Nicholas R. Ghirelli

T 213.626.8484
F 213.626.0078
E nghirelli@rwglaw.com

350 South Grand Avenue
37th Floor
Los Angeles, CA 90071
rwglaw.com

July 15, 2022

VIA ELECTRONIC MAIL

Humboldt County Board of Supervisors
C/O Kathy Hayes, Clerk of the Board
825 5th Street, Room 111
Eureka, California 95501
cob@co.humboldt.ca.us

Re: *Appeal of Planning Commission's Decision to Modify the Conditional Use Permit Authorizing Motorsports and Concert Events at the Humboldt County Fairgrounds and Adopt a Supplemental Mitigated Negative Declaration*

Dear Members of the Board of Supervisors:

This office represents Friends of Ferndale for a Livable Community ("Friends of Ferndale") in connection with its appeal of the above-referenced decision by the Humboldt County Planning Commission. I write to respectfully request that the Board accept Friends of Ferndale's appeal, overturn the Planning Commission's decision, and deny the requested modification to the Humboldt County Fairgrounds' ("Fairgrounds") CUP.

Stephen Avis, President of Friends of Ferndale, has separately written to propose an alternative solution by which the Fairgrounds Association withdraw its application in favor of a single-event use permit to conduct a motorcycle race with motorcycles emitting noise up to the requested 99 dBA limit. In my view, that is a reasonable solution that allows the Fairgrounds to proceed with its desired motorcycle race, test the assumptions of the proposed Supplemental Initial Study and Proposed Mitigated Negative Declaration (Supplemental IS/MND), and verify that any future motorcycle races do not impact the neighboring residential community and high school.

Should the Board uphold the Planning Commission's decision based on the untested and flawed noise analysis and other errors found in the Supplemental IS/MND, then Friends of Ferndale will have no choice but to pursue its legal options to challenge the County's issuance of the

modified CUP. As explained below, under basic principles of CEQA, an Environmental Impact Report (EIR) is required for the proposed CUP modification to permit louder motorcycles at the Fairgrounds. A fair argument exists that the CUP modification will have a significant impact on the environment. Further, and for similar reasons, the Planning Commission's findings in support of its approval of the modified CUP are not supported by substantial evidence.

"CEQA requires the preparation of an EIR whenever substantial evidence supports a fair argument that a [project] will cause potentially significant adverse environmental impacts."[1] California courts view the "fair argument" test as a very low threshold for requiring the preparation of an EIR.[2] This means that, even where there might be some evidence in the record to support the County's decision, a court will set aside a mitigated negative declaration if the record also contains substantial evidence to the contrary.[3] To be sure, the same standard applies to a supplemental mitigated negative declaration, such as the one prepared for the pending project.[4]

Such is the case here. Friends of Ferndale has provided substantial evidence that the modified CUP, with an elevated noise limit of 99 dBA, will cause a significant and unavoidable noise impact. This evidence is contained in not one, but two, separate evaluations of the Supplemental MND's analysis of noise impacts caused by the louder motorcycle races.

The attached "Review of Noise Impact Study for Humboldt County Fairgrounds" ("Noise Review") was prepared by Noise Monitoring Services in connection with the original IS/MND. The Noise Review demonstrates that the 2020 noise analysis related to Flat Track Racing at the Fairgrounds, prepared by Whitchurch Engineering and retained in the Supplemental IS/MND, does not fully account for the full range of noise generated by the events and, furthermore, the mitigation measures are inadequate to reduce noise levels below the applicable thresholds of significance.

More recently, Michael Thill of Illingworth & Rodkin, an expert in acoustics, prepared the attached "Flat Track Racing at the Humboldt County Fairgrounds Peer Review of the Noise Analysis" ("Peer Review), which reviewed the same 2020 Whitchurch Engineering noise analysis and 2021 "Tailpipe Noise Level Estimation for Race Testing" that was also incorporated into the Supplemental IS/MND.

Importantly, Mr. Thill conducted his own noise measurements near the Fairgrounds to establish accurate ambient noise levels that reflect current conditions. The Peer Review concluded that the Supplemental IS/MND's noise studies incorrectly established the ambient noise

[1] *Cty. Sanitation Dist. No. 2 v. Cty. of Kern, 127 Cal.App.4th 1544, 1558 (2005).*
[2] *Id.*
[3] *Save the Agoura Cornell Knoll v. City of Agoura Hills*, 46 Cal.App.5th 665 (2020).
[4] *Friends of Coll. of San Mateo Gardens v. San Mateo Cnty. Cmty. Coll. Dist.*, 11 Cal.App.5th 596 (2017).

environment and yielded CNEL noise levels that were 3-11 dBA higher than actual, current conditions. In order to comply with CEQA, the Supplemental IS/MND was required to consider the increase in the noise levels caused by the 9 dBA increase to the instantaneous limit. No such analysis was provided in the Supplemental IS/MND.

Further, and most importantly, the Peer Review concluded that the proposed motorcycle races would exceed the interior and exterior noise thresholds established in the Humboldt County General Plan. According to the Supplemental IS/MND, the relevant limit is 60 dBA, which is the upper limit of normally acceptable regularly-occurring noise levels and 65 dBA for short-term noise sources in residential areas.[5] While the Supplemental IS/MND does not clearly state which of these thresholds is applicable to its analysis (itself a CEQA error), the louder motorcycle noise would exceed either of these thresholds. As the Supplemental IS/MND plainly states, and the Peer Review confirms, flat track racing events will result in noise levels exceeding the noise thresholds.[6] As in the original IS/MND before it, the Supplemental IS/MND seeks to justify these exceedances of the General Plan's noise threshold by relying on a "waiver of short-term noise standards where temporary events are operated in conformance with an approved Conditional Use Permit."[7] But, a land use planning waiver in the General Plan is not an appropriate way to analyze noise impacts under CEQA.[8]

Finally, the Peer Review finds that the 2021 tailpipe study provides a flawed mathematical analysis to support the use of motorcycles with a 100 dBA Lmax limit. Mr. Thill concludes that an actual measurement of tailpipe noise is needed to provide the substantial evidence needed to conduct a full and accurate noise analysis under CEQA.

The expert opinions provided by the Noise Review and Peer Review expert constitute substantial evidence that the proposed Project will have a significant and unmitigable noise impact. An EIR is clearly required to evaluate the proposed CUP modification to permit an increase in motorcycle noise at the Fairgrounds.

Based on the foregoing, a fair argument exists that the enhanced motorcycle noise will have a significant noise impact. Only after a full environmental review is completed through an EIR will the County have sufficient information to determine whether it can make the findings necessary to approve the proposed CUP modification.

[5] Supplemental IS/MND, Section 3.2.1, pg. 14.
[6] Supplemental IS/MND, Section 3.2.1, pg. 15.
[7] Supplemental IS/MND, Section 3.2.1, pg. 16.
[8] *Berkeley Keep Jets Over the Bay Comm. v. Bd. of Port Comm'rs*, 91 Cal.App.4th 1344, 1380 ("Given the uniqueness of the CEQA standard, the fact that residential uses are considered compatible with a noise level of 65 decibels for purposes of land use planning is not determinative in setting a threshold of significance under CEQA.").

For similar reasons, the Planning Commission's findings to approve the modified CUP are not supported by substantial evidence. Specifically, the findings relating to CEQA are in error for the various CEQA violations identified above. The evidence in support of the modified CUP's consistency with the General Plan's Noise Element are flawed because, as noted in the Noise Review, Peer Review, and the Supplemental IS/MND itself, the enhanced motorcycle noise will exceed the General Plan's noise standards. Finally, the enhanced motorcycle noise will cause a significant impact on noise, a quintessential component of public health, safety, and welfare. This is contrary to the evidence relied upon by the Planning Commission to find that the modified CUP will not be detrimental to public health, safety, and welfare.

On May 2, 2022, this office submitted a letter on behalf of Friends of Ferndale in connection with the Planning Commission's consideration of the modified CUP and Supplemental IS/MND. This letter also included our August 25, 2020 letter to this Board providing comprehensive comments on the original IS/MND, much of which was retained in the Supplemental IS/MND. All of those comments are incorporated into the administrative record for this item.

Should you have any questions, please do not hesitate to contact me.

Very truly yours,

Nicholas R. Ghirelli

Attachments:
1) Noise Monitoring Services, Review of Noise Impact Study for Humboldt County Fairgrounds
2) Illingworth & Rodkin, Flat Track Racing at the Humboldt County Fairgrounds Peer Review of the Noise Analysis

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Noise Monitoring Services
Sound and Vibration Measurement, Testing & Consulting

August 21, 2020

Friends of Ferndale for a Livable Community
C/O Nicholas Ghirelli, Richards, Watson & Gershon

Subject: Review of Noise Impact Study for Humboldt County Fairgrounds

Dear Mr. Ghirelli,

As requested, we have reviewed the *Noise Impact Study: Flat Track Racing at Humboldt County Fairgrounds* (August 2018) and the *Noise Study Addendum: Open Air Concerts Rev 2* (February 11, 2020), prepared by Whitchurch Engineering.

The noise impact study and its addendum concern the increased use of the venue for motorsports events and concerts, which are proposed to be held between March and October outside of the 6-week period in August and September associated with the Humboldt County Fair setup, operation, and cleanup. It is proposed that up to four motorsports events and ten concerts will held at the venue each year excepting the six-week period August 1st through September 15th. The motorsports events will generally involve motorcycle racing. However, one of the motorsport events each year may include monster trucks and the mitigated negative declaration's project description identifies tractor pulls, 4x4 truck events, and go carts as other possible events.

The nearest sensitive receptors are residences within the City of Ferndale on Arlington Avenue, Main Street and Van Ness Avenue; a school on Main Street; and residences in unincorporated Humboldt County on Van Ness Avenue.

On reviewing the Whitchurch noise study, we conclude it contains several omissions and unrealistic assumptions that lead to misleading conclusions. Ambient noise levels have not been adequately documented. The declaration document contradicts the conclusions of the noise study, which indicates that noise levels will exceed the County's noise standards even when mitigation is incorporated. The study also contains estimates of interior noise levels that are based on unrealistic assumptions. These issues are explained in more detail below.

Noise Standards

Although the project site is located within the City of Ferndale, according to the noise study the noise standards that apply to the project are those contained in the Humboldt General Plan.

The Humboldt County General Plan contains noise standards that apply at interior and exterior areas of sensitive uses. For residential properties, an exterior Community Noise Equivalent Level (CNEL) of up to 60 dBA is considered 'normally acceptable'. CNEL's are calculated by averaging the sound level over a period of 24 hours after applying a correction to the evening and nighttime noise levels to account for the increased sensitivity to noise during these periods. The required interior CNEL in habitable rooms is 45 dBA.

The General Plan also contains short-term performance standards for various land uses. These performance standards are provided as maximum noise levels (Lmax). For residential uses, the Lmax may not exceed 65 dBA during the daytime hours (6 am to 10 pm) or 60 dBA during the nighttime hours (10 pm to 6 am). These short-term standards do not apply to temporary events in conformance with an approved Conditional Use Permit

When a discretionary project has the potential to generate noise levels in excess of the General Plan standards, a noise study is required to assure compliance with the standards. The noise study must include measured or modeled CNEL's and Lmax levels at property lines and receptor locations.

Ambient Sound Levels

As part of the noise study, Whitchurch obtained ambient measurements at one location during two 2-hour daytime periods. The measurements were obtained between 8 am and 10 am, and between 2 pm and 4 pm on Thursday, June 21 and Friday, June 22, 2018 at a location south of the site on Arlington Avenue. These measurements were used to estimate the ambient 24-hour CNEL at this location. The reports states that the primary sources of ambient noise were traffic on Arlington Avenue and residential noise sources, including mowers and power tools.

In our opinion, these measurements are inadequate to document existing ambient noise conditions in the project vicinity. A single measurement location cannot represent the range of noise levels that will be present in the area. This noise measurement was obtained at the residential property line closest to the road. It would be expected that properties on other roads in the area will be exposed to different ambient noise levels. Furthermore, the method used to estimate the CNEL from the short-term measurement is unlikely to lead to a reliable estimate. Whitchurch has estimated the ambient CNEL by assuming that the noise levels measured during the brief measurements would be constant throughout a 24-hour period. In reality, traffic noise is invariably much quieter during the nighttime hours. It is safe to assume that there would also be minimal noise from residential sources at night. These factors have not been accounted for in the study's CNEL estimates. The estimated ambient CNEL's have therefore almost certainly been significantly overestimated. It should also be noted that the measurements were obtained on weekdays, when traffic patterns may be different to weekend days when ambient noise may be lower.

In any environmental noise study, it is important to document the existing ambient noise levels. To properly document ambient sound levels, 24-hour sound measurements should be obtained at a selection of sensitive receptors in the area that are potentially impacted by the project. The measurement program

should include sensitive receptors in quieter areas located away from roads to ensure that worst-case (lowest) ambient noise levels are documented. The CNEL levels should be directly measured and should not be estimated from brief measurements. If the proposed events at the facility are to be held at weekends then the ambient measurements should be obtained on weekend days. Until these measurements are performed, it is not possible to comprehensively assess the project's noise impact by comparing motorsports and concert noise levels against the existing ambient noise levels.

Due to the frequency and ongoing nature of the proposed events, the project should be treated as one that will result in a permanent increase in ambient noise. In our experience, a common approach to minimizing the impact of this type of project is to limit the noise to below the existing ambient sound level. This approach ensures the project noise never increases the overall noise level by more than 3 dBA, which is considered a 'barely perceptible' increase.

Motorsport Event Assessment

The Whitchurch report includes estimates of interior and exterior noise levels at the nearby sensitive receptors during motorcycle racing events. The estimated noise levels are derived from actual motorcycle racing event noise at the track. No analysis is presented for monster truck events or other possible motorsports events. In our opinion the estimated unmitigated noise levels of 93.4 dBA Lmax and 77.4 dBA CNEL at the receptors on Arlington Avenue, and 93.7 dBA Lmax and 75.7 dBA CNEL at the receptors on Highway 211 have been calculated appropriately and are valid. The report includes estimated mitigated noise levels based on reduced hours of racing, reduced number of racers and mitigated motorcycle exhaust systems. It is noted that even with all possible mitigation measures (ie. the shortest racing duration, fewest number of racers and maximum exhaust mitigation) the estimated noise levels still exceed the County's general plan standard of 60 dBA CNEL at sensitive receptors. This undermines the 'Less than significant impact with mitigation incorporated' declaration in the Initial Study and Proposed Mitigated Negative Declaration. Mitigated Lmax levels have not been fully addressed in the report (presumably to avoid having to declare a significant impact). However, based on the information contained in the report, it may be concluded that fully mitigated motorcycle racing events will produce noise levels up to 80 dBA at the nearest residences. They will therefore exceed County's exterior daytime Lmax limit of 65 dBA by as much as 15 dBA. As previously stated, a comparison of the motorsport event noise levels against the existing ambient sound levels is absent from the noise study. The absence of any analysis for monster truck events and other motorsport events means that noise due to motorsport events has not been fully assessed.

Section 4.4.2 of the Whitchurch study states that interior noise levels at nearby residences will be between 14.4 dB and 53.4 dB during peak, intermittent events. This estimate is based on applying a 40 dB correction to the estimated exterior Lmax noise levels to account for the noise reduction of the building walls. The study references Gypsum Association's "*Fire Resistance Design Manual and Sound Control: GA-600-2006*" as a source of this information. Our review of this document indicates it contains no such guidance. Furthermore, multiple sources indicate this assumption is unrealistic for wood-framed

residential structures. Commonly quoted noise reductions for residential wood-frame buildings are 20 to 25 dB of reduction. Sources that quote this exterior-to-interior reduction include the Caltrans *Technical Noise Supplement to the Traffic Noise Analysis Protocol* (2013) and the FHWA *Highway Traffic Noise: Analysis and Abatement Guidance* (2011).

These documents indicate that exterior-to-interior noise reductions above 30 dB may be achieved with masonry walls, or buildings with curtain walls. Since many of the buildings close to the site are older wood-frame structures, a suitable assumption for their exterior-to-interior noise reduction is 20 dB. The actual interior noise levels are likely to be 20 dBA higher than stated in the Whitchurch report. Based on an assumed exterior-to-interior sound reduction of 20 dB, the interior noise levels will exceed the County's interior noise limit of 45 dBA CNEL for any scenario where the exterior level exceeds 65 dBA CNEL. Most of the mitigated scenarios presented in Table 8 of the Whitchurch report will therefore result in an exceedance of the interior noise limits.

Concert Assessment

The Whitchurch noise study addendum assesses the noise impact of concerts using reference concert sound level data as a basis. Concerts may begin between 6 pm and 7 pm, and end between 10 pm and 10:30 pm. The report indicates that unmitigated noise levels will significantly exceed the County's CNEL and Lmax noise standards for residential properties. The study proposes a combination of reduced concert durations, sound walls and concert sound monitoring to reduce noise levels at sensitive receptors. The study provides anticipated noise reductions due to the sound wall of between 18.2 and 21.6 dB. In our experience in designing acoustical barriers, reductions this high are rare. The actual reduction will be dependent on the frequency spectrum of the source, the source and barrier heights, and the distances from the source to the barrier and the barrier to the receptor. It is not clear how Whitchurch have calculated the expected barrier performance. However, we would recommend a full 3D sound modeling study to determine the actual barrier performance. This will enable noise maps to be produced showing how the sound will spread into the community and aid in the decision-making process.

The issues with the assessment of concerts are broadly the same as those discussed above for motorsports events. The study indicates that even with a fully mitigated concert event, the noise levels will still exceed the County's CNEL noise standard of 60 dBA CNEL. The study does not address compliance with the County's Lmax noise standards (and in fact provides some evidence that this standard will be significantly exceeded). The study does not address concert noise levels relative to ambient sound levels (as noted above, ambient sound levels have not been adequately documented and a comprehensive assessment is not currently possible). The concert analysis again assumes an unrealistic exterior-to-interior noise reduction of 40 dBA, and is likely underestimating interior noise levels by about 20 dBA.

Summary

In summary, the Whitchurch noise study is deficient in multiple areas. These are:

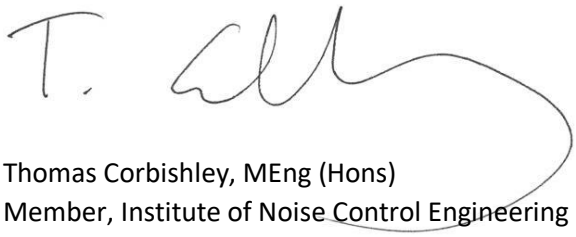
- Ambient sound levels in the community have not been adequately documented. The ambient sound levels stated in the report are highly likely to have been overestimated due to unrealistic assumptions concerning noise made by traffic throughout the day. The report does not propose a threshold of significance, or assess motorsports noise or concert noise against existing ambient sound levels.

- The 'Less than significant impact with mitigation incorporated' declaration in the Initial Study and Proposed Mitigated Negative Declaration contradicts the analysis in the noise study, which shows that motorsports event and concert noise levels will exceed the County's General Plan CNEL noise standards. The noise study fails to properly analyze the motorsports event and concert Lmax noise levels. However, it provides enough evidence to indicate that the County's exterior Lmax noise standard will be significantly exceeded.

- The study fails to address the noise levels or the impacts produced by monster truck events or other possible motorsport events.

- The study makes unrealistic and unjustified assumptions concerning the exterior-to-interior noise reduction that will be achieved by the nearby residential structures. When this is corrected for, the data in the study indicates exceedances of the County's interior noise standards during both motorsports events and concerts.

Sincerely,



Thomas Corbishley, MEng (Hons)
Member, Institute of Noise Control Engineering
Principal Consultant

Curriculum Vitae

Thomas T. Corbishley

Position:	Principal Consultant, Noise Monitoring Services (2013-)
Prior Positions:	Environmental Noise Control (2009-2016) Engineering Manager
	Wieland Acoustics, Inc. (2006-2009) Associate Acoustical Consultant
	University of Southampton, UK (2006) Engineer
	Fluid & Acoustic, Ltd (2003-2004) Research Engineer
Education:	Institute of Sound and Vibration Research (ISVR), University of Southampton, UK
	Master of Engineering (MEng) in Acoustical Engineering Graduated with First Class Honors
Memberships:	Member, Institute of Noise Control Engineering (INCE)
Courses:	Advanced Analysis Couse, Bruel & Kjaer SoundPLAN Computer Noise Modeling Course

Mr. Corbishley is an experienced engineer and project manager with 15 years of experience in the field of acoustical consulting. He has managed a wide variety of projects and led teams of acoustical engineers in producing numerous noise studies. As an engineer with a strong educational and theoretical background in acoustical principles, as well as extensive experience as a consultant, he brings effective project management and strong analytical and problem-solving skills to the projects.

Types of projects managed include long and short-term sound and vibration monitoring programs, EIR noise studies, new-build residential, commercial and office building noise studies, carwash noise studies, studies for hotels, restaurants and bars, interior noise criterion (NC) and reverberation assessments, OSHA noise assessments, water well drilling studies, oil & gas drilling, fracking and production facility studies, mechanical equipment noise certification, traffic and railroad noise studies, shooting range noise analyses, municipal code compliance assessments, blasting and mining noise studies and factory noise studies.

Recent Project Information

The following list provides examples of recent projects completed:

Edinger Bridge Construction, Huntington Beach, CA
Our services on this project include underwater (hydroacoustic) monitoring of noise levels during the installation of bridge piles during three construction phases. Noise levels were measured in accordance with FHWG guidelines. Our onsite personnel provided real-time noise level data to the County, as well as advice on mitigation measures (use of bubble curtains and the effect of water levels on noise).

Lemon Well Drilling, Bradbury, CA
Work included water well drilling noise modeling before construction to determine mitigation measures required to achieve compliance with the City's noise limits. Compliance measurements were performed during drilling.

Well 110 Replacement Project, Temecula, CA
Noise modeling was performed to determine mitigation measures required to achieve compliance with the Rancho California Water District noise limits.

Porsche Experience Center, Carson, CA
This long-term ongoing project requires noise monitoring of a new Porsche race track near Los Angeles. Currently, Phase 1 noise monitoring requires weekly site visits and monthly reporting of sound levels relative the project's Conditions of Use. Future phases will include intensive, continuous monitoring as the surrounding areas are built up.

Don Pedro Reservoir Transmission Line Construction, Jamestown, CA
The project involved vibration monitoring adjacent to a reservoir during drilling for the construction of transmission lines crossing the water. Due to an existing underground pipe, the specifications required construction to be halted if vibration levels exceeded a pre-determined threshold. NMS wrote the monitoring plan and provided monitoring equipment that provided instantaneous vibration warnings.

Marine Pump Sound and Vibration Certification, Tustin, CA
Sound and tri-axial vibration testing of marine pumps and water separators to the requirements of the American Bureau of Shipping (ABS) Guide for Crew Habitability on Offshore Installations. The pumps were tested for the purpose of certification before their installation on shipping vessels. Full testing reports with documentation of test methodology and data were generated for various pieces of equipment.

Pile Driving Vibration Monitoring, Los Angeles International Airport, CA
This project involved the monitoring of vibration produced by ABI machines during the installation of shoring associated with the construction of the new Tom Bradley International Terminal at LAX. Both unattended and attended vibration monitoring services were provided for multiple contractors for the project.

Condo Vibration Assessment, Alhambra, CA
Project involved interior floor vibration measurements caused by a restaurant's kitchen extraction system fans. The vibration was assessed against the Federal Transit Administration's groundbourne vibration criteria before and after the installation of resilient mounts on the equipment.

Noise Analysis for Mixed-Use Development, Glendale, CA
An exterior-to-interior noise analysis was performed for a proposed mixed-use project in Glendale that included residential and commercial uses. Future estimated traffic noise was modeled at the site using three-dimensional noise modeling software. Construction recommendations were provided for the buildings, including the required Sound Transmission Class (STC) ratings for the windows and doors.

Cafe Reverberation Testing, Los Angeles, CA
Noise level and reverberation time testing inside a café to determine solutions to reduce the sound level of an extraction unit and specify the quantity of placement of acoustically absorptive material to install. Solutions to reduce noise levels were provided for the extractor and HVAC fans generating the noise and product and installation recommendations for sound absorptive panels.

Construction Noise Analysis for Riverbank Replacement, Los Angeles, CA
Work involved the prediction of noise levels during various phases of construction and design of noise mitigation measures to achieve the specified noise limits using three-dimensional noise modeling software. The work was performed for several individual project sites along the river.

Bolt Factory Noise Assessment, Carson, CA
Workplace noise assessment in a bolt factory. The project involved establishing worker locations where compliance with OSHA noise limits was not being achieved and designing mitigation measures to reduce noise exposure levels. Solutions were provided to reduce the noise generation at the sources and mitigate sound transmission paths with the use of acoustical enclosures, barriers and absorptive panels.

Pipeline Replacement Sound and Vibration Monitoring, Ventura County, CA
The work involved the production of a Noise and Vibration Control Plan with construction noise analysis and mitigation requirements for a horizontal directional drilling operation. Sound and vibration was monitored throughout the project and daily monitoring reports produced.

Pile Driving Vibration Monitoring, Hollywood, CA
Continuous vibration monitoring during soldier pile installation by a vibratory method using ABI machines. Vibration was monitored and assessed against the project specifications. Compliance was monitored in real time by a technician at the site and daily monitoring reports were provided to the client.

Sheet Pile Installation and Removal Vibration Monitoring, San Jose, CA
Vibration monitoring during the installation and removal of sheet piling for a grade separation project in San Jose. Monitoring was performed adjacent to residences by an on-site technician and data reports were provided daily to the client.

Construction Noise Monitoring during Water Tank Replacement, Beverly Hills, CA
Continuous noise monitoring during construction activities associated with the rebuilding of water tanks. Weekly monitoring reports were provided, which included an assessment of impact relative to the County of Los Angeles construction noise limits.

Oil Production Site Environmental Impact Report Noise Study, Hermosa Beach, CA
Environmental Impact Report (EIR) noise study for an urban oil production site in Hermosa Beach. The project involved computer modeling and analysis of noise for all construction, drilling and production phases and an assessment of traffic noise and vibration. Mitigation measures were designed to eliminate significant noise impacts and achieve local City ordinances and General Plan noise standards.

Noise Modeling of Gas Production Facilities, Queensland, Australia
Noise levels were modeled for three natural gas processing and compression facilities along a proposed pipeline route. The noise levels were predicted using SoundPLAN three-dimensional noise modeling software with noise levels based on manufacturer equipment data. Mitigation systems were designed to meet compliance with stringent noise limits at nearby residences under a variety of climate conditions.

Freeway Traffic Noise Assessment and Study Review, Santa Barbara, CA
Work involved reviewing a Caltrans freeway study to review sound wall recommendations on a section of freeway adjacent to residences. Noise measurements were obtained to determine the traffic noise levels at the residences and assess the adequacy of modeling assumptions.

Code Compliance Assessment for Industrial Facility, Lynwood, CA
Noise measurements were obtained for an industrial facility adjacent to a residential area where complaints about the facility's truck noise had been received. The measurements were made in order to verify whether noise citations had been correctly issued.

ILLINGWORTH & RODKIN, INC.
Acoustics • Air Quality
429 E. Cotati Avenue
Cotati, CA 94931
Tel: 707-794-0400 *Fax: 707-794-0405*
www.illingworthrodkin.com *illro@illingworthrodkin.com*

July 1, 2022

Stephen Avis
P.O. Box 777
Ferndale CA 95536

VIA E-MAIL: ferndale1057@gmail.com

SUBJECT: **Flat Track Racing at the Humboldt County Fairgrounds**
Peer Review of the Noise Analysis

Dear Stephen:

This letter presents our peer-review of the noise analysis[1] and supplemental letter[2] related to Flat Track Racing at the Humboldt County Fairgrounds in Ferndale, California, prepared by Whitchurch Engineering, Inc. The analysis has been reviewed for approach, accuracy, and completeness. The key issues for the peer review were to confirm that the correct significance criteria were used and that key issues have been properly evaluated. Limited quantitative analyses were completed to confirm predicted noise levels.

The following are our specific comments related to the February 11, 2020 noise analysis:

Section 4.2.1, Ambient Noise Impact. As part of the noise analysis, noise measurements were made at one location south of the fairgrounds along Arlington Avenue to establish ambient noise levels. The measurements were made over two, two-hour periods (8:00 – 10:00 am and 2:00 – 4:00 pm). The measured average noise level (L_{eq}) data were used to roughly estimate CNEL noise levels in the project vicinity. However, based on our review of the supplied data, the study incorrectly assumed that the average noise levels measured during the two, two-hour periods were representative of noise levels throughout the day. The assumption overstated noise levels, particularly during the evening and night, when ambient noise levels are less. Based on this incorrect assumption, the ambient CNEL noise level was estimated to range from 61 to 62 dBA CNEL. No ambient noise measurements were made as part of the noise analysis to represent the nearest sensitive receptors to the east.

Noise measurement data collected by our firm (summarized in Appendix A) show that ambient noise levels vary throughout the day and night, with CNEL noise levels ranging from 54 to 58

[1] Noise Impact Study, Flat Track Racing at Humboldt County Fairgrounds, Whitchurch Engineering, Inc., February 11, 2020.
[2] Tailpipe Noise Level Estimation for Race Testing, Humboldt County Fairgrounds Noise Study, Whitchurch Engineering, Inc., July 13, 2021.

dBA CNEL at the Arlington Avenue location south of the fairgrounds. Noise levels were even less to the east at the Highway 211 location, ranging from 51 to 53 dBA CNEL.

The ambient noise environment was incorrectly established in the noise analysis based on a very limited data set and incorrect assumptions about how noise levels vary over the course of a 24-hour period. The flawed methodology yielded CNEL noise levels 3 to 11 dBA higher than the CNEL noise levels measured by our firm.

Recommendation: Subsequent noise studies should adequately quantify ambient noise levels in the area through comprehensive noise measurements. CNEL noise levels should not be estimated based on limited data. The size of the study area should also be increased to assess potential impacts at more distant receptors.

Section 4.2.2, Exceedance Testing. The noise analysis measured noise levels produced by three motorcycles during simulated racing conditions. The measured noise data were then adjusted to account for additional racers, with up to 18 motorcycles during each race. The supplied data indicates that the CNELs attributable to racing events assumed that racing would occur between the hours of 2:00 pm and 11:00 pm. Based on the methodology and assumptions, CNEL noise levels were estimated to range from 76 dBA at the Arlington Avenue receptor position to 77 dBA at the Highway 211 receptor position. The noise analysis used mathematical models to adjust the data generated by a small number of motorcycles. It would have been more appropriate to collect data during a similar racing event, with a similar numbers of riders, and use that data to estimate noise levels from the proposed racing events.

As noted above, noise measurement data collected by our firm show that ambient noise levels range from 54 to 58 dBA CNEL at Arlington Avenue receptors to the south and from 51 to 53 dBA CNEL at Highway 211 receptors to the east. The predicted CNEL noise levels attributable to racing would produce noise levels that would exceed ambient conditions by 18 to 22 dBA CNEL at receptors to the south and by 24 to 26 dBA CNEL at receptors to the east. 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. Therefore, these noise increases due to racing events would be considered substantial, and would cause annoyance and disruption in the surrounding community.

The noise analysis also makes a faulty assumption that noise levels within residences would be 40 dB less than exterior noise levels based on the "assumed wall construction of an average single-family residence." The 40 dB estimate used in the noise analysis assumes the reduction provided by a standard wall, but completely ignores the fact that there are openings in the residential walls for windows and doors, and that these windows and doors may be open during the races for ventilation. Windows and doors are the acoustical weak link in a wall system. When accounting for windows and doors, typical attenuation indoors is 12-17 dBA with open windows. With closed windows in good condition, the noise attenuation factor is around 20 dBA for an older structure and 25 dBA for a newer dwelling.

Therefore, assuming exterior noise levels reaching 93 dBA L_{max} at the exterior of the buildings, as presented in the noise analysis, interior noise levels within residences could be expected to range from 68 dBA L_{max} with the windows closed to 78 dBA L_{max} with the windows open for ventilation. Such noise levels would result in activity interference indoors and outdoors. On days with motorcycle racing, interior CNEL noise levels would range from 52 to 62 dBA at residences to the south and from 51 to 61 dBA CNEL at residences to the east. Interior noise levels would clearly exceed the 45 dBA CNEL noise limit established in the Humboldt County General Plan.

Recommendation: Subsequent noise studies should quantify noise levels from a similar level of racing and not rely on adjustments to account for the increased numbers of riders. Predicted noise levels should also carefully consider the increase in ambient noise levels due to the project in addition to the absolute noise limits established by Humboldt County (see *King and Gardiner Farms, LLC v. County of Kern, 45 Cal. App. 5th 814 - Cal: Court of Appeal, 5th Appellate Dist. 2020*). The interior noise calculations should also be revised to correctly account for windows and doors within the "assumed wall construction of an average single-family residence."

Section 5, Potential Attenuation Measures. Section 5 describes potential attenuation measures including reducing the number of racers, ending racing earlier, and modifications to racing exhausts. A sound wall is also discussed, but is dismissed because it would be cost prohibitive. Reducing the number of racers or ending the racing earlier in the day would only extend the overall duration of the event, assuming that the same number of races would occur and the same number of racers would participate the event. In such cases, a one day event may be stretched to a two day event, doubling the number of days affected by racing and increasing the potential for annoyance and disruption. Modifications to racing exhausts would also not likely be feasible in all cases, as these modifications could be cost prohibitive to the racers or not possible to install on short notice. Even with the implementation of all best available controls, exterior noise levels continue to exceed 60 dBA CNEL and interior noise levels continue to exceed 45 dBA CNEL assuming that residential windows are open for ventilation purposes. Racing noise would substantially increase ambient noise levels and would cause annoyance and disruption in the surrounding community.

Recommendation: Subsequent noise studies should demonstrate that the mitigation proposed by the project would be sufficient to reduce exterior and interior noise levels to acceptable levels and to avoid a substantial increase to ambient noise levels at nearby sensitive receptors.

The following are our specific comments related to the July 13, 2021 supplemental letter:

Tailpipe Noise Level Estimation. The July 13, 2021 letter is highly technical and difficult to follow. If interpreted correctly by our firm, noise measurements were made at distant sites during the exceedance testing (three motorcycle race simulation) discussed in the February 11, 2020 noise analysis. The measured noise levels from the three motorcycles were then mathematically reduced to simulate a single motorcycle, and then, noise levels were mathematically increased to represent noise levels at a distance of 20 inches from the tailpipe.

It is apparent that the consultant did not have the time or resources to conduct appropriate tests, but relied on "mathematical gymnastics" to arrive at a source level that was derived based on

measurements made at locations several hundred feet away. This is analogous to measuring the noise level of a highway at several hundred feet and trying to estimate the noise level produced by one car through mathematical adjustments considering the number of vehicles and distance. This methodology defies logic and is unreliable in terms of accuracy. A simple measurement at the tailpipe of one motorcycle would have provided more valuable data.

Further, an assumption is made that a full exhaust system would provide 20 dB of noise reduction, which leads to a recommended 100 dB L_{max} limit be enforced to ensure the CNEL remains below the County limit. It is not known if the motorcycles that were evaluated had racing exhaust reduction measures in place during the testing, so the 20 dB noise reduction that is assumed to be readily achievable is suspect.

Recommendation: Subsequent noise studies should quantify noise levels from a similar level of racing (both at the source and at the receptors) and not rely on multiple mathematical adjustments to account for varying conditions. Given the importance of the tailpipe noise limit, additional noise measurements and analysis are warranted. Optimistic noise level reductions should also be fully supported by appropriate measurements and modeling.

♦ ♦ ♦

This concludes our comments. Please feel free to contact us with any questions.

Sincerely yours,

Michael S. Thill
Principal Consultant
ILLINGWORTH & RODKIN, INC.

(22-087)

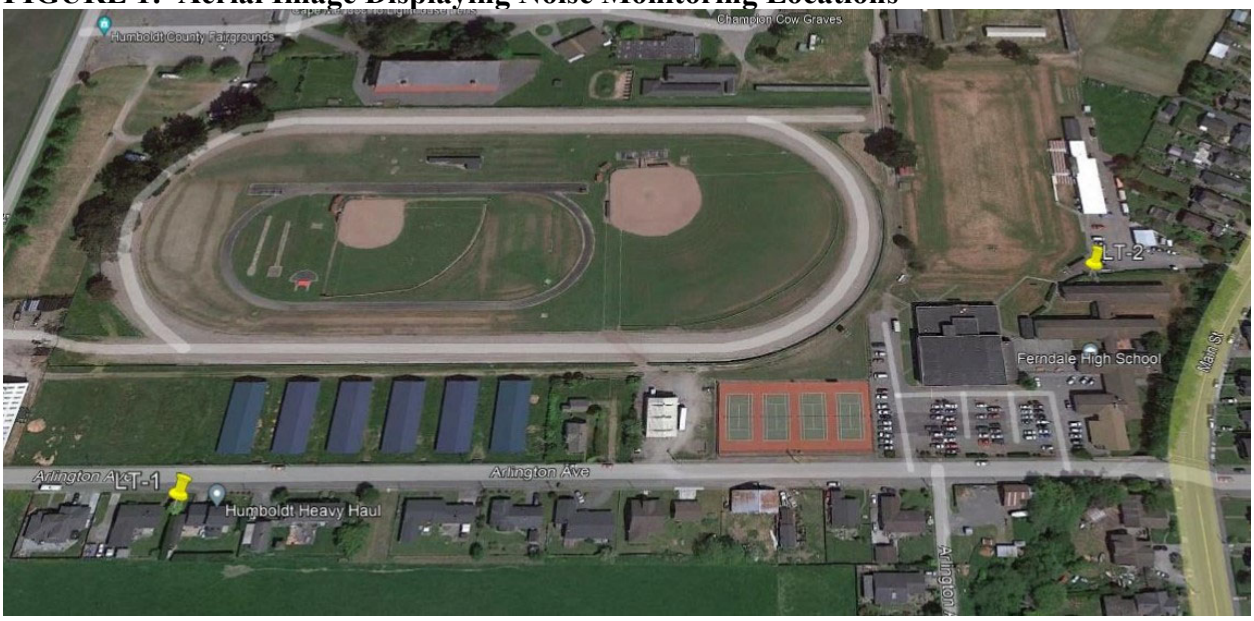
Attachments – Appendix A

APPENDIX A

Existing Noise Environment

Figure 1 shows the Humboldt County Fairgrounds, bordering land uses, and source locations of nearby traffic noise. Ferndale High School borders the fairgrounds to the southeast. A blend of residential and agricultural land uses surround the site with agricultural practices dominating land uses directly to the west. Ferndale High School is a primary noise source during hours of operation while sporadic traffic noise exists along Arlington Avenue.

FIGURE 1: Aerial Image Displaying Noise Monitoring Locations



Source: Google Earth, 2022.

An environmental noise monitoring survey was conducted between Friday, June 10th, 2022, and Tuesday, June 14th, 2022, to determine ambient noise levels at receptors near the Humboldt County Fairgrounds. The survey included two long-term noise measurements (LT-1 and LT-2) and two additional short-term noise measurements conducted at 540 Arlington Avenue and the parking lot of Ferndale High School. All noise measurements were conducted with Larson Davis Laboratories (LDL) Model LxT1 Type I Sound Level Meters fitted with ½-inch pre-polarized condenser microphones and windscreens. The meters were calibrated with a Larson Davis precision acoustic calibrator prior to and following the measurement survey. Weather conditions were good for conducting noise measurements during the survey.

Long-term noise measurement LT-1 was made from the front yard of a residence located at 400 Arlington Avenue, southwest of the fairgrounds. Average noise levels recorded from LT-1 ranged from 46 to 60 dBA L_{eq} during daytime hours (7:00 am and 10:00 pm) while nighttime hours ranged from 31 to 56 dBA L_{eq} (10:00 pm to 7:00 am). CNEL noise levels ranged from 54 to 58 dBA CNEL at the Arlington Avenue location south of the fairgrounds. These data are summarized in Figures 2-6.

Short-term noise measurement (ST-1) was conducted at 540 Arlington Avenue on Tuesday, June 14th, 2022, between 11:50 am and 12:00 pm. Ambient noise levels within the ten-minute measurement period registered between 45 and 48 dBA. The primary noise sources were from automobiles traveling on Arlington Avenue. Passing trucks measured in ranges between 70 to 72 dBA while smaller vehicles (cars) measured in ranges between 65 to 68 dBA. The ten-minute L_{eq} measured at ST-1 was 58 dBA.

Long-term noise measurement LT-2 was made from a utility pole on the campus of Ferndale High School, directly to the west of the fairgrounds. Average noise levels recorded at LT-2 ranged from 40 to 65 dBA L_{eq} during daytime hours while nighttime hours ranged from 36 to 48 dBA L_{eq}. CNEL noise levels at this location ranged from 51 to 53 dBA CNEL. These data are summarized in Figures 7-11.

The second short-term noise measurement (ST-2) was conducted from the staff parking lot at Ferndale High School on Tuesday, June 14th, 2022, between 12:20 pm and 12:30 pm. Ambient noise levels within the ten-minute measurement period registered between 46 and 48 dBA. Primary noise sources were traffic in the distance along Main Street and birds near the meter. Additionally, students and staff members in conversation were measured between 54 and 56 dBA while the birds ranged between 52 and 54 dBA. The ten-minute L_{eq} at ST-2 measured at 51 dBA.

Noise Levels at Site LT-1
400 Arlington Avenue
Friday, June 10, 2022

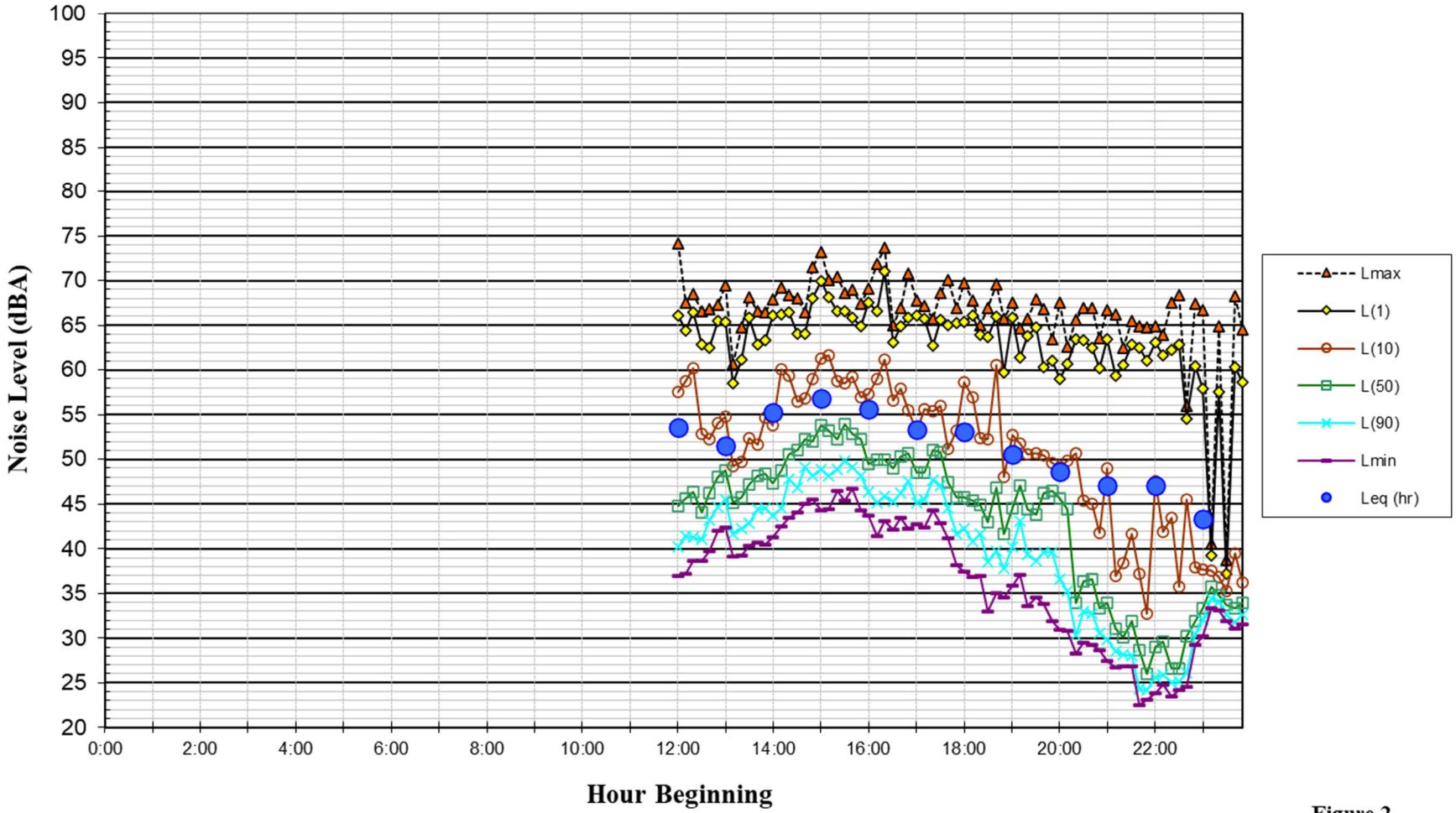
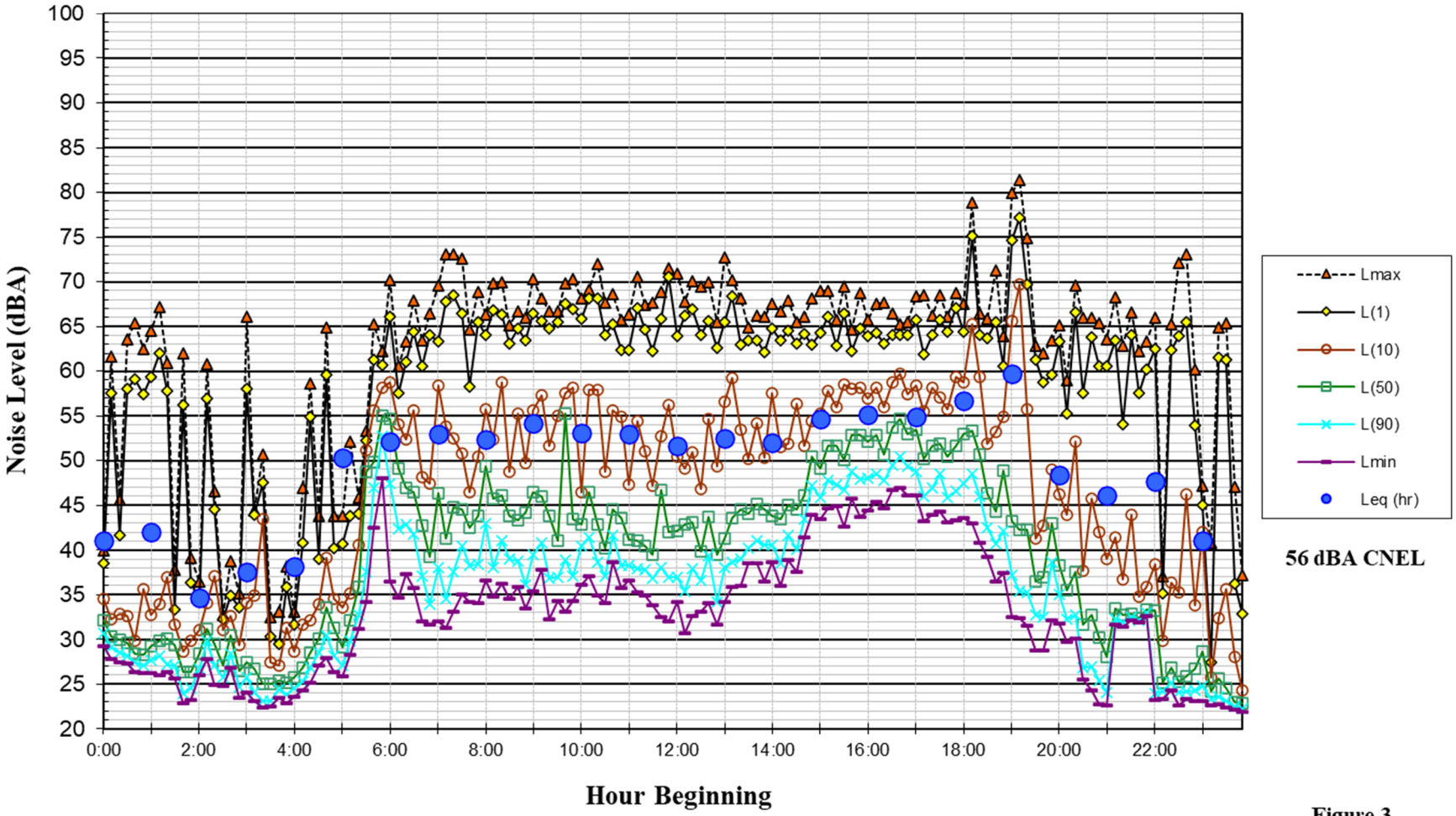


Figure 2

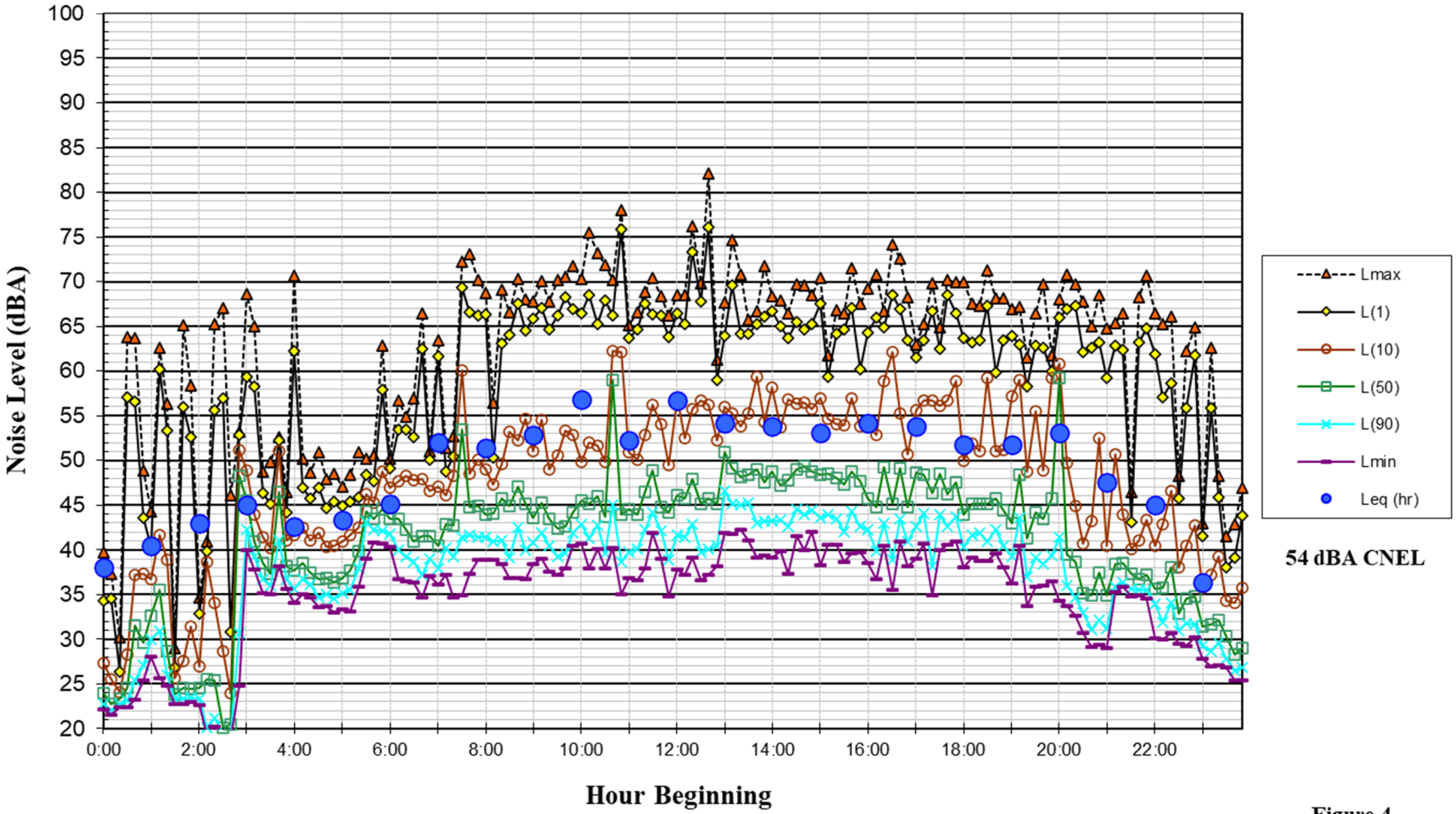
Noise Levels at Site LT-1
400 Arlington Avenue
Saturday, June 11, 2022



56 dBA CNEL

Figure 3

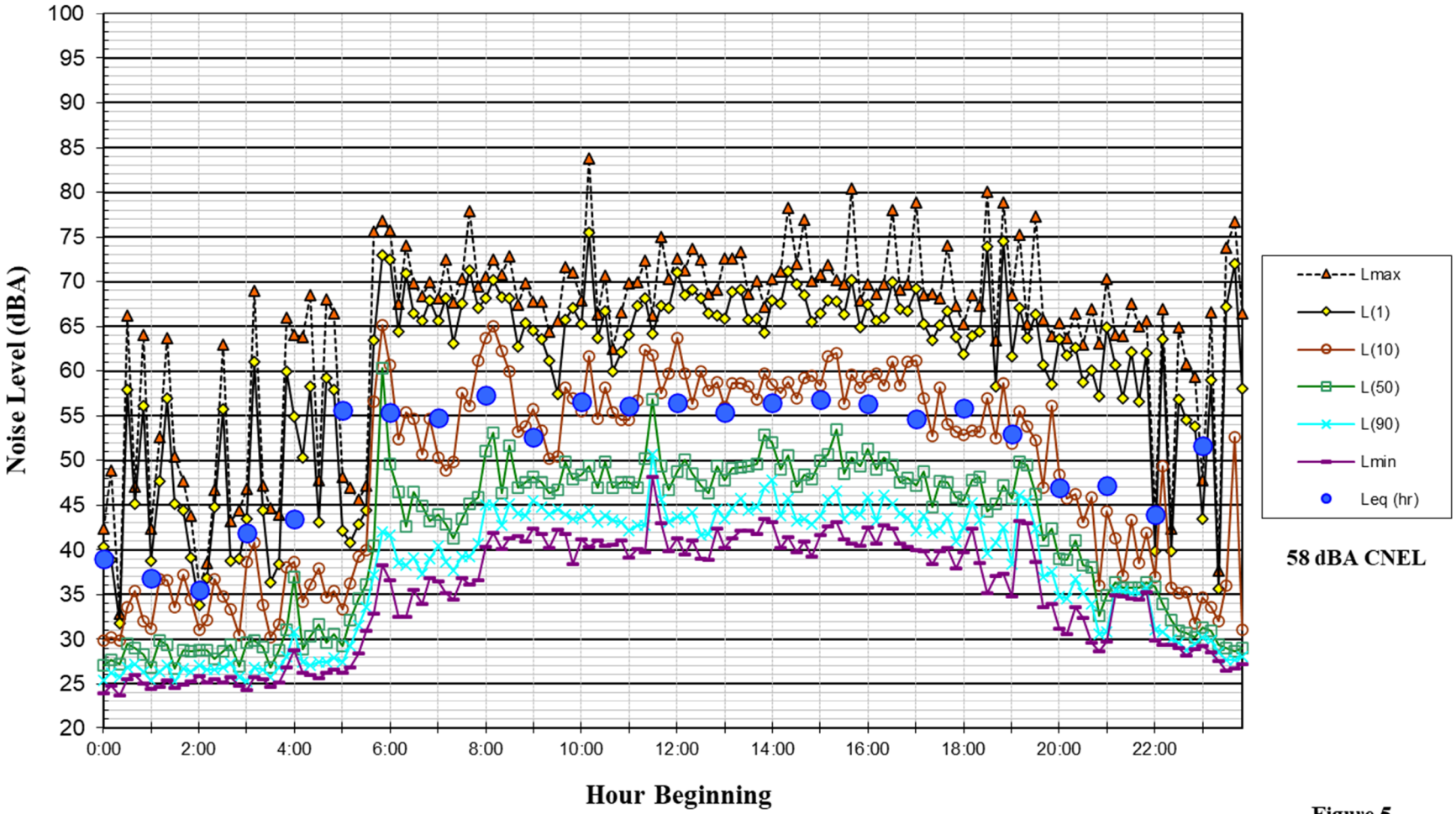
Noise Levels at Site LT-1
400 Arlington Avenue
Sunday, June 12, 2022



54 dBA CNEL

Figure 4

Noise Levels at Site LT-1
400 Arlington Avenue
Monday, June 13, 2022



58 dBA CNEL

Figure 5

Noise Levels at Site LT-1
400 Arlington Avenue
Tuesday, June 14, 2022

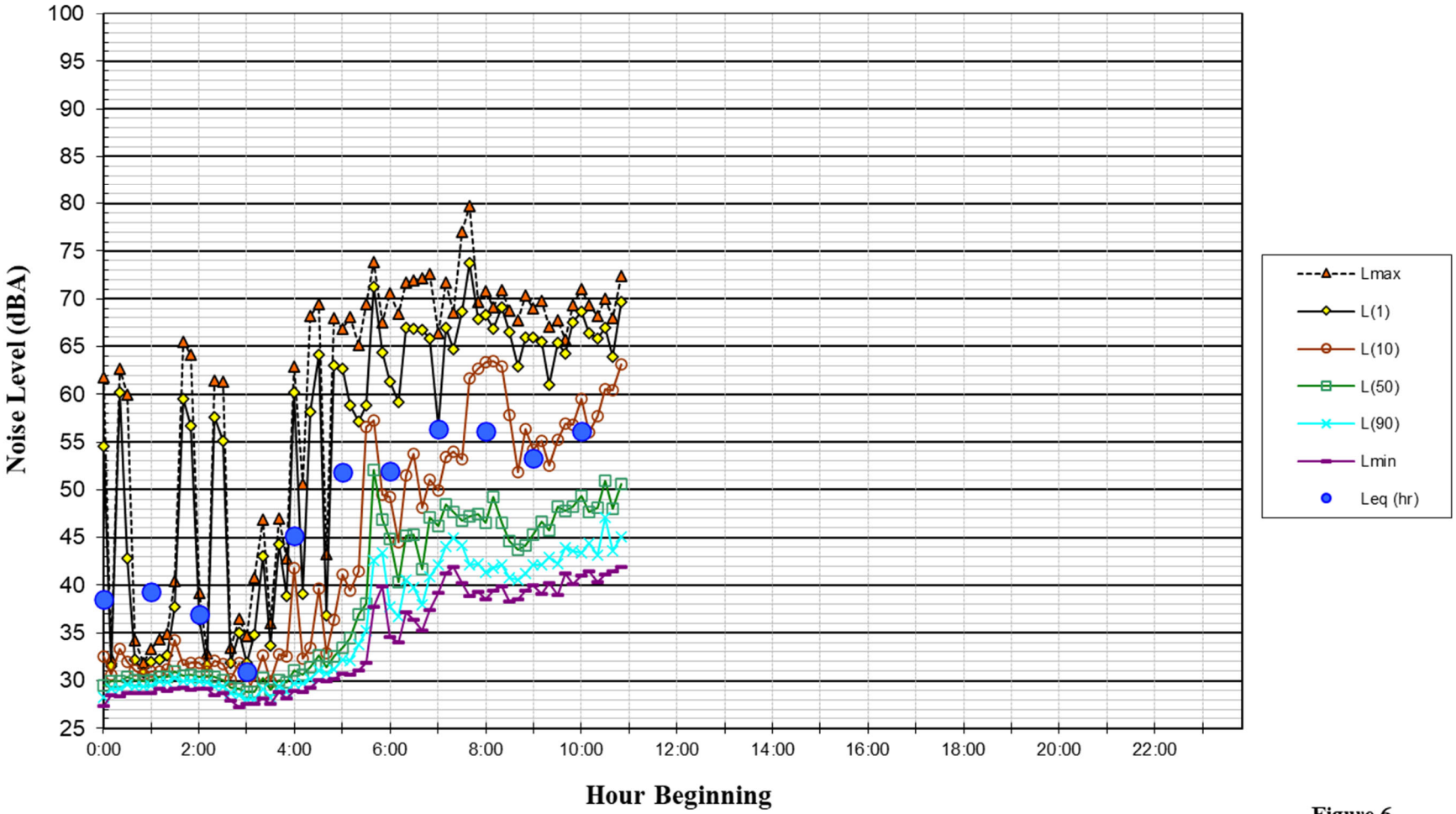


Figure 6

Noise Levels at Site LT-2
Ferndale High School, Main Street Residences
Friday, June 10, 2022

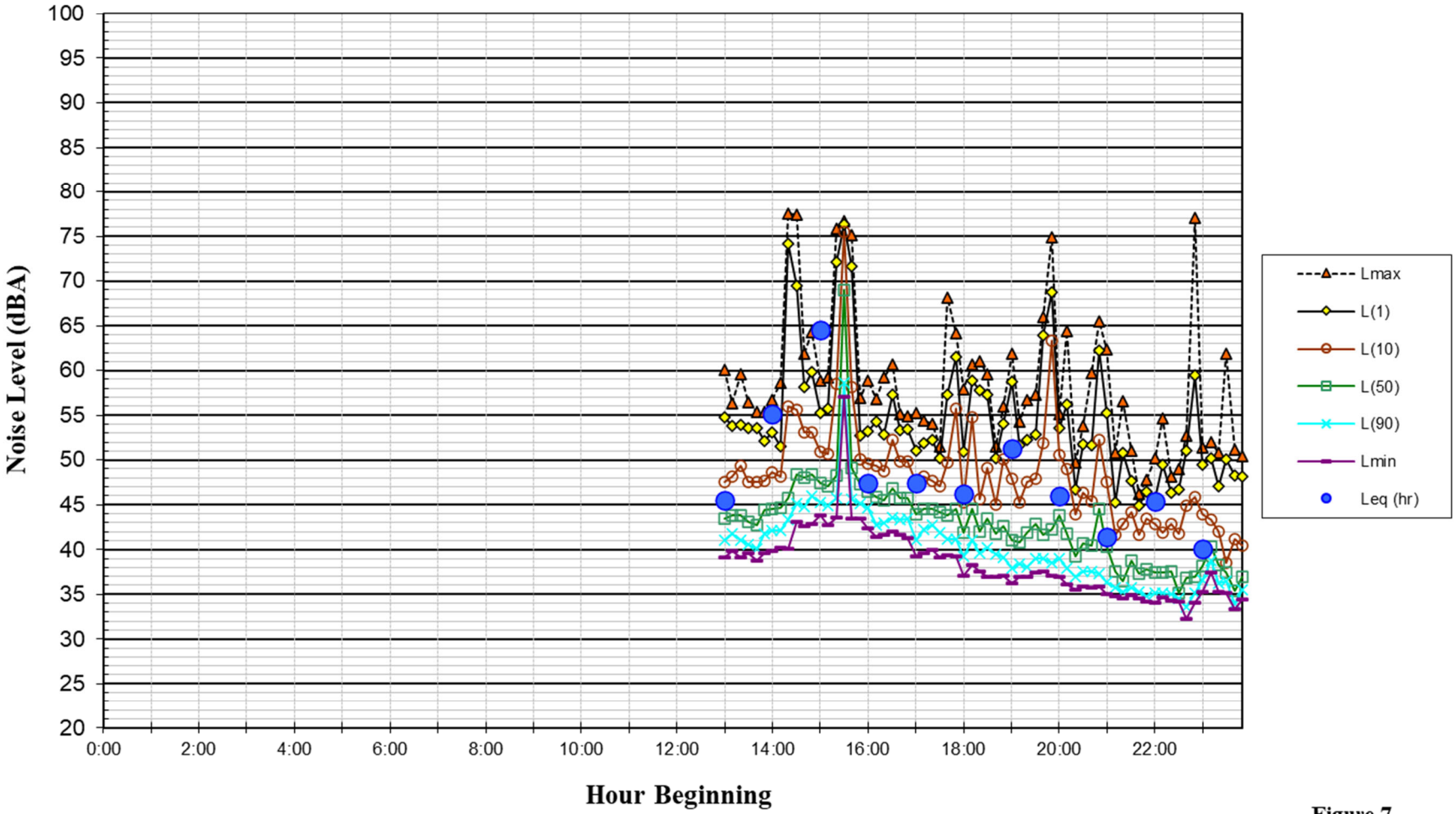
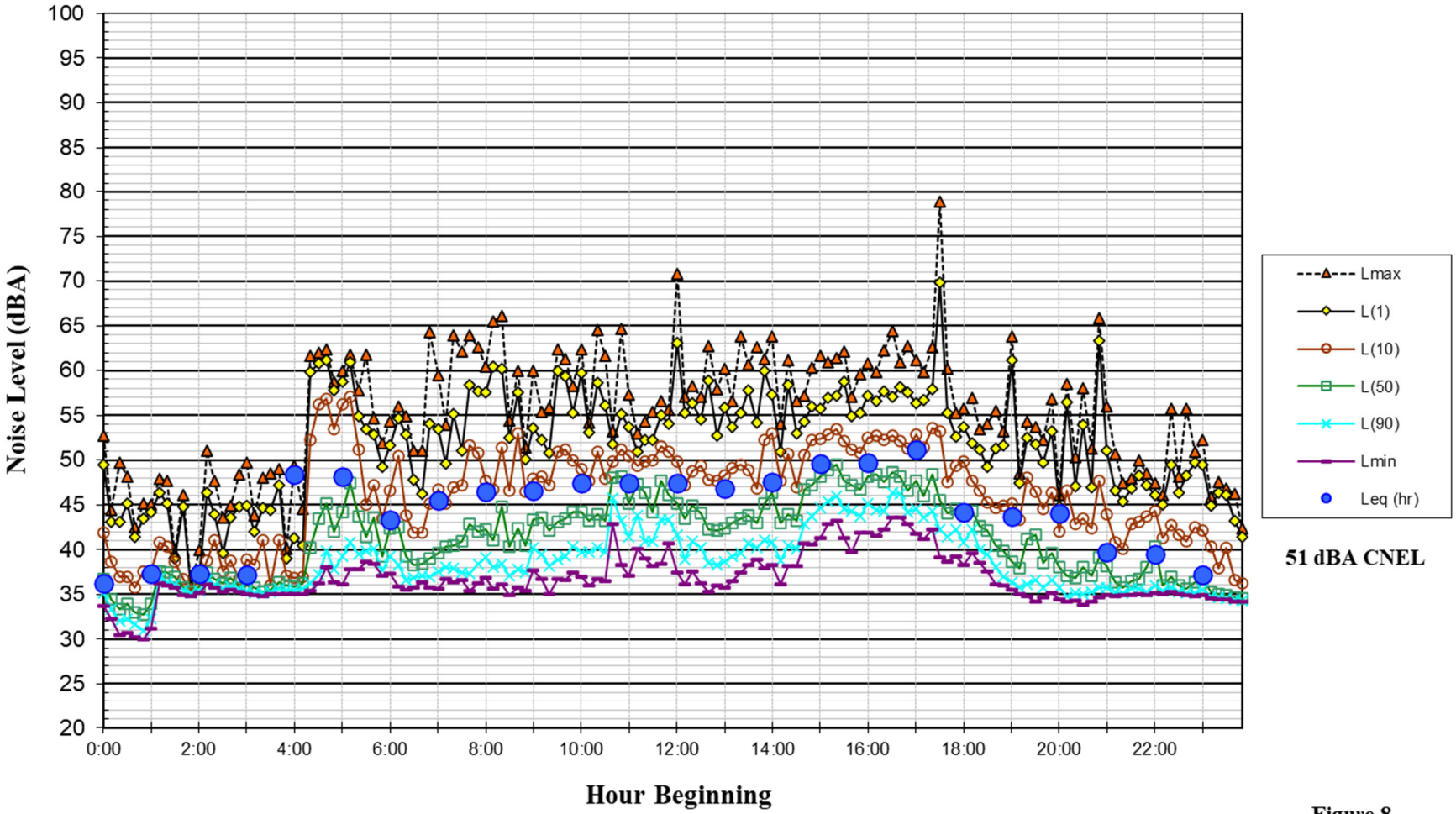


Figure 7

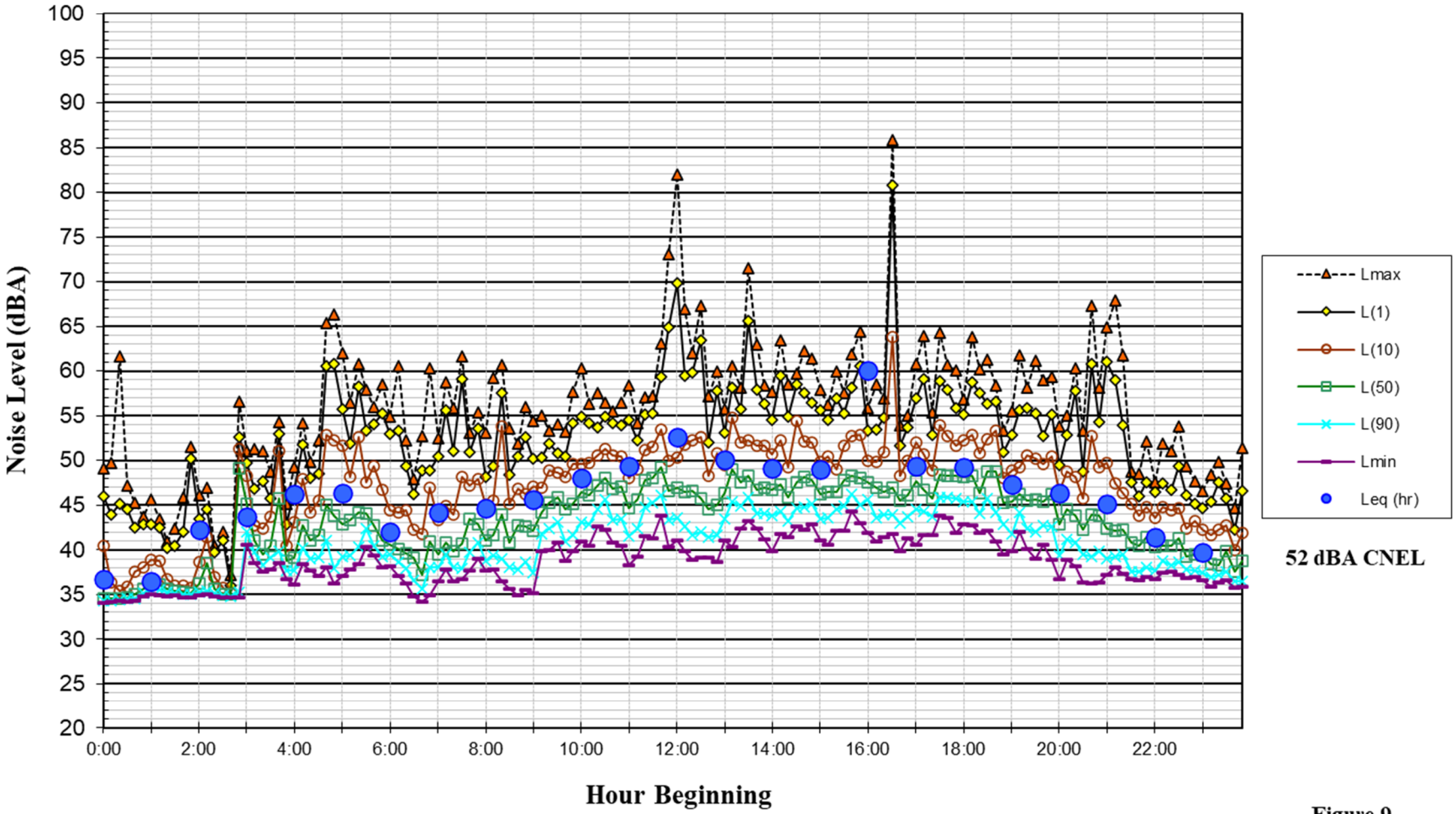
Noise Levels at Site LT-2
Ferndale High School, Main Street Residences
Saturday, June 11, 2022



51 dBA CNEL

Figure 8

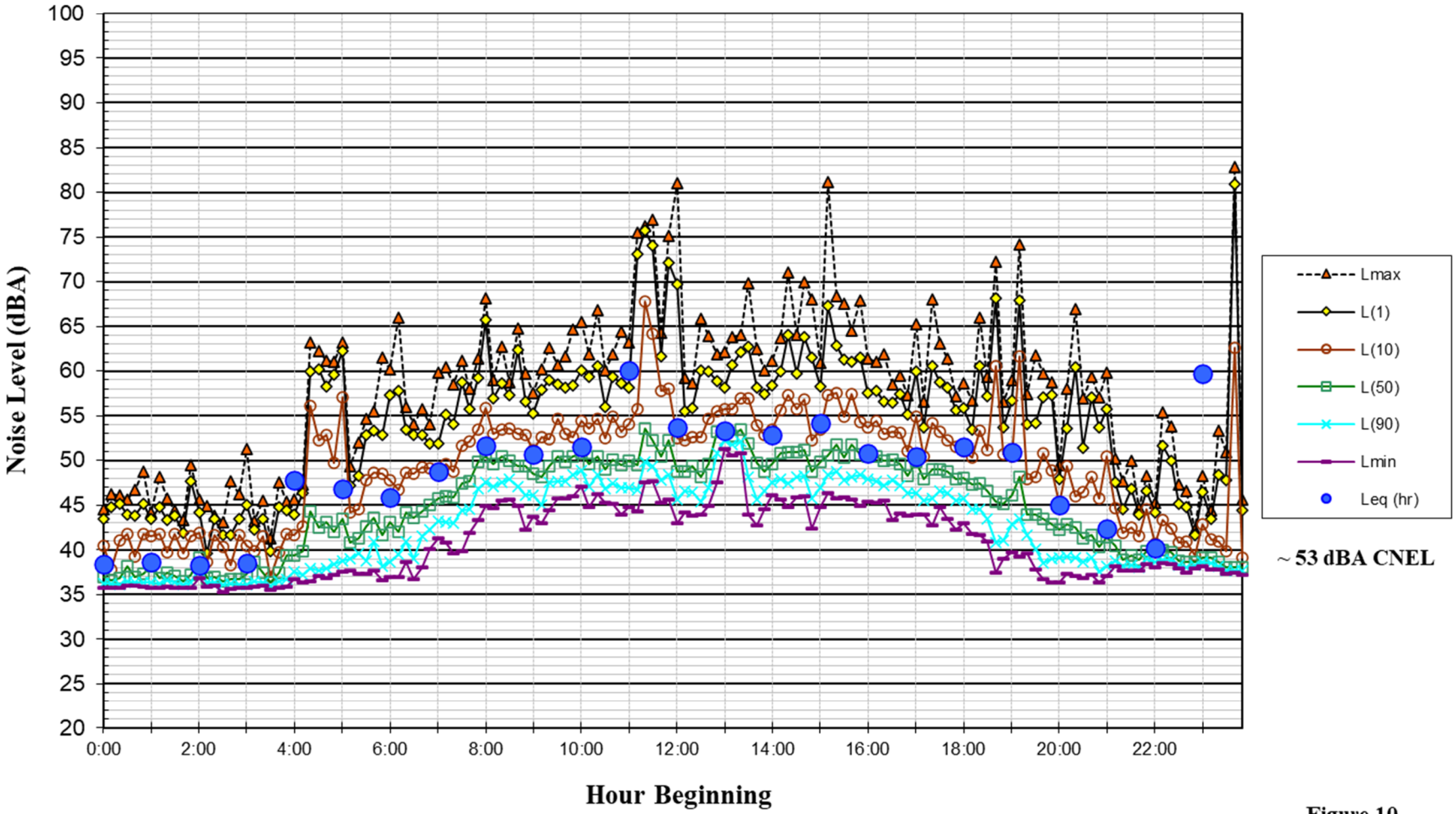
Noise Levels at Site LT-2
Ferndale High School, Main Street Residences
Sunday, June 12, 2022



52 dBA CNEL

Figure 9

Noise Levels at Site LT-2
Ferndale High School, Main Street Residences
Monday, June 13, 2022



~ 53 dBA CNEL

Figure 10

Noise Levels at Site LT-2
Ferndale High School, Main Street Residences
Tuesday, June 14, 2022

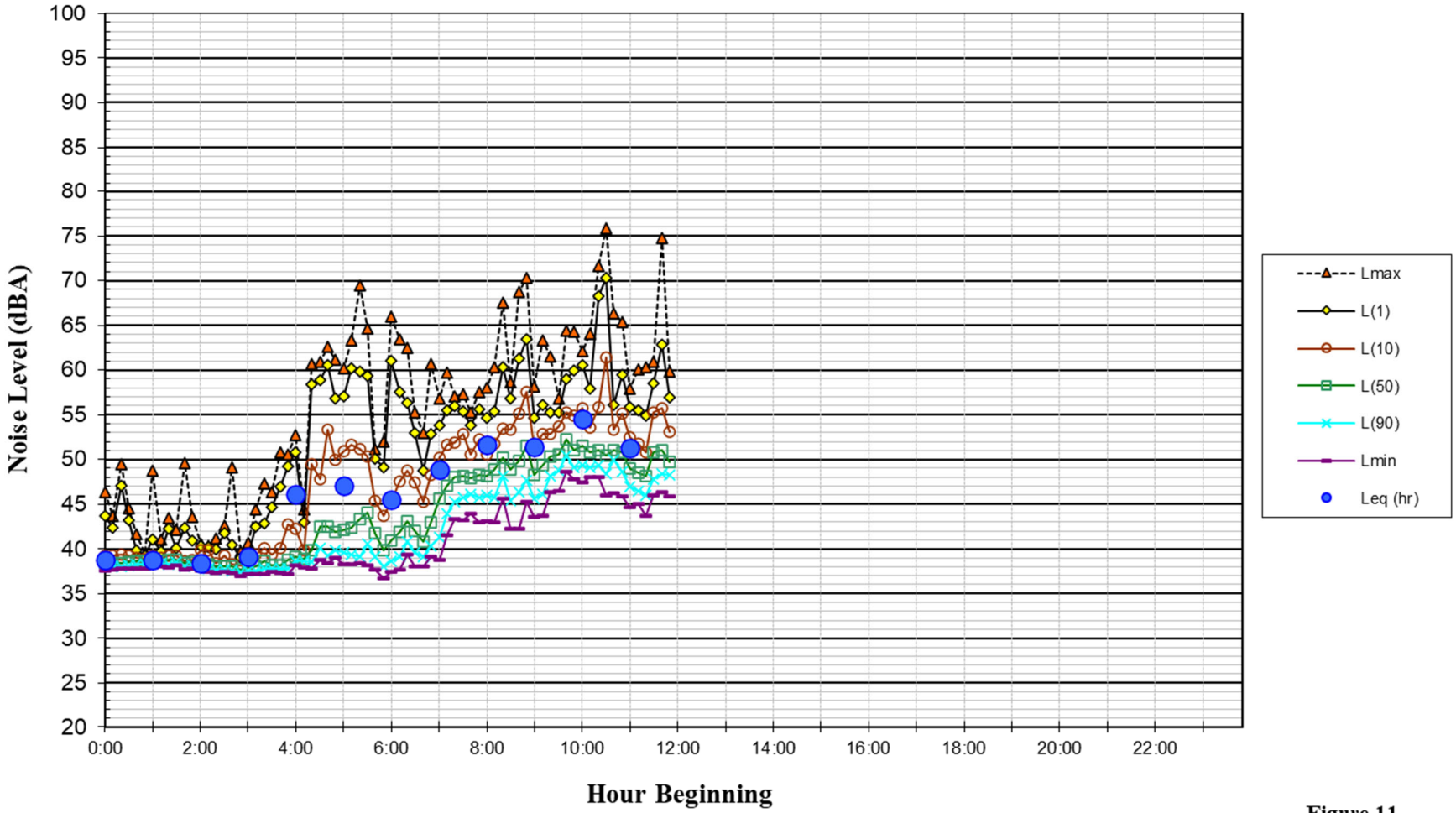


Figure 11

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* (*DNL* or L_{dn}) 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.

Effects of Noise

Sleep and Speech Interference

The thresholds for speech interference indoors are about 45 dBA if the noise is steady and above 55 dBA if the noise is fluctuating. Outdoors the thresholds are about 15 dBA higher. Steady noises of sufficient intensity (above 35 dBA) and fluctuating noise levels above about 45 dBA have been shown to affect sleep. Interior residential standards for multi-family dwellings are set by the State of California at 45 dBA DNL. Typically, the highest steady traffic noise level during the daytime is about equal to the DNL and nighttime levels are 10 dBA lower. The standard is designed for sleep and speech protection and most jurisdictions apply the same criterion for all residential uses. Typical structural attenuation is 12-17 dBA with open windows. With closed windows in good condition, the noise attenuation factor is around 20 dBA for an older structure and 25 dBA for a newer dwelling. Sleep and speech interference is therefore possible when exterior noise levels are about 57-62 dBA DNL with open windows and 65-70 dBA DNL if the windows are closed. Levels of 55-60 dBA are common along collector streets and secondary arterials, while 65-70 dBA is a typical value for a primary/major arterial. Levels of 75-80 dBA are normal noise levels at the first row of development outside a freeway right-of-way. In order to achieve an acceptable interior noise environment, bedrooms facing secondary roadways need to be able to have their windows closed, those facing major roadways and freeways typically need special glass windows.

Annoyance

Attitude surveys are used for measuring the annoyance felt in a community for noises intruding into homes or affecting outdoor activity areas. In these surveys, it was determined that the causes for annoyance include interference with speech, radio and television, house vibrations, and interference with sleep and rest. The DNL as a measure of noise has been found to provide a valid correlation of noise level and the percentage of people annoyed. People have been asked to judge the annoyance caused by aircraft noise and ground transportation noise. There continues to be disagreement about the relative annoyance of these different sources. When measuring the percentage of the population highly annoyed, the threshold for ground vehicle noise is about 50 dBA DNL. At a DNL of about 60 dBA, approximately 12 percent of the population is highly annoyed. When the DNL increases to 70 dBA, the percentage of the population highly annoyed increases to about 25-30 percent of the population. There is, therefore, an increase of about 2 percent per dBA between a DNL of 60-70 dBA. Between a DNL of 70-80 dBA, each decibel increase increases by about 3 percent the percentage of the population highly annoyed. People appear to respond more adversely to aircraft noise. When the DNL is 60 dBA, approximately 30-35 percent of the population is believed to be highly annoyed. Each decibel increase to 70 dBA adds about 3 percentage points to the number of people highly annoyed. Above 70 dBA, each decibel increase results in about a 4 percent increase in the percentage of the population highly annoyed.

TABLE 1 Definition of Acoustical Terms Used in this Report

Term	Definition
Decibel, dB	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.
Sound Pressure Level	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.
Frequency, Hz	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.
A-Weighted Sound Level, dBA	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.
Equivalent Noise Level, L_{eq}	The average A-weighted noise level during the measurement period.
L_{max}, L_{min}	The maximum and minimum A-weighted noise level during the measurement period.
L_{01}, L_{10}, L_{50}, L_{90}	The A-weighted noise levels that are exceeded 1%, 10%, 50%, and 90% of the time during the measurement period.
Day/Night Noise Level, L_{dn} or DNL	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.
Community Noise Equivalent Level, CNEL	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.
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
Intrusive	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.

Source: Handbook of Acoustical Measurements and Noise Control, Harris, 1998.

TABLE 2 Typical Noise Levels in the Environment

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

Source: Technical Noise Supplement (TeNS), California Department of Transportation, September 2013.

ILLINGWORTH & RODKIN, INC.
Acoustics • Air Quality

Cotati, CA
Phone: 707.794.0400

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Phone: 707.794.0400

Prev Next

Michael S. Thill, Principal

Mr. Thill began his professional career in environmental acoustics in 1999. His expertise lies in field research, data analysis, and noise modeling. He has conducted numerous field surveys in a variety of noise environments and has authored technical noise reports for various types of projects including residential, mixed-use, commercial, transportation, redevelopment, as well as educational facilities and office and industrial developments. Mr. Thill is proficient in the use of FHWA's Traffic Noise Prediction Model (TNM), and is familiar with the procedures for preparing highway noise impact studies presented in Caltran's Traffic Noise Analysis Protocol and the Technical Noise Supplement (TENS). Mr. Thill received a BS degree in Environmental Science from the University of California at Santa Barbara.

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