Harris & Associates

# MEMORANDUM

**To:** Anthony Shute, Director of Community Development, City of El Cajon
**From:** Sharon Toland, Project Manager, Harris & Associates
**RE:** Truck Noise and Delivery Van Backup Beeper Noise Evaluation for the Weld Boulevard Distribution Center Project
**Date:** March 2, 2021
**CC:** Darin Neufeld, Diane Sandman, Ryan Binns, Harris & Associates
Susan Guerra, Lee Chesnut, Chesnut Properties
**Att:** 1, Van Parking Evaluation Review, Acoustical Study

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In compliance with the California Environmental Quality Act (CEQA), Harris prepared the Comparison of Weld Boulevard Distribution Center Project Components to Forester Creek Industrial Park Project 2009 Environmental Impact Report Components – Noise Impacts Memorandum (2021) in support of the Addendum to the Forester Creek Industrial Park Project Environmental Impact Report (2009 EIR) for the proposed Weld Boulevard Distribution Center Project (project). The memorandum, dated January 5, 2021, concluded that a significant impact would not occur related to nighttime truck deliveries on the project site. The proposed project would be located in the City of El Cajon and would not be subject to the Santee Noise Ordinance. However, because sensitive receptors adjacent to the project site are in the City of Santee, the project was evaluated against the Santee Noise Ordinance for the purposes of CEQA. Noise from truck deliveries is not anticipated to exceed 65 A-weighted decibels (dBA), which is the typical normal conversation noise level and is considered the screening level for compliance with the Santee Noise Ordinance (Section 5.04.130 of the Santee Municipal Code).

As summarized previously, potential noise impacts were determined not to be potentially significant under CEQA. However, because nighttime truck deliveries would have the potential to be audible at nearby sensitive receptors during nighttime hours, the project applicant and City of El Cajon have committed to implementing voluntary measures to reduce nighttime truck delivery noise. Potential noise exposure without implementation of additional measures is summarized below.

Additionally, residents of the neighborhood surrounding the project site expressed concern regarding backup beepers from delivery vans. The previous noise analysis stated that noise sources from parking lots would include car alarms, door slams, radios, and tire squeals. Noise from these sources would range from approximately 54 to 69 dBA at a distance of 50 feet. This memorandum provides additional clarification that backup beepers from delivery vans were considered in this analysis.

Table 1 provides typical noise levels from a variety of sources for comparison to estimated operational noise generated by the project. In addition, an ambient sound level survey was conducted in September 2020 as part of the project noise assessment to quantify the current noise environment within the project boundary. The measured noise level was 60.8 dBA community noise equivalent level (CNEL). Average hourly daytime noise level (7:00 a.m. to 7:00 p.m.) was 62.3 dBA Leq. The average hourly evening (7:00 p.m. to 10:00 p.m.) noise level was 56.9 dBA Leq. The average hourly nighttime (10:00 p.m. to 7:00 a.m.) noise level was 42 dBA Leq.

**Table 1. Typical A-Weighted Noise Levels**

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

**Source:** Caltrans 2013.
**Notes:** dBA = A-weighted decibel

## Summary of Potential Truck Noise Exposure

Truck delivery operations would consist of approximately 21 line-haul trucks that would deliver packages to the delivery station each night primarily between the hours of 10:00 p.m. and 8:00 a.m. During the holiday season, peak operation may reach up to 48 trucks in a 24-hour period. Based on the previous noise analysis for the 2009 EIR and a facility with similar operation as the proposed project in the County of San Diego, individual truck deliveries are estimated to result in noise levels of approximately 68 dBA at 50 feet. The truck docks would be approximately 330 feet southeast of the nearest sensitive receptor, the residence north of the project site. At this distance, noise levels from individual truck deliveries would be reduced to approximately 52 dBA. Combined noise levels from simultaneous operation of seven trucks (the maximum anticipated during evening or nighttime hours) would be approximately 60 dBA at the nearest receptor. This estimate is conservative and represents a worst-case scenario for multiple truck deliveries. It is likely that trucks would be staggered throughout the hour; therefore, the actual simultaneous number of trucks would be less than seven, and combined noise from multiple deliveries would be reduced. Additionally, a maximum of two trucks per hour is anticipated during late night hours (10:00 p.m. to 7:00 a.m.), including during peak-season operation. Therefore, the analysis presents a conservative evaluation of noise exposure. Noise from truck deliveries would be perceptible at

the nearest receptor but would be short in duration and would not exceed the 65 dBA evening and nighttime screening level for disturbance under the Santee Noise Ordinance.

## Permanent Noise Barriers

The project applicant is proposing to construct a 6-foot-high solid wall on the western side of the project site and an 8-foot-high solid wall surrounding the truck loading area (see Figure 1, Noise Reduction Options). These design features are discussed below.

Sensitive residential receptors are north and west of the project site (see Figure 1). The residential receptor north of the project site is approximately 330 feet from the proposed truck loading area. After implementation of the proposed project, the receptor to the north and the truck loading area would be at approximately the same elevation (354 feet above mean sea level [AMSL] and 360 feet AMSL, respectively). As previously stated, the maximum noise level from truck deliveries would be approximately 60 dBA at this receptor without any additional noise attenuation. However, a wall may be constructed along the entire perimeter of the truck loading area, except at the entry and exit on the eastern side of the proposed building area. A barrier 8 feet in height is calculated to provide an approximately 4 dBA noise reduction and would reduce maximum peak-season noise levels to 56 dBA at the residence north of the project site.

The residences west of the project site are approximately 375 feet from the proposed truck loading area. These receptors are at a higher elevation (384 feet AMSL) than the project site (360 feet AMSL at the truck loading facility). Maximum noise levels from truck deliveries would be approximately 60 dBA at these receptors without any additional noise attenuation. An 8-foot-high wall along the perimeter of the truck delivery area, as described previously, is calculated to reduce maximum peak-season noise levels to 56 dBA at these receptors. A 6-foot-high wall would be constructed at the western project boundary at the top of the slope and at the same elevation as these residences. Assuming a barrier is installed at the project boundary only, a barrier 6 feet in height at the western perimeter is calculated to provide an approximately 7 dBA noise reduction and would reduce maximum peak-season noise levels to 53 dBA. Installation of both barriers is calculated to reduce maximum peak-season noise levels to 49 dBA, a reduction of approximately 11 dBA.

## Summary of Potential Delivery Van Backup Beeper Noise Exposure

The previous noise analysis stated that noise sources from parking lots would include car alarms, door slams, radios, and tire squeals. Neighboring residents noted that backup beepers from delivery vans were omitted from this list. The list of potential noise sources should include backup beepers from delivery vans prior to van loading. Similar to the previously listed sources, delivery van backup beeper events would be intermittent and spread across a parking lot that surrounds the western, northern, and eastern sides of the proposed structure. Specifically, delivery van backup noise from individual van beepers (up to 230 beepers during normal operation and 600 during peak season) would be spread out across the project site during limited van loading hours. At this time, it is unknown what parking spaces would be used daily; however, delivery vans would be spaced so that vehicle operators can park their personal vehicle close to their van, which would prevent a heavy concentration of vans in use in one area. Very few events are expected to occur at the minimum 60-foot distance at the nearest residence. Additionally, project-specific information regarding delivery van noise was subsequently provided by NV5 (2021) (Attachment 1, Van Parking Evaluation Review, Acoustical Study). NV5 has conducted multiple analyses for similar facilities, including a noise measurement of backup beepers from delivery vans similar to those that would operate on the project site. NV5 measured noise levels of 64 dBA at 50 feet from delivery van backup beepers, which is within the previously identified range of approximately 54 to 69 dBA at a distance of 50 feet (or 52 to 67 dBA at the nearest residence).

The proposed noise wall on the western perimeter of the project site would also reduce noise exposure from parking lot noise. Assuming a worst-case individual noise event of 67 dBA at 60 feet at the nearest residence, a 6-foot-high wall would provide an approximately 5 dBA noise attenuation and reduce maximum noise levels from the nearest parking spaces to 62 dBA. Based on the measured noise level provided by NV5 (2021), delivery van

backup beeper noise specifically would be reduced from 62 dBA at 60 feet to 57 dBA. Noise from individual backup beepers would decrease as distance from residences increases. As previously noted, individual backup beeper events would be staggered and would occur across the western, northern, and eastern sides of the project site. For comparison, an individual backup beeper event approximately halfway across the northern parking lot (approximately 400 feet from residences) would result in noise levels of approximately 46 dBA without perimeter wall attenuation and 43 dBA with the 6-foot-high perimeter wall.

## Summary

Truck delivery noise is not anticipated to result in noise levels that would exceed the Santee Noise Ordinance at nearby residences or result in a significant noise impact under CEQA. However, implementation of a noise barrier would additionally reduce the risk of nuisance noise. As shown above, truck delivery noise levels would not exceed the typical conversation level of 65 dBA (see Table 1). Installation of noise barriers at the western perimeter of the site and at the truck delivery area would reduce noise levels at nearby residences. Maximum truck delivery noise would be reduced to 56 dBA at the residence north of the project site and 49 dBA at residences west of the project site. With the installation of the permanent noise barrier, truck delivery noise would not exceed the measured average hourly evening (7:00 p.m. to 10:00 p.m.) noise level of 56.9 dBA Leq, which is when the maximum evening or nighttime truck volume of seven trucks is anticipated to occur.

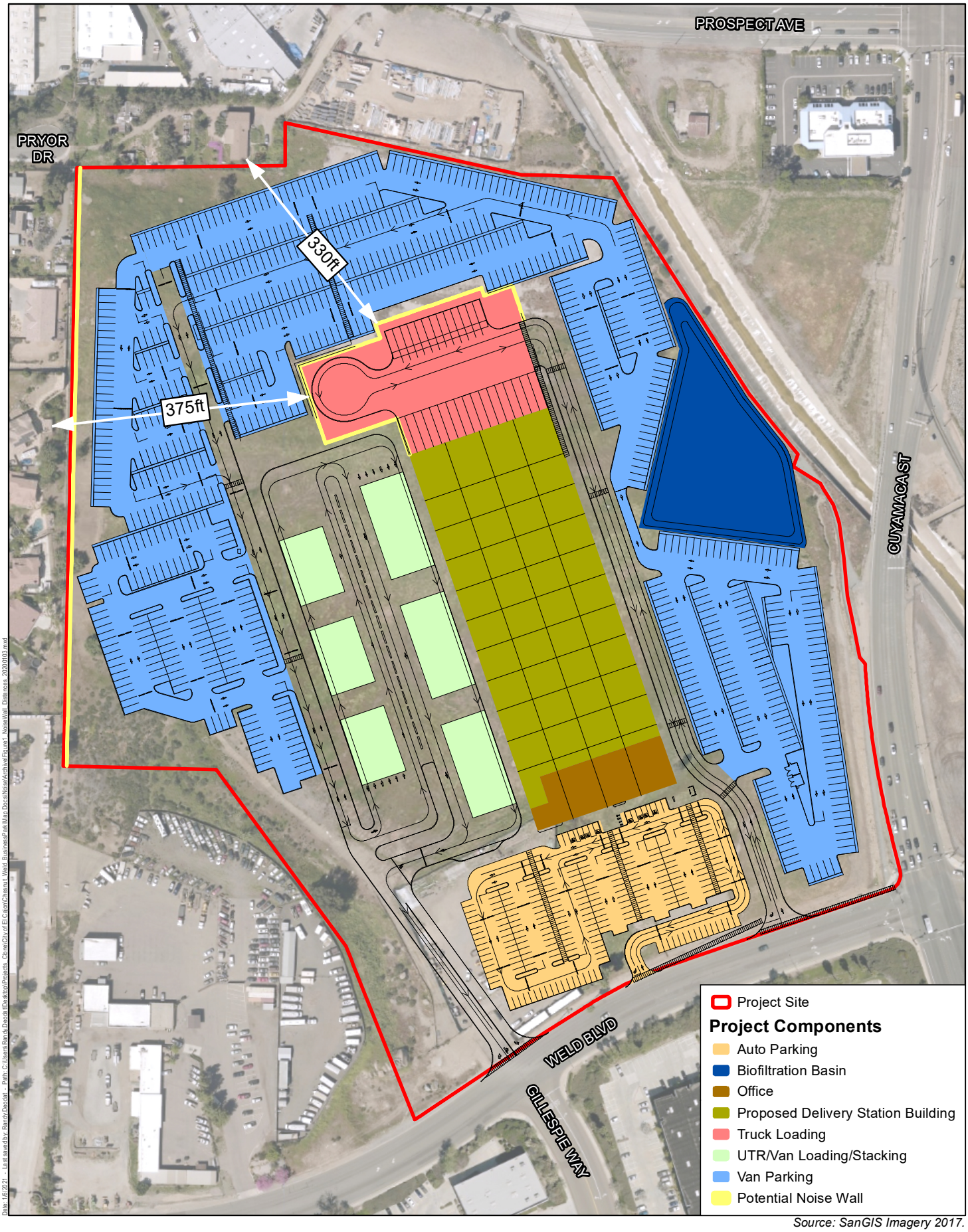
Additionally, backup beepers from delivery vans were included in the previous noise analysis. Additional documentation has been provided above to verify this revision to the previous definition of parking lot noise. The recommended perimeter noise barrier would also provide the benefit of reducing parking lot noise exposure by 5 dBA at the nearest residences.

## References

Caltrans (California Department of Transportation). 2013. Transportation and Construction Vibration Guidance Manual. September.

Harris & Associates. 2021. Comparison of Weld Boulevard Distribution Center Project Components to Forester Creek Industrial Park Project 2009 Environmental Impact Report Components – Noise Impacts. January 5.

NV5. 2021. Van Parking Evaluation Review, Acoustical Study, Weld Boulevard Distribution Center, El Cajon, CA. February 26.




*Source: SanGIS Imagery 2017.*

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Feet

# Figure 1

## Noise Reduction Options

Weld Boulevard Distribution Center Project

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## Attachment 1. Van Parking Evaluation Review, Acoustical Study

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February 26, 2021

Re: Van Parking Evaluation Review, Acoustical Study
Weld Boulevard Distribution Center, El Cajon, CA
NV5 Project 2020188.00

As requested, NV5 has carried out a review of the Noise Impact Memorandum conducted by Harris & Associates for the City of El Cajon for the delivery station located at 1756 Weld Blvd in El Cajon, CA. NV5 concentrated their review on the Van Parking - Operational Noise Sources section of the report to review the long-term impact of the delivery station van parking lot on the closest sensitive receptors.

This report presents the results of our findings.

*Van Parking Lot – Predicted Noise Levels*

Harris & Associates evaluated the Parking Lot Noise using the range of 54 to 69 dBA at 50 feet which was the range of noise levels used in the 2009 EIR. These noise levels included car alarms, door slams, radios and tire squeals. The description doesn't mention van backup beepers, however in the noise measurement NV5 took at a similar facility with van back up beepers, noise levels were 64 dBA at 50 feet which is in the range used for the evaluation.

Based on those noise levels and on the ambient noise levels of 62 dBA during the daytime and 57 dBA in the evening, the conclusion of the Harris & Associates report is expected to be accurate. The noise from the van parking lot is not expected to cause an acoustical impact on the closest residences.

*Recommendation:* *N/A*

Conclusion and Recommendations

The Noise Impact Memorandum conducted by Harris & Associates for the City of El Cajon has been reviewed. NV5 is in agreement with the approach taken and the results presented for the van parking acoustical evaluation.

Please do not hesitate to contact me at cecile.felsher@nv5.com should you have any question or concerns regarding this report.

Best Regards,

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