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5707 Redwood Road  
Suite 10  
Oakland, CA 94602

Subject: Rebuttal to Responses to the Peer Review of the Final Environmental Impact Report, Head-Royce School Expansion, Lincoln Avenue, Oakland

Dear Ms. Monscharsh:

This report will provide you with our rebuttal to the responses to the peer review comments of the Noise Assessment Study prepared by Illingworth-Rodkin and the noise chapter of the Draft Environmental Impact Report (DEIR) for the planned expansion of the Head-Royce School along Lincoln Avenue in Oakland. The responses to our comments were provided by Lamphier-Gregory.

The responses to our comments were provided in two sections. The first section is a narrative of the overall responses to our comments with new analyses and data. The second section contains itemized responses to our comments.

The first part of our rebuttal is our comments on the overall narrative response by the respondent. The second part of our rebuttal is our comments on the itemized responses to our original comments. The narrative section begins on page 3-21 of the FEIR. Our rebuttal appears in order with the respondent's narrative.

## **I. Rebuttal to Respondent's Narrative**

In terms of CEQA policies, the methodology is to determine the change in the noise environment based on the local jurisdictional thresholds. These are contained in the General Plan where the descriptor is in terms of the Day-Night Level.

The average ambient conditions for the receiver locations down slope and at greater distances from Lincoln Avenue are likely to have significantly lower ambient sound

levels or noise exposure (DNL). Thus, the limit on noise increases due to the project would be more stringent.

We acknowledge the difficulty with conducting noise measurements during the pandemic when traffic volumes were abnormally low and the school was closed. However, ambient noise conditions are currently close to normal so there is no justification for not obtaining adequate noise data.

We understand new noise measurements were conducted on site on March 10, 2022. This new analysis and new data were presented in the FEIR responses to comments.

The exact location (distance to centerline) of the new noise measurements along Lincoln Avenue was not reported. We can only assume that the new measurements were made at the 50 ft. distance previously used by Salter. The measurement location should be reported so that the new noise data can be compared to the previous data without having to make assumptions.

The ambient data in the DEIR response is 180 ft. from the centerline of Lincoln Avenue, which is 53 dB DNL. The new LT1 (long term) noise data were made at a distance of approximately 635 ft. from the centerline of Lincoln Avenue and with topographical differences. The new data indicate that the previous assumptions of the noise levels at the residences to the south and west were not correct and that there is a significant difference between the DEIR values and the new data. The ambient at the receiver locations behind Laguna Avenue are lower. Thus, the basis for the CEQA evaluation results in stricter project-generated noise limits.

The threshold of significance is the ambient + 5 dB. Therefore, the ambient + 4 dB would be considered less-than-significant. For example:

Ambient = 49 dB DNL

Acceptable = 49 dB DNL + 4 dB = 53 dB DNL

Project-generated limit = 53 dB DNL – 49 dB DNL = 51 dB DNL.

The project-generated noise limit would be 51 dB DNL or the ambient + 2 dB.

Salter did not review the Illingworth-Rodkin noise thresholds. RGD Acoustics only opined on the comparison of football game noise versus indoor graduation event noise by Salter. We did not suggest that “permanent” noise thresholds be used instead. Our comment was to use both the standards contained in the City of Oakland Noise Ordinance and in the City of Oakland General Plan for all noise sources individually and combined.

Salter’s “report” mentioned in the responses was only two pages of data tables. There were no comments regarding Illingworth-Rodkin’s data or methodologies. See the DEIR footnote on page 13-30.

Salter and RGD did not review source noise of other operations. They reviewed only the graduation noise data as shown in Appendix 13 of the DEIR (Illingworth-Rodkin report). We agreed with RGD that the Salter graduation noise data are better for use than the Illingworth-Rodkin football game noise data.

Our comment regarding nonexistent data, inaccuracies or unqualified parties pertained to conclusions drawn without technical back up or the reporting of combined and cumulative noise levels not provided in the Illingworth-Rodkin report. All noise data, analyses, calculations, recommendations and conclusions should be obtained, prepared and reported by the qualified acoustician of the project. These analyses should be included in the environmental documents in their entirety for public and peer review.

CEQA uses both short term noise level compliance, e.g., the Noise Ordinance limits, and long term noise increases, e.g., the General Plan, to determine noise impacts. Both sets of standards need to be used for evaluation purposes.

Each noise source – drop-offs, loop road traffic, recess, outdoor classrooms, pick-ups, the PAC – need to be analyzed in relation to the Noise Ordinance (short-term noise). Sources that occur simultaneously should also be combined for Noise Ordinance compliance. Then, each source noise exposure (DNL) needs to be determined so that all of the noise source noise exposures can be combined to obtain the project-generated noise exposure. This noise exposure is then added to the ambient to obtain the cumulative noise exposure. The cumulative noise exposure is compared to the ambient to determine if an increase of 5 dB (threshold of significance) or more will occur.

We do not disagree that noise from the outdoor classroom under normal teacher speech conditions will be within the limits of the Noise Ordinance. However, we do disagree with the calculation methods. Harris, 1991, pg. 16-2 – Speech to Noise Ratio of 5-8 dB for outdoor environments. Voices are raised when the background noise levels reach 50 dBA. There is usually about a 3-6 dB increase in vocal level for every 10 dB increase in the background level above 50 dBA. In classrooms, this increase is typically on the order of 10 dB for every 10 dB increase in the background level.

We acknowledge the removal of the PAC loading dock from the project. No further comments regarding loading dock noise are necessary.

We concur with the operational adjustments to outdoor gatherings at the PAC.

The graduation noise level study, particularly the P.A. system levels, uses the  $L_{eq}$  as the noise descriptor. The City of Oakland Noise Ordinance does not use the  $L_{eq}$  for evaluation purposes. The  $L_{max}$  and the various  $L_n$  values need to be determined and reported. Since a graduation event will typically occur for more than a few minutes, the DNL should also be determined for inclusion into the overall project-generated noise analysis in terms of the DNL and the CEQA evaluation.

Similarly, the project traffic noise analysis used the  $L_{eq}$ , but the standards are not in terms of the  $L_{eq}$ . The project loop road noise analysis must include both the various  $L_n$  values of the Noise Ordinance and the noise exposure (DNL) for the General Plan/CEQA analysis.

The proposed wall along the loop road is not detailed adequately. The receiver locations are not described. A graphic showing the location of the barrier would be helpful. Will the barrier, if constructed to be acoustically-effective, reduce noise for second floor elevations of the homes or just the first floors? Does the 5-6 dB of noise reduction apply only to certain areas of backyards or at the house setbacks or both?

The project noise exposure (DNL) is used only for project traffic on Lincoln Avenue. Noise exposure analyses must be included for all noise sources.

The cumulative noise analysis was done incorrectly. Cumulative does not mean that the sources occur simultaneously. Cumulative infers that the total project noise levels/exposures are combined then added to the existing background or ambient conditions, similar to a traffic study. The total project-generated noise exposure is a sum of all project noise sources that occur over the 24-hour period, i.e., project traffic, the loop road, drop-offs, pick-ups, the PAC, etc.

The CEQA evaluation consists of determining if the project causes a substantial increase in the ambient noise levels. Thus, to determine that increase, the ambient level must be known. For example,

$$\begin{aligned}\Delta\text{dB} &= \text{cumulative} - \text{ambient} \\ &= (\text{ambient} + \text{project}) - \text{ambient}\end{aligned}$$

If,     ambient = 43  
       project = 50  
       cumulative = 51  
        $\Delta\text{dB} = 51 - 43 = 8$ ; the project adds 8 dB to the ambient

If,     ambient = 43  
       project = 42  
       cumulative = 46  
        $\Delta\text{dB} = 46 - 43 = 3$ ; the project adds 3 dB to the ambient

## **II. Rebuttal to Specific Responses**

**B2-1:** The definition of “intensity” remains to be incorrect. Intensity is the amount of sound pressure over a given area in a specified direction. It is not merely the amplitude of a sound wave. Intensity should not be used to describe “loudness”.

**B2-2:** The CEQA thresholds contained in the DEIR are correct. We retract our comment.

**B2-3:** The comment was meant to identify each potential source of noise and their noise limits in terms of the Noise Ordinance and the General Plan/CEQA.

**B2-4:** Our comment was regarding the data used in the TNM not SoundPlan. The TNM model was used to determine the ambient noise levels at an inadequate number of receiver locations without regard to topography or intervening structures.

**B2-5:** Noted

**B2-6:** The Noise Ordinance (Planning Code) uses short term noise standards for various types of noise with limits based on the duration of the noise. The noise study does not identify all of the noise sources and their respective durations per hour for evaluation against the Noise Ordinance limits. Rather, the noise study more often used the  $L_{eq}$  to report a source's noise level. In addition, the noise exposure (DNL) for each source must be determined and ultimately combined for the comparison to the ambient, per the CEQA thresholds.

**B2-7:** We did not comment on the applicability of vibration criteria. We only noted that the City's policy for vibration uses the FTA's transportation descriptor for construction vibration rather than the FTA's descriptor. Our comment was for the noise study to provide both VdB and PPV to avoid confusion. This is for the sake of clarity. Our comment was not a critique on analytical methodology. Since the City of Oakland references the FTA vibration polices (for construction), the FTA guidelines for vibration limits should be addressed rather than the CalTrans criteria.

**B2-8:** Project traffic is not the only permanent noise source associated with the project. All daily school operations are also permanent. Temporary sources are things like construction. However, CEQA does address temporary and permanent increase in the ambient noise environment due to the project. Our comment did not suggest using an incorrect threshold for operational noise. Our comment suggested that all noise source standards be addressed for all noise sources.

The response to our comment regarding applying the General Plan standards to operational noise remains to be inadequate. The response claims to provide additional analyses for "informational purposes only". Why is this? The intent of the environmental document is for informational purposes.

The descriptions of the DNL and the operational sources “bullet” paragraph explanations on page 4-35 are well appreciated and this type of presentation should be the focus of the noise study. The ensuing tables of operational noise data for receiver locations R-3 and R-7 are exactly what the original noise study should have presented. Although we disagree with some of the data used in the analysis (the recess noise data, for instance, seems low compared to similar operational data in our database), the tables clearly show the effect of the project on two residential receiver locations in terms of the General Plan/CEQA. Now, this type of analysis and presentation should be prepared for the Noise Ordinance standards.

**B2-9:** Noted. Same rebuttal.

**B2-10:** Noted.

**B2-11:** Please provide some calculations showing the expected interior noise levels in the PAC, the sound transmission loss provided by the building shell with windows open and closed (if applicable) and the noise levels extrapolated to the residential receiver locations.

Unknown noise sources should be identified as “potentially significant” and the mitigation measure requiring subsequent analyses to prove compliance with the standards should be included.

**B2-12:** Table 13-11 of the DEIR (pg. 13-31) clearly shows that the graduation ceremony will exceed the  $L_{33}$  limit of the Noise Ordinance. However, the Noise Ordinance also contains limits for the  $L_{max}$ ,  $L_2$  and  $L_{17}$ . Since the graduation ceremony will have varying noise sources and vary sound levels, all of the Noise Ordinance standards should be addressed.

**B2-13:** Because the specifications for the outdoor mechanical equipment at the PAC are not yet available, this is a “potentially significant impact”. The mitigation measure must require a detailed noise analysis of the outdoor mechanical equipment under a conditional use permit.

**B2-14:** What are the daytime noise levels at the residences shown in Table 5 and on Figure 7 of the Noise Study?

**B2-15:** The “Harris” book speech sound levels are based on a “quiet” background environment, such as inside a classroom. Speaking in an outdoor environment with amplification will require speech sound levels to be in the range of 75-78 dBA at 3 ft.

**B2-16:** A recess noise level of 59 dBA at 50 ft. from the center of a play area is on the low side. In addition, 50 ft. from the center of the play area indicates that the play area was small or that the measurements were taken too close to the children playing. The analysis does not segregate student age groups. Some age groups will generate different levels of noise than others. Younger children running around screaming will generate the highest levels of noise while older children will occasionally shout, typical of an order during an athletic event or game or to gather another student’s attention. The types of recess activities should be discussed, such as ball usage on a hard court or asphalt surface compared to a turf surface. The use of more conservative noise data would result in exceedances of the Noise Ordinance standards.

**B2-17:** The new analysis is appreciated. This analysis needs to be included in a revised DEIR.

**B2-18:** Actually, parking lot activity, pick-ups, drop-offs, etc. will create varying noise levels of various durations. The various sources’ noise levels should be calculated for the  $L_{max}$ ,  $L_2$ ,  $L_{17}$  and  $L_{33}$ .

The respondent has a grave misunderstanding of the L exceedance values. A 17 minute duration is not the  $L_{17}$ . The  $L_{17}$  is the level of noise exceeded for 17% or time or 10 minutes out of an hour. The hourly average noise level ( $L_{eq(h)}$ ) is not used by the Noise Ordinance. It is used to calculate the DNL’s for General Plan/CEQA purposes. The  $L_{17}$  is also not the maximum sound level. The  $L_{max}$  is the maximum sound level. The respondent continues to mix up standards and values. This goes back to our previous comment regarding the qualifications of the responding party.

**B2-19:** The noise level created by the loop road traffic, drop-offs, pick-ups, etc., should be calculated based on both the Noise Ordinance and General Plan standards. The respondent is using “dBA” when describing noise exposure. The proper terminology is dB DNL (or  $L_{dn}$ ). The General Plan and the Noise Ordinance are two entirely different documents and both need to be addressed, but separately.

**B2-20:** The response for B2-18 is technically incorrect. The respondent has a lack of understanding of basic acoustic principles.

**B2-21:** The noise exposures at the residence shall be reported in terms of the DNL (or  $L_{dn}$ ) and not noted merely as “dBA”. Combined noise exposures are not “cumulative”. This term is reserved for background or ambient conditions plus the project’s contribution. All sources of noise must be combined for both short-term (simultaneous occurrences) and long term (dB DNL re: General Plan/CEQA).

**B2-22:** No rebuttal.

**B2-23:** The removal of the loading dock is appreciated. No further comment on this issue.

**B2-24:** The requirement of the construction noise and vibration management plan must be included as a mitigation measure.

**B2-25:** Both the City of Oakland and CEQA reference the guidelines of the Federal Transit Administration for construction noise and vibration. The FTA indicates a vibration limit of 0.2 in./sec. PPV for typical wood framed houses such as those surrounding the project. Nowhere are the less stringent CalTrans guidelines referenced. The FTA guidelines should be used throughout the noise study and environmental documents.

**B2-26:** No further comment.

**B2-27:** The City of Oakland General Plan Land Use Compatibility table indicates the use of either the CNEL or the DNL. Since the remainder of the City’s standards, goals and policies use the DNL, the DNL is the applicable descriptor.

**B2-28:** The loading dock has been removed. One part of the noise study indicates that PAC noise will be contained to the interior and will be inaudible. There is no quantification to this claim. Other parts of the noise study indicate that noise from attendees outdoors could generate noise in excess of the Noise Ordinance standards. As the FEIR indicates a change in the operations to preclude noise excesses, these changes should be incorporated into a revised DEIR.

**B2-29:** Noise sources do not have to occur simultaneously in order to be additive. DNL's from various sources that do not occur at the same time can be combined.

**B2-30:** As stated earlier, particularly regarding the misuse of the L exceedance values, we question the competence of the person preparing some of the information presented in these documents. All analytical work subsequent to the original noise study must be prepared by a qualified acoustician, with the analytical details provided in a technical document and included in a revised DEIR for recirculation for public comment and peer review. New data and analyses provided only in a response document are unacceptable.

**B2-31:** On the contrary. The comments were made to provide the reader with a list of shortcomings of the noise study and DEIR. See the title of this particular section of the comment letter.

**B2-32:** The list of issues presented in the comment letter should be addressed in their entirety. Many aspects of these requirements have not been adequately fulfilled. The EIR remains to be inadequate.

### **III. Conclusions**

The Final Environmental Impact Report remains to be inadequate even though new data, analyses and the project description have changed. A revised Draft Environmental Impact Report should be prepared so that the public and other professionals have a chance to review and comment on the revised Draft prior to the Final version. There are still shortcomings in the noise section as certain noise standards are used improperly, some responses contain false information and much of the analysis is not complete.

This concludes our rebuttal to the responses to the comments on the *Noise Assessment Study* prepared by Illingworth-Rodkin and Chapter 13 of the Draft Environmental Impact Report for the planned Head-Royce School expansion along Lincoln Avenue in Oakland. If you have any questions or would like an elaboration on this report, please call me.

Sincerely,

EDWARD L. PACK ASSOC., INC.

A handwritten signature in blue ink, reading "Jeffrey K. Pack", is written over a horizontal line.

Jeffrey K. Pack  
President