APPENDIX H

NOISE AND VIBRATION IMPACT ANALYSIS

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IPT ENTERPRISE BUSINESS CENTER LLC PROJECT

LAKE FOREST, CALIFORNIA

LSA

May 2025

NOISE AND VIBRATION IMPACT ANALYSIS

IPT ENTERPRISE BUSINESS CENTER LLC PROJECT

LAKE FOREST, CALIFORNIA

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May 2025

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LIST OF ABBREVIATIONS AND ACRONYMS

AB	Assembly Bill
ADT	average daily trips
CalEEMod	California Emissions Estimator Model
CALGreen Code	California Green Building Standards Code
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
City	City of Lake Forest
CNEL	Community Noise Equivalent Level
cy	cubic yard(s)
dB	decibel(s)
dBA	A-weighted decibel(s)
EPA	United States Environmental Protection Agency
EV	electric vehicle
FHWA	Federal Highway Administration
ft	foot/feet
hp	horsepower
HVAC	heating, ventilation, and air conditioning
I-5	Interstate 5
in/sec	inches per second
JWA	John Wayne International Airport
L_{dn}	day-night noise level
L_{eq}	equivalent continuous sound level
L_{max}	maximum instantaneous sound level
Noise Element	City of Lake Forest General Plan Noise Element

PPV	peak particle velocity
project	IPT Enterprise Business Center LLC Project
RMS	root-mean-square
sq ft	square foot/feet
SR-241	State Route 241
VdB	vibration velocity decibels

INTRODUCTION

This noise and vibration impact analysis has been prepared to evaluate the potential noise and vibration impacts associated with the proposed IPT Enterprise Business Center LLC Project (proposed project) in Lake Forest, California. This report is intended to satisfy the City of Lake Forest (City) requirements for a project-specific noise and vibration impact analysis by examining the impacts generated by the proposed project onto surrounding sensitive receptors and evaluating noise reduction measures that the project may require. Furthermore, this analysis discusses cumulative impacts associated with the proposed project along with the Western Realco Project.

PROJECT LOCATION AND DESCRIPTION

The 8.83-acre project site is located at 26200 Enterprise Way in the north-central portion of Lake Forest in Orange County, California. The project site is currently developed with an existing 144,906-square-foot (sq ft) building. Regional access to the project site is provided by State Route 241 (SR-241), which is located approximately 0.7 mile north of the project site, and Interstate 5 (I-5), which is located approximately 3.75 miles southwest of the project site. Local access to the project site is provided by Enterprise Way, which is accessed from Dimension Drive (see Figure 1, Project Location, and Figure 2, Site Plan).

The proposed project involves the demolition of the existing 144,906 sq ft building and redevelopment of the property with a new 165,803 sq ft industrial building. The proposed project would include a mix of office, manufacturing, and warehouse space. Approximately 10,000 sq ft would serve as office space, with up to 65,000 sq ft proposed for manufacturing use, and the remainder would be utilized for warehouse use. A maximum of 23 usable dock-high doors, a gated truck loading area, a 16-foot-(ft) high, 65 ft long wall located at the eastern end of the loading docks, west of the proposed trash enclosure, and up to 262 parking spaces for passenger vehicles would be provided. Landscaping would total approximately 17.29 percent of the gross project site (66,559 sq ft). Additionally, the proposed project includes the following off-site improvements which would be constructed by the project developer prior to occupancy of the proposed industrial building to enhance public safety and address concerns related to large truck turning movements:

- **Intersection of Bake Parkway and Commercentre Drive:** Modifications would be made to the traffic signal to accommodate protected eastbound and westbound left-turn phasing (from split phasing). Lane geometrics would be modified for the westbound approach to accommodate dual left-turn lanes and a shared through right-turn lane. Additionally, modifications would be made to the traffic signal equipment.

- **Intersection of Bake Parkway and Dimension Drive:** Modifications would be made to the median to accommodate a 430-foot westbound left-turn lane. Additionally, modifications would be made to the traffic signal equipment.

- **Intersection of Dimension Drive/Commercentre Drive – Enterprise Way:** Modifications would be made to the traffic signal to accommodate protected eastbound and westbound left-turn phasing (from permissive phasing). The radius of the southeast corner at this

intersection would be modified to accommodate wheelbase-67 (WB-67) truck turns (northbound right turn). Additionally, modifications would be made to the traffic signal equipment.

- **Intersection of Lake Forest Drive and Dimension Drive:** Modifications would be made to accommodate a 250-foot northbound left-turn lane and a 205-foot eastbound left-turn lane. Additionally, modifications would be made to the traffic signal equipment.

- **Intersection of Lake Forest Drive and Rancho Parkway:** Modifications would be made to accommodate a new 225-foot northbound right-turn lane, a 470-foot northbound left-turn lane, and a 440-foot southbound left-turn lane. Additionally, modifications would be made to the traffic signal equipment.

The proposed project would be consistent with the California Green Building Standards Code (CALGreen Code) and Assembly Bill (AB) 1881 water-efficient landscape requirements. Additionally, the proposed project will be seeking Leadership in Energy and Environmental Design (LEED) certification through the Applicant's LEED Volume program. Some of the features in the design include, but are not limited to, drought-tolerant landscaping, low-flow fixtures, high-efficiency lighting, solar, and infrastructure for electric vehicle (EV) charging.

This analysis assumes the proposed uses could operate up to 24 hours per day, 7 days per week. Once operational, the proposed project would generate approximately 573 average daily trips (ADT), including 458 passenger car trips, 36 two-axle truck trips, 21 three-axle truck trips, and 58 four-axle truck trips (LSA 2025b). In addition, the proposed project would not utilize natural gas during construction and operation. The proposed project would also include two 200-horsepower (hp), diesel-powered, cargo-handling equipment units for operation of the project and a 300 hp, diesel-powered fire pump, which is estimated to operate for up to 50 hours per year.

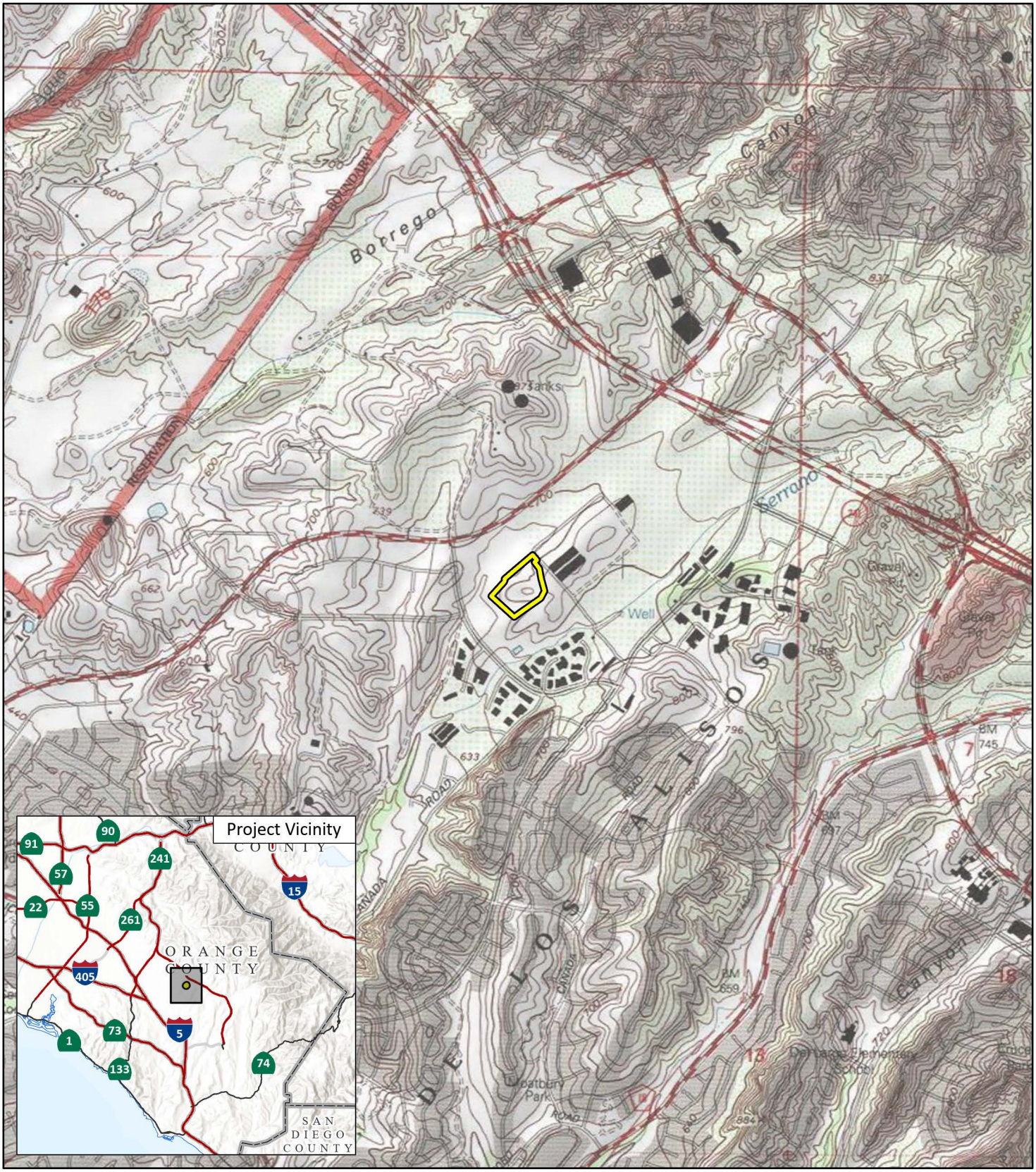

FIGURE 1

0 1000 2000
FEET

SOURCE: *El Toro CA*, 7.5' Quad (USGS 1982)

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IPT Enterprise Business Center LLC Project

Project Location

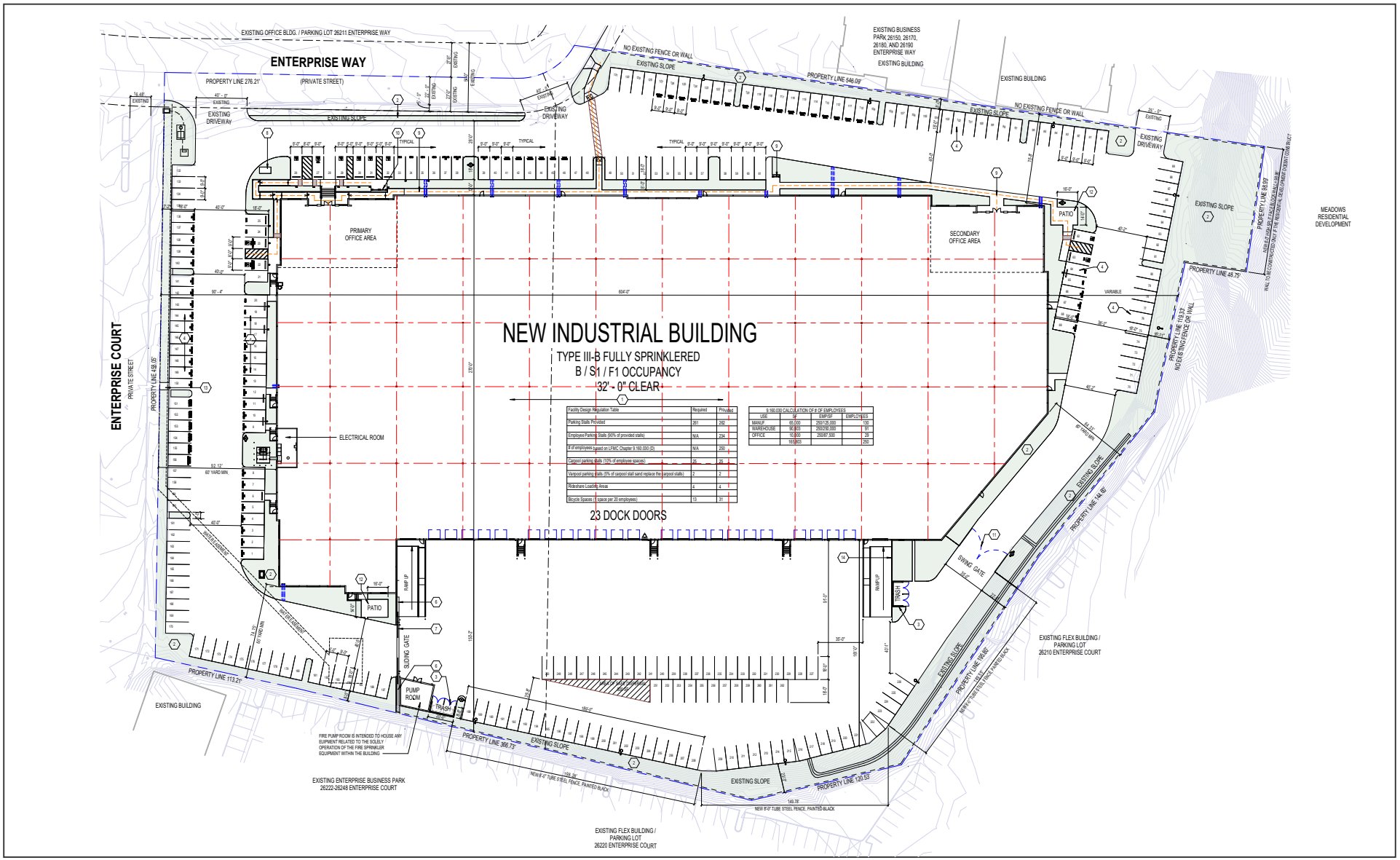

FIGURE 2

0 90 180

FEET

SOURCE: RGA Architects

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IPT Enterprise Business Center LLC Project

Site Plan

Construction activities associated with the proposed project would include demolition of the existing structure, site preparation, grading, building construction, paving, and architectural coating activities. Construction of the proposed project would tentatively commence in January 2026 and is expected to be completed in about 1 year. Construction of the proposed project would require a maximum of 13,400 cubic yards (cy) of cut and approximately 12,500 cy of fill, resulting in a net export of approximately 900 cy of material. Based on information from the project Applicant, the proposed project is anticipated to require the use of concrete industrial saws, excavators, impactors, stackers, jaw crushers, bull dozers, tractors, loaders, backhoes, graders, scrapers, forklifts, cranes, generator sets, welders, concrete ride on trowel machine, cement and mortar mixers, paving equipment, and air compressors. Equipment tier engine and number of equipment pieces was provided by the project Applicant.

Cumulative Projects Immediately Adjacent to the Proposed Project

The City of Lake Forest, as the lead agency for the environmental review of the proposed project, has requested a cumulative impact analysis of the proposed project and the immediately adjacent proposed Western Realco Projects. The Western Realco Projects are comprised of two separate projects (Western Realco Project 1 and Western Realco Project 2). Western Realco Project 1 (26110 Enterprise, 26140 Enterprise, and 26160 Enterprise Way) consists of an 8.42-acre project site located north of the IPT Enterprise Business Center LLC Project site along Bake Parkway. Western Realco Project 1 includes the demolition of three existing office buildings (a total of 150,000 sq ft) and the reconstruction of two new industrial buildings with a total of 156,800 sq ft (one 54,000 sq ft building and one 102,800 sq ft building). The two buildings would have a total of 59,800 sq ft of warehouse use, 79,000 sq ft of manufacturing use, and 18,000 sq ft of office space. Western Realco Project 2 (26250 Enterprise Way) consists of a 4.54-acre project site located immediately west of the IPT Enterprise Business Center LLC Project site in the intersection between Enterprise Way and Dimension Drive. Western Realco Project 2 includes the demolition of a 76,978 sq ft two-story office building and construction of a 77,000 sq ft single-story building. The building would have 69,000 sq ft of warehouse use and 8,000 sq ft of office space. Development associated with Western Realco Projects 1 and 2 is evaluated under the Cumulative Impacts section below.

EXISTING LAND USES IN THE PROJECT AREA

The project site is surrounded primarily by light industrial uses and residential uses. The areas adjacent to the project site include the following uses:

- **North:** Existing industrial uses
- **West:** Existing industrial uses
- **East:** Existing residential uses
- **South:** Existing industrial uses

The nearest sensitive receptors are:

- **East:** Existing single-family homes approximately 82 ft away from the project boundary line to the building's façade.

Other residential uses are located north of the project site, at approximately 900 ft from the project's northern boundary limit as measured to the residential building façade. In addition, a nature park is located to the south of the proposed project site, within 450 ft from the proposed project site southern boundary as measured to the center of the park. Land uses that are considered relatively insensitive to noise include commercial, and office developments.

Land uses that are typically not affected by noise include: industrial, manufacturing, utilities, agriculture, natural open space, undeveloped land, parking lots, warehousing, liquid and solid waste facilities, salvage yards, and transit terminals.

To assess the potential for short-term vibration damage, impacts were assessed at the buildings located at 26180 and 26190 Enterprise Way. The buildings are located within 10 ft of the northern property line.

NOISE AND VIBRATION FUNDAMENTALS

CHARACTERISTICS OF SOUND

Noise is usually defined as unwanted sound. Noise consists of any sound that may produce physiological or psychological damage and/or interfere with communication, work, rest, recreation, and sleep.

To the human ear, sound has two significant characteristics: pitch and loudness. Pitch is generally an annoyance, while loudness can affect the ability to hear. Pitch is the number of complete vibrations, or cycles per second, of a sound wave, which results in the tone's range from high to low. Loudness is the strength of a sound, and it describes a noisy or quiet environment; it is measured by the amplitude of the sound wave. Loudness is determined by the intensity of the sound waves combined with the reception characteristics of the human ear. Sound intensity is the average rate of sound energy transmitted through a unit area perpendicular to the direction in which the sound waves are traveling. This characteristic of sound can be precisely measured with instruments. The analysis of a project defines the noise environment of the project area in terms of sound intensity and its effect on adjacent sensitive land uses.

MEASUREMENT OF SOUND

Sound intensity is measured with the A-weighted decibel (dBA) scale to correct for the relative frequency response of the human ear. That is, an A-weighted noise level de-emphasizes low and very high frequencies of sound, similar to the human ear's de-emphasis of these frequencies. Decibels (dB), unlike the linear scale (e.g., inches or pounds), are measured on a logarithmic scale representing points on a sharply rising curve.

For example, 10 dB is 10 times more intense than 0 dB, 20 dB is 100 times more intense than 0 dB, and 30 dB is 1,000 times more intense than 0 dB. Thirty decibels (30 dB) represents 1,000 times as much acoustic energy as 0 dB. The decibel scale increases as the square of the change, representing the sound pressure energy. A sound as soft as human breathing is about 10 times greater than 0 dB. The decibel system of measuring sound gives a rough connection between the physical intensity of sound and its perceived loudness to the human ear. A 10 dB increase in sound level is perceived by the human ear as only a doubling of the sound's loudness. Ambient sounds generally range from 30 dB (very quiet) to 100 dB (very loud).

Sound levels are generated from a source, and their decibel level decreases as the distance from that source increases. Sound levels dissipate exponentially with distance from their noise sources. For a single point source, sound levels decrease approximately 6 dB for each doubling of distance from the source. This drop-off rate is appropriate for noise generated by stationary equipment. If noise is produced by a line source (e.g., highway traffic or railroad operations), the sound decreases 3 dB for each doubling of distance in a hard site environment. Line source sound levels decrease 4.5 dB for each doubling of distance in a relatively flat environment with absorptive vegetation.

There are many ways to rate noise for various time periods, but an appropriate rating of ambient noise affecting humans also accounts for the annoying effects of sound. The equivalent continuous sound level (L_{eq}) is the total sound energy of time-varying noise over a sample period. However, the predominant rating scales for human communities in the State of California are the L_{eq} and Community Noise Equivalent Level (CNEL) or the day-night average noise level (L_{dn}) based on A-weighted decibels. CNEL is the time-weighted average noise over a 24-hour period, with a 5 dBA weighting factor applied to the hourly L_{eq} for noises occurring from 7:00 p.m. to 10:00 p.m. (defined as relaxation hours) and a 10 dBA weighting factor applied to noises occurring from 10:00 p.m. to 7:00 a.m. (defined as sleeping hours). L_{dn} is similar to the CNEL scale but without the adjustment for events occurring during the relaxation. CNEL and L_{dn} are within 1 dBA of each other and are normally interchangeable. The City of Lake Forest uses the L_{dn} noise scale for long-term traffic noise impact assessment.

Other noise rating scales of importance when assessing the annoyance factor include the maximum instantaneous noise level (L_{max}), which is the highest sound level that occurs during a stated time period. The noise environments discussed in this analysis for short-term noise impacts are specified in terms of maximum levels denoted by L_{max}, which reflects peak operating conditions and addresses the annoying aspects of intermittent noise. It is often used together with another noise scale, or noise standards in terms of percentile noise levels, in noise ordinances for enforcement purposes. For example, the L_{10} noise level represents the noise level exceeded 10 percent of the time during a stated period. The L_{50} noise level represents the median noise level. Half the time the noise level exceeds this level, and half the time it is less than this level. The L_{90} noise level represents the noise level exceeded 90 percent of the time and is considered the background noise level during a monitoring period. For a relatively constant noise source, the L_{eq} and L_{50} are approximately the same.

Noise impacts can be described in three categories. The first category includes audible impacts, which are increases in noise levels noticeable to humans. Audible increases in noise levels generally refer to a change of 3 dB or greater because this level has been found to be barely perceptible in exterior environments. The second category, potentially audible, refers to a change in the noise level between 1 dB and 3 dB. This range of noise levels has been found to be noticeable only in laboratory environments. The last category includes changes in noise levels of less than 1 dB, which are inaudible to the human ear. Only audible changes in existing ambient or background noise levels are considered potentially significant.

Physiological Effects of Noise

Physical damage to human hearing begins at prolonged exposure to sound levels higher than 85 dBA. Exposure to high sound levels affects the entire system, with prolonged sound exposure in excess of 75 dBA increasing body tensions, thereby affecting blood pressure and functions of the heart and the nervous system. In comparison, extended periods of sound exposure above 90 dBA would result in permanent cell damage. When the sound level reaches 120 dBA, a tickling sensation occurs in the human ear, even with short-term exposure. This level of sound is called the threshold of feeling. As the sound reaches 140 dBA, the tickling sensation is replaced by a feeling of pain in the ear (i.e., the threshold of pain). A sound level of 160–165 dBA will result in dizziness or a

loss of equilibrium. The ambient or background noise problem is widespread and generally more concentrated in urban areas than in outlying, less developed areas.

Table A lists definitions of acoustical terms, and Table B shows common sound levels and their sources.

Table A: Definitions of Acoustical Terms

Term	Definitions
Decibel, dB	A unit of sound measurement that denotes the ratio between two quantities that are proportional to power; the number of decibels is 10 times the logarithm (to the base 10) of this ratio.
Frequency, Hz	Of a function periodic in time, the number of times that the quantity repeats itself in 1 second (i.e., the number of cycles per second).
A-Weighted Sound Level, dBA	The sound level obtained by use of A-weighting. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise. (All sound levels in this report are A-weighted unless reported otherwise.)
L_{01}, L_{10}, L_{50}, L_{90}	The fast A-weighted noise levels that are equaled or exceeded by a fluctuating sound level 1%, 10%, 50%, and 90% of a stated time period, respectively.
Equivalent Continuous Noise Level, L_{eq}	The level of a steady sound that, in a stated time period and at a stated location, has the same A-weighted sound energy as the time-varying sound.
Community Noise Equivalent Level, CNEL	The 24-hour A-weighted average sound level from midnight to midnight, obtained after the addition of 5 dBA to sound levels occurring in the evening from 7:00 p.m. to 10:00 p.m. and after the addition of 10 dBA to sound levels occurring in the night between 10:00 p.m. and 7:00 a.m.
Day-Night Noise Level, L_{dn}	The 24-hour A-weighted average sound level from midnight to midnight, obtained after the addition of 10 dBA to sound levels occurring in the night between 10:00 p.m. and 7:00 a.m.
L_{max}, L_{min}	The maximum and minimum A-weighted sound levels measured on a sound level meter, during a designated time interval, using fast time averaging.
Ambient Noise Level	The all-encompassing noise associated with a given environment at a specified time. Usually a composite of sound from many sources from many directions, near and far; no particular sound is dominant.
Intrusive	The noise that intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, time of occurrence, and tonal or informational content, as well as the prevailing ambient noise level.

Sources: California Department of Transportation (Caltrans) *Technical Noise Supplement to the Traffic Noise Analysis Protocol* (2013), Caltrans *Transportation and Construction Vibration Guidance Manual* (2020).

Table B: Common Sound Levels and Their Noise Sources

Noise Source	A-Weighted Sound Level in Decibels	Noise Environments	Subjective Evaluations
Near Jet Engine	140	Deafening	128 times as loud
Civil Defense Siren	130	Threshold of Pain	64 times as loud
Hard Rock Band	120	Threshold of Feeling	32 times as loud
Accelerating Motorcycle at a Few Feet Away	110	Very Loud	16 times as loud
Pile Driver; Noisy Urban Street/ Heavy City Traffic	100	Very Loud	8 times as loud
Ambulance Siren; Food Blender	95	Very Loud	—
Garbage Disposal	90	Very Loud	4 times as loud
Freight Cars; Living Room Music	85	Loud	—
Pneumatic Drill; Vacuum Cleaner	80	Loud	2 times as loud
Busy Restaurant	75	Moderately Loud	—
Near Freeway Auto Traffic	70	Moderately Loud	Reference level
Average Office	60	Quiet	One-half as loud
Suburban Street	55	Quiet	—
Light Traffic; Soft Radio Music in Apartment	50	Quiet	One-quarter as loud
Large Transformer	45	Quiet	—
Average Residence without Stereo Playing	40	Faint	One-eighth as loud
Soft Whisper	30	Faint	—
Rustling Leaves	20	Very Faint	—
Human Breathing	10	Very Faint	Threshold of Hearing
—	0	Very Faint	—

Source: Compiled by LSA (2025).

FUNDAMENTALS OF VIBRATION

Vibration refers to ground-borne noise and perceptible motion. Ground-borne vibration is almost exclusively a concern inside buildings and is rarely perceived as a problem outdoors, where the motion may not be discernible, but without the effects associated with the shaking of a building there is less adverse reaction. Vibration energy propagates from a source through intervening soil and rock layers to the foundations of nearby buildings. The vibration then propagates from the foundation throughout the remainder of the structure. Building vibration may be perceived by occupants as the motion of building surfaces, the rattling of items sitting on shelves or hanging on walls, or a low-frequency rumbling noise. The rumbling noise is caused by the vibration of walls, floors, and ceilings that radiate sound waves.

Typical sources of ground-borne vibration are construction activities (e.g., blasting, pile-driving, and operating heavy-duty earthmoving equipment), steel-wheeled trains, and occasional traffic on rough roads. Problems with both ground-borne vibration and noise from these sources are usually localized to areas within approximately 100 ft from the vibration source. When roadways are smooth, vibration from traffic, even heavy trucks, is rarely perceptible. It is assumed for most projects that the roadway surface will be smooth enough that ground-borne vibration from street traffic will not exceed the impact criteria; however, construction of the project could result in ground-borne vibration that may be perceptible and annoying.

Ground-borne vibration has the potential to disturb people and damage buildings. Although it is very rare for train-induced ground-borne vibration to cause even cosmetic building damage, it is not uncommon for construction processes such as blasting and pile-driving to cause vibration of sufficient amplitudes to damage nearby buildings. Ground-borne vibration is usually measured in terms of vibration velocity, either the root-mean-square (RMS) velocity or peak particle velocity (PPV). The RMS is best for characterizing human response to building vibration, and PPV is used to characterize the potential for damage. The RMS amplitude and PPV are related mathematically, and the RMS amplitude of equipment is typically calculated from the PPV reference level. The RMS amplitude is approximately 70 percent of the PPV. Thus, either can be used in the description of vibration impacts. Ground-borne noise is not likely to be a problem because noise arriving via the normal airborne path will usually be greater than ground-borne noise.

REGULATORY SETTING

APPLICABLE NOISE STANDARDS

The applicable noise standards governing the project site include the criteria in the City of Lake Forest's General Plan Noise Element (Noise Element) and the City of Lake Forest Municipal Code.

Local Regulations

City of Lake Forest

Noise Element of the General Plan. The Noise section within the Public Safety Element of the City of Lake Forest General Plan (2025) is intended to identify sources of noise and provide objectives and policies that ensure that noise from various sources does not create an unacceptable noise environment. Overall, the City's Noise Element describes the noise environment (including noise sources) in the City; addresses noise mitigation regulations, strategies, and programs; and delineates federal, State, and City jurisdiction relative to rail, automotive, aircraft, and nuisance noise. Based on Table C below, the noise levels for industrial land uses such as the proposed project is 75 dBA L_{DN} for outdoor activity areas and 45 dBA L_{eq} for interior spaces.

The City's noise standards correlate with land use zoning classifications to maintain identified ambient noise levels and to limit, mitigate, or eliminate intrusive noise that exceeds the ambient noise levels within a specified zone. The following policies and actions to provide a comfortable community environment that is free from excessive noise pollution are applicable to the proposed project:

PS-6 Policies

- PS-6.1: Land Use Planning. Require development and infrastructure projects to be consistent with the maximum allowable noise exposure standards identified in Table PS-1 (refer to Table C, below) to ensure acceptable noise levels for future development.

- PS-6.3: Site Design. Require site planning and project design techniques to minimize noise impacts adjacent to sensitive uses in order to comply with City standards.

- PS-6.4: Noise Control. Ensure that noise levels do not exceed the limits established in the Municipal Code (refer to Table D, below) by incorporating sound-reduction design in new construction and retrofit projects impacted by non-transportation-related noise sources.

- PS-6.8: Commercial Noise. Require the use of noise attenuation measures, including screening and buffering techniques, for all new commercial development expected to produce excessive noise; in existing cases where the City's noise standards are exceeded, work with Code Enforcement to require compliance.

Table C: Land Use Compatibility for Community Noise Environment

Land Use[1]	Outdoor Activity Areas [2,3] L_{dn}, dBA	Interior Spaces	
		L_{dn} dBA	L_{eq}, dBA[4]
Residential	60	45	-
Motels/Hotels	65	45	-
Mixed-Use	65	45	-
Hospitals, Nursing Homes	60	45	-
Theaters, Auditoriums	-	-	35
Churches	60	-	40
Office Buildings	65	-	45
Schools, Libraries, Museums	70	-	45
Playgrounds, Neighborhood Parks	70	-	-
Industrial	75	-	45
Golf Courses, Water Recreation	70	-	-

Source: *City of Lake Forest General Plan* (2025).

1. Where a proposed use is not specifically listed, the use shall comply with the criteria for the most similar use as determined by the City.
2. Outdoor activity areas for residential developments are considered to be the private exterior living area of single-family homes and the main common areas where people generally congregate for multi-family and residential components of mixed-use developments. Outdoor activity areas for non-residential developments are the common areas where people generally congregate, including community centers, pool areas, and outside lunch facilities. New multi-family developments and residential components of mixed-use developments with balconies or patios that are exposed to noise that exceeds the outdoor criteria in this table are required to provide occupancy disclosure notices to all future tenants regarding potential noise impacts.
3. In areas where it is not possible for a new project to reduce exterior noise levels to achieve the outdoor activity area criteria using a practical application of the best noise-reduction technology, as determined by a qualified acoustician, an increase of up to 5 CNEL over the outdoor standard will be allowed provided that available exterior noise reduction measures have been implemented and interior noise levels are in compliance with this table.
4. Determined for a typical operating hour during periods of use.
5. In accordance with Policy PS-6b, this table shall be used for land use compatibility noise criteria for when making planning and development decisions. These criteria represent the acceptable noise level for new sensitive receptors. These criteria are not to be retroactively applied for existing uses. These criteria are also not generally intended for use as CEQA significance thresholds for noise generated by new projects to existing receptors; that purpose is achieved by compliance with Municipal Code standards,.
6. Abbreviations: dB = decibel; Leq = equivalent noise level; Ldn = Day-Night Average Level.

PS-6 Actions

- PS-6b: To ensure that noise does not adversely affect new sensitive receptors, the City will use land use compatibility noise criteria for various land use types in Table PS-1 (Table C of this analysis) when making planning and development decisions. The criteria in Table PS-1 (Table C of this analysis) represent the acceptable noise level for new sensitive receptors.

  Existing and future noise contours from transportation noise in the City will be used as a guide for land use and development decisions. If the noise level at a project does not exceed the outdoor activity area allowable noise level in Table PS-1 (Table C of this analysis), the project is considered compatible with the noise environment.

  If the project will exceed the allowable outdoor activity area and interior space noise levels in Table PS-1 (Table C of this analysis), the project proponent shall be required to demonstrate (with an acoustical analysis) that the project is designed to attenuate noise to meet the criteria in Table PS-1 (Table C of this analysis), and California Building Standards Code, and California

Green Building Standards Code (Title 24) interior noise standards. If the project is not designed to meet the noise criteria, noise reduction measures may be recommended in the analysis. If the analysis demonstrates that the noise criteria can be met with implementation of the noise reduction measures, the project may be approved with the noise reduction measures required as conditions of project approval.

- PS-6c: To ensure that noise from new development does not adversely affect existing sensitive receptors, the City will require acoustical studies for all new discretionary projects, including those related to development and transportation, which have the potential to generate stationary noise impacts which exceed the criteria identified in the Municipal Code. The studies shall include existing ambient noise measurements, estimates of projected noise levels, and noise reduction measures necessary to ensure compliance with this element.

- PS-6d: In making a determination of traffic noise impact under the California Environmental Quality Act (CEQA), a significant impact will occur if ambient noise levels have a substantial increase and the resultant noise levels are in excess of the City's guidelines. Generally, a 3 A-weighted decibel (dBA) increase in noise levels is barely perceptible. Therefore, increases in noise levels shall be considered substantial when the following occurs:

    - When existing noise levels are between 60 dBA L_{dn} and 65 dBA L_{dn}, a 3 dBA increase in noise will be considered substantial;

    - When existing noise levels exceed 65 dBA L_{dn}, a 1.5 dBA increase in noise will be considered substantial.

Municipal Code. Chapter 11.16, Noise Control, of the City's Municipal Code provides direction and criteria related to operational and construction noise and vibration. Additionally, requirements such as allowable hours of construction and applicable exemptions are identified.

Section 11.16.040 A, Exterior Noise Standards, identifies exterior noise standards which set limits for noise that land uses are allowed to generate as received by other land uses. These standards may be used during Code enforcement of potential noise violations. For purposes of determining potential project impacts during environmental impact review processes pursuant to CEQA, the average hourly level (L_{eq}) standards shall be utilized unless all sources are impact in nature. The standards shall apply to the corresponding land use in Residential and Mixed-Use zones only. It is unlawful for any person to create any noise either within or outside the City due to a Stationary Noise Source (or any Mobile Noise Source not pre-empted by State or Federal laws), or to allow the creation of any noise on property owned, leased, occupied, or otherwise controlled by such person, which causes the Noise Level when measured at the property line of any residential use in a residential or mixed use zone, to exceed the applicable noise standards listed in Table 1 – Exterior Noise Standards (Table D of this analysis).

Section 11.16.040 D clarifies that In the event the measured ambient noise level exceeds any of the noise limit categories above, the noise limit as applied to the contribution of the source(s) in question shall be the ambient noise level.

Table D: Exterior Stationary Noise Standard[1]

Noise Level Descriptor	Noise Level (dBA L_{eq})	Noise Level (dBA L_{max})	Time Period
Residential in Residential Zones	60	80	7:00 a.m. – 10:00 p.m.
	50	70	10:00 p.m. – 7:00 a.m.
Residential Portion of Mixed-Use in Mixed-Use Zones	65	85	7:00 a.m. – 10:00 p.m.
	50	70	10:00 p.m. – 7:00 a.m.
Churches, Hospitals, and Schools in Residential and Mixed-Use Zone	65	85	All Hours
Churches, Hospitals, and Schools in Commercial and Industrial Zones	70	90	All Hours

Source: *City of Lake Forest Municipal Code* (2025).

[1] No standards have been included for interior noise levels. Standard construction practices should, with the exterior noise levels identified, result in acceptable interior noise levels.

dBA = A-weighted decibels

L_{eq} = equivalent continuous sound level

Section 11.16.050, states the exemptions from the aforementioned exterior noise standards. Subsection D prescribes that the exemption would apply to noise sources associated with construction, repair, remodeling, or grading of any real property, provided that: (1) the City has issued a building permit, grading permit, or similar permit for such activities; (2) said activities do not take place between the hours of 8:00 p.m. and 7:00 a.m., Monday through Saturday, or at any time on Sunday or a legal City of Lake Forest holiday; and (3) the average Construction Noise Levels do not exceed 80 dBA L_{eq} at the first floor of nearby Noise-Sensitive Residential Uses Exterior Noise Standards.

Section 11.16.080, Construction, provides additional direction associated with construction noise. The following regulations set hours, allowed noise levels, and best management practices for construction noise that occurs within the City of Lake Forest. These standards may be used during code enforcement of potential noise violations or used to determine potential project impacts during environmental review processes pursuant to CEQA. The following is required for construction:

> A. Construction activities, including delivery of material or equipment, shall not take place between the hours of 8:00 p.m. and 7:00 a.m., Monday through Saturday, or at any time on Sunday or a City holiday; and the average Construction Noise Levels shall not exceed 80 dBA L_{eq} (1-hour) at the first floor of nearby noise-sensitive land uses.
>
> B. If construction noise has the potential to exceed the standards in section 11.16.090.A., as determined by code enforcement of noise violations, analysis of potential construction noise impacts during a review pursuant to CEQA, or if construction using heavy equipment is proposed within 100 feet of noise-sensitive land uses, a Construction Noise Management Plan shall be prepared by a qualified acoustician and submitted by the applicant. The noise reduction measures shall be determined in the plan and shall be quantified to demonstrate that noise levels would not exceed the standards.

Section 11.16.090, Vibration, provides additional direction associated with vibration standards.

> A. Operating or permitting the operation of any device that creates vibration that exceeds current published Caltrans vibration criteria at a receiving vibration-sensitive land use is prohibited.
>
> B. For projects implementing a phase or phases of construction that incorporate equipment as presented in Table 2 below (Table E of this analysis): during the pre-building permit issuance phase and after a specific equipment list has been determined: 1) A qualified structural engineer, as approved by the Director of Community Development, or designee shall identify all structures that are located within the distances established in Table 2 (Table E of this analysis) and that have the potential to be affected by ground-borne vibration originating from the construction; and 2) A qualified acoustical engineer shall compile a list of proposed construction equipment and compare to the City's accepted vibration criteria. If it is determined that the proposed equipment would generate vibration levels below the City's standard of 0.3 inches per second (in/sec) peak particle velocity (PPV), no further vibration assessment is necessary. However, if vibration levels would potentially exceed the City's standard of 0.3 in/sec PPV, the Project Applicant shall develop a Vibration Monitoring and Construction Contingency Plan for approval by the Director of Community Development, or designee, to ensure that vibration levels would not exceed the City's accepted vibration damage criteria of 0.3 in/sec PPV. If a Vibration Monitoring and Construction Contingency Plan is deemed necessary, monitoring of vibration during initial construction activities shall be required. Monitoring results may indicate the need for more or less intensive measurements. The Vibration Monitoring and Construction Contingency Plan, at the discretion of the Director of Community Development or designee, shall include the following items as necessary:
>
> - Identification of structures where monitoring would be conducted;
> - A vibration monitoring schedule;
> - Defined structure-specific vibration limits;
> - Photographic, elevation, and crack surveys to document before and after construction conditions; and
> - Identification of construction contingencies for when vibration levels approach the limits.

When vibration levels approach the limits specified in this Chapter, construction shall be suspended and contingencies identified in the approved Vibration Monitoring and Construction Contingency Plan shall be implemented as necessary to lower vibration levels. For some projects, the ability to shield or protect the affected building from potential vibration impacts may be possible as an alternative to changing construction methods.

State of California Green Building Standards Code

The State of California's Green Building Standards Code (CALGreen Code) contains mandatory measures for non-residential building construction in Section 5.507 on Environmental Comfort. These noise standards are applied to new construction in California for controlling interior noise levels resulting from exterior noise sources. The regulations specify that acoustical studies must be prepared when non-residential structures are developed in areas where the exterior noise levels exceed 65 dBA CNEL or L_{dn}, such as within a noise contour of an airport, freeway, railroad, and other noise source. If the development falls within an airport or freeway 65 dBA CNEL or L_{dn} noise contour, buildings shall be constructed to provide an interior noise level environment attributable to exterior sources that does not exceed an hourly equivalent level of 50 dBA L_{eq} in occupied areas during any hour of operation.

Table E: Vibration Assessment Guidelines

Phase of Construction	Distance (ft)
Grading	
- Large Equipment *Example: D9 Dozer, Loaded Dump Truck	15
- Impact Hand tools *Example: Jackhammer	10
Pile Driving	
- Impact Pile Driver	300 of within 5 times the depth of the pile, whichever is less
- Vibratory Pile Driver	150 of within 5 times the depth of the pile, whichever is less

Source: *City of Lake Forest Municipal Code* (2025).

APPLICABLE VIBRATION STANDARDS

California Department of Transportation (Caltrans)

Vibration standards included in the California Department of Transportation (Caltrans) *Transportation and Construction Vibration Guidance Manual* (Caltrans 2020) (Caltrans Manual) are used in this analysis for ground-borne vibration impacts on human annoyance and building damage. The criteria for environmental impact from ground-borne vibration are based on the maximum levels for a single event and the RMS vibration level. Table F provides the criteria for assessing the potential for interference or annoyance from vibration levels in a building.

Table F: Interpretation of Vibration Criteria for Detailed Analysis

Human Response	Vibration Level (RMS in/sec)
Barely perceptible	0.01
Distinctly perceptible	0.04
Strongly perceptible	0.10
Severe	0.40

Source: *Transportation and Construction Vibration Guidance Manual* (Caltrans 2020).
in/sec = inch/inches per second RMS = root-mean-square

Table G lists the potential vibration building damage criteria associated with construction activities, as suggested in the Caltrans Manual. Caltrans guidelines show that a vibration level of up to 0.3 in/sec in PPV is considered safe for newer residential structures and modern industrial or commercial buildings and would not result in any construction vibration damage.

Table G: Construction Vibration Damage Criteria

Structure / Condition	PPV (in/sec)
Extremely fragile historic buildings, ruins, ancient monuments	0.08
Fragile buildings	0.10
Historic and some old buildings	0.25
Older residential structures	0.30
New residential structures	0.50
Modern industrial / commercial buildings	0.50

Source: Table 19, *Transportation and Construction Vibration Guidance Manual* (Caltrans 2020).
in/sec = inch/inches per second
PPV = peak particle velocity

OVERVIEW OF THE EXISTING NOISE ENVIRONMENT

The primary existing noise sources in the project area include traffic on Bake Parkway, Dimension Drive, and other driveways in the industrial area in the vicinity of the project site.

AMBIENT NOISE MEASUREMENTS

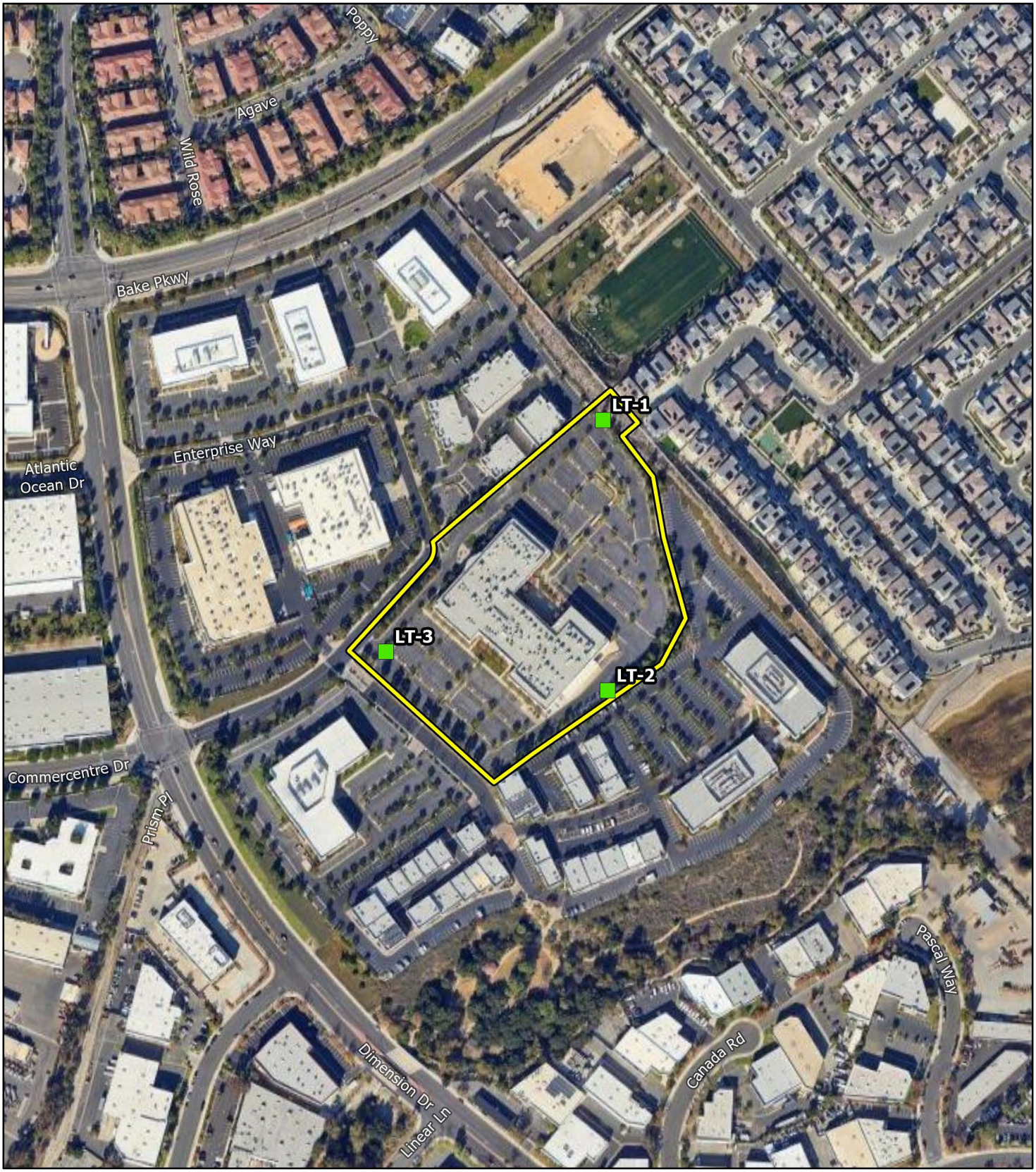
Long-Term Noise Measurements

To assess existing noise levels, LSA conducted three long-term noise measurements in the vicinity of the project site. The long-term (24-hour) noise level measurements were conducted on March 9 through March 10, 2024, using three Larson Davis Spark 706RC Dosimeters. Table H provides a summary of the measured hourly noise levels and calculated L_{dn} level from the long-term noise level measurements. As shown in Table H, the calculated L_{dn} levels reached 56.8 dBA L_{dn} . Hourly noise levels at the surrounding uses are as low as 40.1 dBA L_{eq} during nighttime hours and 40.3 dBA L_{eq} during daytime hours. Noise measurement sheets are provided in Appendix A. Figure 3 shows the long-term monitoring locations.

Table H: Long-Term 24-Hour Ambient Noise Monitoring Results

Location		Daytime Noise Levels[1] (dBA L_{eq})	Nighttime Noise Levels[2] (dBA L_{eq})	Daily Noise Levels (dBA L_{dn})
LT-1	Along the northern property line of the project site on a tree near a residential retaining wall, approximately 725 ft away from the Bake Parkway centerline.	45.1-56.7	40.8-52.8	55.0
LT-2	Center of the southern property line of the project site near the existing loading dock on a light pole, approximately 975 ft away from the Dimension Drive centerline.	40.3-51.9	40.1-49.5	52.0
LT-3	Along the western property line of the project site near Enterprise Way and Enterprise Court on a tree, approximately 70 ft away from the Enterprise Way centerline.	47.9-56.6	41.6-54.0	56.8

Source: Compiled by LSA (2025).
Note: Noise measurements were conducted from March 9 to March 10, 2024, starting at 2:00 p.m.
[1] Daytime Noise Levels = noise levels during the hours from 7:00 a.m. to 10:00 p.m.
[2] Nighttime Noise Levels = noise levels during the hours from 10:00 p.m. to 7:00 a.m.
L_{dn} = Day-night Noise Level
dBA = A-weighted decibels
ft = foot/feet
L_{eq} = equivalent continuous sound level



LSA

Project Location

Noise Monitoring Location

FIGURE 3

N

0 100 200 300

FEET

SOURCE: Google Maps (2024)

I:\C\CLF2101.04A\GIS\Pro\IPT Enterprise Business Center.aprx (7/30/2024)

IPT Enterprise Business Center LLC Project

Noise Monitoring Locations

EXISTING AIRCRAFT NOISE

Aircraft flyovers may be audible on the project site due to aircraft activity in the vicinity. The nearest airport to the project is John Wayne Airport (JWA), a commercial airport approximately 10.8 miles to the west. The project site is well outside the JWA Airport 60 dBA CNEL noise contour (John Wayne Airport 2008). Because the project site is not within the vicinity of a private airstrip or an airport land use plan or within two miles of a public airport or public use airport and is outside the 60 dBA CNEL noise contour of the John Wayne Airport, which is 10.8 miles from the project site, the proposed project would not expose people residing or working in the project area to excessive noise levels. There would be no impacts and no mitigation is required.

PROJECT IMPACTS

SHORT-TERM CONSTRUCTION NOISE IMPACTS

Two types of short-term noise impacts could occur during the construction of the proposed project. First, construction crew commutes and the transport of construction equipment and materials to the site for the proposed project would incrementally increase noise levels on access roads leading to the site. Although there would be a relatively high single-event noise exposure potential causing intermittent noise nuisance (passing trucks at 50 ft would generate up to a maximum of 84 dBA), the effect on longer-term ambient noise levels would be small because the daily construction-related vehicle trips are small when compared to the existing daily traffic volume on Dimension Drive. The demolition phase would generate the most trips out of all of the construction phases, at 112 trips per day based on the California Emissions Estimator Model (CalEEMod) output detailed in Attachment B of the *Air Quality Report for the IPT Enterprise Business Center LLC Project* (LSA 2025a). Based on *Traffic Impact Analysis for the IPT Enterprise Business Center LLC* (LSA 2025b), Enterprise Street has an existing ADT volume of 1,320 within the project limits. Based on the information above, construction-related traffic would increase noise by up to 0.4 dBA. A noise level increase of less than 3 dBA would not be perceptible to the human ear in an outdoor environment. Therefore, no short-term construction-related impacts associated with worker commutes and transport of construction equipment and material to the project limits would occur, and no noise reduction measures would be required.

The second type of short-term noise impact is related to noise generated during construction, which includes site preparation, grading, building construction, paving, and architectural coating on the project site. Construction is completed in discrete steps, each of which has its own mix of equipment and, consequently, its own noise characteristics. These various sequential phases would change the character of the noise generated on the site and, therefore, the noise levels surrounding the site as construction progresses. Despite the variety in the type and size of construction equipment, similarities in the dominant noise sources and patterns of operation allow construction-related noise ranges to be categorized by work phase. Table I lists typical construction equipment noise levels recommended for noise impact assessments, based on a distance of 50 ft between the equipment and a noise receptor, taken from the Federal Highway Administration's *FHWA Roadway Construction Noise Model* (FHWA 2006).

In addition to the reference maximum noise level, the usage factor provided in Table I is used to calculate the hourly noise level impact for each piece of equipment based on the following equation:

$$L_{eq}(equip) = E.L. + 10\log(U.F.) - 20\log\left(\frac{D}{50}\right)$$

where: $L_{eq}(equip)$ = L_{eq} at a receiver resulting from the operation of a single piece of equipment over a specified time period.

E.L. = noise emission level of the particular piece of equipment at a reference distance of 50 ft.

U.F. = usage factor that accounts for the fraction of time that the equipment is in use over the specified period of time.

D = distance from the receiver to the piece of equipment.

Table I: Typical Construction Equipment Noise Levels

Equipment Description	Acoustical Usage Factor (%)[1]	Maximum Noise Level (L_{max}) at 50 Ft[2]
Auger Drill Rig	20	84
Backhoes	40	80
Compactor (ground)	20	80
Compressor	40	80
Cranes	16	85
Dozers	40	85
Dump Trucks	40	84
Excavators	40	85
Flat Bed Trucks	40	84
Forklift	20	85
Front-end Loaders	40	80
Graders	40	85
Impact Pile Drivers	20	95
Jackhammers	20	85
Paver	50	77
Pickup Truck	40	55
Pneumatic Tools	50	85
Pumps	50	77
Rock Drills	20	85
Rollers	20	85
Scrapers	40	85
Tractors	40	84
Trencher	50	80
Welder	40	73

Source: *FHWA Roadway Construction Noise Model User's Guide,* Table 1 (FHWA 2006).
Note: Noise levels reported in this table are rounded to the nearest whole number.
[1] Usage factor is the percentage of time during a construction noise operation that a piece of construction equipment is operating at full power.
[2] Maximum noise levels were developed based on Specification 721.560 from the Central Artery/Tunnel program to be consistent with the City of Boston's Noise Code for the "Big Dig" project.
FHWA = Federal Highway Administration
ft = foot/feet
L_{max} = maximum instantaneous sound level

Each piece of construction equipment operates as an individual point source. Using the following equation, a composite noise level can be calculated when multiple sources of noise operate simultaneously:

$$Leq\ (composite) = 10 * \log_{10}\left(\sum_{1}^{n} 10^{\frac{Ln}{10}}\right)$$

Using the equations from the methodology above, the reference information in Table I, and the construction equipment list provided, the composite noise levels of each construction phase were

calculated. The project construction composite noise levels at a distance of 50 ft would range from 85 dBA L_{eq} to 91 dBA L_{eq}, with the highest noise levels occurring during the building construction phase.

Once composite noise levels are calculated, reference noise levels can then be adjusted for distance using the following equation:

$$Leq\ (at\ distance\ X) = Leq\ (at\ 50\ feet) - 20 * \log_{10}\left(\frac{X}{50}\right)$$

In general, this equation shows that doubling the distance would decrease noise levels by 6 dBA while halving the distance would increase noise levels by 6 dBA.

Table J shows the nearest sensitive uses to the project site, their distance from the center of construction activities, and the composite noise levels expected during construction. These noise level projections do not consider intervening topography or barriers. Construction equipment calculations are provided in Appendix B.

Table J: Potential Construction Noise Impacts at Nearest Receptor

Receptor (Location)	Composite Noise Level (dBA L_{eq}) at 50 ft[1]	Distance (ft)	Composite Noise Level (dBA L_{eq})
Residential Uses (East)	89	470	71

Source: Compiled by LSA (2025).

[1] The composite construction noise level represents the site preparation phase which is expected to result in the greatest noise level as compared to other phases.

dBA L_{eq} = average A-weighted hourly noise level

ft = foot/feet

While construction noise will vary, it is expected that composite noise levels during construction at the nearest off-site residential uses to the east would average 71 dBA L_{eq} during daytime hours. These predicted noise levels would only occur when all construction equipment is operating simultaneously and, therefore, these levels are assumed to be conservative noise levels. While construction-related short-term noise levels have the potential to be higher than existing ambient noise levels in the project area under existing conditions, the noise impacts would no longer occur once project construction is completed. Regulatory Compliance Measure Noise 1 (RCM NOI-1), consistent with the City's noise ordinance, states that construction activities shall be limited to between the hours of 7:00 a.m. to 8:00 p.m. on Monday through Saturdays. No construction shall be permitted outside of these hours or on Sundays or legal City of Lake Forest holidays, without a specific exemption issued by the City. The implementation of construction hour limits would minimize construction noise.

As it relates to off-site uses, construction-related noise impacts would remain below the 80 dBA L_{eq} 1-hour construction noise level criteria for daytime construction noise level criteria as established by the City for residential land uses; therefore, the impact would be considered less than significant.

RCM NOI-1 **City of Lake Forest Municipal Code, Section 11.16.060(D).** During construction, construction activities shall be limited to between the hours of 7:00 a.m. and 8:00 p.m. Mondays through Saturdays. No construction shall be permitted outside of these hours or on legal City of Lake Forest holidays, without a specific exemption issued by the City of Lake Forest.

SHORT-TERM CONSTRUCTION VIBRATION IMPACTS

This construction vibration impact analysis discusses the level of human annoyance using vibration levels in RMS amplitude and assesses the potential for building damages using vibration levels in PPV (in/sec). This is because vibration levels calculated in RMS are best for characterizing human response to building vibration, while vibration level in PPV is best for characterizing potential for damage.

Table K shows the PPV values at 25 ft from the construction vibration source. As shown in Table K, bulldozers and other heavy-tracked construction equipment expected to be used for this project generate approximately 0.089 in/sec PPV or 0.062 in/sec RMS of ground-borne vibration when measured at 25 ft, based on the Caltrans Manual. The distance to the nearest buildings for vibration impact analysis is measured between the nearest off-site buildings and the project construction boundary (assuming the construction equipment would be used at or near the project setback line).

Table K: Vibration Source Amplitudes for Construction Equipment

Equipment	Reference PPV at 25 ft	
	Maximum PPV (in/sec)	RMS PPV (in/sec)[1]
Pile Driver (Impact), Typical	0.644	0.451
Pile Driver (Sonic), Typical	0.170	0.119
Vibratory Roller	0.210	0.147
Hoe Ram	0.089	0.062
Large Bulldozer[2]	**0.089**	**0.062**
Caisson Drilling	0.089	0.062
Loaded Trucks[2]	**0.076**	**0.053**
Jackhammer	0.035	0.025
Small Bulldozer	0.003	0.002

Source: *Transportation and Construction Vibration Guidance Manual* (Caltrans 2020).
[1] RMS vibration velocity is 70 percent of maximum PPV.
[2] Equipment shown in **bold** is expected to be used on site.
ft = foot/feet
in/sec = inch/inches per second
PPV = peak particle velocity
RMS = root-mean-square

The formulae for vibration transmission are provided below, and Tables L and M below provide a summary of off-site construction vibration levels. The material dampening coefficient, 'n', ranges between 1.1 and 1.5 depending on soil type and distance from equipment.

$$PPV_{equip} = PPV_{ref} \times (25/D)^{n}$$

Table L: Potential Construction Vibration Annoyance Impacts at Nearest Receptor

Receptor (Location)	Reference Vibration Level (RMS in/sec) at 25 ft[1]	Distance (ft) [2]	Vibration Level (RMS in/sec)
Industrial Use (North)	0.063	325	0.001
Industrial Use (South)		325	0.001
Industrial Use (West)		380	0.001
Residential Uses (East)		470	<0.001

Source: Compiled by LSA (2025).
[1] The reference vibration level is associated with a large bulldozer, which is expected to be representative of the heavy equipment used during construction.
[2] The assessment distance is associated with the average condition, identified by the distance from the center of construction activities to surrounding uses.
ft = foot/feet
in/sec = inches per second
RMS = Root-mean-square

Table M: Potential Construction Vibration Damage Impacts at Nearest Receptor

Receptor (Location)	Reference Vibration Level (PPV) at 25 ft[1]	Distance (ft)[2]	Vibration Level (PPV)
Industrial Use (North)	0.089	8	0.312
Industrial Use (South)		25	0.089
Industrial Use (West)		110	0.010
Residential Uses (East)		82	0.015

Source: Compiled by LSA (2025).
[1] The reference vibration level is associated with a large bulldozer, which is expected to be representative of the heavy equipment used during construction.
[2] The assessment distance is associated with the peak condition, identified by the distance from the perimeter of construction activities to surrounding structures.
ft = foot/feet
PPV = peak particle velocity

As previously shown in Table F, the threshold at which vibration levels would result in annoyance would be 0.04 in/sec RMS. Based on the information provided in Table L, vibration levels are expected to approach 0.001 in/sec RMS at the closest receptors and would not exceed the annoyance thresholds.

As discussed above, the standards indicate that the construction vibration damage criterion is 0.3 in/sec in PPV. Based on the information provided in Table M, the closest building structures are the industrial buildings (26180 and 26190 Enterprise Way, Lake Forest, California), which are within 10 ft of the northern project construction boundary. If large construction equipment with a reference vibration level of 0.089 in/sec PPV is used within 8 ft of these structures, they would experience vibration levels of up to 0.312 PPV (in/sec). These vibration levels would exceed the 0.3 in/sec PPV threshold. However, with implementation of RCM NOI-2, which details construction

vibration assessments pursuant to Municipal Code section 11.16.090, construction vibration impacts would be less than significant. Since there are no other receptor locations within 12 ft of the project site, vibration levels at all other buildings would be below the 0.3 in/sec PPV threshold and no construction-related vibration impacts would occur.

RCM NOI-2

Pre-Construction Vibration Assessment. After a specific project equipment list has been determined and prior to the issuance of a building permit, the following actions shall be implemented:

1) A qualified structural engineer, as approved by the Director of Community Development, or designee shall identify all structures that are located within the distances established in Table 2 of Section 11.16.090 of the City's Municipal Code and that have the potential to be affected by ground-borne vibration originating from the construction; and

2) A qualified acoustical engineer shall compile a list of proposed construction equipment and compare to the City's accepted vibration criteria. If it is determined that the proposed equipment would generate vibration levels below the City's standard of 0.3 inches per second (in/sec) peak particle velocity (PPV), no further vibration assessment is necessary. However, if vibration levels would potentially exceed the City's standard of 0.3 in/sec PPV, the Project Applicant shall develop a Vibration Monitoring and Construction Contingency Plan for approval by the Director of Community Development, or designee, to ensure that vibration levels would not exceed the City's accepted vibration damage criteria of 0.3 in/sec PPV. If a Vibration Monitoring and Construction Contingency Plan is deemed necessary, monitoring of vibration during initial construction activities shall be required. Monitoring results may indicate the need for more or less intensive measurements. The Vibration Monitoring and Construction Contingency Plan, at the discretion of the Director of Community Development or designee, shall include the following items as necessary:

- Identification of structures where monitoring would be conducted;
- A vibration monitoring schedule;
- Defined structure-specific vibration limits;
- Photographic, elevation, and crack surveys to document before and after construction conditions; and
- Identification of construction contingencies for when vibration levels approach the limits.

When vibration levels approach the limits specified in Section 11.16.090 of the City's Municipal Code, construction shall be suspended and contingencies identified in the approved Vibration Monitoring and Construction Contingency Plan shall be implemented as necessary to lower vibration levels, which could include shielding or protecting the affected building from potential vibration impacts as a possible alternative to changing construction methods.

LONG-TERM OFF-SITE TRAFFIC NOISE IMPACTS

Traffic noise is the major noise source in the project area. Other sources of noise in the project area would be low or intermittent and would not contribute to or reach the levels of noise generated by traffic. The FHWA Highway Traffic Noise Prediction Model (FHWA-RD-77-108) was used to evaluate highway traffic-related noise conditions along roadway segments in the project vicinity. This model requires various parameters, including traffic volumes, vehicle mix, vehicle speed, and roadway geometry to compute typical equivalent noise levels during daytime, evening, and nighttime hours. The resultant noise levels are weighted and summed over 24-hour periods to determine the Day-Night (L_{dn}) values.

The without and with project scenario traffic volumes were obtained from the *Traffic Impact Analysis for the IPT Enterprise Business Center LLC* (LSA 2025b). Appendix C provides the specific assumptions used in developing these noise levels and model printouts. Table N provides the traffic noise levels for the existing (2024) and opening year with and without project scenarios. These noise levels represent worst-case scenarios, which assume that no shielding is provided between the traffic and the locations where the noise contours are drawn. To provide a conservative approach, traffic volume distribution based on the traffic impact analysis was applied to the with project scenarios to assess traffic noise due to increased heavy truck trips.

As shown in Table N, project-related traffic noise would generate the greatest increase of 3.3 dBA along Enterprise Way. There are no noise sensitive uses along this roadway segment and the resultant noise level would be well below 65 dBA L_{dn}. All other roadway segments would be less than 1 dBA. Noise level increases below 3 dBA would not be perceptible to the human ear in an outdoor environment. Therefore, project-related traffic would have a less than significant impact on off-site sensitive receptors, and no mitigation is required.

LONG-TERM STATIONARY AND TRAFFIC-RELATED VIBRATION IMPACTS

The proposed project would not result in vibration impacts related to on-site stationary source operations because the proposed stationary equipment, which includes sources such as roof-top mechanical equipment and loading dock activities, would not generate perceptible vibration levels. In addition, the proposed project would not result in vibration impacts from project-related traffic on site or on the adjacent roadways because the rubber tires and suspension systems of on-road vehicles provide vibration isolation. Based on a reference vibration level of 0.076 in/sec PPV, structures greater than 20 ft from the roadways along which project vehicles would be traveling would experience vibration levels below the standard of 0.3 in/sec PPV. Therefore, vibration levels generated from

project-related traffic on site or on the adjacent roadways would be less than significant, and no mitigation is required.

Table N: Traffic Noise Levels Without and With Proposed Project

Roadway Segment	Existing – No Project		Existing – With Project			Opening Year With Cumulative Projects – No Project		Opening Year With Cumulative Projects – With Project		
	ADT	L_{dn} (dBA) 50 ft from Centerline of Nearest Lane	ADT	L_{dn} (dBA) 50 ft from Centerline of Nearest Lane	Increase from Existing Conditions (dBA)	ADT	L_{dn} (dBA) 50 ft from Centerline of Nearest Lane	ADT	L_{dn} (dBA) 50 ft from Centerline of Nearest Lane	Increase from Opening Year Conditions (dBA)
Bake Parkway west of Commercentre Drive	7,290	64.8	7,380	64.9	0.1	7,590	65.0	7,680	65.0	0.0
Bake Parkway between Commercentre Drive and Dimension Drive	19,850	69.1	19,850	69.1	0.0	21,080	69.4	21,080	69.4	0.0
Bake Parkway east of Dimension Drive	22,040	69.6	22,090	69.6	0.0	23,390	69.9	23,440	69.9	0.0
Commercentre Drive west of Dimension Drive	6,040	56.2	6,490	56.7	0.5	7,590	57.2	7,680	57.3	0.1
Enterprise Way east of Dimension Drive	1,320	50.0	2,310	53.3	3.3	2,670	53.0	3,360	54.5	1.5
Dimension Drive north of Commercentre Drive	6,380	62.0	6,430	62.1	0.1	6,670	62.2	6,820	62.4	0.2
Dimension Drive south of Commercentre Drive	19,640	66.9	19,930	67.0	0.1	21,010	67.2	21,000	67.2	0.0
Lake Forest Drive west of Dimension Drive	7,580	63.9	8,070	64.3	0.4	8,460	64.4	8,950	64.7	0.3
Lake Forest Drive east of Dimension Drive	960	54.9	960	54.9	0.0	1,280	56.2	980	54.6	-1.6
Rancho Parkway north of Lake Forest Drive	14,250	65.5	14,370	65.6	0.1	14,990	65.7	15,110	65.8	0.1

Source: Compiled by LSA (2025).
Note: Shaded cells indicate roadway segments adjacent to the project site.
ADT = average daily traffic
dBA = A-weighted decibels
ft = foot/feet
L_{dn}= Day-night Noise Level

LONG-TERM OFF-SITE STATIONARY NOISE IMPACTS

Adjacent off-site land uses would be potentially exposed to stationary-source noise impacts from the proposed on-site heating, ventilation, and air conditioning (HVAC) equipment, trash bin emptying activities, parking lot activities, and truck deliveries and loading and unloading activities. The potential noise impacts to off-site sensitive land uses from the proposed project activities are discussed below. To provide a conservative analysis, it is assumed that operations would occur equally during all hours of the day and that half of the loading docks at the proposed building would be active at all times. Additionally, it is assumed to be consistent with the *Traffic Impact Analysis for the IPT Enterprise Business Center LLC* (LSA 2025b) that within any given peak hour, 15 heavy trucks would maneuver to park near or back into one of the proposed loading docks.

A 3-D noise model, SoundPLAN, was used to determine the future noise impacts from project operations to the noise-sensitive uses. The noise model considered site topography, the shielding provided by the proposed on-site building, and a planned 16-foot-high, 60-foot-long wall, which would be located at the eastern end of the loading docks, west of the proposed trash enclosure. A graphic representation of the operational noise impacts is presented in Appendix D.

Heating, Ventilation, and Air Conditioning Equipment

The proposed project would have various rooftop mechanical equipment including HVAC units on the rooftop of the proposed building. Based on the project site plan and prior industrial warehouse experience, the proposed project would be assumed to have four (4) rooftop HVAC units and to operate 24 hours per day. The HVAC equipment could operate 24 hours per day and would generate sound power level (L_w) of up to 87 dBA L_w or 72 dBA L_{eq} at 5 ft, based on manufacturer data (Trane n.d.).

Parking Lot Activities

Parking lot activities are expected to result in maximum noise levels of 83.4 dBA L_{max} at a distance of 5 ft. The activities are based on data gathered during car doors opening and closing as well as engine noise of vehicles during parking. Noise impacts are expected to occur for a period of 5 minutes or less in a given hour. Parking lot activities are expected to operate during daytime and nighttime hours.

Trash Bin Emptying Activities

The proposed project site plan identifies two trash dumpsters. The trash emptying activities would take place for a period of less than 1 minute and would generate a sound power level of up to 118.6 dBA L_w or a sound pressure level of 84 dBA L_{eq} at 50 ft, based on reference information within SoundPLAN.

Truck Arrival and Departure Activities

Noise levels taken by LSA for trucks arriving and departing for a similar type of project (*Operational Noise Impact Analysis for Richmond Wholesale Meat Distribution Center* [LSA 2016]) generated a noise level of 76.3 dBA L_8 at 20 ft. The similar project also included daily heavy truck deliveries and loading activities. Both are industrial type uses, therefore, noise levels generated by delivery trucks

arriving and departing for the proposed project are also assumed to be 76.3 dBA L_8 at 20 ft. Delivery trucks would arrive on site and maneuver their trailers so that trailers would be parked within the loading docks or at adjacent parking spots. During this process, noise levels are associated with the truck engine noise, air brakes, and back-up alarms while the truck is backing into the dock. These noise levels would occur for a short period of time (less than 5 minutes). Consistent with the *Traffic Impact Analysis for the IPT Enterprise Business Center LLC* (LSA 2025b), it is assumed that 15 truck arrivals and departure activities could occur during any daytime peak hour and that 4 truck arrivals and departures could occur during any nighttime off-peak hour.

Truck Loading and Unloading Activities

Noise levels taken by LSA for delivery trucks being loaded and unloaded for a similar type of project (*Operational Noise Impact Analysis for Richmond Wholesale Meat Distribution Center* [LSA 2016]), generated a noise level of 75 dBA L_{eq} at 20 ft. Noise levels generated by delivery trucks being loaded and unloaded for the proposed project are also assumed to be 75 dBA L_{eq} at 20 ft because they are similar types of projects. Based on prior analysis experience, it is reasonable to assume that unloading activities could occur at half of the total docks (12 docks) simultaneously for a period of 20 minutes in a given hour.

Tables O and P, below, show the combined hourly noise levels generated by HVAC equipment, trash bin emptying activities, parking lot activities, truck loading and unloading activities, and truck arrival and departure activities at the closest off-site sensitive land uses. The project-related noise level impacts would range from 50.0 dBA L_{eq} to 52.7 dBA L_{eq} at the surrounding sensitive receptors. These levels would be below the City's daytime and nighttime noise standards.

Table O: Daytime Exterior Noise Level Impacts

Receptor	Direction	Existing Quietest Daytime Noise Level (dBA L_{eq})	Project Generated Noise Levels (dBA L_{eq})	Daytime Noise Level Standard (dBA L_{eq})	Potential Operational Noise Impact?[1]
Residential	East	45.1	52.7	55.0	No

Source: Compiled by LSA (2025).

[1] A potential operational noise impact would occur if (1) the quietest daytime ambient hour is less than 55 dBA L_{eq} and project noise impacts are greater than 55 dBA L_{eq}, or (2) the quietest daytime ambient hour is greater than 55 dBA L_{eq} and project noise impacts are 3 dBA greater than the quietest daytime ambient hour.

dBA = A-weighted decibels

L_{eq} = equivalent noise level

Table P: Nighttime Exterior Noise Level Impacts

Receptor	Direction	Existing Quietest Nighttime Noise Level (dBA L_{eq})	Project Generated Noise Levels (dBA L_{eq})	Nighttime Noise Level Standard (dBA L_{eq})	Potential Operational Noise Impact?[1]
Residential	East	40.8	50.0	50.0	No

Source: Compiled by LSA (2025).

[1] A potential operational noise impact would occur if (1) the quietest nighttime ambient hour is less than 50 dBA L_{eq} and project noise impacts are greater than 50 dBA L_{eq}, or (2) the quietest nighttime ambient hour is greater than 50 dBA L_{eq} and project noise impacts are 3 dBA greater than the quietest nighttime ambient hour.

dBA = A-weighted decibels

L_{eq} = equivalent noise level

Because project noise levels would not generate a noise level that exceeds the City's noise standards or existing ambient noise levels by 3 dBA or more, the impact would be less than significant, and no noise reduction measures are required.

CUMULATIVE PROJECTS OPERATIONS NOISE ASSESSMENT

As defined in Section 15355 of the State CEQA Guidelines, cumulative impacts refer to the incremental effects of an individual project when viewed in connection with the effects of past projects, current projects, and probable future projects. The cumulative project list for this Noise and Vibration Impact Analysis includes all proposed, recently approved, under construction, and reasonably foreseeable projects as of the date of the Notice of Preparation (NOP) (March 2024) that could produce a related or cumulative impact on the local environment when considered in conjunction with the proposed project.

Because noise levels dissipate exponentially with distance from the noise source, noise impacts are localized. Therefore, the cumulative analysis for noise and vibration is focused on the potential cumulative noise and vibration impacts associated with development of the proposed project combined with Western Realco Projects 1 and 2, which would be immediately adjacent to the project site and for the purposes of this analysis are assumed to have construction schedules that overlap with the proposed project. As such, a quantitative evaluation of the combined noise and vibration impacts of constructing and operating the proposed project and Western Realco Projects 1 and 2 has been prepared.

Cumulative impacts are addressed only for those thresholds that would result in a project-related impact, whether it be less than significant or less than significant with mitigation. If the project would result in no impact with respect to a particular threshold, by definition, it would not contribute to a cumulative impact. Therefore, no analysis would be required. As detailed in this section, the proposed project would have no impacts associated with exposing people residing or working in the project area to excessive noise levels within two miles of a public airport or public use airport. Therefore, no analysis would be required.

As detailed in this report, the closest residence to the project site is located 470 feet from the center of the project site. Based on the reference construction noise levels, construction noise levels from the proposed project and the Western Realco Projects would be 71 dBA L_{eq} and 68 dBA L_{eq} respectively at the sensitive receptor. The cumulative construction noise levels from both the proposed project and Western Realco Projects 1 and 2 would be 72.8 dBA L_{eq} at the sensitive receptor, which is below the construction noise level threshold of 80 dBA L_{eq}. Therefore, implementation of the proposed project, when evaluated in combination with Western Realco Projects 1 and 2, would not contribute to cumulatively considerable construction-related noise impacts in excess of standards established in a general plan or noise ordinance. Therefore, there would be no cumulatively significant construction noise impact, and no mitigation is required.

Hourly noise levels generated by operational activities from Western Realco Projects 1 and 2 were modeled at the closest off-site land uses using SoundPLAN. Operational assumptions are similar to those for the proposed project and are scaled based on the number of docks and trip generation for Western Realco Projects 1 and 2.

As presented in Tables Q and R, the results show that the noise levels generated by the combination of the proposed project and Western Realco Projects 1 and 2 would remain below the City's daytime

and nighttime standards, and would not approach the nearby sensitive uses. Therefore, implementation of the proposed project, when evaluated in combination with Western Realco Projects 1 and 2, would not contribute to a cumulatively considerable operational stationary noise impact in excess of standards established in the general plan or noise ordinance. Therefore, there would be no cumulatively significant operational stationary noise impact, and no mitigation is required. A graphic representation of the cumulative operational noise impacts is presented in Appendix D.

Table Q: Daytime Exterior Noise Level Impacts - Cumulative

Receptor	Direction	Existing Quietest Daytime Noise Level (dBA L_{eq})	Project Generated Noise Levels (dBA L_{eq})	Daytime Noise Level Standard (dBA L_{eq})	Potential Operational Noise Impact?[1]
Residential	East	45.1	52.8	55.0	No

Source: Compiled by LSA (2025).

[1] A potential operational noise impact would occur if (1) the quietest daytime ambient hour is less than 55 dBA L_{eq} and project noise impacts are greater than 55 dBA L_{eq}, or (2) the quietest daytime ambient hour is greater than 55 dBA L_{eq} and project noise impacts are 3 dBA greater than the quietest daytime ambient hour.

dBA = A-weighted decibels

L_{eq} = equivalent noise level

Table R: Nighttime Exterior Noise Level Impacts - Cumulative

Receptor	Direction	Existing Quietest Nighttime Noise Level (dBA L_{eq})	Project Generated Noise Levels (dBA L_{eq})	Nighttime Noise Level Standard (dBA L_{eq})	Potential Operational Noise Impact?[1]
Residential	East	40.8	50.0	50.0	No

Source: Compiled by LSA (2025).

[1] A potential operational noise impact would occur if (1) the quietest nighttime ambient hour is less than 50 dBA L_{eq} and project noise impacts are greater than 50 dBA L_{eq}, or (2) the quietest nighttime ambient hour is greater than 50 dBA L_{eq} and project noise impacts are 3 dBA greater than the quietest nighttime ambient hour.

dBA = A-weighted decibels

L_{eq} = equivalent noise level

As shown in Table N, cumulative traffic noise with the operation of both the proposed project and Western Realco Projects 1 and 2 would increase by up to 1.0 dBA along Enterprise Way. Noise level increases below 3 dBA would not be perceptible to the human ear in an outdoor environment. Therefore, implementation of the proposed project, when evaluated in combination with Western Realco Projects 1 and 2, would not contribute to a cumulatively considerable operational traffic noise impact in excess of standards established in a general plan or noise ordinance. Therefore, there would be no cumulatively significant operational traffic noise impact, and no mitigation is required.

As detailed in this report, vibration impacts would not occur at buildings located beyond 12 feet from the edge of construction at the project site. Similarly, vibrations impacts associated with Western Realco Projects 1 and 2, would also not extend beyond 12 feet from the edge of construction. There are no buildings that are within 12 feet of both the proposed project and Western Realco Projects 1 and 2. Therefore, implementation of the proposed project, when evaluated in combination with Western Realco Projects 1 and 2, would not contribute to

cumulatively considerable construction vibration impact. Therefore, there would be no cumulatively significant construction vibration impact, and no mitigation is required.

The proposed project would not result in vibration impacts related to on-site stationary source operations because the proposed stationary equipment would not generate perceptible vibration levels. Similarly, the vibration impacts related to on-site stationary source operations from Western Realco Projects 1 and 2 would also be below perceptible vibration levels. Stationary sources do not generate significant vibration levels. Therefore, implementation of the proposed project, when evaluated in combination with Western Realco Projects 1 and 2, would not contribute to a cumulatively considerable on-site stationary source-induced vibration impact. Therefore, there would be no cumulatively significant on-site stationary source-induced impact, and no mitigation is required.

The proposed project would not result in vibration impacts from project-related traffic on-site or on the adjacent roadways because the rubber tires and suspension systems of on-road vehicles reduce vibration. Similarly, and for the same reason, the vibration impacts from on-site and off-site traffic associated with Western Realco Projects 1 and 2 would also remain below impact thresholds. Therefore, implementation of the proposed project, when evaluated in combination with Western Realco Projects 1 and 2, would not contribute to a cumulatively considerable traffic-induced vibration impact. Therefore, there would be no cumulatively significant traffic-induced vibration impact, and no mitigation is required.

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APPENDIX A

NOISE MONITORING DATA

Noise Measurement Survey – 24 HR

Project Number: CLF2101.04A
Project Name: IPT Enterprise Industrial

Test Personnel: Kevin Nguyendo
Equipment: Spark 706RC (SN:908)

Site Number: LT-1 Date: 4/9/24

Time: From 2:00 p.m. To 2:00 p.m.

Site Location: Along the northern property line of the project site on a tree near a residential Retaining wall.

Primary Noise Sources: Faint local traffic noise.

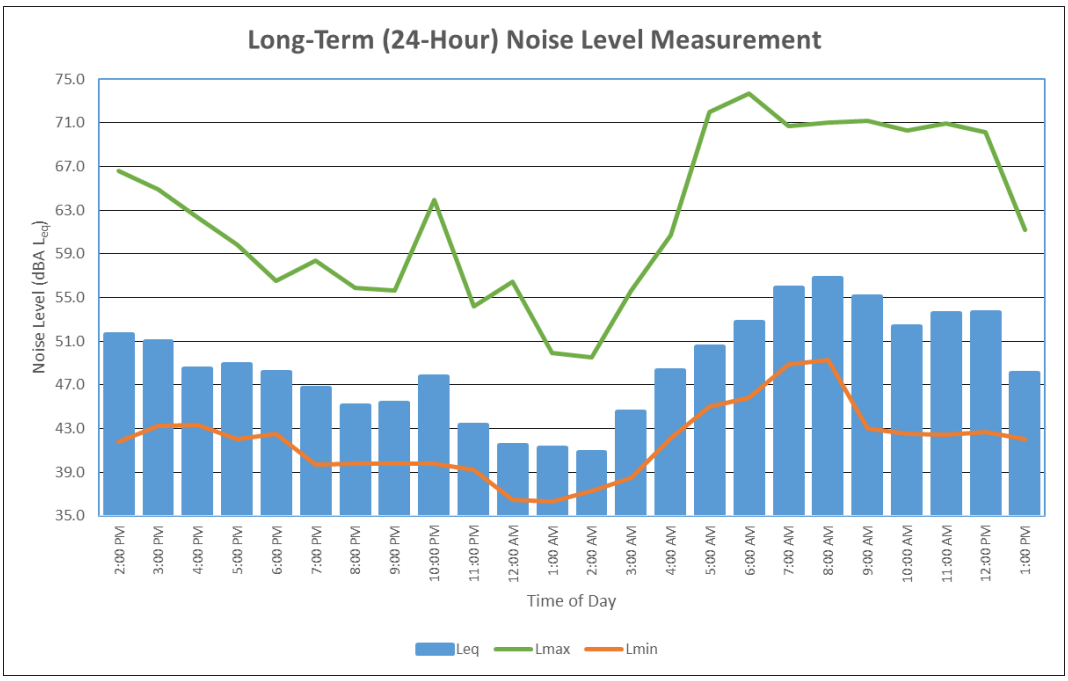
Comments:

Photo:

Long-Term (24-Hour) Noise Level Measurement Results at LT-1

Start Time	Date	Noise Level (dBA)		
		L_{eq}	L_{max}	L_{min}
2:00 PM	4/9/24	51.6	66.6	41.8
3:00 PM	4/9/24	51.0	64.9	43.2
4:00 PM	4/9/24	48.4	62.3	43.3
5:00 PM	4/9/24	48.9	59.8	42.0
6:00 PM	4/9/24	48.2	56.5	42.5
7:00 PM	4/9/24	46.7	58.4	39.7
8:00 PM	4/9/24	45.1	55.9	39.8
9:00 PM	4/9/24	45.4	55.6	39.8
10:00 PM	4/9/24	47.7	63.9	39.8
11:00 PM	4/9/24	43.3	54.2	39.2
12:00 AM	4/10/24	41.4	56.4	36.5
1:00 AM	4/10/24	41.2	49.9	36.3
2:00 AM	4/10/24	40.8	49.5	37.3
3:00 AM	4/10/24	44.5	55.6	38.5
4:00 AM	4/10/24	48.3	60.7	42.1
5:00 AM	4/10/24	50.5	72.0	45.0
6:00 AM	4/10/24	52.8	73.7	45.8
7:00 AM	4/10/24	55.9	70.7	48.9
8:00 AM	4/10/24	56.7	71.0	49.3
9:00 AM	4/10/24	55.0	71.2	43.0
10:00 AM	4/10/24	52.4	70.3	42.5
11:00 AM	4/10/24	53.6	70.9	42.4
12:00 PM	4/10/24	53.6	70.1	42.7
1:00 PM	4/10/24	48.1	61.2	42.0

Source: Compiled by LSA Associates, Inc. (2024).
dBA = A-weighted decibel
L_{eq} = equivalent continuous sound level
L_{max} = maximum instantaneous noise level
L_{min} = minimum measured sound level



Noise Measurement Survey – 24 HR

Project Number: CLF2101.04A
Project Name: IPT Enterprise Industrial

Test Personnel: Kevin Nguyendo
Equipment: Spark 706RC (SN:206)

Site Number: LT-2 Date: 4/9/24

Time: From 2:00 p.m. To 2:00 p.m.

Site Location: Center of the eastern property line of the project site near the existing Loading dock on a light pole.

Primary Noise Sources: Faint local traffic noise.

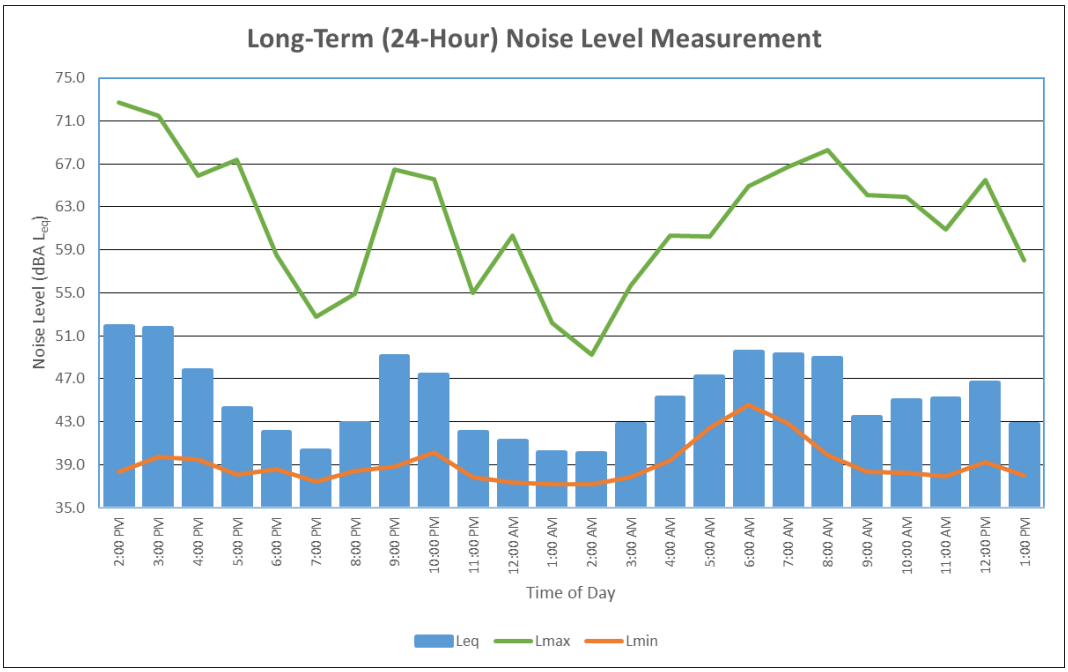
Comments:

Photo:

Long-Term (24-Hour) Noise Level Measurement Results at LT-2

Start Time	Date	Noise Level (dBA)		
		L_{eq}	L_{max}	L_{min}
2:00 PM	4/9/24	51.9	72.7	38.3
3:00 PM	4/9/24	51.7	71.5	39.7
4:00 PM	4/9/24	47.7	65.9	39.5
5:00 PM	4/9/24	44.2	67.4	38.1
6:00 PM	4/9/24	42.0	58.5	38.6
7:00 PM	4/9/24	40.3	52.8	37.4
8:00 PM	4/9/24	42.8	54.9	38.4
9:00 PM	4/9/24	49.1	66.5	38.8
10:00 PM	4/9/24	47.3	65.6	40.1
11:00 PM	4/9/24	42.0	55.0	37.8
12:00 AM	4/10/24	41.2	60.3	37.3
1:00 AM	4/10/24	40.1	52.2	37.2
2:00 AM	4/10/24	40.1	49.2	37.2
3:00 AM	4/10/24	42.8	55.6	37.8
4:00 AM	4/10/24	45.2	60.3	39.4
5:00 AM	4/10/24	47.2	60.2	42.4
6:00 AM	4/10/24	49.5	64.9	44.6
7:00 AM	4/10/24	49.2	66.7	42.8
8:00 AM	4/10/24	48.9	68.3	39.9
9:00 AM	4/10/24	43.4	64.1	38.3
10:00 AM	4/10/24	45.0	63.9	38.2
11:00 AM	4/10/24	45.1	60.9	37.9
12:00 PM	4/10/24	46.6	65.5	39.2
1:00 PM	4/10/24	42.7	58.0	38.0

Source: Compiled by LSA Associates, Inc. (2024).
dBA = A-weighted decibel
L_{eq} = equivalent continuous sound level
L_{max} = maximum instantaneous noise level
L_{min} = minimum measured sound level



Noise Measurement Survey – 24 HR

Project Number: CLF2101.04A
Project Name: IPT Enterprise Industrial

Test Personnel: Kevin Nguyendo
Equipment: Spark 706RC (SN:119)

Site Number: LT-3 Date: 4/9/24

Time: From 2:00 p.m. To 2:00 p.m.

Site Location: Along the western property line of the project site near Enterprise Way and Enterprise Court on a tree.

Primary Noise Sources: Traffic noise on Enterprise Way.

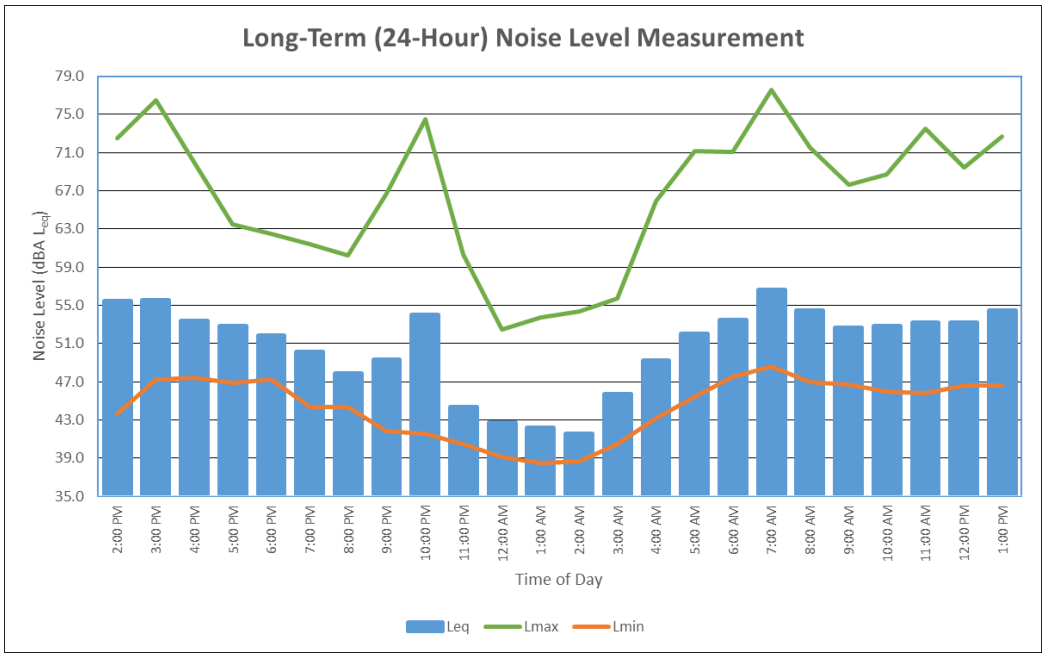
Comments:

Photo:

Long-Term (24-Hour) Noise Level Measurement Results at LT-3

Start Time	Date	Noise Level (dBA)		
		L_{eq}	L_{max}	L_{min}
2:00 PM	4/9/24	55.4	72.5	43.6
3:00 PM	4/9/24	55.5	76.5	47.2
4:00 PM	4/9/24	53.4	69.9	47.4
5:00 PM	4/9/24	52.8	63.5	46.9
6:00 PM	4/9/24	51.8	62.5	47.2
7:00 PM	4/9/24	50.1	61.4	44.3
8:00 PM	4/9/24	47.9	60.2	44.3
9:00 PM	4/9/24	49.3	66.7	41.8
10:00 PM	4/9/24	54.0	74.5	41.5
11:00 PM	4/9/24	44.4	60.3	40.5
12:00 AM	4/10/24	42.7	52.5	39.1
1:00 AM	4/10/24	42.2	53.7	38.5
2:00 AM	4/10/24	41.6	54.4	38.7
3:00 AM	4/10/24	45.7	55.7	40.5
4:00 AM	4/10/24	49.2	65.9	43.2
5:00 AM	4/10/24	52.0	71.2	45.4
6:00 AM	4/10/24	53.5	71.1	47.5
7:00 AM	4/10/24	56.6	77.6	48.6
8:00 AM	4/10/24	54.4	71.5	47.0
9:00 AM	4/10/24	52.7	67.6	46.7
10:00 AM	4/10/24	52.9	68.7	46.0
11:00 AM	4/10/24	53.2	73.5	45.8
12:00 PM	4/10/24	53.2	69.4	46.6
1:00 PM	4/10/24	54.4	72.7	46.6

Source: Compiled by LSA Associates, Inc. (2024).
dBA = A-weighted decibel
L_{eq} = equivalent continuous sound level
L_{max} = maximum instantaneous noise level
L_{min} = minimum measured sound level



APPENDIX B

CONSTRUCTION NOISE LEVEL CALCULATIONS

Construction Calculations

Phase: Demolition

Equipment	Quantity	Reference (dBA) 50 ft Lmax	Usage Factor[1]	Distance to Receptor (ft)	Ground Effects	Noise Level (dBA) Lmax	Noise Level (dBA) Leq
Concrete Saw	1	90	20	50	0.5	90	83
Excavator	3	81	40	50	0.5	81	82
All Other Equipment > 5 HP	3	85	50	50	0.5	85	87
					Combined at 50 feet	**92**	**89**
					Combined at Receptor 325 feet	**75**	**73**

Phase: Site Preparation

Equipment	Quantity	Reference (dBA) 50 ft Lmax	Usage Factor[1]	Distance to Receptor (ft)	Ground Effects	Noise Level (dBA) Lmax	Noise Level (dBA) Leq
Tractor	4	84	40	50	0.5	84	86
Dozer	1	82	40	50	0.5	82	78
					Combined at 50 feet	**86**	**87**
					Combined at Receptor 325 feet	**70**	**70**

Phase: Grading

Equipment	Quantity	Reference (dBA) 50 ft Lmax	Usage Factor[1]	Distance to Receptor (ft)	Ground Effects	Noise Level (dBA) Lmax	Noise Level (dBA) Leq
Grader	1	85	40	50	0.5	85	81
Scraper	3	84	40	50	0.5	84	85
Dozer	2	82	40	50	0.5	82	81
Tractor	3	84	40	50	0.5	84	85
Excavator	4	81	40	50	0.5	81	83
					Combined at 50 feet	**90**	**90**
					Combined at Receptor 325 feet	**74**	**74**

Phase:Building Construction

Equipment	Quantity	Reference (dBA) 50 ft Lmax	Usage Factor[1]	Distance to Receptor (ft)	Ground Effects	Noise Level (dBA) Lmax	Noise Level (dBA) Leq
Crane	1	81	16	50	0.5	81	73
Man Lift	3	75	20	50	0.5	75	73
Generator	1	81	50	50	0.5	81	78
Tractor	3	84	40	50	0.5	84	85
Welder / Torch	1	74	40	50	0.5	74	70
All Other Equipment > 5 HP	5	85	50	50	0.5	85	89
					Combined at 50 feet	**89**	**91**
					Combined at Receptor 325 feet	**73**	**75**
					Combined at Receptor 380 feet	**72**	**73**
					Combined at Receptor 470 feet	**70**	**71**

Phase:Paving

Equipment	Quantity	Reference (dBA) 50 ft Lmax	Usage Factor[1]	Distance to Receptor (ft)	Ground Effects	Noise Level (dBA) Lmax	Noise Level (dBA) Leq
Paver	1	77	50	50	0.5	77	74
All Other Equipment > 5 HP	2	85	50	50	0.5	85	85
Roller	2	80	20	50	0.5	80	76
Tractor	1	84	40	50	0.5	84	80
Drum Mixer	2	80	50	50	0.5	80	80
					Combined at 50 feet	**89**	**88**
					Combined at Receptor 325 feet	**73**	**71**

Phase:Architectural Coating

Equipment	Quantity	Reference (dBA) 50 ft Lmax	Usage Factor[1]	Distance to Receptor (ft)	Ground Effects	Noise Level (dBA) Lmax	Noise Level (dBA) Leq
Tractor	3	84	40	50	0.5	84	85
Compressor (air)	2	78	40	50	0.5	78	77
					Combined at 50 feet	**85**	**85**
					Combined at Receptor 325 feet	**69**	**69**

Sources: RCNM

[1]- Percentage of time that a piece of equipment is operating at full power.
dBA – A-weighted Decibels
Lmax- Maximum Level
Leq- Equivalent Level

APPENDIX C

FHWA TRAFFIC NOISE MODEL PRINTOUTS

TABLE Existing -01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/22/2025
ROADWAY SEGMENT: Bake Parkway West of Commercentre Drive
NOTES: IPT Enterprise Business Center LLC Project - Existing

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 7290 SPEED (MPH): 55 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 40 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.28

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	93.2	185.6	392.4

TABLE Existing -02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/22/2025
ROADWAY SEGMENT: Bake Parkwaybetween Commercentre Drive and Dimension Drive
NOTES: IPT Enterprise Business Center LLC Project - Existing

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 19850 SPEED (MPH): 55 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 40 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.63

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
86.0	168.8	355.6	762.1

TABLE Existing -03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/22/2025
ROADWAY SEGMENT: Bake Parkway East of Dimension Drive
NOTES: IPT Enterprise Business Center LLC Project - Existing

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 22040 SPEED (MPH): 55 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 40 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 70.08

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
90.9	180.4	381.0	817.0

TABLE Existing -04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/22/2025
ROADWAY SEGMENT: Commercentre Drive West of Dimension Drive
NOTES: IPT Enterprise Business Center LLC Project - Existing

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 6040 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 30 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 56.65

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	0.0	100.1

TABLE Existing -05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/22/2025
ROADWAY SEGMENT: Enterprise Way East of Dimension Drive
NOTES: IPT Enterprise Business Center LLC Project - Existing

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 1320 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 25 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 50.36

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	0.0	0.0

TABLE Existing -06
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/22/2025
ROADWAY SEGMENT: Dimension Drive North of Commercentre Drive
NOTES: IPT Enterprise Business Center LLC Project - Existing

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 6380 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 40 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.50

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	67.9	124.9	257.9

TABLE Existing -07
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/22/2025
ROADWAY SEGMENT: Dimension Drive South of Commercentre Drive
NOTES: IPT Enterprise Business Center LLC Project - Existing

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 19640 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 40 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.38

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
67.1	122.9	253.4	540.5

TABLE Existing -08
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/22/2025
ROADWAY SEGMENT: Lake Forest Drive West of Dimension Drive
NOTES: IPT Enterprise Business Center LLC Project - Existing

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 7580 SPEED (MPH): 50 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 40 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.40

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	83.7	163.3	343.3

TABLE Existing -09
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/22/2025
ROADWAY SEGMENT: Lake Forest Drive East of Dimension Drive
NOTES: IPT Enterprise Business Center LLC Project - Existing

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 960 SPEED (MPH): 50 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 40 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 55.42

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	0.0	94.9

TABLE Existing -10
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/22/2025
ROADWAY SEGMENT: Rancho Parkway North of Lake Forest Drive
NOTES: IPT Enterprise Business Center LLC Project - Existing

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 14250 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 40 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.99

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	102.0	206.0	437.1

TABLE Existing with Project-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/22/2025
ROADWAY SEGMENT: Bake Parkway West of Commercentre Drive
NOTES: IPT Enterprise Business Center LLC Project - Existing with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 7380 SPEED (MPH): 55 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.49	12.57	9.34
M-TRUCKS	1.57	0.09	0.19
H-TRUCKS	0.65	0.02	0.08

ACTIVE HALF-WIDTH (FT): 40 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.35

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	94.0	187.5	396.5

TABLE Existing with Project-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/22/2025
ROADWAY SEGMENT: Bake Parkwaybetween Commercentre Drive and Dimension Drive
NOTES: IPT Enterprise Business Center LLC Project - Existing with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 19850 SPEED (MPH): 55 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 40 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.63

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
86.0	168.8	355.6	762.1

TABLE Existing with Project-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/22/2025
ROADWAY SEGMENT: Bake Parkway East of Dimension Drive
NOTES: IPT Enterprise Business Center LLC Project - Existing with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 22090 SPEED (MPH): 55 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 40 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 70.10

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
91.1	180.7	381.7	818.6

TABLE Existing with Project-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/22/2025
ROADWAY SEGMENT: Commercentre Drive West of Dimension Drive
NOTES: IPT Enterprise Business Center LLC Project - Existing with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 6490 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.41	12.55	9.33
M-TRUCKS	1.61	0.09	0.20
H-TRUCKS	0.69	0.02	0.09

ACTIVE HALF-WIDTH (FT): 30 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 57.13

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	0.0	107.0

TABLE Existing with Project-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/22/2025
ROADWAY SEGMENT: Enterprise Way East of Dimension Drive
NOTES: IPT Enterprise Business Center LLC Project - Existing with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 2310 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	74.92	12.45	9.28
M-TRUCKS	1.86	0.12	0.24
H-TRUCKS	0.95	0.05	0.14

ACTIVE HALF-WIDTH (FT): 25 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 53.71

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	0.0	63.1

TABLE Existing with Project-06
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/22/2025
ROADWAY SEGMENT: Dimension Drive North of Commercentre Drive
NOTES: IPT Enterprise Business Center LLC Project - Existing with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 6430 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.50	12.57	9.34
M-TRUCKS	1.57	0.09	0.19
H-TRUCKS	0.65	0.02	0.08

ACTIVE HALF-WIDTH (FT): 40 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.54

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	68.2	125.6	259.6

TABLE Existing with Project-07
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/22/2025
ROADWAY SEGMENT: Dimension Drive South of Commercentre Drive
NOTES: IPT Enterprise Business Center LLC Project - Existing with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 19930 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.49	12.57	9.34
M-TRUCKS	1.57	0.09	0.19
H-TRUCKS	0.65	0.02	0.08

ACTIVE HALF-WIDTH (FT): 40 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.47

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
67.7	124.3	256.7	547.6

TABLE Existing with Project-08
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/22/2025
ROADWAY SEGMENT: Lake Forest Drive West of Dimension Drive
NOTES: IPT Enterprise Business Center LLC Project - Existing with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 8070 SPEED (MPH): 50 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.43	12.55	9.33
M-TRUCKS	1.60	0.09	0.20
H-TRUCKS	0.68	0.02	0.09

ACTIVE HALF-WIDTH (FT): 40 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.75

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	87.3	171.8	362.2

TABLE Existing with Project-09
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/22/2025
ROADWAY SEGMENT: Lake Forest Drive East of Dimension Drive
NOTES: IPT Enterprise Business Center LLC Project - Existing with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 960 SPEED (MPH): 50 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 40 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 55.42

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	0.0	94.9

TABLE Existing with Project-10
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/22/2025
ROADWAY SEGMENT: Rancho Parkway North of Lake Forest Drive
NOTES: IPT Enterprise Business Center LLC Project - Existing with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 14370 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.50	12.57	9.34
M-TRUCKS	1.57	0.09	0.19
H-TRUCKS	0.65	0.02	0.08

ACTIVE HALF-WIDTH (FT): 40 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.04

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	102.6	207.5	440.4

TABLE Opening Year-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/22/2025
ROADWAY SEGMENT: Bake Parkway West of Commercentre Drive
NOTES: IPT Enterprise Business Center LLC Project - Opening Year

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 7590 SPEED (MPH): 55 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 40 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.45

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	95.2	190.4	403.0

TABLE Opening Year-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/22/2025
ROADWAY SEGMENT: Bake Parkwaybetween Commercentre Drive and Dimension Drive
NOTES: IPT Enterprise Business Center LLC Project - Opening Year

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 21080 SPEED (MPH): 55 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 40 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.89

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
88.8	175.4	369.9	793.2

TABLE Opening Year-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/22/2025
ROADWAY SEGMENT: Bake Parkway East of Dimension Drive
NOTES: IPT Enterprise Business Center LLC Project - Opening Year

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 23390 SPEED (MPH): 55 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 40 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 70.34

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
93.9	187.3	396.2	850.0

TABLE Opening Year-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/22/2025
ROADWAY SEGMENT: Commercentre Drive West of Dimension Drive
NOTES: IPT Enterprise Business Center LLC Project - Opening Year

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 7590 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 30 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 57.64

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	59.7	115.2

TABLE Opening Year-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/22/2025
ROADWAY SEGMENT: Enterprise Way East of Dimension Drive
NOTES: IPT Enterprise Business Center LLC Project - Opening Year

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 2670 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 25 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 53.42

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	0.0	60.8

TABLE Opening Year-06
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/22/2025
ROADWAY SEGMENT: Dimension Drive North of Commercentre Drive
NOTES: IPT Enterprise Business Center LLC Project - Opening Year

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 6670 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 40 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.69

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	69.3	128.2	265.5

TABLE Opening Year-07
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/22/2025
ROADWAY SEGMENT: Dimension Drive South of Commercentre Drive
NOTES: IPT Enterprise Business Center LLC Project - Opening Year

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 21010 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 40 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.68

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
69.1	127.9	264.8	565.2

TABLE Opening Year-08
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/22/2025
ROADWAY SEGMENT: Lake Forest Drive West of Dimension Drive
NOTES: IPT Enterprise Business Center LLC Project - Opening Year

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 8460 SPEED (MPH): 50 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 40 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.88

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	88.6	175.0	369.1

TABLE Opening Year-09
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/22/2025
ROADWAY SEGMENT: Lake Forest Drive East of Dimension Drive
NOTES: IPT Enterprise Business Center LLC Project - Opening Year

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 1280 SPEED (MPH): 50 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 40 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 56.67

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	0.0	111.6

TABLE Opening Year-10
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/22/2025
ROADWAY SEGMENT: Rancho Parkway North of Lake Forest Drive
NOTES: IPT Enterprise Business Center LLC Project - Opening Year

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 14990 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 40 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.21

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	105.0	212.8	452.0

TABLE Opening Year with Project-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/22/2025
ROADWAY SEGMENT: Bake Parkway West of Commercentre Drive
NOTES: IPT Enterprise Business Center LLC Project - Opening Year with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 7680 SPEED (MPH): 55 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.49	12.57	9.34
M-TRUCKS	1.57	0.09	0.19
H-TRUCKS	0.65	0.02	0.08

ACTIVE HALF-WIDTH (FT): 40 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.52

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	96.0	192.3	407.1

TABLE Opening Year with Project-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/22/2025
ROADWAY SEGMENT: Bake Parkwaybetween Commercentre Drive and Dimension Drive
NOTES: IPT Enterprise Business Center LLC Project - Opening Year with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 21080 SPEED (MPH): 55 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 40 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.89

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
88.8	175.4	369.9	793.2

TABLE Opening Year with Project-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/22/2025
ROADWAY SEGMENT: Bake Parkway East of Dimension Drive
NOTES: IPT Enterprise Business Center LLC Project - Opening Year with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 23440 SPEED (MPH): 55 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 40 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 70.35

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
94.0	187.6	396.9	851.5

TABLE Opening Year with Project-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/22/2025
ROADWAY SEGMENT: Commercentre Drive West of Dimension Drive
NOTES: IPT Enterprise Business Center LLC Project - Opening Year with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 7680 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.49	12.57	9.34
M-TRUCKS	1.57	0.09	0.19
H-TRUCKS	0.65	0.02	0.08

ACTIVE HALF-WIDTH (FT): 30 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 57.72

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	60.3	116.5

TABLE Opening Year with Project-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/22/2025
ROADWAY SEGMENT: Enterprise Way East of Dimension Drive
NOTES: IPT Enterprise Business Center LLC Project - Opening Year with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 3360 SPEED (MPH): 25 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.23	12.51	9.31
M-TRUCKS	1.70	0.10	0.21
H-TRUCKS	0.79	0.03	0.11

ACTIVE HALF-WIDTH (FT): 25 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 54.88

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	0.0	73.8

TABLE Opening Year with Project-06
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/22/2025
ROADWAY SEGMENT: Dimension Drive North of Commercentre Drive
NOTES: IPT Enterprise Business Center LLC Project - Opening Year with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 6820 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.48	12.56	9.34
M-TRUCKS	1.58	0.09	0.19
H-TRUCKS	0.66	0.02	0.08

ACTIVE HALF-WIDTH (FT): 40 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.82

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	70.2	130.5	270.6

TABLE Opening Year with Project-07
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/22/2025
ROADWAY SEGMENT: Dimension Drive South of Commercentre Drive
NOTES: IPT Enterprise Business Center LLC Project - Opening Year with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 21000 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 40 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.67

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
69.1	127.9	264.7	565.0

TABLE Opening Year with Project-08
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/22/2025
ROADWAY SEGMENT: Lake Forest Drive West of Dimension Drive
NOTES: IPT Enterprise Business Center LLC Project - Opening Year with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 8950 SPEED (MPH): 50 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.43	12.55	9.33
M-TRUCKS	1.60	0.09	0.20
H-TRUCKS	0.68	0.02	0.09

ACTIVE HALF-WIDTH (FT): 40 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.19

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	92.2	183.3	387.3

TABLE Opening Year with Project-09
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/22/2025
ROADWAY SEGMENT: Lake Forest Drive East of Dimension Drive
NOTES: IPT Enterprise Business Center LLC Project - Opening Year with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 980 SPEED (MPH): 50 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.93	12.66	9.38
M-TRUCKS	1.35	0.07	0.15
H-TRUCKS	0.42	0.00	0.04

ACTIVE HALF-WIDTH (FT): 40 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 55.08

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	0.0	90.9

TABLE Opening Year with Project-10
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 05/22/2025
ROADWAY SEGMENT: Rancho Parkway North of Lake Forest Drive
NOTES: IPT Enterprise Business Center LLC Project - Opening Year with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 15110 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.50	12.57	9.34
M-TRUCKS	1.57	0.09	0.19
H-TRUCKS	0.65	0.02	0.08

ACTIVE HALF-WIDTH (FT): 40 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.26

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	105.6	214.3	455.2

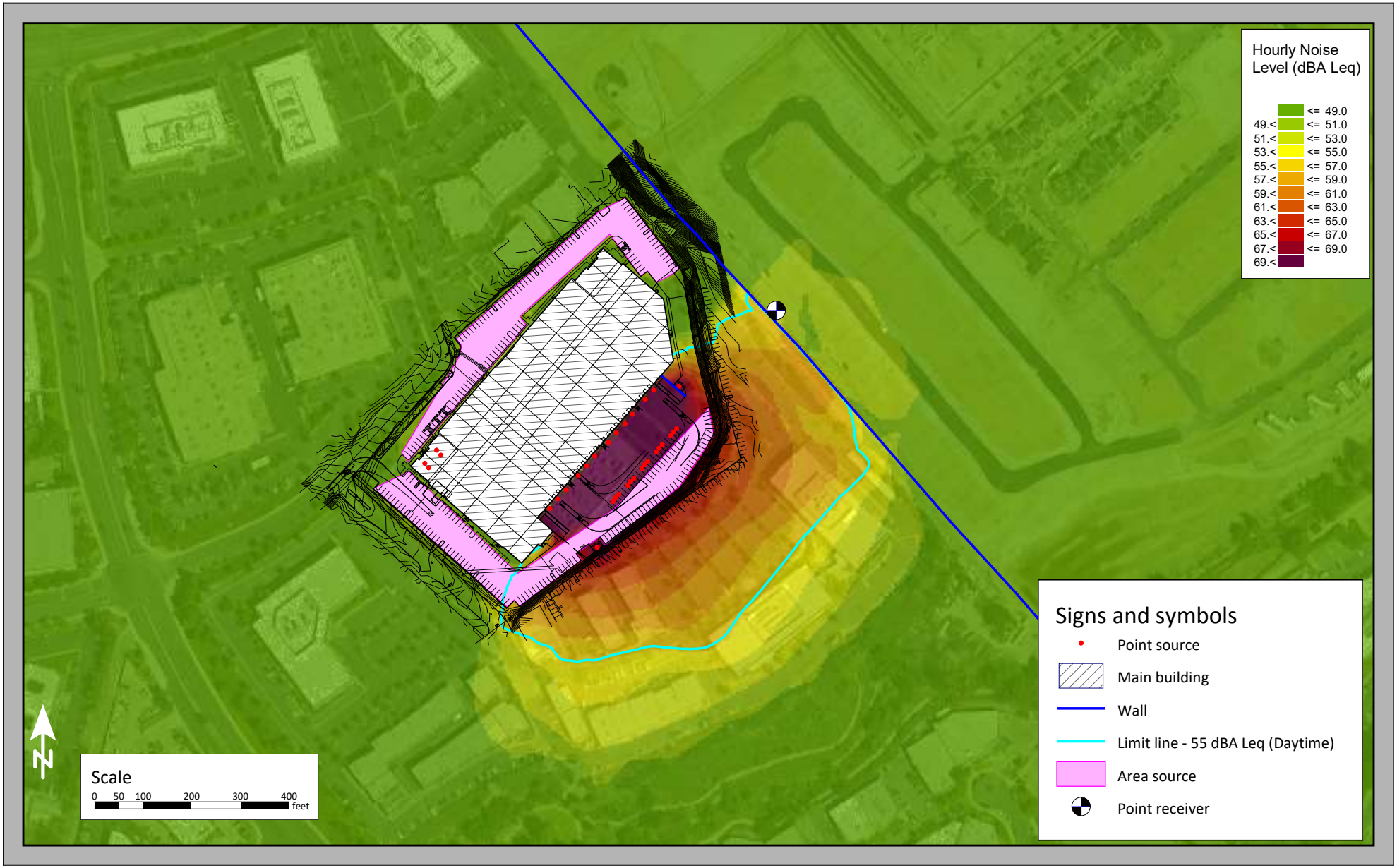
APPENDIX D

SOUNDPLAN NOISE MODEL PRINTOUTS

IPT Enterprise Industrial Project

Project No. CLF2101.04A

Project Operational Noise Levels - Daytime



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IPT Enterprise Industrial Project

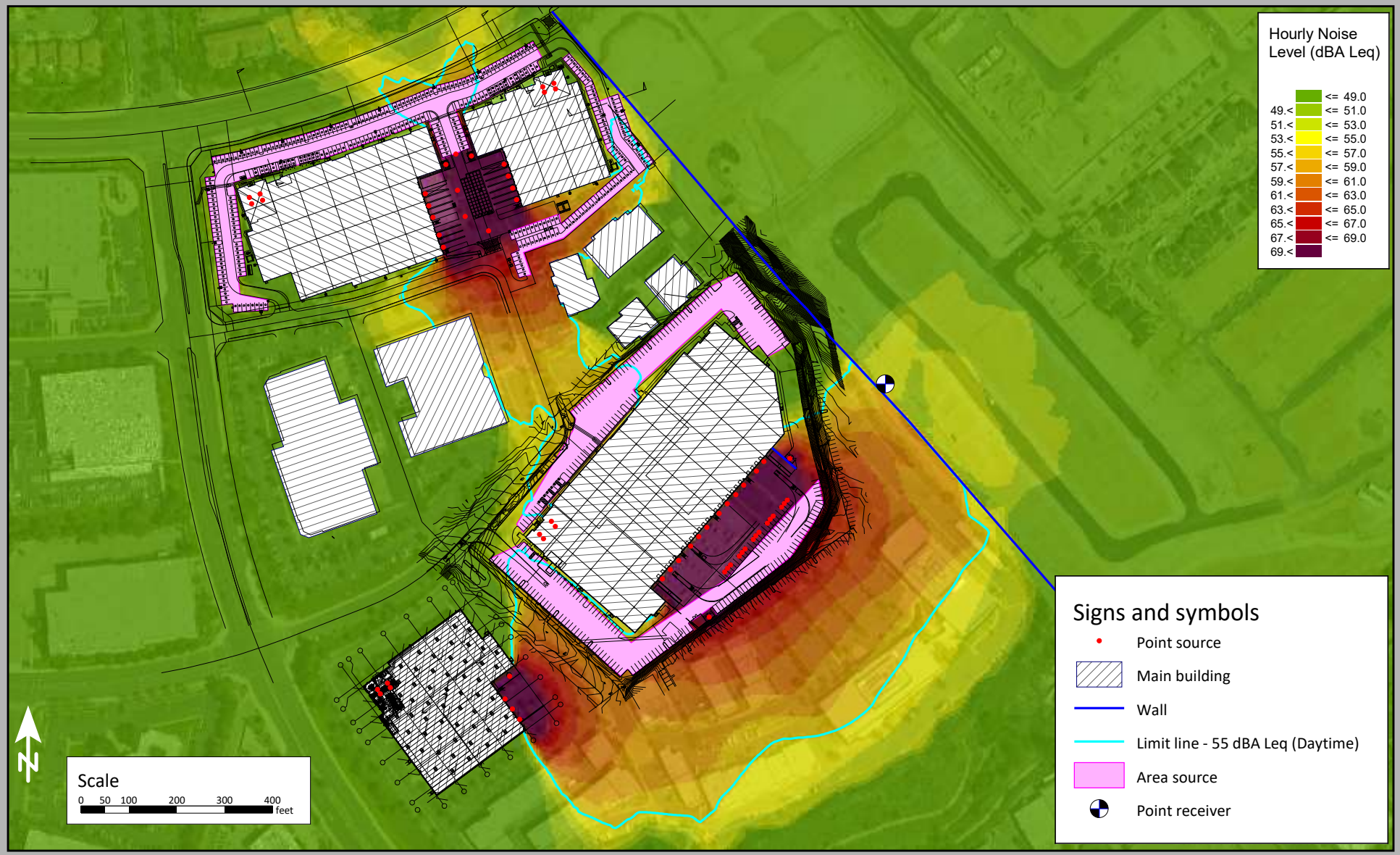
Project No. CLF2101.04A

Project Operational Noise Levels - Nighttime

IPT Enterprise Industrial Project

Project No. CLF2101.04A

Project Operational Noise Levels - Daytime - Cumulative



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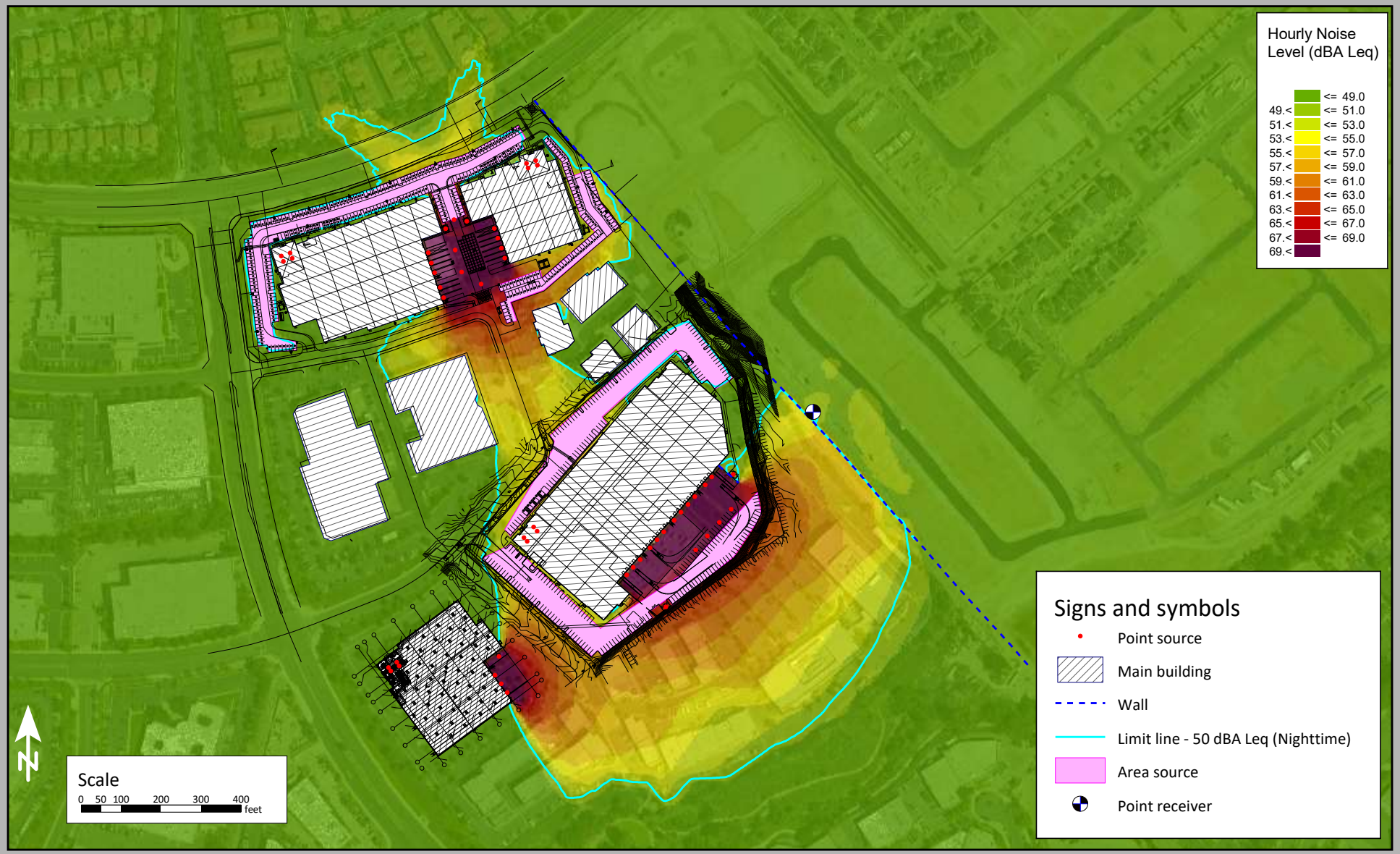
IPT Enterprise Industrial Project

Project No. CLF2101.04A

Project Operational Noise Levels - Nighttime - Cumulative



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