | | 20 | 2 | 1 | 30 | 60 | 0 |
| 6 | Westwood | Mercy to Placerville | 2,400 | 80 | | 20 | 2 | 1 | 30 | 60 | 0 |
| 7 | East Bidwell | Highway 50 to Alder Creek - MOB 1 | 37,325 | 80 | | 20 | 2 | 1 | 50 | 760 | 0 |
| 8 | East Bidwell | Highway 50 to Alder Creek - Hospital | 37,325 | 80 | | 20 | 2 | 1 | 50 | 300 | 0 |
| 9 | East Bidwell | Highway 50 to Alder Creek - MOB 2 | 37,325 | 80 | | 20 | 2 | 1 | 50 | 300 | 0 |
| 10 | Placerville Road | McCarthy to Westwood | 3,815 | 80 | | 20 | 2 | 1 | 45 | 90 | 0 |
| 11 | Highway 50 | East Bidwell to Placerville - Hospital | 150,000 | 80 | | 20 | 3 | 2 | 65 | 670 | 4 |
| 12 | Highway 50 | East Bidwell to Placerville - MOB 1 | 150,000 | 80 | | 20 | 3 | 2 | 65 | 515 | 4 |
| 13 | Highway 50 | East Bidwell to Placerville - MOB 2 | 150,000 | 80 | | 20 | 3 | 2 | 65 | 1500 | 0 |
| 14 | Highway 50 | East Bidwell to Placerville - Hotel | 150,000 | 80 | | 20 | 3 | 2 | 65 | 300 | 4 |
| 15 | Highway 50 | Multi-Family Parcel North | 150,000 | 80 | | 20 | 3 | 2 | 65 | 400 | 0 |