Environmental Noise & Vibration Assessment

Chevron Station & Car Wash

Salinas, California

BAC Job # 2024-099

Prepared For:

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CEQA Checklist

NOISE AND VIBRATION **– Would the Project Result in:**	**NA – Not Applicable**	**Less than Significant with Mitigation**	**Less Than Significant Impact**	**No Impact**
a) Generation of substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?		**X**		
b) Generation of excessive groundborne vibration or groundborne noise levels?			**X**	
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?			**X**	

Introduction

The project consists of the demolition of an existing fueling station and the construction and operation of a new Chevron fueling station/convenience store (c-store) with a car wash component. The project is located at 690 Airport Boulevard in Salinas, California (APN: 003471032000). The project parcel and adjacent parcels are zoned Industrial-General (IG). The project area and proposed preliminary site plan are presented in Figures 1 and 2, respectively.

The purposes of this assessment are to quantify the existing noise and vibration environments, identify potential noise and vibration impacts resulting from the project, identify appropriate mitigation measures, and provide a quantitative and qualitative analysis of impacts associated with the project. Specifically, impacts are identified if project-related activities would cause a substantial increase in ambient noise levels at existing land uses in the project vicinity, or if project-generated noise or vibration levels would exceed applicable federal, state, or local standards at nearby existing land uses.

Noise and Vibration Fundamentals

Noise

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

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

The perceived loudness of sounds is dependent upon many factors, including sound pressure level and frequency content. However, within the usual range of environmental noise levels, perception of loudness is relatively predictable and can be approximated by filtering the frequency response of a sound level meter by means of the standardized A-weighting network. There is a strong correlation between A-weighted sound levels (expressed as dBA) and community response to noise. For this reason, the A-weighted sound level has become the standard tool of environmental noise assessment. All noise levels reported in this section are in terms of A-weighted levels.

Community noise is commonly described in terms of the ambient noise level, which is defined as the all-encompassing noise level associated with a given noise environment. A common statistical

tool to measure the ambient noise level is the average, or equivalent, sound level (L_{eq}). The L_{eq} is the foundation of the day-night average noise descriptor, DNL (or L_{dn}), and shows very good correlation with community response to noise. DNL is based on the average noise level over a 24-hour day, with a +10-decibel weighting applied to noise occurring during nighttime hours (10:00 p.m. to 7:00 a.m.). The nighttime penalty is based on the assumption that people react to nighttime noise exposures as though they were twice as loud as daytime exposures. Because DNL represents a 24-hour average, it tends to disguise short-term variations in the noise environment.

Vibration

Vibration is like noise in that it involves a source, a transmission path, and a receiver. While vibration is related to noise, it differs in that noise is generally considered to be pressure waves transmitted through air, while vibration is usually associated with transmission through the ground or structures. As with noise, vibration consists of amplitude and frequency. A person's response to vibration will depend on their individual sensitivity as well as the amplitude and frequency of the source.

Vibration can be described in terms of acceleration, velocity, or displacement. A common practice is to monitor vibration in terms of velocity in inches per second peak particle velocity (IPS, PPV) or root-mean-square (VdB, RMS). Standards pertaining to perception as well as damage to structures have been developed for vibration in terms of peak particle velocity as well as RMS velocities.

As vibrations travel outward from the source, they excite the particles of rock and soil through which they pass and cause them to oscillate. Differences in subsurface geologic conditions and distance from the source of vibration will result in different vibration levels characterized by different frequencies and intensities. In all cases, vibration amplitudes will decrease with increasing distance.

Human response to vibration is difficult to quantify. Vibration can be felt or heard well below the levels that produce any damage to structures. The duration of the event has an effect on human response, as does frequency. Generally, as the duration and vibration frequency increase, the potential for adverse human response increases.

According to the Transportation and Construction-Induced Vibration Guidance Manual (Caltrans, June 2004), operation of construction equipment and construction techniques generate ground vibration. Traffic traveling on roadways can also be a source of such vibration. At high enough amplitudes, ground vibration has the potential to damage structures and/or cause cosmetic damage. Ground vibration can also be a source of annoyance to individuals who live or work close to vibration-generating activities. However, traffic rarely generates vibration amplitudes high enough to cause structural or cosmetic damage.

Legend

- Project Area Boundary (Approximate)
- Ambient Noise Level Survey Location

N

Scale (Feet)

0 50 100

Chevron Station & Car Wash
Salinas, California

Project Area

Figure 1

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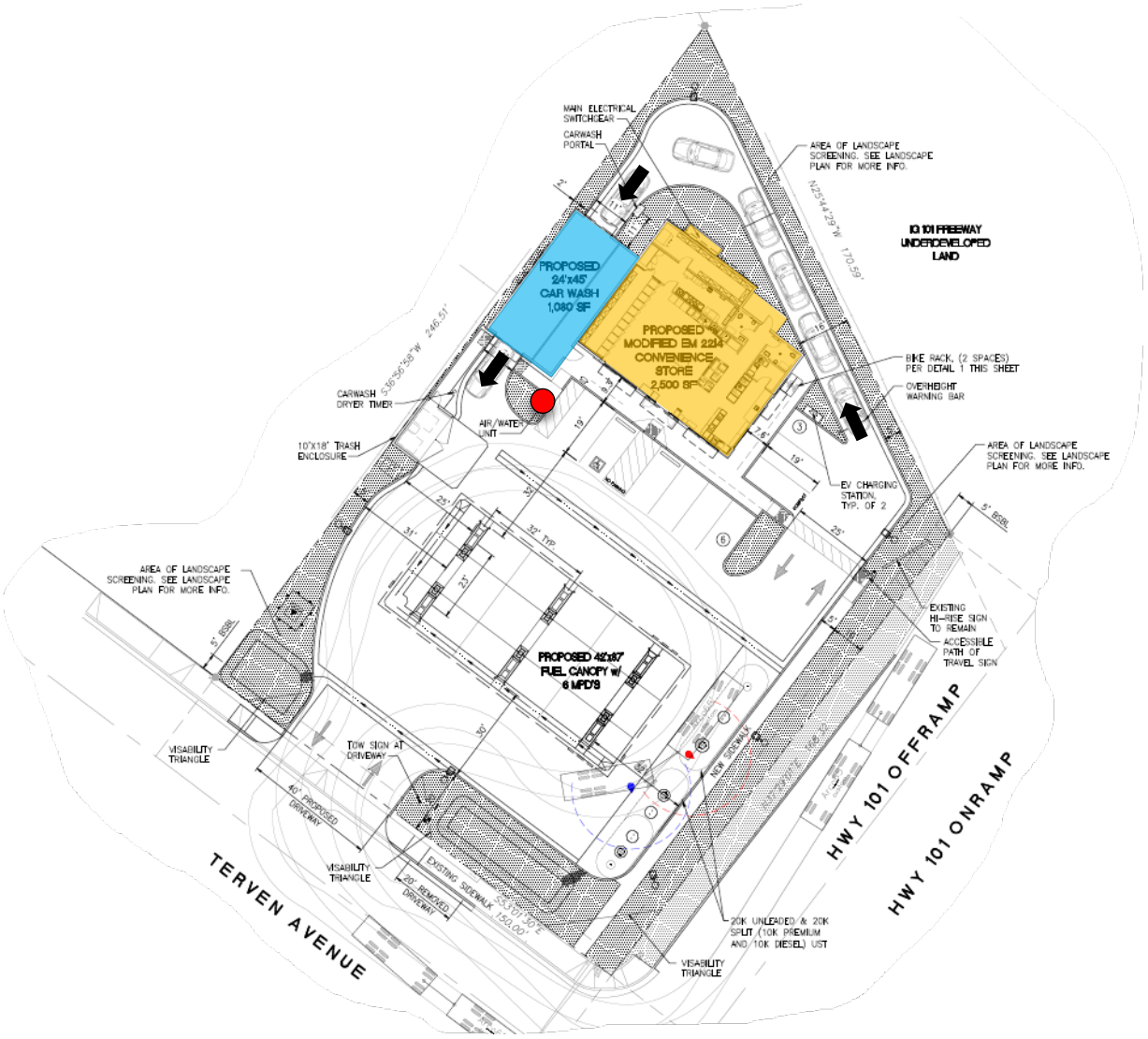

Legend

- C-Store Building
- Car Wash Tunnel
- Air/Water Unit

N

Scale (Feet)

0 25 50

Chevron Station & Car Wash

Salinas, California

Project Preliminary Site Plan

Figure 2

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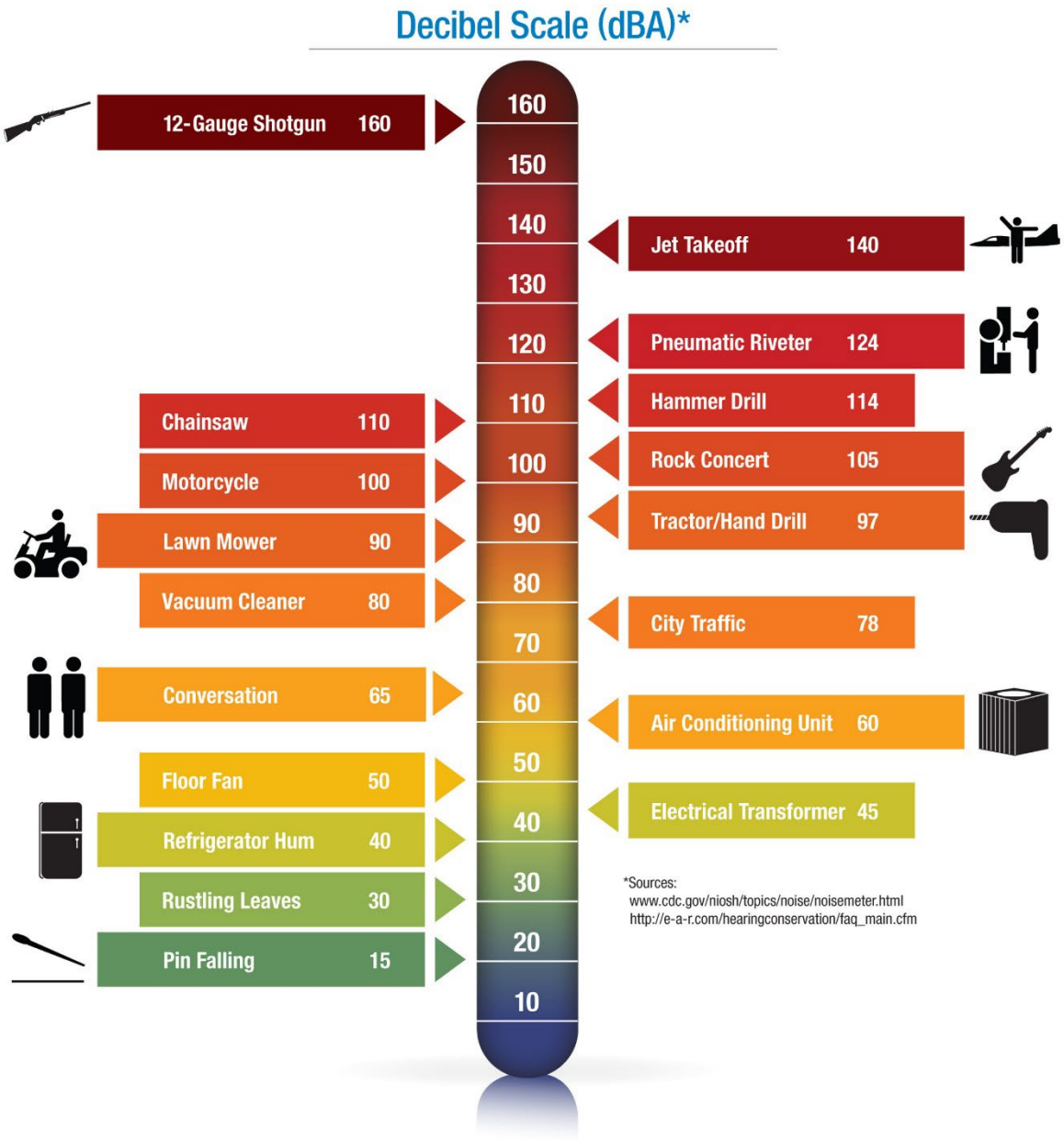
Figure 3
Noise Levels Associated with Common Noise Sources



Environmental Setting – Existing Ambient Noise and Vibration Environment

Existing Land Uses in the Project Vicinity

Noise-sensitive land uses are generally defined as locations where people reside or where the presence of unwanted sound could adversely affect the primary intended use of the land. Places where people live, sleep, recreate, worship, and study are generally considered to be sensitive to noise because intrusive noise can be disruptive to these activities. After a review of Google Earth imagery, and subsequently confirmed in the field by BAC staff, existing noise-sensitive land uses (as defined above) were not identified within the immediate project vicinity. The project parcel is located adjacent to existing industrial uses; however, industrial uses are not considered to be noise-sensitive (rather noise-generating). The locations of nearby industrial land uses are shown in Figure 1.

Existing Overall Ambient Noise Environment within the Project Vicinity

The existing ambient noise environment within the project area is defined primarily by noise from traffic on U.S. 101 and Airport Boulevard, and by nearby industrial operations. To generally quantify existing ambient noise environment within the project vicinity, BAC conducted long-term (48-hour) ambient noise level measurements at the project site June 25th and 26th, 2024. The long-term noise survey location is shown in Figure 1. Photographs of the noise survey site are provided in Appendix B.

A Larson Davis Laboratories (LDL) Model 820 precision integrating sound level meter was used to complete the long-term noise level survey. The meter was calibrated immediately before and after use with an LDL Model CA200 acoustical calibrator to ensure the accuracy of the measurements. The equipment used meets all specifications of the American National Standards Institute requirements for Type 1 sound level meters (ANSI S1.4). The results of the long-term ambient noise survey are shown numerically and graphically in Appendices C and D (respectively) and are summarized in Table 1.

Table 1
Summary of Long-Term Ambient Noise Survey Results – June 25th & 26th, 2024[1]

			Average Measured Hourly Noise Levels (dB)[3]			
			Daytime		Nighttime	
Survey Site Description[2]	Date	DNL (dB)	L_{eq}	L_{max}	L_{eq}	L_{max}
Western project property line adjacent to industrial use	6/25/24	69	65	81	62	76
	6/26/24	69	64	82	62	79

[1] Detailed summaries of the noise monitoring results are provided in Appendices C and D.
[2] Long-term ambient noise monitoring location is identified in Figure 1.
[3] Daytime hours: 7:00 AM to 10:00 PM | Nighttime hours: 10:00 PM to 7:00 AM

Source: BAC 2024

Noise level measurements obtained at the BAC survey site are believed to be representative of the existing ambient noise level environment at adjacent industrial uses within the project vicinity. As shown in Table 1, measured day-night average levels (DNL) and average measured hourly noise levels (L_{eq} and L_{max}) were consistent throughout the monitoring period (i.e., relatively small range of measured levels).

Existing Ambient Vibration Environment in Project Vicinity

During site visits on June 24th and June 27th, 2024, BAC staff noted that vibration levels were below the threshold of perception within the project vicinity. Therefore, the existing vibration environment in the project area and immediate project vicinity is considered to be negligible.

Regulatory Setting: Criteria for Acceptable Noise and Vibration Exposure

Federal

There are no federal noise or vibration criteria which would be directly applicable to this project. However, the City of Salinas does not currently have a policy for assessing noise impacts associated with increases in ambient noise levels from project-generated noise sources. As a result, the following federal noise criteria was applied to the project.

Federal Interagency Commission on Noise (FICON)

The Federal Interagency Commission on Noise (FICON) has developed a graduated scale for use in the assessment of project-related noise level increases. The criteria shown in Table 2 was developed by FICON as a means of developing thresholds for impact identification for project-related noise level increases. The FICON standards have been used extensively in recent years in the preparation of the noise sections of Environmental Impact Reports that have been certified in many California cities and counties.

The use of the FICON standards is considered conservative relative to thresholds used by other agencies in the State of California. For example, the California Department of Transportation (Caltrans) requires a project-related traffic noise level increase of 12 dB for a finding of significance, and the California Energy Commission (CEC) considers project-related noise level increases between 5 to 10 dB significant, depending on local factors. Therefore, the use of the FICON standards, which set the threshold for finding of significant noise impacts as low as 1.5 dB, provides a very conservative approach to impact assessment for this project.

Table 2
Significance of Changes in Cumulative Noise Exposure

Ambient Noise Level Without Project (DNL)	Change in Ambient Noise Level Due to Project
<60 dB	+5.0 dB or more
60 to 65 dB	+3.0 dB or more
>65 dB	+1.5 dB or more

Source: Federal Interagency Committee on Noise (FICON)

Based on the FICON research, as shown in Table 2, a 5 dB increase in noise levels due to a project is required for a finding of significant noise impact where ambient noise levels without the project are less than 60 dB DNL. Where pre-project ambient conditions are between 60 and 65 dB DNL, a 3 dB increase is applied as the standard of significance. Finally, in areas already exposed to higher noise levels, specifically pre-project noise levels in excess of 65 dB DNL, a 1.5 dB increase is considered by FICON as the threshold of significance.

State of California

California Environmental Quality Act (CEQA)

The State of California has established regulatory criteria that are applicable to this assessment. Specifically, Appendix G of the State of California Environmental Quality Act (CEQA) Guidelines are used to assess the potential significance of impacts pursuant to local General Plan policies, Municipal Code standards, or the applicable standards of other agencies. According to Appendix G of the CEQA guidelines, the project would result in a significant noise or vibration impact if the following occur:

A. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or other applicable standards of other agencies.

B. Generation of excessive groundborne vibration or groundborne noise levels.

C. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels.

It should be noted that audibility is not a test of significance according to CEQA. If this were the case, any project which added any audible amount of noise to the environment would be considered significant according to CEQA. Because every physical process creates noise, the use of audibility alone as significance criteria would be unworkable. CEQA requires a substantial increase in noise levels before noise impacts are identified, not simply an audible change.

California Department of Transportation (Caltrans)

The City of Salinas does not currently have adopted standards for groundborne vibration. As a result, the vibration impact criteria developed by the California Department of Transportation (Caltrans) was applied to the project. The Caltrans guidance criteria for building structure and vibration annoyance are presented in Tables 3 and 4, respectively.

Table 3
Caltrans Guidance for Building Structure Vibration Criteria

Structure and Condition	Limiting PPV (in/sec)[1]
Historic and some old buildings	0.5
Residential structures	0.5
New residential structures	1.0
Industrial buildings	2.0
Bridges	2.0
[1] PPV = Peak Particle Velocity	

Source: 2020 Caltrans Transportation and Construction Vibration Guidance Manual, Table 14

Table 4
Caltrans Guidance for Vibration Annoyance Potential Criteria

	Maximum PPV (in/sec)	
Human Response	Transient Sources	Continuous/Frequent Intermittent Sources
Severe/very disturbing	2.0	0.4 to 3.6
Strongly perceptible	0.9	0.1
Distinctly perceptible	0.24	0.035
Barely/slightly perceptible	0.035	0.012
Note: Transient sources create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent sources include pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers and vibratory compaction equipment.		
PPV = Peak Particle Velocity		

Source: 2020 Caltrans Transportation and Construction Vibration Guidance Manual, Tables 4 & 6

Local

Salinas General Plan

The Noise Element of the Salinas General Plan contains the city's noise-related goals and policies. The specific policies which are generally applicable to this project are reproduced below:

Policy N-1.1 Ensure that new development can be made compatible with the noise environment by using noise/land use compatibility standards and the Noise Contours Map as a guide for future planning and development decisions.

Policy N-1.3 Locate only urban development within the Salinas Municipal Airport "area of influence" that is compatible with the airport noise environment and meets the guidelines of the Caltrans handbook.

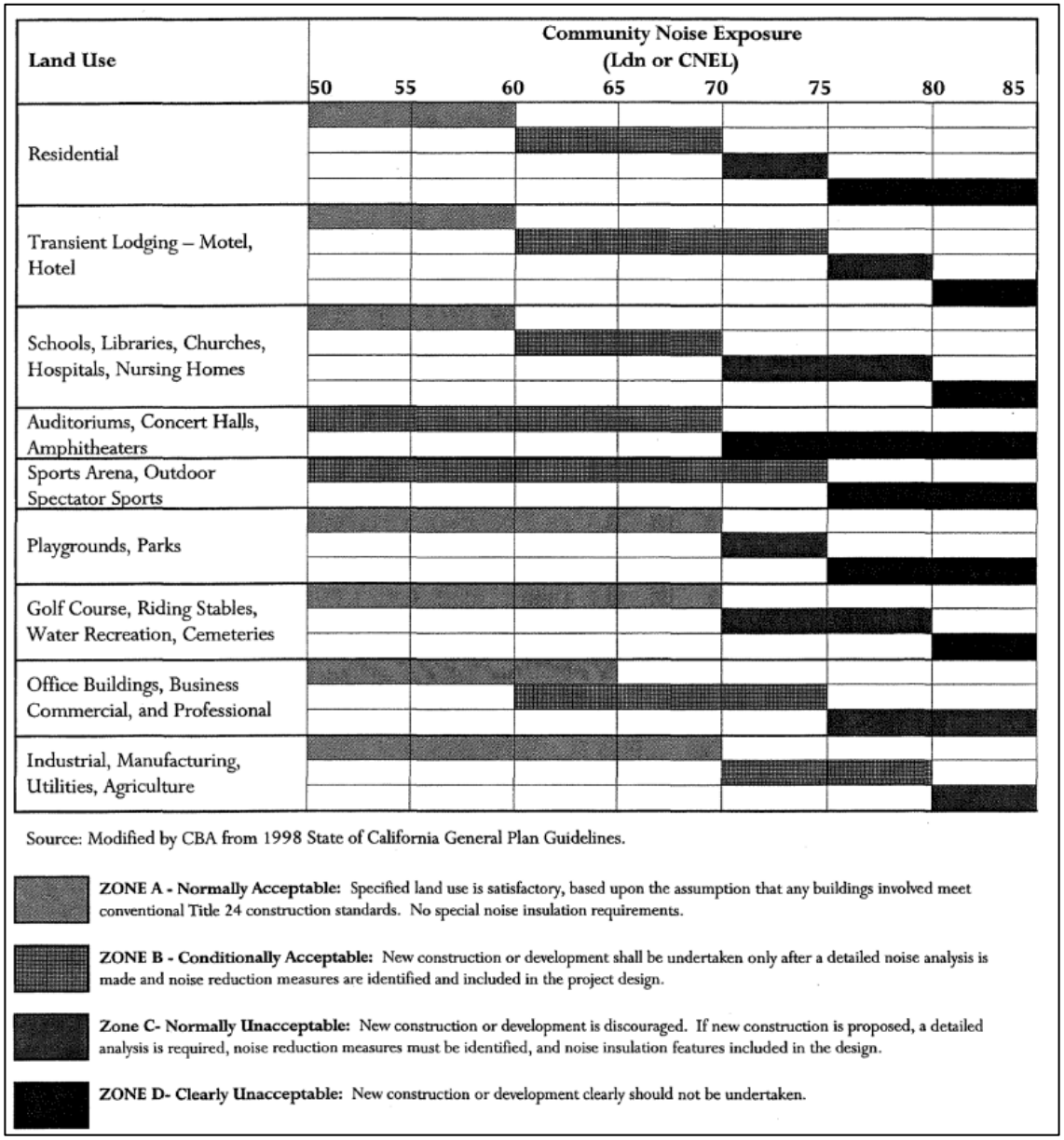
Policy N-1.4 Ensure proposed development meets Title 24 Noise Insulation Standards for construction.

Policy N-2.2 Control truck traffic routing to reduce transportation-related noise impacts on sensitive land uses.

Policy N-2.3 Ensure new development within the vicinity of the airport does not result in a land use/noise compatibility conflict or hazard.

Policy N-3.1 Enforce the City of Salinas Noise Ordinance to ensure stationary noise sources and noise emanating from construction activities, private developments / residences and special events are minimized.

Table 5
Noise/Land Use Compatibility Matrix



Source: Salinas General Plan, Noise Element, Table N-3

Salinas Zoning Code

The Salinas Zone Code contains performance standards applicable to non-transportation noise sources, such as those proposed by project on-site operations. The provisions of the Salinas Zoning Code which would be most applicable to this project are reproduced below.

Sec. 37-50.180 Performance standards.

The following performance standards shall apply to all use classifications in all zoning districts:

(a) Noise. No use shall create ambient noise levels which exceed the following standards of Table 6 (Zoning Code Table 37-50.50), as measured at the property boundary:

(1) Duration and Timing. The noise standards in Table 6 (Zoning Code Table 37-50-.50) shall be modified as follows to account for the effects of time and duration on the impact of noise levels:

(A) In residential zones, the noise standard shall be 5 dBA lower between 9:00 p.m. and 7:00 a.m.

(B) Noise that is produced for no more than a cumulative period of five (5) minutes in any hour may exceed the standards above by 5 dBA.

Table 6
Maximum Noise Standards

Zone of Property Receiving Noise	Maximum Noise Level DNL or CNEL (dBA)
Agricultural District	70
Residential Districts	60
Commercial District	65
Industrial District	70
Mixed-Use District	65
Parks/Open Space District	70
Public & Semi-Public District	60
[1] Except for special circumstances as approved by a use permit.	

Source: Salinas Zoning Code, Table 37-50.50

Impacts and Mitigation Measures

Thresholds of Significance

For the purposes of this assessment, a noise or vibration impact is considered significant if the project would result in:

- Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or other applicable standards of other agencies; or

- Generation of excessive groundborne vibration or groundborne noise levels; or

- For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels.

The following criteria established by the Federal Interagency Commission on Noise (FICON), the California Department of Transportation (Caltrans), Salinas General Plan and Salinas Zoning Code were used to evaluate the significance of environmental noise and vibration resulting from the project:

- A significant noise impact would be identified if the project would expose persons to or generate noise levels that would exceed applicable noise criteria presented in the Salinas General Plan or Salinas Zoning Code.

- A significant impact would be identified if project-generated off-site traffic would substantially increase noise levels at existing sensitive receptors in the vicinity. A substantial increase would be identified relative to the FICON noise level increase significance criteria presented in Table 2 of this report.

  In terms of determining the temporary noise increase due to project on-site operations or demolition/construction activities at existing sensitive receptors in the vicinity, an impact would occur if those activities would noticeably increase ambient noise levels above background levels at those locations. The threshold of perception of the human ear is approximately 3 to 5 dB – a 5 dB change is considered to be clearly noticeable. For the analysis of project demolition/construction activity noise level increases at existing sensitive receptors, a noticeable increase in ambient noise levels is assumed to occur where those activities would result in an increase by 5 dB or more over existing ambient noise levels.

- A significant impact would be identified if project construction activities or proposed on-site operations would expose sensitive receptors to excessive groundborne vibration levels. Specifically, an impact would be identified if groundborne vibration levels due to these sources would exceed the Caltrans vibration impact criteria presented in this report.

- A significant impact would be identified if the project would expose people within the project area to excessive airport operations noise levels. The project area is located approximately ¼ mile west of the Salinas Municipal Airport.

Noise Impacts Associated with Project-Generated Increases in Off-Site Traffic

Impact 1: Increases in Existing Off-Site Traffic Noise Levels due to the Project

Construction of this project would result in increased traffic on the local roadway network. BAC utilized the FHWA Model (FHWA-RD-77-108) with provided project traffic data to determine

whether traffic noise impacts (relative to the FICON increase significance criteria provided in Table 2) would occur as a result of this project.

The FHWA Traffic Noise Model (FHWA-RD-77-108) was used to quantify increases in existing traffic noise levels at the existing sensitive land uses nearest to the project area roadway network. The FHWA Model predicts hourly L_{eq} values for free-flowing traffic conditions. Estimates of the hourly distribution of traffic for a typical 24-hour period were used to develop DNL values from L_{eq} values.

According to the provided site plan, the project site will be accessed from Terven Avenue. As a result, the greatest impact from project-generated off-site traffic will be along Terven Avenue. Upon review of Google Earth imagery, existing noise-sensitive uses (i.e., places where people live, sleep, recreate, worship or study) were not identified along Terven Avenue within the project vicinity. Rather, only existing industrial uses were identified along the roadway. The closest existing industrial uses along Terven Avenue has been identified as industrial buildings, located approximately 50 feet from the roadway centerline.

Existing traffic data for Terven Avenue were not available at the time of writing this report. However, according to existing traffic data published by the Transportation Agency for Monterey County, the segment of Airport Boulevard within the project vicinity has an existing (2021) average daily traffic (ADT) volume of approximately 18,000. Based on this information, and for the purpose of this analysis, the segment of Terven Avenue within the project vicinity was conservatively assumed to have an existing ADT of 15,000. Assuming vehicle speeds of 25 MPH (posted), medium- and heavy-truck mix of 4%/4% (based on BAC file data for similar roadways), and an existing ADT of 15,000, the FHWA Model predicts an existing Terven Avenue traffic noise level of approximately 70.3 dB DNL at distance of 50 feet from the centerline of the roadway (i.e., location of the closest industrial buildings along Terven Avenue).

According to the provided project trip generation memorandum prepared by Kittleson & Associates, Inc. (dated July 5th, 2024), the project is estimated to have a net added trip generation of 1,478 daily vehicle trips. Given an ADT of 1,478, project-generated traffic noise level exposure is predicted to be approximately 57.1 dB DNL at a distance of 50 feet from the centerline of Terven Avenue.

According to FICON criteria (presented in Table 2), where pre-project ambient conditions are in excess of 65 dB DNL, a 1.5 dB increase is applied as the standard of significance. Based a predicted existing Terven Avenue traffic noise level environment of 70.3 dB DNL, and given a predicted project-generated traffic noise level of 57.1 dB DNL, the combined traffic noise level exposure is calculated to be 70.5 dB DNL – which would result in a 0.2 dB increase at the closest existing industrial uses along Terven Avenue. The calculated project-generated increase of 0.2 dB along Terven Avenue would be well below the applied FICON increase significance criterion of 1.5 dB.

Based on the analysis provided above, this impact is identified as being ***less than significant***.

Off-Site Noise Impacts Associated with Project On-Site Operations

The project consists of the construction and operation of a combination convenience store (c-store)/fueling station and car wash tunnel. Noise generated by those operations were quantified through a combination of reference noise level data and application of accepted noise modeling techniques.

The primary on-site noise sources associated with the car wash component of the project have been identified as the drying assembly (used for drying the vehicles at the end of the wash cycle). The most significant on-site noise sources associated with the proposed c-store/fueling station component of the project include passenger vehicle circulation, truck circulation (i.e., medium and heavy truck passbys), truck delivery activities (i.e., loading and unloading of product at convenience storefront), vehicle air/water unit, and mechanical equipment (HVAC). It is the understanding of BAC that the hours of operations for the project have not yet been determined. As a result, this assessment conservatively assumes 24-hour operations for all project components.

For noise generated by the above-identified on-site operations, the Salinas Zoning Code noise level criteria presented in Table 6 of this report were applied to the project. Because the closest (adjacent) land uses are industrially zoned, the Table 6 noise level limits for industrial land uses were applied to proposed on-site operations and assessed at the property lines of the nearest industrial uses. The locations of the adjacent industrial properties are identified in Figure 1.

In terms of determining the noise level increases due to project on-site operations, an impact would occur if those sources would noticeably increase ambient noise levels above background levels. The threshold of perception of the human ear is approximately 3 to 5 dB – a 5 dB change is considered to be clearly noticeable. For the following analyses of project on-site operations noise sources, a noticeable increase in ambient noise levels is assumed to occur where noise levels are calculated to increase by 5 dB or more over existing ambient noise levels at nearby land uses.

Impact 2: Car Wash Drying Assembly Noise Generation

The car wash tunnel is proposed to be constructed on the northwest portion of the project property. The location of the car wash tunnel is shown in Figure 2.

Based on the experience of BAC, noise levels generated by car washes are primarily due to the drying portion of the operation. It is our understanding that the proposed car wash will utilize a Premier Systems 60 HP (four 15 HP dryers, 2 trunks) drying assembly configuration. The manufacturer's specifications, provided as Appendix E, indicate that the reference sound level for the configuration varies upon distance from the equipment. The drying assembly would be located at or near the car wash tunnel exit. The location of the proposed car wash tunnel is shown in Figure 2.

According to BAC noise level measurements conducted at various car wash facilities in recent years, the noise level generation of car wash drying assemblies vary depending on the orientation of the measurement position relative to the tunnel opening. Worst-case drying assembly noise

levels occur at a position directly facing the car wash exit, considered to be 0 degrees off-axis. At off-axis positions, the tunnel building facade provides varying degrees of noise level reduction. At positions 45 degrees off-axis relative to the facade of the car wash exit and entrance, drying assembly noise levels are approximately 5 dB lower. At 90 degrees off-axis, drying assembly noise levels are approximately 10 dB lower.

To calculate project car wash drying assembly noise levels relative to the Salinas Zoning Code day-night average noise level descriptor (DNL), a 24-hour average standard, the total duration of car wash dryer operations during a 24-hour period must be known or assumed. It is the experience of BAC in similarly configured car wash projects that the average car wash cycle is approximately 5 minutes in duration. The dryers would operate during the last 1 minute of the cycle. Therefore, during a worst-case busy hour, the car wash would go through 12 full cycles and the dryers would operate for approximately 12 minutes during that hour. Based on this information, it was conservatively assumed that the project car wash would have 12 cycles per hour during daytime hours and 3 cycles per hour during less busy nighttime hours. The drying assembly equipment operations assumptions indicated above are believed to be representative of worst-case noise level exposure.

Based on the information provided above, and assuming standard spherical spreading loss (-6 dB per doubling of distance from a stationary source), worst-case project car wash drying assembly noise exposure at the property lines of the nearest industrial uses was calculated and the results of those calculations are presented in Table 7.

Table 7
Predicted Car Wash Drying Assembly Noise Levels at Nearest Industrial Uses

APN[1]	Zoning	Predicted DNL (dB)[2,3]	Zoning Code Noise Standard, DNL (dB)
003471031000 – West	Industrial-General (IG)	80	**70**
003591022000 – Southwest	Industrial-General (IG)	60	
003591015000 – South	Industrial-General (IG)	60	

[1] Property locations are shown in Figure 1.
[2] Predicted DNL assumes 12 min. operation during every daytime hour and 3 min. during every nighttime hour (for 24-hours).
[3] Predicted noise level at property line of industrial properties.
Red = Exceedance of Zoning Code noise level standard

Source: BAC 2024

As indicated in Table 7, project car wash drying assembly noise level exposure is predicted to satisfy the applicable Salinas Zoning Code day-night average noise level (DNL) criterion at the property lines of the closest industrial uses to the south and southwest, but exceed the noise level limit at the property line of the industrial use to the west.

Table 1 of this report contains the results from the BAC long-term ambient noise survey, which are believed to be representative of the existing ambient noise environments at the closest industrial uses within the project vicinity. Using the measured day-night average noise level during the survey (69 dB DNL – Table 1), and the predicted day-night average noise levels shown in Table 7, ambient plus project car wash drying assembly noise level increases were calculated at

the closest industrial uses. According to the results from that exercise, project-generated increases in ambient noise levels are calculated to be 0.6 dB DNL and 0.5 dB DNL at the industrial uses to the south and southwest (respectively), which would be below the applied increase significance criterion of 5 dB. However, project-generated increases in ambient noise levels are calculated to be 11.3 dB DNL at the industrial use to the west, which would exceed the applied increase significance criterion of 5 dB.

Because project car wash drying assembly noise exposure is predicted to exceed the applicable Salinas Zoning Code day-night average noise level standard at the property line of the closest industrial use to the west (Table 7), and because increases in ambient day-night average noise levels associated with those operations are calculated to exceed the applied increase significance criterion of 5 dB at that property, this impact is identified as **potentially significant**.

Mitigation Measure 1:

To satisfy the applicable Salinas Zoning Code day-night average noise level standard at the property line of the adjacent industrial property to the west, and to reduce the calculated increase in ambient day-night average noise levels to below 5 dB at that use, one of the following two specific noise mitigation measures would be required of the project:

MM 1A: The construction of a solid noise barrier having a minimum height of 9' along the western project property boundary. The location of the solid noise barrier is illustrated in Figure 4. The solid noise barrier could take the form of a masonry or CMU wall. Other materials may be acceptable but should be reviewed by an acoustical consultant prior to construction.

OR

MM 1B: The project car wash tunnel design shall include the installation of an exit door that provides a minimum of 13 dB of dryer noise level reduction. The noise attenuating tunnel exit door would need to remain in the closed position during all drying assembly operations/cycles.

Table 8 show the predicted car wash drying assembly noise levels after implementation of either Mitigation Measure 1A or 1B as outlined above.

Table 8
Mitigated Car Wash Drying Assembly Noise Levels

APN	Predicted Mitigated Noise Level, DNL (dB)		Zoning Code Noise Standard, DNL (dB)
	MM 1A[1]	MM 1B[2]	
003471031000 – West	70	67	**70**

[1] Predicted noise level with implementation of Mitigation Measure 1A (9' sound wall along west project boundary).
[2] Predicted noise level with implementation of Mitigation Measure 1B (car wash tunnel exit door in closed position).

As shown in Table 8, after implementation of either Mitigation Measure 1A or 1B, project car wash drying assembly noise levels would be reduced to a state of compliance with the applicable Salinas Zoning Code day-night average noise level standard at the industrial property to the west. Further, after implementation of either Mitigation Measure 1A or 1B, increases in ambient day-night average noise levels would be reduced to 3.5 dB DNL or less at the industrial property to the west, which would be below the applied increase significance criterion of 5 dB.

Significance of with MM 1A or MM 1B: *Less than Significant with Mitigation*

Impact 3: On-Site Passenger Vehicle Circulation Noise Generation

To quantify project-generated on-site traffic circulation noise level exposure, BAC utilized specific automobile passby noise level measurements conducted by BAC with trip generation data provided by the project transportation consultant (Kittleson & Associates, Inc.). The BAC vehicle passby measurements included a series of individual noise measurements of multiple vehicle types arriving and departing a parking area. The results of those measurements revealed that individual vehicle passbys generated mean noise levels of approximately 70 dB SEL at a reference distance of 50 feet.

According to the trip generation data prepared by Kittleson & Associates, Inc., the project is estimated to generate approximately 1,478 daily vehicle trips, with 89 AM peak hour trips and 107 PM peak hour trips (all net added trips). For the purposes of computing day-night average noise levels (DNL) from project on-site vehicle circulation, worst-case estimated peak hour trips were used during daytime hours (107) and 50% of those daytime peak hour trips were assumed during nighttime hours (54).

Based on the BAC measurement data, peak hour trip generation estimates, and operations assumptions above, project on-site passenger vehicle circulation exposure at the property lines of the nearest industrial uses was calculated and the results of those calculations are presented in Table 9.

Table 9
Predicted On-Site Passenger Vehicle Circulation Noise Levels at Nearest Industrial Uses

APN[1]	Zoning	Predicted DNL (dB)[2,3]	Zoning Code Noise Standard, DNL (dB)
003471031000 – West	Industrial-General (IG)	65	
003591022000 – Southwest	Industrial-General (IG)	54	**70**
003591015000 – South	Industrial-General (IG)	54	

[1] Property locations are shown in Figure 1.
[2] Predicted DNL based on worst-case estimated peak hour trips during daytime hours and 50% of those trips during nighttime.
[3] Predicted noise level at property line of industrial properties.

Source: BAC 2024

Table 9 data indicate that project on-site vehicle circulation noise level exposure is predicted to satisfy the applicable Salinas Zoning Code day-night average noise level (DNL) criterion at the property lines of the closest industrial uses.

Using the measured day-night average noise level during the survey (69 dB DNL – Table 1), and the predicted day-night average noise levels shown in Table 9, ambient plus project on-site vehicle circulation noise level increases were calculated at the closest industrial uses. According to the results from that exercise, project-generated increases in ambient noise levels are calculated to range from 0.1 dB DNL to 1.5 dB DNL at the nearest industrial uses, which would be well below the applied increase significance criterion of 5 dB.

Based on the analysis provided above, this impact is identified as being ***less than significant***.

Impact 4: On-Site Truck Circulation Noise Generation

It is the experience of BAC that deliveries of product to c-stores such as the one proposed by the project occur at the front of the store with medium-duty vendor trucks/vans. However, the fueling station component will also receive deliveries from heavy fueling trucks for the purpose of refilling the underground storage tanks. The proposed on-site truck circulation route is shown in Figure 2.

On-site truck passbys are expected to be relatively brief and will occur at low speeds. To predict noise levels generated by on-site truck circulation, BAC utilized file data obtained from measurements conducted by BAC of heavy and medium duty truck passbys. According to BAC file data, single-event heavy truck passby noise levels are approximately 74 dB L_{max} and 83 dB SEL at a reference distance of 50 feet. BAC file data also indicate that single-event medium truck passby noise levels are approximately 66 dB L_{max} and 76 SEL at a reference distance of 50 feet.

For a conservative assessment of daily truck delivery noise levels at the proposed c-store/fueling station, it was assumed that 1 heavy truck and 4 medium duty trucks/vans would deliver products to the store on a typical busy day. To calculate day-night average noise level (DNL) exposure, those 5 truck deliveries were conservatively assumed to all occur during nighttime hours (worst-case DNL exposure). Based on the reference noise level data and operations assumptions presented above, and assuming standard spherical spreading loss (-6 dB per doubling of distance), project on-site truck circulation exposure at the property lines of the nearest industrial uses was calculated and the results of those calculations are presented in Table 10.

Table 10
Predicted On-Site Truck Circulation Noise Levels at Nearest Industrial Uses

APN[1]	Zoning	Predicted DNL (dB)[2,3]	Zoning Code Noise Standard, DNL (dB)
003471031000 – West	Industrial-General (IG)	54	
003591022000 – Southwest	Industrial-General (IG)	40	**70**
003591015000 – South	Industrial-General (IG)	40	

[1] Property locations are shown in Figure 1.
[2] Predicted DNL based on 4 medium trucks and 1 heavy truck trips on-site during nighttime hours only.
[3] Predicted noise level at property line of industrial properties.

Source: BAC 2024

As shown in Table 10, project on-site truck circulation noise level exposure is predicted to satisfy the applicable Salinas Zoning Code day-night average noise level (DNL) standard at the property lines of the closest industrial uses.

Using the measured day-night average noise level during the survey (69 dB DNL – Table 1), and the predicted day-night average noise levels shown in Table 10, ambient plus project on-site truck circulation noise level increases were calculated at the closest industrial uses. According to the results from that exercise, project-generated increases in ambient noise levels are calculated to range from less than 0.1 dB DNL to 0.1 dB DNL at the closest industrial uses, which would be well below the applied increase significance criterion of 5 dB.

Based on the analysis provided above, this impact is identified as being ***less than significant***.

Impact 5: Truck Delivery Activity Noise Generation

As mentioned previously, it is the experience of BAC that deliveries of product to c-stores such as the one proposed by the project occur at the front of the store with medium-duty vendor trucks/vans. The location of the c-store building is shown in Figure 2. The primary noise sources associated with delivery activities are trucks stopping (air brakes), trucks backing into position (back-up alarms), and pulling away from the loading/unloading area (revving engines).

For a conservative assessment of daily truck delivery noise levels at the proposed c-store, it was assumed that 4 medium duty trucks/vans would deliver products to the store on a typical busy day. To compute the day-night average noise level (DNL), it was assumed that those 4 truck deliveries could all occur during nighttime hours (worst-case DNL exposure).

BAC file data indicate that noise levels associated with medium-duty truck deliveries (including side-step vans) are approximately 76 dB SEL at a distance of 100 feet. Based on the BAC file data and operations assumptions above, and assuming standard spherical spreading loss (-6 dB per doubling of distance), project truck delivery noise level exposure at the property lines of the nearest industrial uses was calculated and the results of those calculations are presented in Table 11.

Table 11
Predicted Truck Delivery Activity Noise Levels at Nearest Industrial Uses

APN[1]	Zoning	Predicted DNL (dB)[2,3]	Zoning Code Noise Standard, DNL (dB)
003471031000 – West	Industrial-General (IG)	46	
003591022000 – Southwest	Industrial-General (IG)	38	**70**
003591015000 – South	Industrial-General (IG)	38	

[1] Property locations are shown in Figure 1.
[2] Predicted DNL based on 4 medium truck deliveries during nighttime hours only.
[3] Predicted noise level at property line of industrial properties.

Source: BAC 2024

Table 11 data indicate that project truck delivery activity noise level exposure is predicted to satisfy the applicable Salinas Zoning Code day-night average noise level (DNL) standard at the property lines of the nearest industrial uses.

Using the measured day-night average noise level during the survey (69 dB DNL – Table 1), and the predicted day-night average noise levels shown in Table 11, ambient plus project truck delivery activity noise level increases were calculated at the closest industrial uses. According to the results from that exercise, project-generated increases in ambient noise levels are calculated to be less than 0.1 dB DNL at the nearest industrial uses, which would be well below the applied increase significance criterion of 5 dB.

Based on the analysis provided above, this impact is identified as being ***less than significant***.

Impact 6: Air/Water Unit Noise Generation

The project proposes the installation and operation of a vehicle air/water unit for patron usage. The location of the air/water unit is shown in Figure 2.

To quantify project air/water unit noise for the purpose of this analysis, noise measurements recently conducted by BAC of an existing unit at an ARCO AM/PM fueling station located in Auburn, CA were utilized. The results of the BAC effort indicate that the air/water unit was measured to have a maximum noise level of approximately 65 dB L_{max} at distance of 10 feet from the equipment while in operation. To calculate the day-night average noise level (DNL), it was conservatively assumed that project air/water unit usage would consist of 30 minutes of continuous operation during each daytime hour and 10 minutes of continuous operation during each nighttime hour (for a 24-hour period).

Given the operations assumption above, and assuming standard spherical spreading loss (-6 dB per doubling of distance), project air/water unit noise level exposure at the property lines of the nearest industrial uses was calculated and the results of those calculations are presented in Table 12.

Table 12
Predicted Air/Water Unit Noise Levels at Nearest Industrial Uses

APN[1]	Zoning	Predicted DNL (dB)[2,3]	Zoning Code Noise Standard, DNL (dB)
003471031000 – West	Industrial-General (IG)	55	
003591022000 – Southwest	Industrial-General (IG)	39	**70**
003591015000 – South	Industrial-General (IG)	39	

[1] Property locations are shown in Figure 1.
[2] Predicted DNL assumes 30 min. operation during every daytime hour and 10 min. operation during nighttime hours.
[3] Predicted noise level at property line of industrial properties.

Source: BAC 2024

As indicated in Table 12, project air/water unit noise level exposure is predicted to satisfy the applicable Salinas Zoning Code day-night average noise level (DNL) standard at the property lines of the closest industrial uses.

Using the measured day-night average noise level during the survey (69 dB DNL – Table 1), and the predicted day-night average noise levels shown in Table 12, ambient plus project air/water unit noise level increases were calculated at the closest industrial uses. According to the results from that exercise, project-generated increases in ambient noise levels are calculated to range from less than 0.1 dB DNL to 0.2 dB DNL at the closest industrial uses, which would be well below the applied increase significance criterion of 5 dB.

Based on the analysis provided above, this impact is identified as being ***less than significant***.

Impact 7: C-Store Mechanical Equipment (HVAC) Noise Generation

Heating, ventilating, and air conditioning (HVAC) requirements for the proposed c-store will most likely be met using packaged roof-mounted systems. To generally quantify project HVAC equipment noise exposure, BAC utilized reference file data collected for previous studies. BAC reference file data for HVAC systems indicate that a 12.5-ton packaged unit can be expected to generate an A-weighted sound power level of 85 dB. To compute hourly average and day-night average noise level exposure (DNL), it was conservatively assumed that project HVAC equipment would be in continuous 24-hour operation (believed to be worst-case noise exposure).

Based on the sound power data and operations assumptions above, and assuming standard spherical spreading loss (-6 dB per doubling of distance), project c-store HVAC equipment noise exposure at the property lines of the nearest industrial uses was calculated and the results of those calculations are presented in Table 13.

Table 13
Predicted C-Store HVAC Equipment Noise Levels at Nearest Industrial Uses

APN[1]	Zoning	Predicted DNL (dB)[2,3]	Zoning Code Noise Standard, DNL (dB)
003471031000 – West	Industrial-General (IG)	60	
003591022000 – Southwest	Industrial-General (IG)	45	**70**
003591015000 – South	Industrial-General (IG)	45	

[1] Property locations are shown in Figure 1.
[2] Predicted DNL assumes continuous operation of equipment during a given 24-hour period.
[3] Predicted noise level at property line of industrial properties.

Source: BAC 2024

Table 13 data indicate that project c-store HVAC equipment noise level exposure is predicted to satisfy the applicable Salinas Zoning Code day-night average noise level (DNL) standard at the property lines of the nearest industrial uses.

Using the measured day-night average noise level during the survey (69 dB DNL – Table 1), and the predicted day-night average noise levels shown in Table 13, ambient plus project HVAC

equipment noise level increases were calculated at the closest industrial uses. According to the results from that exercise, project-generated increases in ambient noise levels are calculated to range from less than 0.1 dB DNL to 0.6 dB DNL at the nearest industrial uses, which would be well below the applied increase significance criterion of 5 dB.

Based on the analysis provided above, this impact is identified as being ***less than significant***.

Impact 8: Cumulative (Combined) On-Site Operations Noise Generation

The calculated cumulative (combined) noise levels from analyzed project on-site noise sources at the closest industrial uses are presented in Table 14. It should be noted that due to the logarithmic nature of the decibel scale, the sum of two noise values which differ by 10 dB equates to an overall increase in noise levels of 0.4 dB. When the noise sources are equivalent, the sum would result in an overall increase in noise levels of 3 dB.

Table 14
Calculated Cumulative On-Site Operations Noise Levels at Nearest Industrial Uses

APN	Predicted Noise Levels, DNL (dB)						Calculated Cumulative, DNL (dB)	Zoning Code Standard, DNL (dB)
	Car Wash Dryers	On-Site Vehicle Circ.	On-Site Truck Circ.	Truck Deliveries	Air/Water Unit	HVAC		
003471031000 – West	80	65	54	46	55	60	80	
003591022000 – Southwest	60	54	40	38	39	45	61	**70**
003591015000 – South	60	54	40	38	39	45	62	
Red = Exceedance of Zoning Code noise level standard								

Source: BAC 2024

As indicated in Table 14, cumulative (combined) day-night average noise level (DNL) exposure from analyzed on-site operations is calculated to satisfy the applicable Salinas Zoning Code day-night average noise level (DNL) criterion at the property lines of the closest industrial uses to the south and southwest, but exceed the noise level limit at the property line of the industrial use to the west.

Using the measured day-night average noise level during the survey (69 dB DNL – Table 1), and the calculated cumulative day-night average noise levels shown in Table 14, ambient plus cumulative project on-site operations noise level increases were calculated at the closest industrial uses. According to the results from that exercise, cumulative project-generated increases in ambient noise levels are calculated to be 0.7 dB DNL at the industrial uses to the south and southwest, which would be well below the applied increase significance criterion of 5 dB. However, cumulative project-generated increases in ambient noise levels are calculated to be 11.5 dB DNL at the industrial use to the west, which would exceed the applied increase significance criterion of 5 dB.

Because cumulative project on-site operations noise exposure is calculated to exceed the applicable Salinas Zoning Code day-night average noise level standard at the property line of the closest industrial use to the west (Table 14), and because increases in ambient day-night average noise levels associated with cumulative operations are calculated to exceed the applied increase significance criterion of 5 dB at that property, this impact is identified as **potentially significant**.

Mitigation Measure 2:

To satisfy the applicable Salinas Zoning Code day-night average noise level standard at the property line of the adjacent industrial property to the west, and to reduce the calculated increase in ambient day-night average noise levels to below 5 dB at that use, the following specific noise mitigation measure would be required of the project:

MM 2: Implementation of either Mitigation Measure 1A **(MM 1)** or Mitigation Measure 1B **(MM 1B)**, as outlined in this report.

Mitigation Measure 1A requires the project design include the construction of a 9’ solid noise barrier along the western project property boundary at the location shown in Figure 4.

Mitigation Measure 1B requires that the project car was tunnel design includes the installation of an exit door that provided a minimum of 13 dB of dryer noise level reduction. The car wash tunnel exit door would need to remain in the closed position during all drying assembly operations/cycles.

Tables 15 and 16 show calculated cumulative on-site operations noise levels at the adjacent industrial use to the west after implementation of Mitigation Measures 1A and 1B (respectively) as outlined above.

Table 15
Calculated Cumulative On-Site Operations Noise Levels at Industrial Use to West with Implementation of Mitigation Measure 1A

APN	Predicted Noise Levels, DNL (dB)						Calculated Cumulative, DNL (dB)[1]	Zoning Code Standard, DNL (dB)
	Car Wash Dryers	On-Site Vehicle Circ.	On-Site Truck Circ.	Truck Deliveries	Air/Water Unit	HVAC		
003471031000 – West	70	55	44	36	45	50	70	**70**

[1] Calculated cumulative noise levels with implementation of Mitigation Measure 1A (construction of 9' solid noise barrier along western project property boundary).

Source: BAC 2024

Table 16
Calculated Cumulative On-Site Operations Noise Levels at Industrial Use to West with Implementation of Mitigation Measure 1B

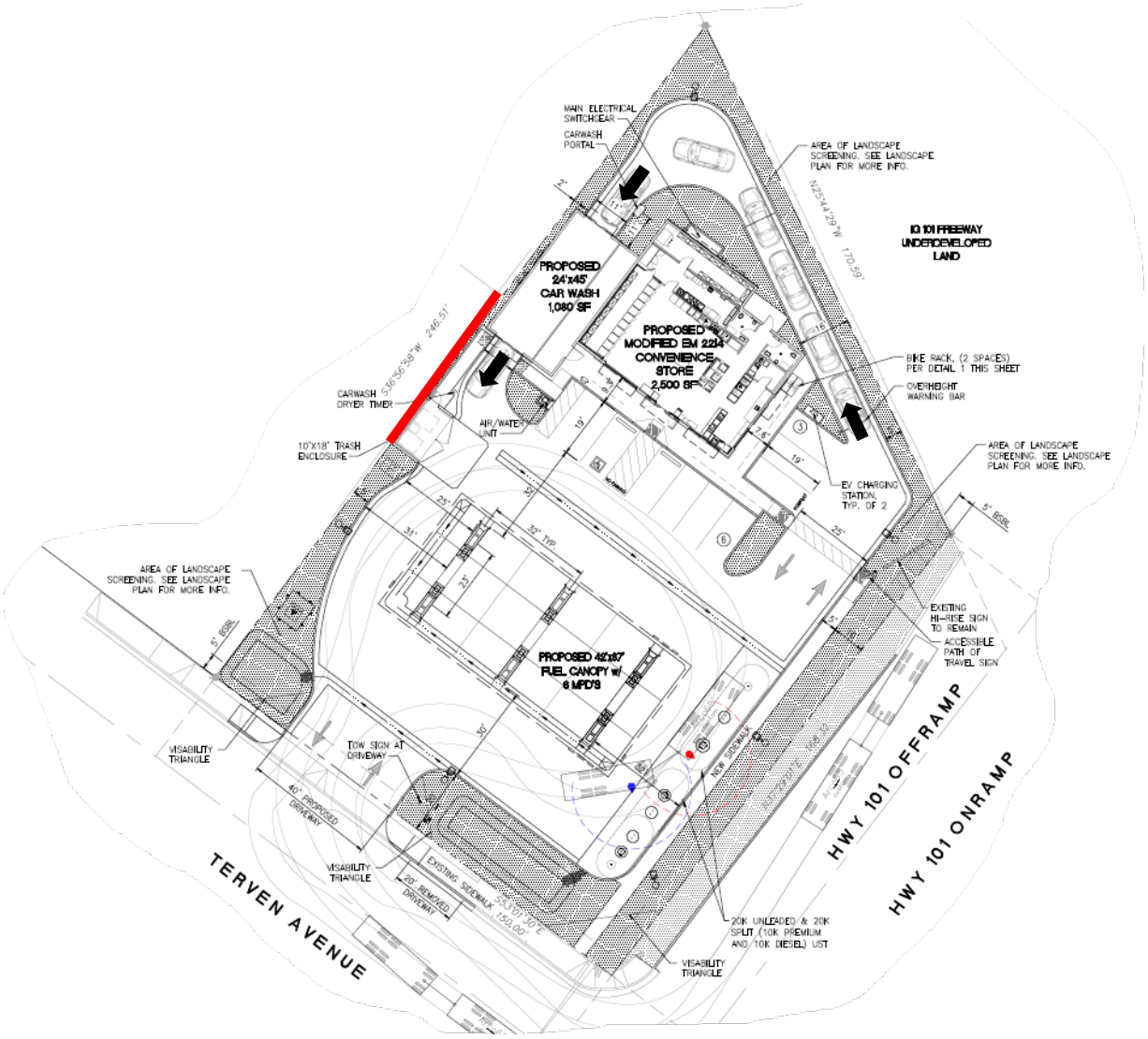
APN	Predicted Noise Levels, DNL (dB)						Calculated Cumulative, DNL (dB)[1]	Zoning Code Standard, DNL (dB)
	Car Wash Dryers	On-Site Vehicle Circ.	On-Site Truck Circ.	Truck Deliveries	Air/Water Unit	HVAC		
003471031000 – West	67	65	54	46	55	60	70	**70**

[1] Calculated cumulative noise levels with implementation of Mitigation Measure 1B (implementation of a car wash tunnel exit door – closed during all dryer operations).

Source: BAC 2024

As shown in Tables 15 and 16, with implementation of either Mitigation Measure 1A (MM 1A) or Mitigation Measure 1B (MM 1B), cumulative project on-site operations noise level exposure is calculated to be reduced to a state of compliance with the applicable Salinas Zoning Code day-night average noise level standard at the property line of the adjacent industrial use to the west. Further, with implementation of either Mitigation Measure 1A or 1B, increases in ambient noise levels would be reduced to 3.6 dB DNL or less at the adjacent industrial use to the west, which would be below the applied increase significance criterion of 5 dB.

Significance of Impact with MM 2: *Less than Significant with Mitigation*



Legend

9' Solid Noise Barrier (Mitigation Measure 1A)

N

Scale (Feet)

0 25 50

Chevron Station & Car Wash
Salinas, California

Mitigation Measure 1A

Figure 4

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Noise Impacts Associated with Project On-Site Construction Activities

Impact 9: Demolition/Construction Activity Noise Generation

During on-site project demolition/construction, heavy equipment would be used for grading excavation, paving, and building construction, which would increase ambient noise levels when in use. Noise levels would vary depending on the type of equipment used, how it is operated, and how well it is maintained. Noise exposure at any single point outside the project work area would also vary depending upon the proximity of equipment activities to that point.

Table 17 includes the range of maximum (L_{max}) noise levels for equipment commonly used in general construction projects at full-power operation at a distance of 50 feet. It should be noted that not all of these construction activities would be required of this project. Table 17 data also include predicted maximum equipment noise levels at the nearest industrial land uses, which assumes a standard spherical spreading loss of 6 dB per doubling of distance.

Table 17
Reference and Projected Noise Levels for Typical Construction Equipment

Equipment Description	Reference Noise Level at 50 Feet, L_{max} (dB)	Predicted Maximum Noise Level at Industrial Use, L_{max} (dB)		
		003471031000 (West)	003591022000 (Southwest)	003591015000 (South)
Air compressor	80	94	76	77
Backhoe	80	94	76	77
Ballast equalizer	82	96	78	79
Ballast tamper	83	97	79	80
Compactor	82	96	78	79
Concrete mixer	85	99	81	82
Concrete pump	82	96	78	79
Concrete vibrator	76	90	72	73
Crane, mobile	83	97	79	80
Dozer	85	99	81	82
Excavator	85	99	81	82
Generator	82	96	78	79
Grader	85	99	81	82
Impact wrench	85	99	81	82
Loader	80	94	76	77
Paver	85	99	81	82
Pneumatic tool	85	99	81	82
Pump	77	91	73	74
Saw	76	90	72	73
Scarifier	83	97	79	80
Scraper	85	99	81	82
Shovel	82	96	78	79
Spike driver	77	91	73	74
Tie cutter	84	98	80	81
Tie handler	80	94	76	77
Tie inserter	85	99	81	82
Truck	84	98	80	81
Low	76	90	72	73
High	85	99	81	82
Average	82	96	79	79

Source: 2018 FTA Transit Noise and Vibration Impact Assessment Manual (Table 7-1) and BAC calculations

As indicated in Table 17, construction activities typically generate noise levels ranging from approximately 75 to 82 dB L_{max} at a reference distance of 50 feet from the construction activities. The noise levels from construction operations would decrease at a rate of approximately 6 dB per doubling of distance from the source. As a result, maximum construction noise levels could range from 72 dB L_{max} to 99 dB L_{max} at the property lines of the closest industrial uses. However, after analysis of the results from the BAC ambient noise monitoring survey (contained in Appendices C & D), the predicted construction equipment noise levels in Table 17 would be below or within the range of ambient maximum noise levels already occurring at the closest industrial uses.

In terms of determining the temporary noise increase due to project-related demolition/construction activities, an impact would occur if construction activity would noticeably increase ambient noise levels above background levels. The threshold of perception of the human ear is approximately 3 to 5 dB – a 5 dB change is considered to be clearly noticeable. For this analysis, a noticeable increase in ambient noise levels is assumed to occur where noise levels increase by 5 dB or more over existing ambient noise levels.

Appendices C & D contains the results from the BAC long-term ambient noise survey, which are believed to be representative of the existing ambient noise environments at the closest industrial uses. Using the calculated daily average of highest maximum noise levels measured during the BAC survey during typical construction hours (i.e., 7:00 a.m. to 7:00 p.m.), and the highest predicted construction equipment maximum noise levels shown in Table 17, ambient plus project construction noise level increases were calculated at the closest industrial uses. The results of those calculations indicate that increases in ambient maximum noise levels from project construction activities would range from 0.1 dB L_{max} to 3.0 dB L_{max} at the nearest industrial uses. The calculated range of ambient daytime maximum noise level increases are below the applied increase significance criterion of 5 dB.

Based on the analysis provided above, project demolition/construction activities are not calculated to result in generation of a substantial temporary or permanent increase in ambient maximum noise levels at the closest industrial uses to the project area. As a result, this impact is identified as being ***less than significant***. Nonetheless, to reduce the potential for annoyance at nearby land uses, the following measures should be incorporated into project on-site demolition/construction operations:

- All on-site noise-generating demolition/construction activities should be limited to daytime hours.
- All noise-producing project equipment and vehicles using internal-combustion engines shall be equipped with manufacturers-recommended mufflers and be maintained in good working condition.
- All mobile or fixed noise-producing equipment used on the project site that are regulated for noise output by a federal, state, or local agency shall comply with such regulations while in the course of project activity.
- Electrically powered equipment shall be used instead of pneumatic or internal-combustion-powered equipment, where feasible.

- Material stockpiles and mobile equipment staging, parking, and maintenance areas shall be located as far as practicable from adjacent land uses.
- Project area and site access road speed limits shall be established and enforced during the construction period.
- Nearby industrial uses shall be notified of demolition/construction schedules so that arrangements can be made, if desired, to limit their exposure to short-term increases in ambient noise levels.

Vibration Impacts Associated with the Project

Impact 10: Demolition/Construction Activity & On-Site Operations Vibration Generation

During project demolition/construction, heavy equipment would be used for grading, excavation, paving, and building construction, which would generate localized vibration in the immediate vicinity of those activities. The nearest off-site existing structures have been identified as industrial buildings located on the adjacent industrial properties to the west, southwest and south of the project.

Table 18 includes the range of vibration levels for equipment commonly used in general construction projects at a distance of 25 feet. Table 18 data also include projected equipment vibration levels at the closest existing off-site structures (i.e., industrial buildings).

Table 18
Reference and Projected Construction Equipment Vibration Source Amplitudes

Equipment	Reference Maximum Vibration Level at 25 feet, PPV (in/sec)[1]	Projected Maximum Vibration Level at Industrial Building on Property, PPV (in/sec)[1]		
		003471031000 West – 60 ft.	003591022000 Southwest – 95 ft.	00359101500 South – 95 ft.
Vibratory roller	0.210	0.056	0.028	0.028
Hoe ram	0.089	0.024	0.012	0.012
Large bulldozer	0.089	0.024	0.012	0.012
Caisson drilling	0.089	0.024	0.012	0.012
Loaded trucks	0.076	0.020	0.010	0.010
Jackhammer	0.035	0.009	0.005	0.005
Small bulldozer	0.003	0.001	<0.001	<0.001

[1] PPV = Peak Particle Velocity

Source: 2018 FTA Transit Noise and Vibration Impact Assessment Manual (Table 7-4) and BAC calculations

Table 18 data indicate that vibration levels generated from demolition/construction activities within the project area at the nearest existing off-site structures (i.e., industrial buildings) are predicted to be well below the strictest Caltrans thresholds for damage to structures of 0.5 in/sec PPV shown in Table 3 of this report (building structure vibration criteria). In addition, the projected equipment vibration levels in Table 18 would range from imperceptible (<0.001 PPV) to barely within the range of distinctly perceptible human response as defined by Caltrans in Table 4 (vibration annoyance potential threshold criteria). However, based on the analysis provide above, on-site

construction within the project area is not expected to result in excessive groundborne vibration levels at nearby existing off-site structures (industrial buildings).

During BAC site visits on June 24th and June 27th, 2024, vibration levels within the project area were imperceptible. Therefore, it is believed that persons within the project area (or proposed uses of the development) would not be exposed to excessive groundborne vibration levels.

Finally, the project proposes the operation of car wash and c-store/fueling station uses. It is the experience of BAC that such uses do not typically have equipment that generates appreciable vibration.

Based on the analysis provided above, this impact is considered to be ***less than significant***.

Noise Impacts Upon the Development

The California Supreme Court issued an opinion in *California Building Industry Association v. Bay Area Air Quality Management District (2015)* holding that CEQA is primarily concerned with the impacts of a project on the environment and generally does not require agencies to analyze the impact of existing conditions on a project's future users or residents. Nevertheless, the City of Salinas has policies that address existing/future conditions affecting the proposed project. The following section includes assessments of future airport operations noise exposure at proposed uses of the development.

Issue 1: Airport Operations Noise at Proposed Uses of the Development

The project area is located approximately ¼ mile west of the Salinas Municipal Airport. The project site location relative to the Salinas Airport Future Noise Contours is shown in Appendix F. As indicated in Appendix F, the project site is located within the 60 dB CNEL noise contour of the Salinas Municipal Airport.

Pursuant to Table N-4 of the Salinas General Plan (Salinas Municipal Airport Noise/Land Use Compatibility Guidelines), a CNEL environment of up to 65 dB is acceptable for commercial uses (i.e., such as c-stores/fueling stations). As shown in Table 1, measured ambient day-night average (DNL) noise levels within the project area were 69 dB DNL during the 48-hour monitoring period. Although the ambient noise measurements obtained during the 48-hour monitoring period likely included aircraft associated with operations at Salinas Municipal Airport, it is believed that the ambient noise level environment at the project site is primarily attributed to local roadway/highway traffic.

Based on the information above, noise generated from normal aircraft operations at the Salinas Municipal Airport are expected to satisfy the applicable Salinas General Plan 65 dB CNEL noise level standard within the project area.

This concludes BAC's noise and vibration assessment for the Chevron Station and Car Wash project in Salinas, California. Please contact BAC at (530) 537-2328 or dariog@bacnoise.com if you have any comments or questions regarding this report.

Appendix A

Acoustical Terminology

Acoustics The science of sound.

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

Attenuation The reduction of an acoustic signal.

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

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

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

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

Ldn Day/Night Average Sound Level. Similar to CNEL but with no evening weighting.

Leq Equivalent or energy-averaged sound level.

Lmax The highest root-mean-square (RMS) sound level measured over a given period of time.

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

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

Noise Unwanted sound.

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

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

Sabin The unit of sound absorption. One square foot of material absorbing 100% of incident sound has an absorption of 1 sabin.

SEL A rating, in decibels, of a discrete event, such as an aircraft flyover or train passby, that compresses the total sound energy of the event into a 1-s time period.

Threshold of Hearing The lowest sound that can be perceived by the human auditory system, generally considered to be 0 dB for persons with perfect hearing.

Threshold of Pain Approximately 120 dB above the threshold of hearing.

Legend

A: Noise monitoring equipment along western project property line, facing north
B: Noise monitoring equipment along western project property line, facing south

Chevron Station & Car Wash
Salinas, California

Field Survey Photographs

Appendix B

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Appendix C-1
Long-Term Ambient Noise Monitoring Results
Chevron Station & Car Wash - Salinas, California
Tuesday, June 25, 2024

Hour	Leq	Lmax	L50	L90
12:00 AM	61	71	60	58
1:00 AM	62	82	60	57
2:00 AM	59	75	58	53
3:00 AM	61	79	59	55
4:00 AM	61	78	60	56
5:00 AM	64	78	63	60
6:00 AM	64	76	63	60
7:00 AM	64	78	63	61
8:00 AM	63	74	63	60
9:00 AM	64	75	63	61
10:00 AM	63	86	62	60
11:00 AM	64	78	63	60
12:00 PM	64	80	63	61
1:00 PM	67	86	63	61
2:00 PM	64	80	63	61
3:00 PM	64	77	63	61
4:00 PM	65	82	63	62
5:00 PM	66	89	64	63
6:00 PM	70	101	64	62
7:00 PM	64	79	63	61
8:00 PM	63	74	62	60
9:00 PM	63	76	62	60
10:00 PM	62	78	61	59
11:00 PM	60	69	60	56

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	70	63	65	64	59	62
Lmax (Maximum)	101	74	81	82	69	76
L50 (Median)	64	62	63	63	58	60
L90 (Background)	63	60	61	60	53	57

Computed DNL (dB)	69
% Daytime Energy	77%
% Nighttime Energy	23%

GPS Coordinates	36°39'40.90"N
	121°37'27.49"W

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Appendix C-2
Long-Term Ambient Noise Monitoring Results
Chevron Station & Car Wash - Salinas, California
Wednesday, June 26, 2024

Hour	Leq	Lmax	L50	L90
12:00 AM	60	76	59	56
1:00 AM	61	88	57	54
2:00 AM	58	74	56	51
3:00 AM	59	78	56	52
4:00 AM	60	75	59	55
5:00 AM	62	76	61	58
6:00 AM	64	84	62	59
7:00 AM	63	82	62	59
8:00 AM	62	77	61	59
9:00 AM	61	73	60	58
10:00 AM	62	78	61	59
11:00 AM	64	85	61	59
12:00 PM	62	76	61	59
1:00 PM	63	80	61	59
2:00 PM	64	84	62	60
3:00 PM	64	84	62	60
4:00 PM	65	84	63	61
5:00 PM	65	83	63	61
6:00 PM	68	97	64	62
7:00 PM	66	78	65	64
8:00 PM	65	86	65	64
9:00 PM	65	78	64	63
10:00 PM	65	77	64	63
11:00 PM	64	82	63	62

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	68	61	64	65	58	62
Lmax (Maximum)	97	73	82	88	74	79
L50 (Median)	65	60	62	64	56	60
L90 (Background)	64	58	60	63	51	57

Computed DNL (dB)	69
% Daytime Energy	73%
% Nighttime Energy	27%

GPS Coordinates	36°39'40.90"N
	121°37'27.49"W

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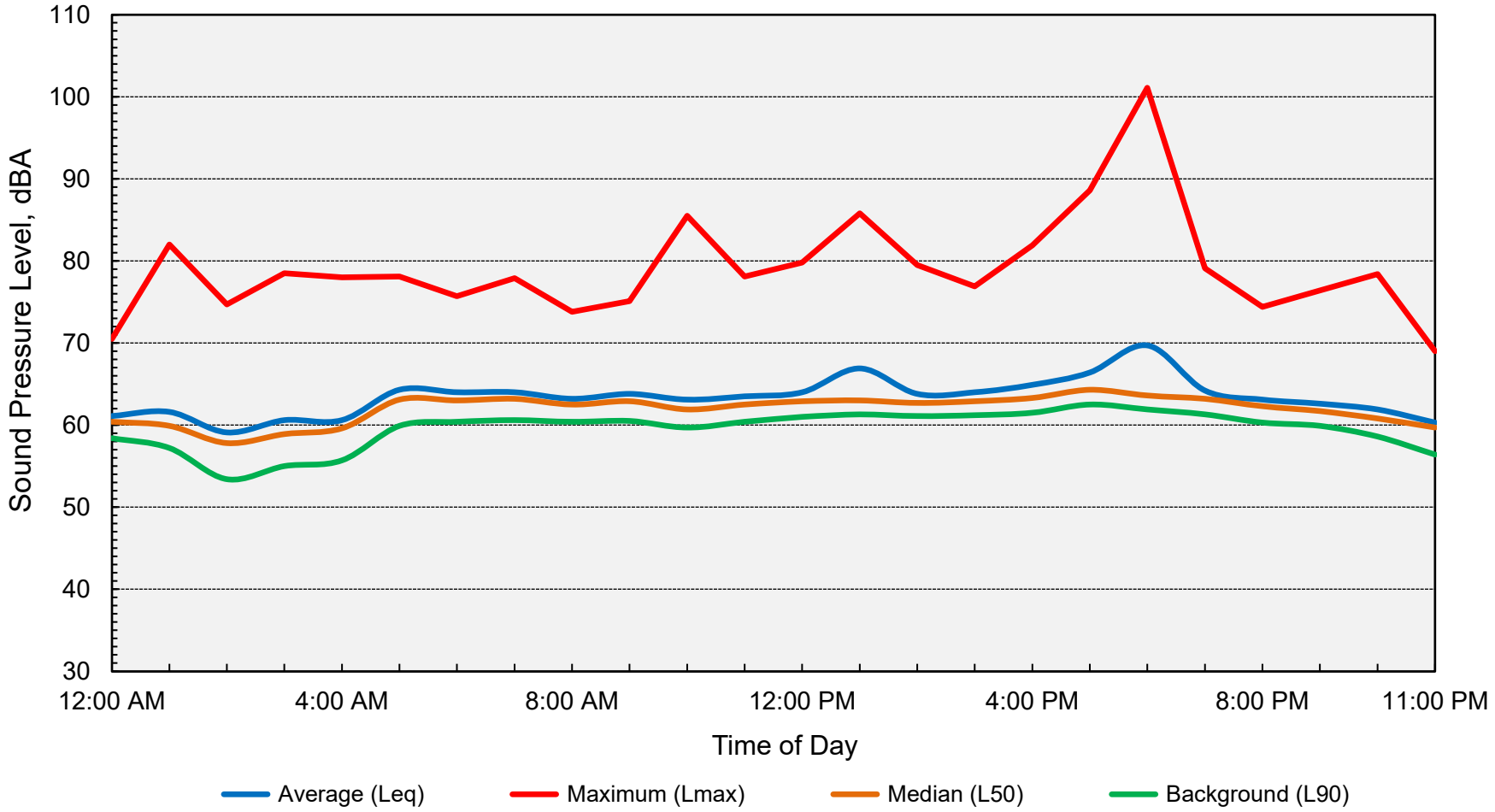
Appendix D-1
Long-Term Ambient Noise Monitoring Results
Chevron Station & Car Wash - Salinas, California
Tuesday, June 25, 2024



Computed DNL = 69 dB

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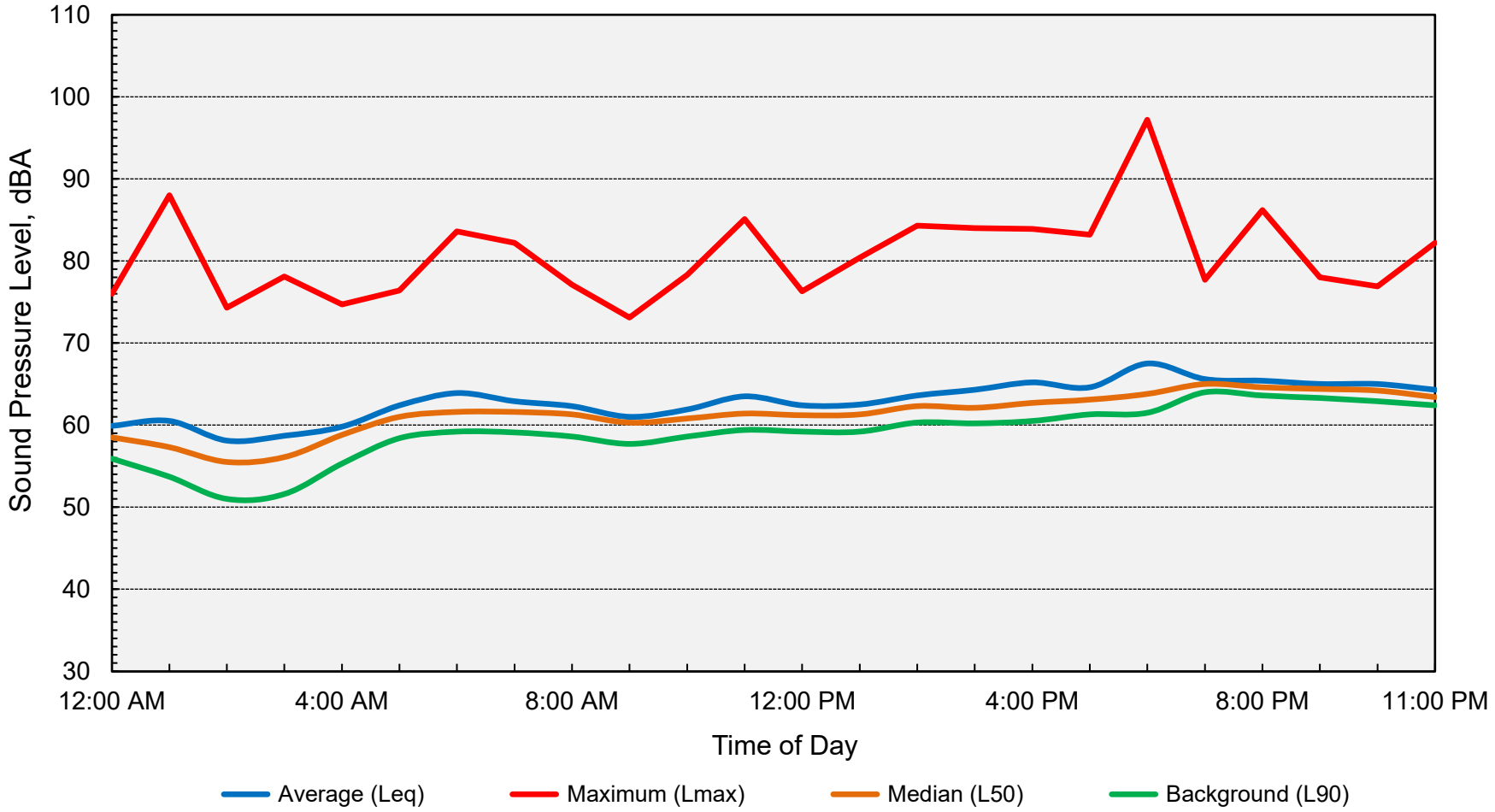
Appendix D-2
Long-Term Ambient Noise Monitoring Results
Chevron Station & Car Wash - Salinas, California
Wednesday, June 26, 2024



Computed DNL = 69 dB

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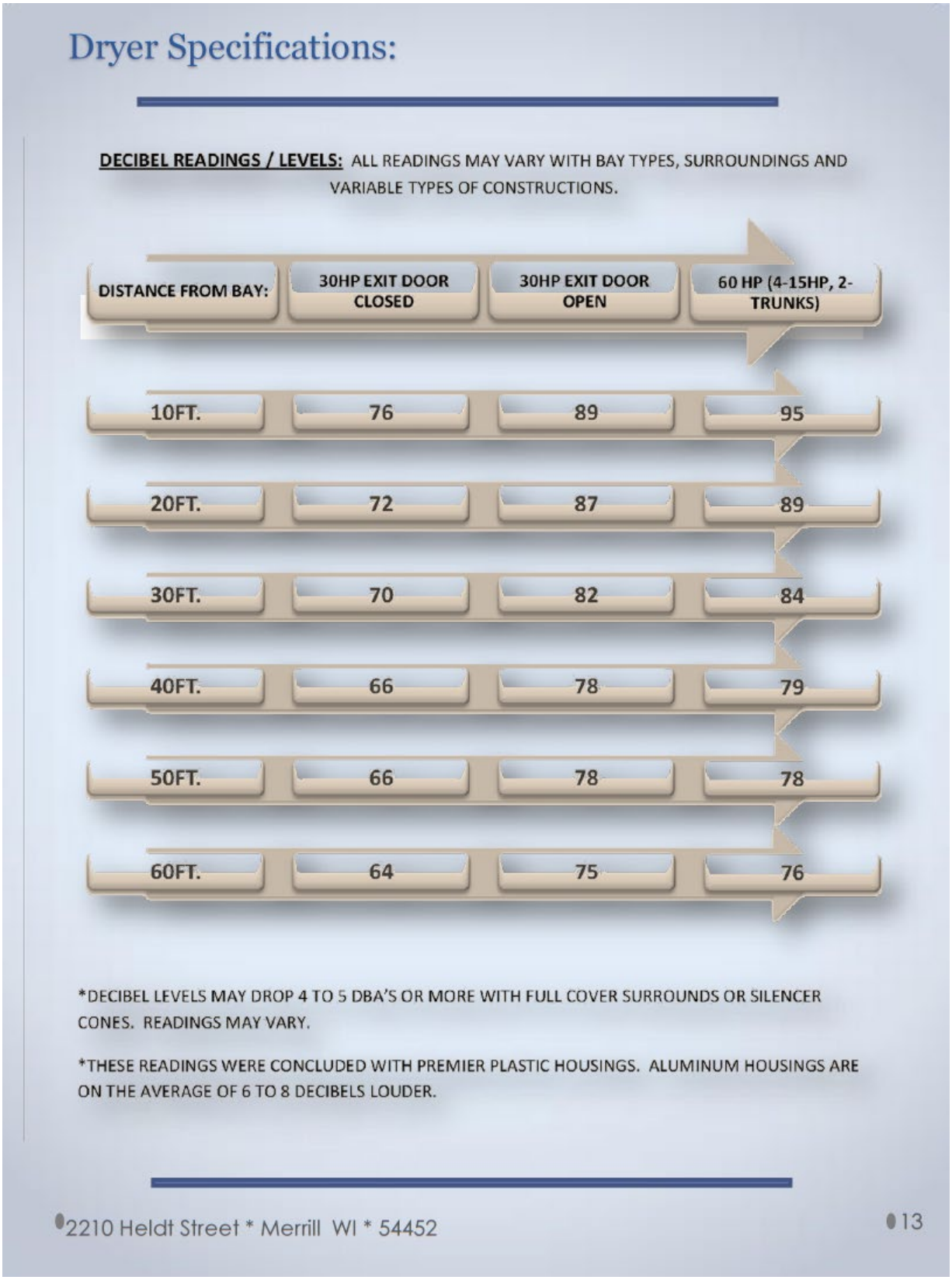
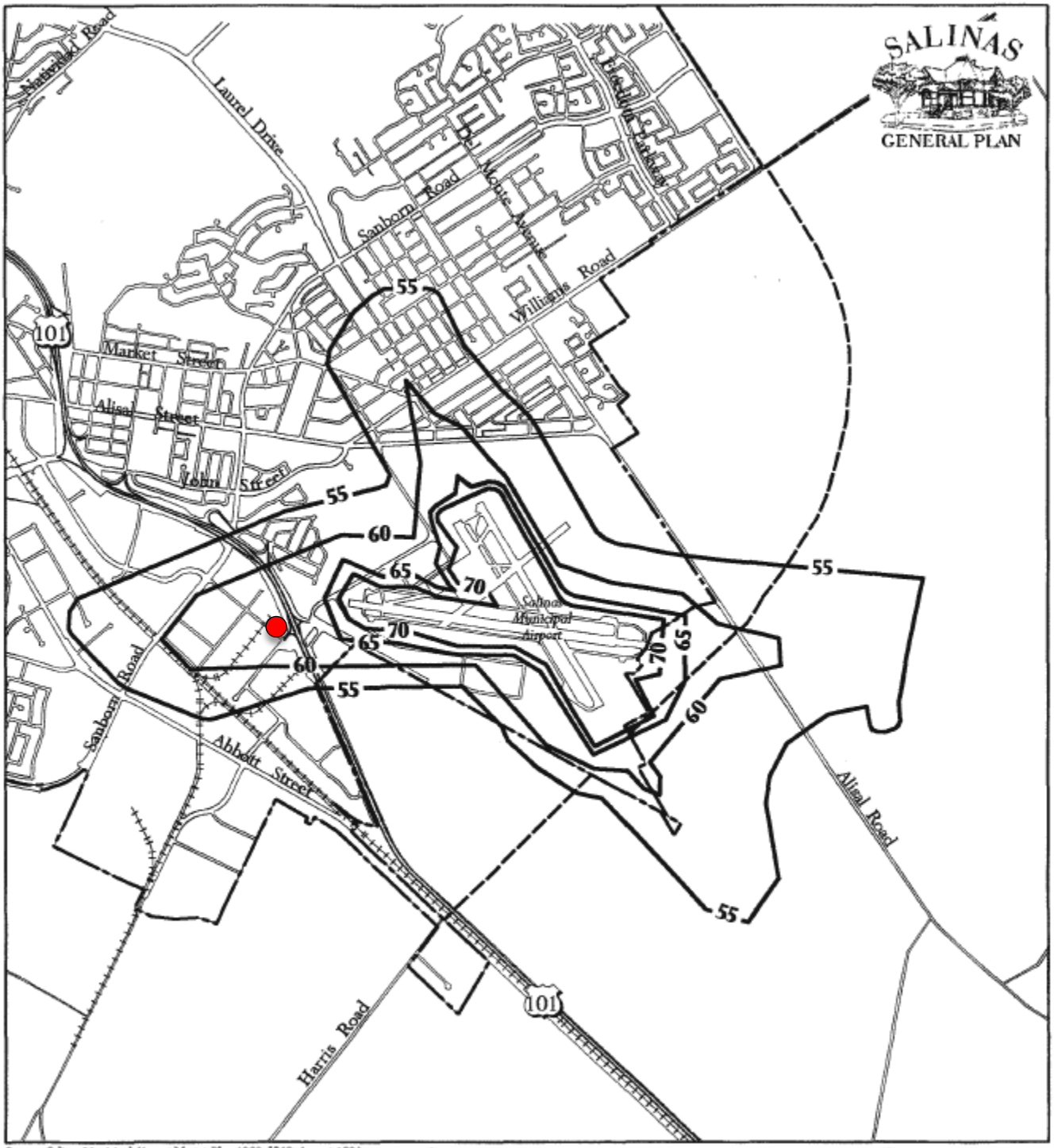
Appendix E
Premier Drying Assembly Sound Level Data





Source: Salinas General Plan, Figure N-2

Legend

Project Site Location

Chevron Station & Car Wash
Salinas, California

Salinas Municipal Airport Noise Contours

Appendix F

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