

# CITY OF EMERYVILLE NOISE ORDINANCE UPDATE: CITYWIDE NOISE SURVEY AND OPTIONS

Prepared for  
City of Emeryville Planning Department  
1333 Park Avenue, Emeryville, CA

December 7, 2017





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550 Kearny Street  
Suite 800  
San Francisco, CA 94108  
415.896.5900  
[www.esassoc.com](http://www.esassoc.com)



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# 1. Introduction and Background

This Citywide Noise Survey and Options was prepared by Environmental Science Associates (ESA) to quantify existing noise levels at multiple land use designations within the City of Emeryville (City) in support of an update to Title 5 (“Public Welfare”), Chapter 13 (“Noise”) of the City of Emeryville Municipal Code (“Noise Ordinance”). Ambient noise levels gathered during the Citywide Noise Survey were used to evaluate an appropriate exterior noise standard for specific land use zones within the City that can be incorporated into the City’s Noise Ordinance update.

Since the adoption of the City of Emeryville’s (City) Noise Ordinance in 2003, much of the City’s industrial areas have been converted to commercial and residential uses. Over the last 14 years, residences built near industrial and commercial facilities have increased by 54 percent, which resulted in a noticeable increase in the number of noise complaints submitted to the City Police Department. Since the current Noise Ordinance does not have objective, quantitative noise criteria, enforcement personnel do not have the ability to determine whether noise exposure levels are in violation of the current qualitative standards of the City’s Noise Ordinance.

To address the public concerns regarding noise, the City Council held a study session on February 16, 2016 to consider potential amendments to the Noise Ordinance. After the study session, the City Council directed City staff to update the Noise Ordinance to include objective noise criteria, exemptions for schools and permitted community events, and no enforcement warnings. The City Council expressed interest in understanding the baseline noise levels in the City through a citywide noise survey. A community meeting was held in August 16, 2017 at the Emeryville Center of Community Life (ECCL) building to solicit comments on issues to be considered in the update of the City’s noise ordinance.

## 2. Fundamentals of Acoustics

Noise can be generally defined as unwanted sound. Sound, traveling in the form of waves from a source, exerts a sound pressure level (referred to as sound level) which is measured in decibels (dB), with 0 dB corresponding roughly to the threshold of human hearing and 120 to 140 dB corresponding to the threshold of pain.

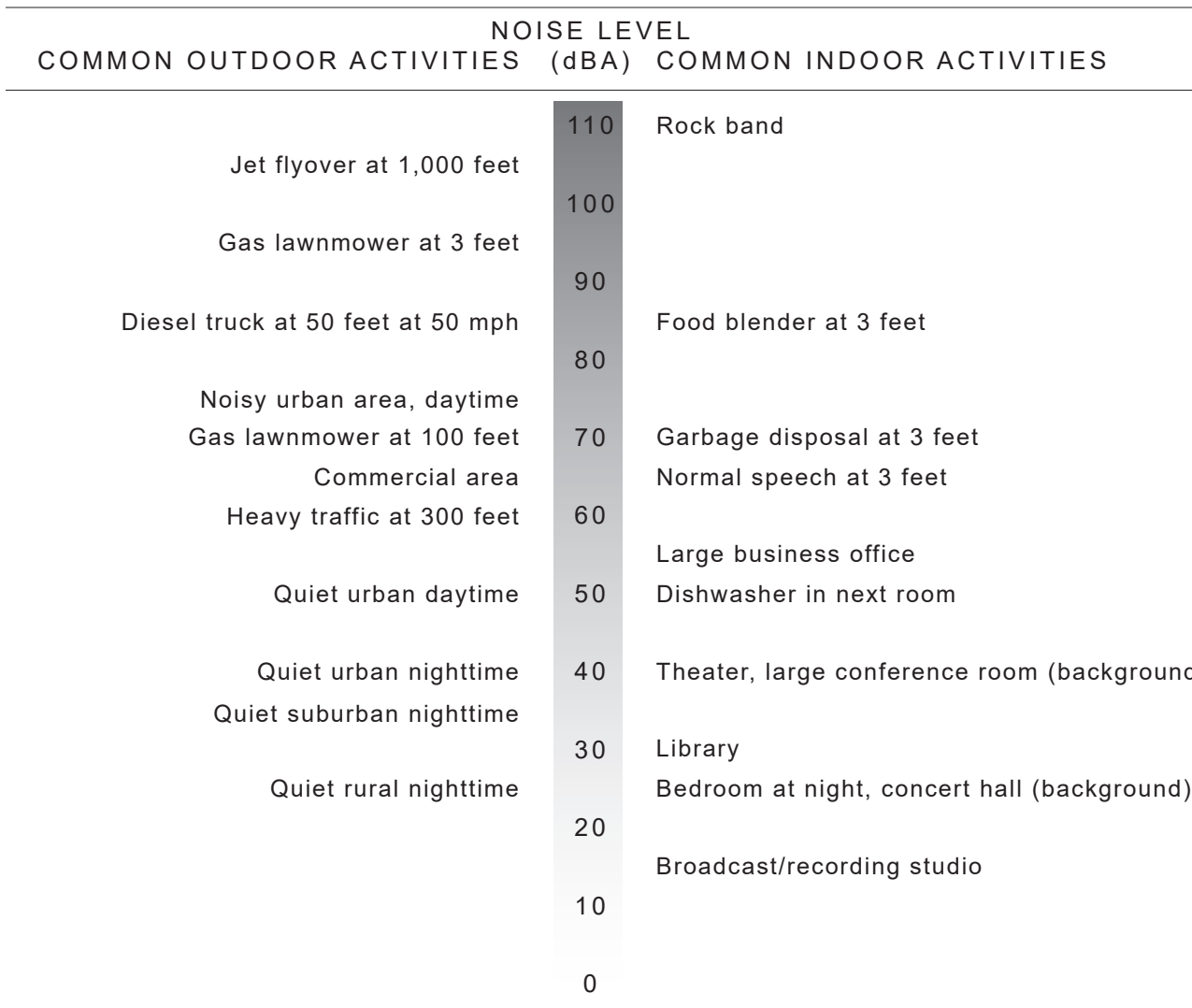
Sound pressure fluctuations can be measured in units of hertz (Hz), which correspond to the frequency of a particular sound. Typically, sound does not consist of a single frequency, but rather a broad band of frequencies varying in levels of magnitude (sound power). The sound pressure level, therefore, constitutes the additive force exerted by a sound corresponding to the frequency/sound power level spectrum.

The typical human ear is not equally sensitive to all frequencies of the audible sound spectrum. As a consequence, when assessing potential noise impacts, sound is measured using an electronic filter that de-emphasizes the frequencies below 1,000 Hz and above 5,000 Hz in a manner corresponding to the human ear's decreased sensitivity to low and extremely high frequencies instead of the frequency mid-range. This method of frequency weighting is referred to as A-weighting and is expressed in units of A-weighted decibels (dBA). Frequency A-weighting follows an international standard methodology of frequency de-emphasis and is typically applied to community noise measurements. Some representative noise sources and their corresponding A-weighted noise levels are shown in **Figure 1**.

Noise exposure is a measure of noise over a period of time. Noise level is a measure of noise at a given instant in time. Community noise varies continuously over a period of time with respect to the contributing sound sources of the community noise environment. Community noise is primarily the product of many distant noise sources, which constitute a relatively stable background noise exposure, with the individual contributors unidentifiable. The background noise level changes throughout a typical day, but does so gradually, corresponding with the addition and subtraction of distant noise sources such as traffic and atmospheric conditions. What makes community noise constantly variable throughout a day, besides the slowly changing background noise, is the addition of short duration single event noise sources (e.g., aircraft flyovers, motor vehicles, sirens), which are readily identifiable to the individual receptor. These successive additions of sound to the community noise environment vary the community noise level from instant to instant, requiring the measurement of noise exposure over a period of time to legitimately characterize a community noise environment and evaluate cumulative noise impacts.

This time-varying characteristic of environmental noise is described using statistical noise descriptors. The most frequently used noise descriptors are summarized below:

- $L_{eq}$ : the energy-equivalent sound level is used to describe noise over a specified period of time, typically one hour, in terms of a single numerical value. The  $L_{eq}$  is the constant sound level, which would contain the same acoustic energy as the varying sound level, during the same time period (i.e., the average noise exposure level for the given time period).
- $L_{10}$ : the noise level that is equaled or exceeded 10 percent of the specified time period. The  $L_{10}$  represents the median sound level. This is often used to give an indication of the upper limit of fluctuating noise, such as that from road traffic.
- $L_{50}$ : the noise level that is equaled or exceeded 50 percent of the specified time period. The  $L_{50}$  represents the median sound level.
- $L_{90}$ : the noise level that is equaled or exceeded 90 percent of the specific time period. This is considered the background noise level during a given time period.
- $L_{max}$ : the instantaneous maximum noise level for a specified period of time.
- $L_{dn}$ : is a 24-hour day and night A-weighted noise exposure level which accounts for the greater sensitivity of most people to nighttime noise by weighting noise levels at night ("penalizing" nighttime noises). Noise between 10:00 p.m. and 7:00 a.m. is weighted (penalized) by adding 10 dB to take into account the greater annoyance of nighttime noises.



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SOURCE: ESA, 2017

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**Figure 1**  
Typical Noise Levels



### 3. Noise Measurement Locations

As part of the Citywide noise survey, ESA staff deployed ten long-term (LT), unattended sound level meters (SLM), near clusters of residential uses, some of which were located near major noise sources such as the Union Pacific Rail Line, I-80, I-580 and major arterial roadways within the City. The locations of these LT noise monitoring locations are illustrated in **Figure 2**. Of the 10 LT noise measurements, the first five SLMs were deployed Friday, September 15, 2017 and retrieved Wednesday September 16, 2017. The second five SLMs will then be deployed later in the day on September 20, 2017 and retrieved on September 25, 2017. Noise data was continuously collected at each of the LT monitoring sites for two weekend days and two weekdays, with the exception of location LT-7. Due to site restrictions and access issues, noise data was only collected at LT-7 for one weekday. The result of the LT noise survey is discussed later under Section 5, Noise Measured Results.

As shown in Figure 2, each LT noise measurement site have one or more corresponding attended short-term (ST) noise measurement nearby. These ST noise measurements were used to estimate  $L_{dn}$  noise levels in areas where a SLM was not able to be securely deployed and also as a visual verification of noise sources. The estimated  $L_{dn}$  noise level were estimated by comparing the ST measured noise levels to the corresponding  $L_{eq}$  noise levels at a nearby LT measurement location that was subjected to a similar noise environment. ST noise measurements were conducted during a weekend and weekday for each batch of five LT noise measurements by one ESA staff member. The result of the ST noise survey is discussed later under Section 5, Noise Measured Results.

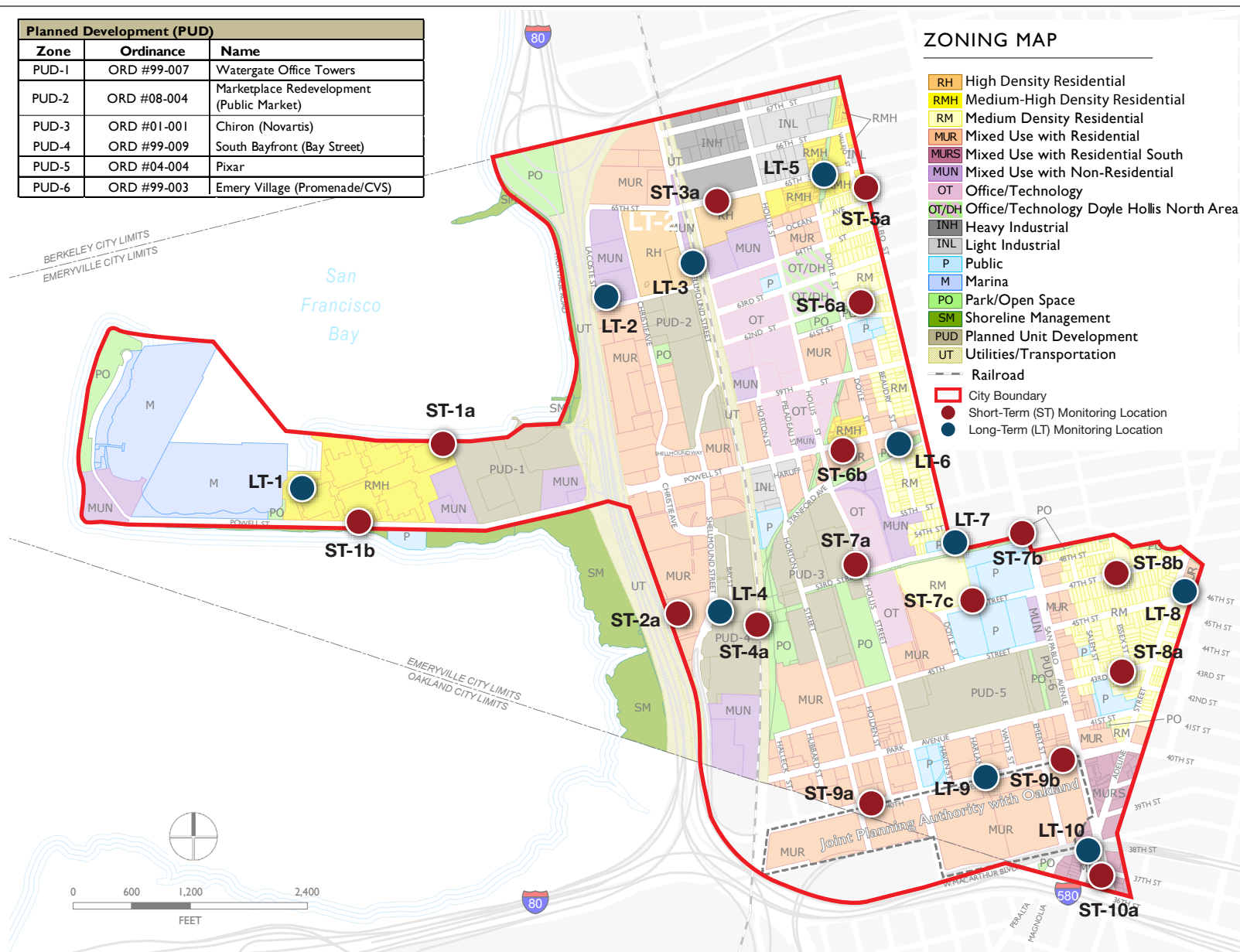
### 4. Field Methodology

LT noise measurements were performed using a Larson Davis LxT2 precision integrating SLM that meets the requirements of American National Standards Institute (ANSI) Standards for Type II instruments. ST noise measurements were performed using a Larson Davis 831 precision integrating SLM that meets the requirements of ANSI Standards for Type I instruments. For each measurement, the A-weighted decibel (dBA), slow-detector response will be used. The Larson Davis LxT2 SLMs were program to collect 1-second  $L_{eq}$ 's through the measurement period. Noise data collected at each of the LT sites were later used to The data will include the average, minimum, maximum, and selected exceedance levels for each interval period ( $L_{eq}$ ,  $L_{min}$ ,  $L_{max}$ ,  $L_{10}$ ,  $L_{50}$ ,  $L_{90}$ ).<sup>1</sup>

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<sup>1</sup>  $L_{eq}$  is the constant sound level which would contain the same acoustic energy as the varying sound level, during the same time period (i.e., the average noise exposure level for the given time period).  $L_x$  is the sound level that is equaled or exceeded x percent of a specified time period.

Planned Development (PUD)		
Zone	Ordinance	Name
PUD-1	ORD #99-007	Watergate Office Towers
PUD-2	ORD #08-004	Marketplace Redevelopment (Public Market)
PUD-3	ORD #01-001	Chiron (Novartis)
PUD-4	ORD #99-009	South Bayfront (Bay Street)
PUD-5	ORD #04-004	Pixar
PUD-6	ORD #99-003	Emery Village (Promenade/CVS)



SOURCE: Title 9, Chapter 3 of the City of Emeryville Municipal Code, Zoning Map; ESA, 2017

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**Figure 2**  
Noise Measurement Locations and City of Emeryville Zoning Map



During attended ST noise measurements, the SLM was placed 5 feet above ground on a tripod, and the manufacturer's recommended windscreen placed on the microphone. SLMs used for unattended LT noise measurements were either (1) placed within metal utility boxes and fixed to a tree or other fixed object with a microphone extension cable or (2) placed in a secure location such as a residences patio or back yard on a meatal tripod. Sample pictures of equipment setup can be found in **Figure 3**.



**Figure 3: Sample Noise Measurement Setup Pictures**

All measurement instruments were field calibrated before and after each use to verify that the instruments are operating within the normal operating parameters throughout the noise measurement survey using a Larson Davis Model CAL200 Calibrator. The CAL200 Calibrator are traceable to the National Institute of Standards and Technology (NIST).

## 5. Noise Measured Results

### LT – 1: Watergate Community

A single SLM, designated as LT-1, was placed on an outdoor patio at 8 Admiral Drive, Unit number 123 within the Watergate community. The Watergate community is zoned as medium-high density residential on the City's Zoning Map. The patio was located at ground level within line-of-sight of a Trader Vic's restaurant and patio area and the Emeryville Marina (see Figure 2). The SLM was programmed to record continuous noise data from September 15, 2017 to September 20, 2017. **Table 1** provides the measured  $L_{dn}$ , 24-hour  $L_{eq}$  and daytime and nighttime  $L_{eq}$ 's at LT-1. **Figure 4** through **Figure 7** provides graphs of the measured hourly sound levels at the LT-1 From Saturday, September 16, 2017 to Tuesday, September 19, 2017.

As shown in Table 1,  $L_{dn}$  noise levels ranged from 54 dBA to 55 dBA during the weekends and 54 dBA to 57 dBA during the weekdays. The daytime averaged  $L_{eq}$ 's range from 51 dBA to 55 dBA during the weekend and 50 to 53 during the weekdays. The nighttime averaged  $L_{eq}$  for both Saturday and Sunday was measured to be 43 dBA and ranged from 46 to 49 dBA during the weekdays. Based on field observations, the primary noise sources in the vicinity of LT-1 consisted of community noise such as people talking and shouting/laughing with the community, faint vehicular traffic noise from Powell Street and tidal splashing in the Marina. Based on conversations with the resident at 8 Admiral Drive unit number 123, there was no outdoor activities at the Trader Vic's patio area throughout the duration of the noise measurement period.

**TABLE 1**  
**LT-1: 24 HOUR LONG-TERM NOISE MEASUREMENTS (dBA)**

Date	$L_{dn}$	24hr $L_{eq}$	Daytime $L_{eq}$	Nighttime $L_{eq}$
Saturday, September 16, 2017	55	53	55	43
Sunday, September 17, 2017	54	50	51	43
Monday, September 18, 2017	54	49	50	46
Tuesday, September 19, 2017	57	52	53	49

Source: ESA, 2017

Two 20-minute ST noise measurements were conducted in the vicinity of LT-1. As shown in Figure 2, ST-1a was located at the north-eastern corner of the Watergate community and ST-1b was located adjacent to Powell Street. **Table 2** provides a summary of the measured  $L_{eq}$ ,  $L_{max}$  and

$L_x$ , as well as the estimated  $L_{dn}$  noise levels in the vicinity of LT-1. As shown in Table 2, the estimated  $L_{dn}$  noise level at ST-1a and ST-1b were higher than the measured  $L_{dn}$  at LT-1, which is the result of increased exposure to vehicular traffic along Powell Street and distant traffic noise from I-80.

Noise measurement site ST-1a was located on the Watergate walk path with direct light-of-site with I-80 located approximately 1,700 feet away. The 20-minute ambient noise measurements ranged from 55 dBA  $L_{eq}$  during the weekend and 52 dBA  $L_{eq}$  during the weekday. Based on field observations, the primary noise sources in the vicinity of ST-1a consisted of people talking and shouting/laughing along the walking path, distant vehicular traffic noise along I-80, aircraft and tidal splashing in the Marina.

Noise measurement site ST-1b was located on a yard area facing Powell Street. Measured 20-minute noise measurements were found to be 57 dBA  $L_{eq}$  during both the weekend and weekday. Based on field observations, the primary sources in the vicinity of ST-1b consisted of vehicular traffic noise along Powell Street and occasional aircraft noise.

**TABLE 2**  
**20-MINUTE SHORT-TERM NOISE MEASUREMENTS**  
**CORRELATED WITH LT-1 (dBA)**

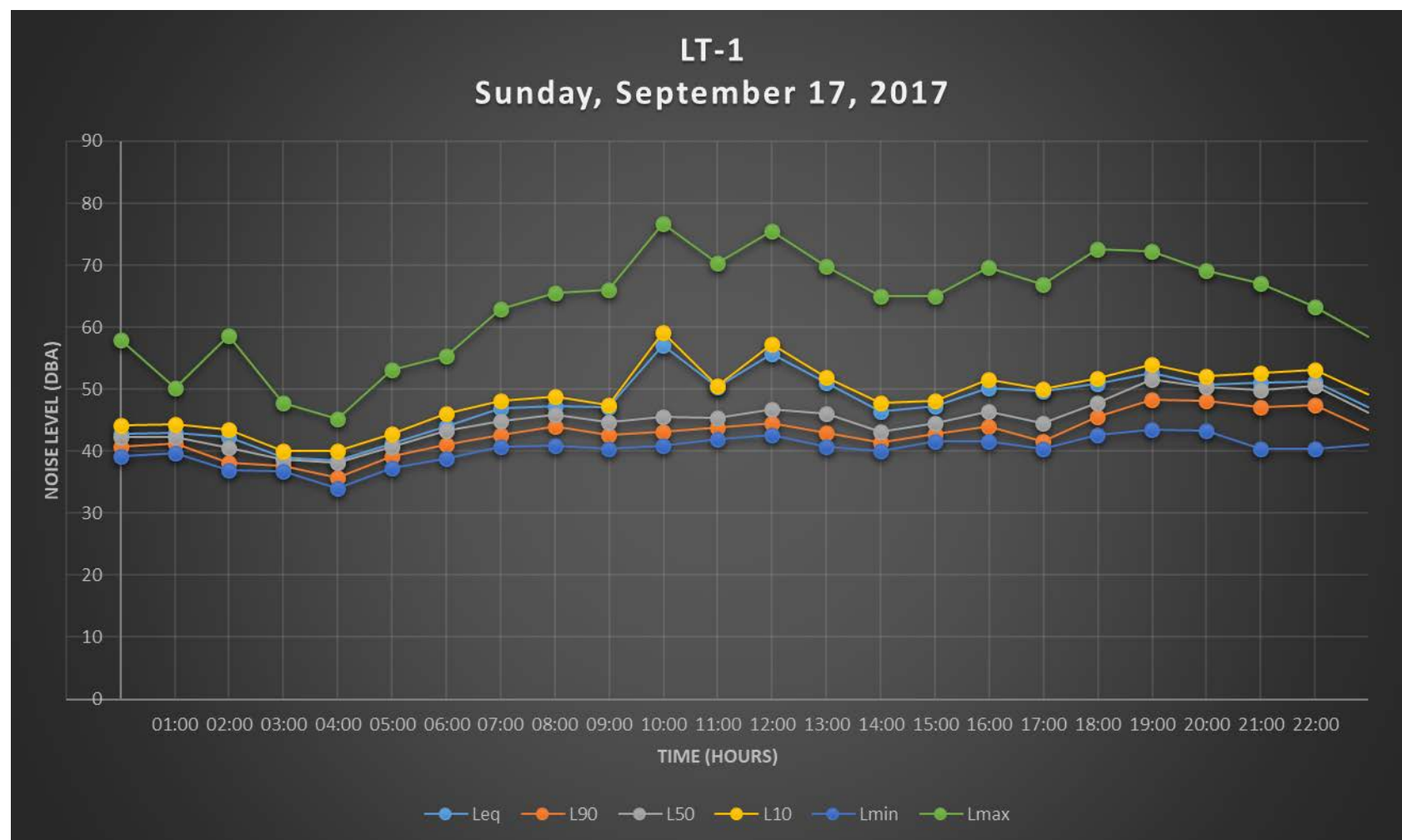
Site ID	Start Time	Est. $L_{dn}$	$L_{eq}$	$L_{max}$	$L_{10}$	$L_{50}$	$L_{90}$	$L_{min}$
ST-1a	Saturday, September 16, 2017, 13:26	59	55	70	56	51	47	46
ST-1a	Tuesday, September 19, 2017, 13:00	61	52	71	52	48	47	46
ST-1b	Saturday, September 16, 2017, 14:15	62	57	71	61	54	50	47
ST-1b	Tuesday, September 19, 2017, 12:28	65	57	73	61	51	47	46

Source: ESA, 2017

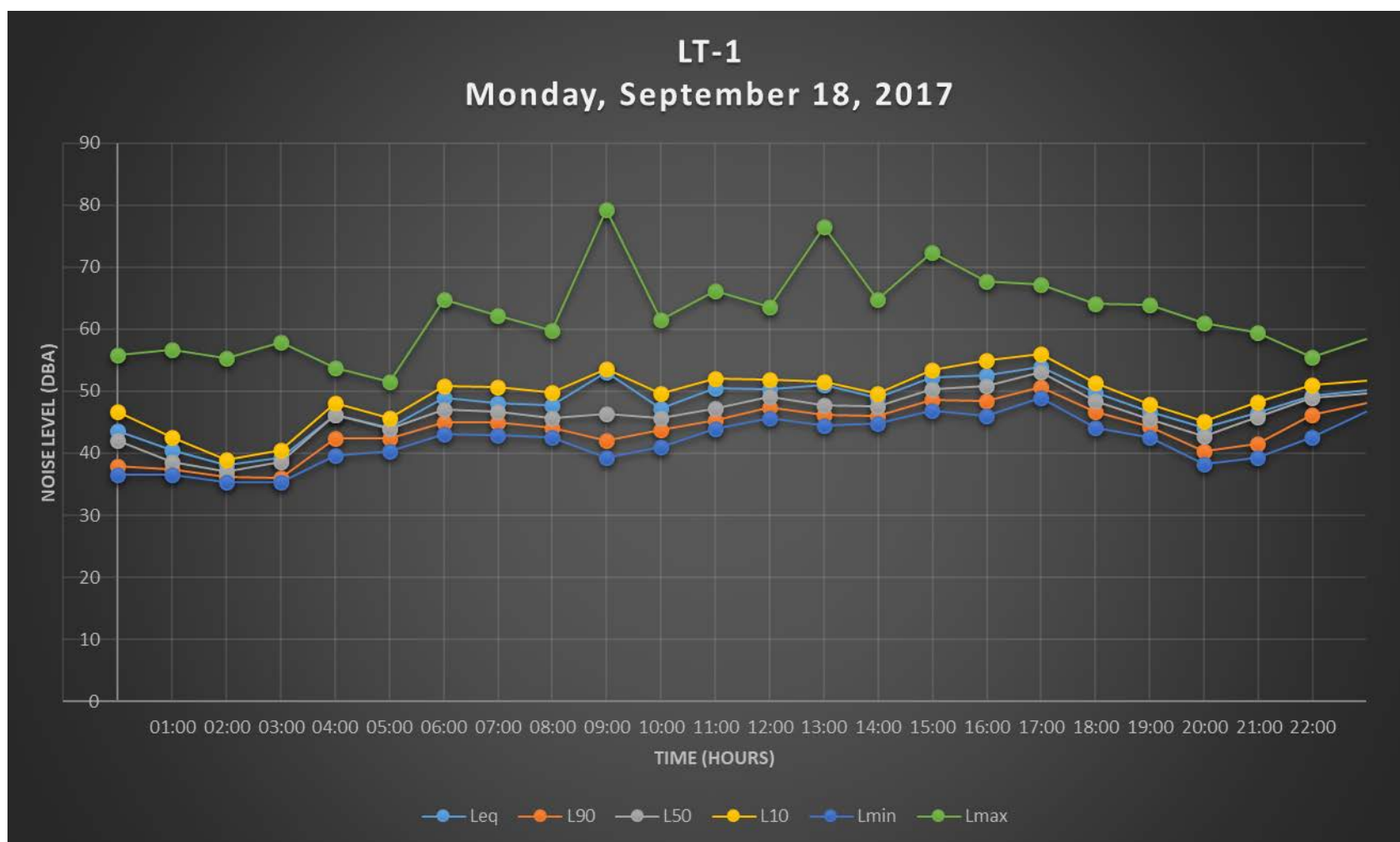




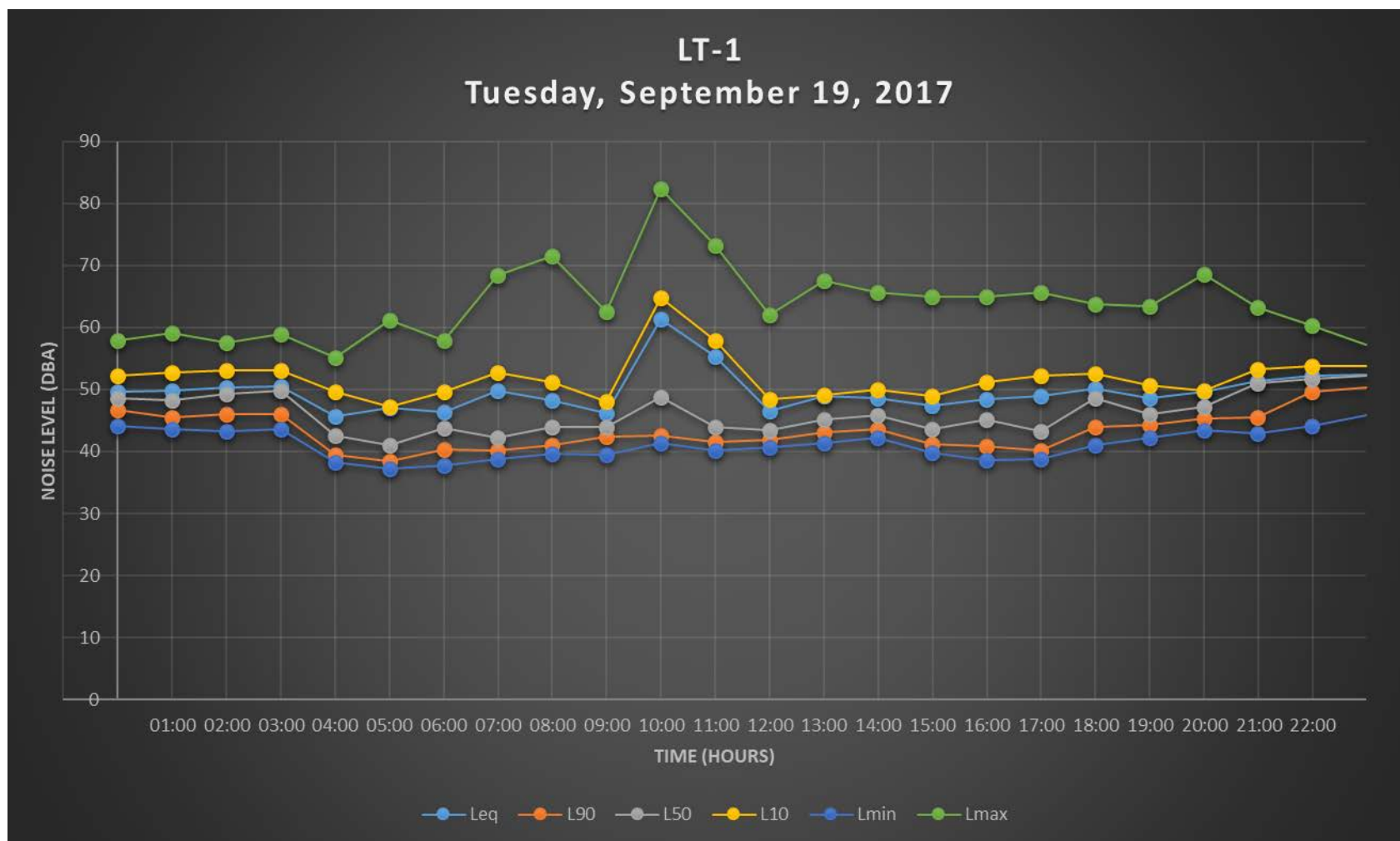
**Figure 4: LT-1 Saturday, September 16, 2017**



**Figure 5: LT-1 Sunday, September 17, 2017**



**Figure 6: LT-1 Monday, September 18, 2017**



**Figure 7: LT-1 Tuesday, September 19, 2017**

## LT – 2: Avenue 64 Apartments

A single SLM, designated as LT-2, was placed adjacent to the intersection of La Coste Street and 64<sup>th</sup> Street, within line-of-sight with I-80 near the Avenue 64 Apartments (see Figure 2). ST-2 was located within an area zoned as mixed use with non-residential and immediately adjacent to a mixed use residential zone to the south. The SLM was programed to record continuous noise data from September 15, 2017 to September 20, 2017. **Table 3** provides the measured  $L_{dn}$ , 24-hour  $L_{eq}$  and daytime and nighttime  $L_{eq}$ 's at LT-2. **Figure 8** through **Figure 11** provides graphs of the measured hourly sound levels at the LT-2 From Saturday, September 16, 2017 to Tuesday, September 19, 2017.

As shown in Table 3,  $L_{dn}$  noise levels ranged from 76 dBA to 77 dBA during the weekends and 78 dBA during the weekdays. The daytime averaged  $L_{eq}$  was measured at 71 dBA during the weekend and range from 72 to 73 dBA during the weekdays. The nighttime average  $L_{eq}$ 's ranged from 69 to 70 dBA during the weekend and 70 to 71 during the weekdays. Based on field observations, the primary noise sources in the vicinity of LT-2 consisted of vehicular traffic along La Coste Street and I-80.

**TABLE 3**  
**LT-2: 24 HOUR LONG-TERM NOISE MEASUREMENTS (dBA)**

Date	$L_{dn}$ (dBA)	24hr $L_{eq}$ (dBA)	Daytime $L_{eq}$ (dBA)	Nighttime $L_{eq}$ (dBA)
Saturday, September 16, 2017	77	71	71	70
Sunday, September 17, 2017	76	70	71	69
Monday, September 18, 2017	78	72	73	70
Tuesday, September 19, 2017	78	72	72	71

Source: ESA, 2017

One 20-minute ST noise measurement was conducted near the Courtyard by Marriott Oakland Emeryville hotel. As shown in Figure 2, both LT-2 and ST-2a were located within with line-of-sight of I-80 and exposed to substantially high vehicular traffic noise. Since LT-2 and ST-2a were both exposed to the same noise source, LT-2 was used to estimate the  $L_{dn}$  noise level at ST-2a.

**Table 4** provides a summary of the measured  $L_{eq}$ ,  $L_{max}$  and  $L_x$ , as well as the estimated  $L_{dn}$  noise levels at ST-2a. As shown in Table 4, the estimated  $L_{dn}$  noise level at ST-2a was found to be lower than that measured  $L_{dn}$  at LT-2, which is the result of lower noise exposure levels from vehicular traffic along I-80 due to lower traffic speeds and increased source to receptor distances.

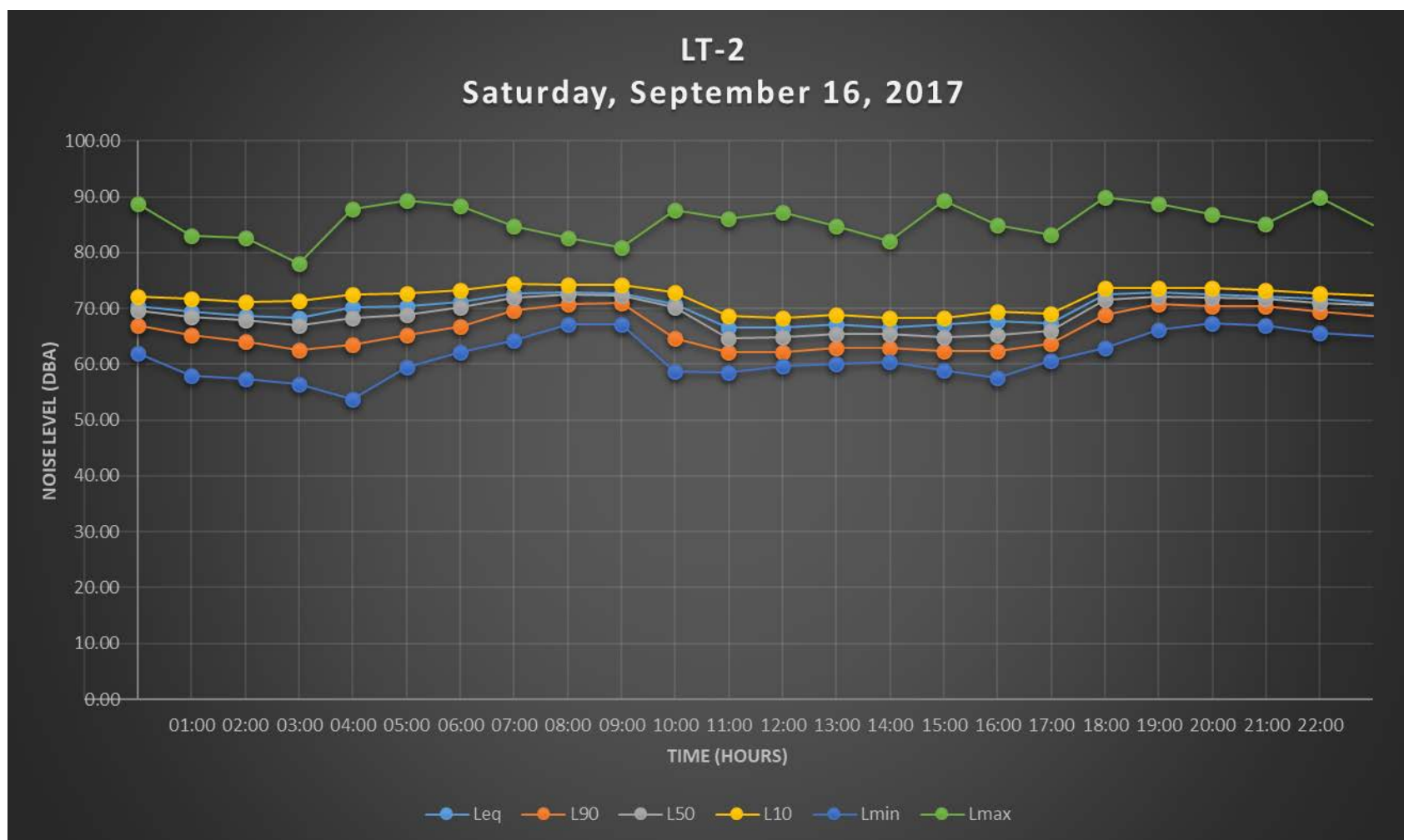
Noise measurement site ST-2a was located on the north western corn of the Courtyard by Marriott Oakland Emeryville hotel building, approximately 230 feet from the centerline of I-80. The 20-minute ambient noise levels at ST-2a were found to be 61 dBA  $L_{eq}$  during the weekend and 60 dBA  $L_{eq}$  during the weekday. Based on field observations, the area surrounding the ST-2a is dominated by vehicular traffic along I-80.

**TABLE 4**  
**20-MINUTE SHORT-TERM NOISE MEASUREMENTS (dBA)**  
**CORRELATED WITH LT-2**

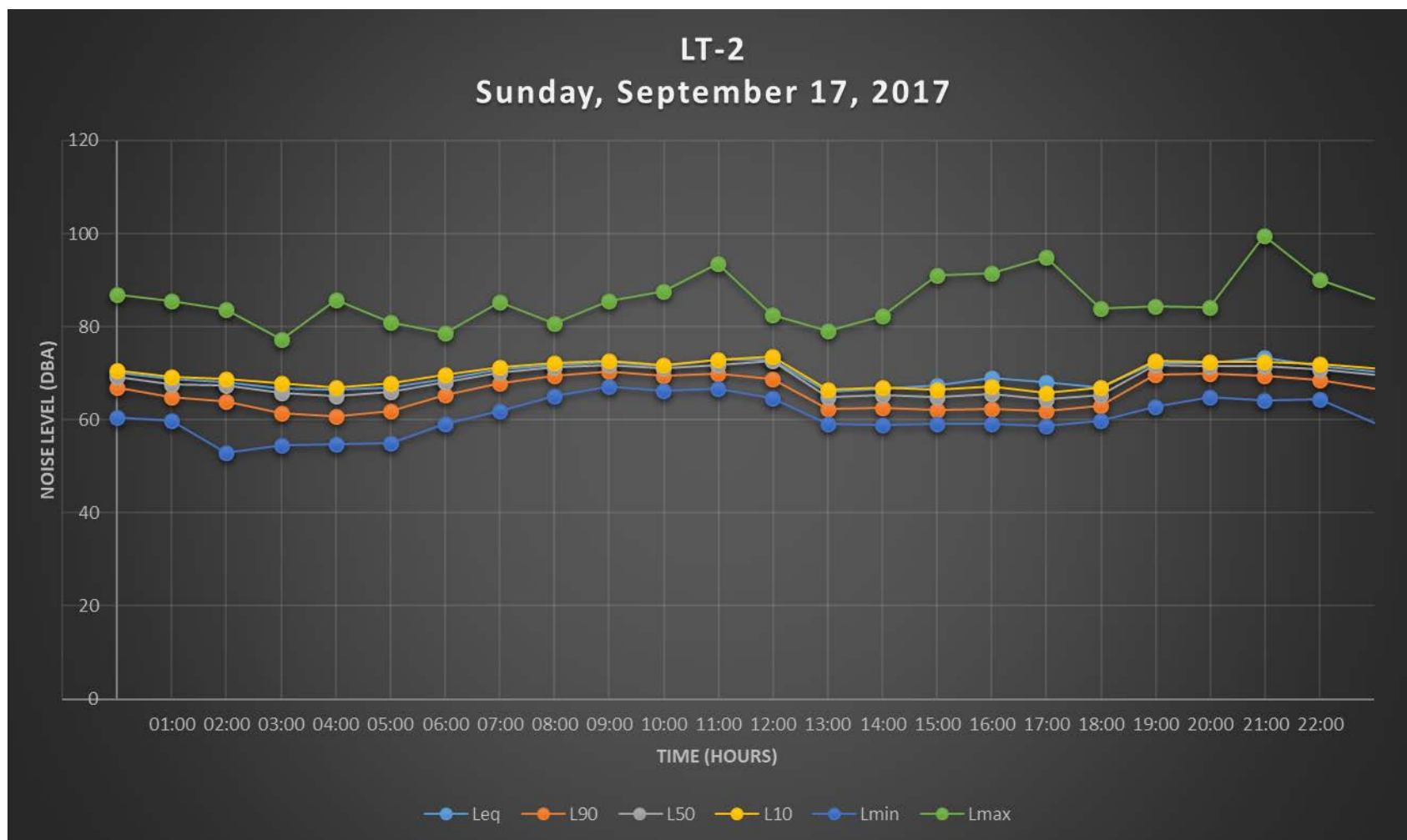
Site ID	Start Time	Est. L <sub>dn</sub>	L <sub>eq</sub>	L <sub>max</sub>	L <sub>10</sub>	L <sub>50</sub>	L <sub>90</sub>	L <sub>min</sub>
ST-2a	Saturday, September 16, 2017, 12:29	71	61	76	62	60	58	57
ST-2a	Tuesday, September 19, 2017, 11:11	71	60	73	62	59	57	55

Source: ESA, 2017

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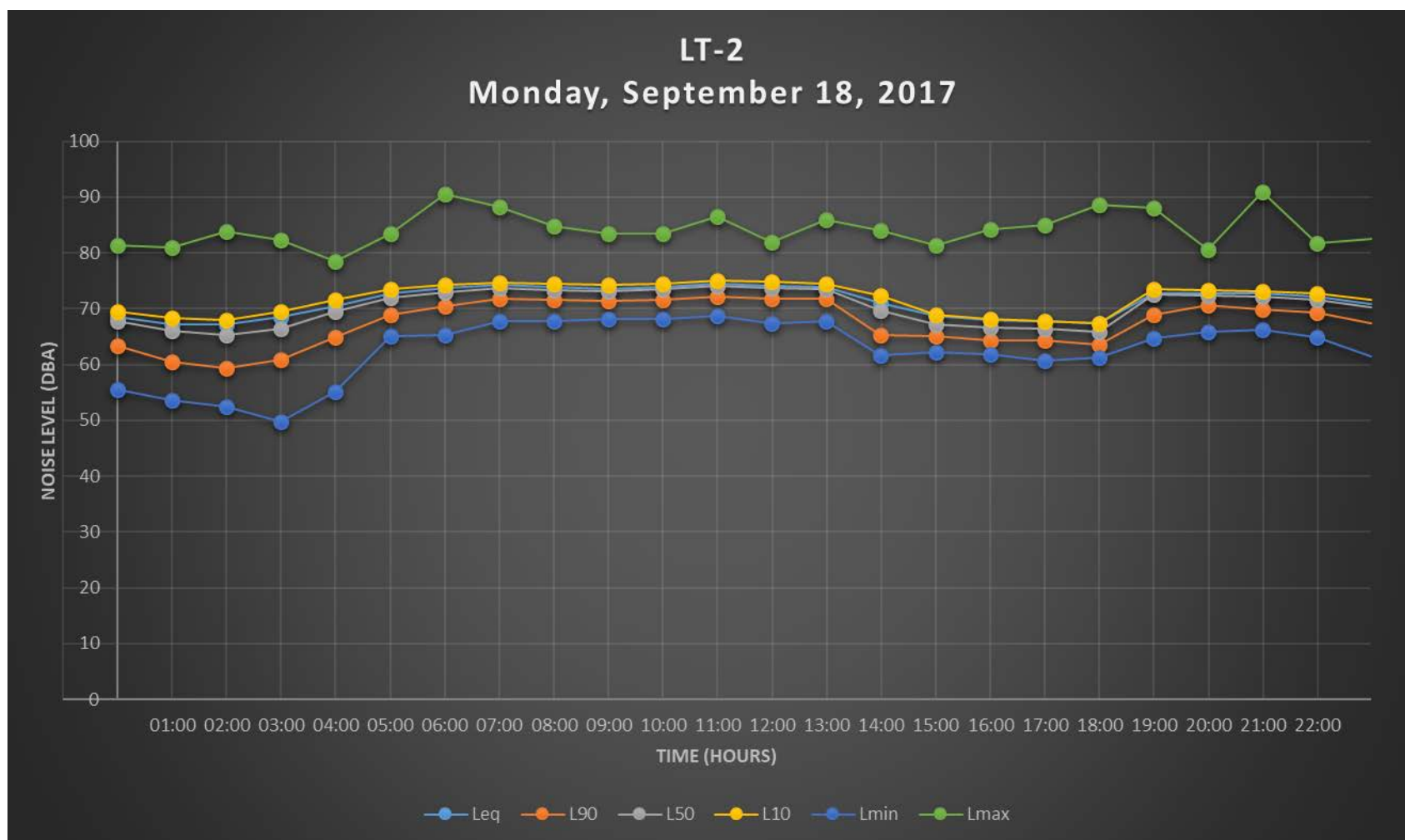


**Figure 8: LT-2 Saturday, September 16, 2017**

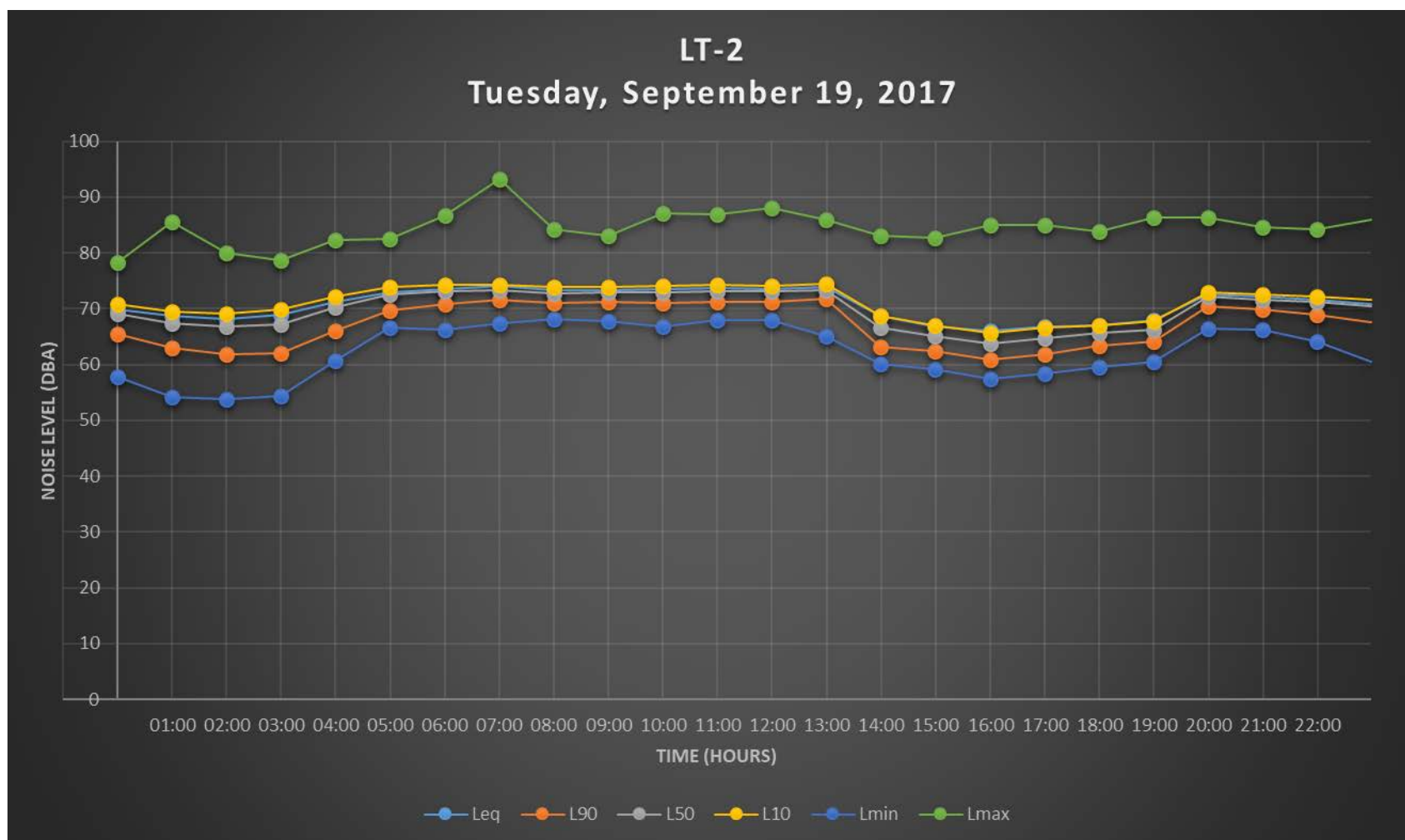


**Figure 9: LT-2 Sunday, September 17, 2017**





**Figure 10: LT-2 Monday, September 18, 2017**



**Figure 11: LT-2 Tuesday, September 19, 2017**

## LT – 3: Artistry Emeryville Apartments

A single SLM, designated as LT-3, was placed immediately adjacent to the Union Pacific rail line, Shellmond Street and the Artistry Emeryville Apartments (see Figure 2). According to the City's Zoning Map, ST-3 was located within an area zoned as planned unit development and immediately adjacent to a high density residential zone to the west. The SLM was programed to record continuous noise data from September 15, 2017 to September 20, 2017. **Table 5** provides the measured  $L_{dn}$ , 24-hour  $L_{eq}$  and daytime and nighttime  $L_{eq}$ 's at LT-3. **Figure 12** through **Figure 15** provides graphs of the measured hourly sound levels at the LT-3 from Saturday, September 16, 2017 to Tuesday, September 19, 2017.

As shown in Table 5,  $L_{dn}$  noise levels ranged from 77 dBA to 78 dBA during the weekends and 78 dBA during the weekdays. The daytime averaged  $L_{eq}$ 's range from 72 dBA to 73 dBA during the weekend and 73 dBA during the weekdays. The nighttime average  $L_{eq}$ 's ranged from 70 to 72 dBA during the weekend and 71 to 72 during the weekdays. Based on field observations, the primary noise sources in the vicinity of LT-3 consisted of vehicular traffic along Shellmond Street and rail traffic along the Union Pacific rail line.

**TABLE 5**  
**LT-3: 24 HOUR LONG-TERM NOISE MEASUREMENTS (dBA)**

Date	$L_{dn}$ (dBA)	24hr $L_{eq}$ (dBA)	Daytime $L_{eq}$ (dBA)	Nighttime $L_{eq}$ (dBA)
Saturday, September 16, 2017	77	72	73	70
Sunday, September 17, 2017	78	72	72	72
Monday, September 18, 2017	78	72	73	72
Tuesday, September 19, 2017	78	73	73	71

Source: ESA, 2017

One 20-minute ST noise measurement was conducted near The Courtyards at 65<sup>th</sup> Street Apartments, which is zoned as high density residential under the City's Zoning Map. As shown in Figure 2, both LT-3 and ST-3a were located within line-of-sight of the Union Pacific rail line and exposed to noise associated with train pass-by events (e.g., wheel screeching, horn blasts). In addition to train pass-by events, ST-3a was located near where the Union Pacific rail line crosses 65<sup>th</sup> Street and were exposed to frequent bells and horn blasts. **Table 6** provides a summary of the measured  $L_{eq}$ ,  $L_{max}$  and  $L_x$ , as well as the estimated  $L_{dn}$  noise levels at ST-3a. As shown in Table 6, the estimated  $L_{dn}$  noise level at ST-3a was found to be lower than the measured  $L_{dn}$  at LT-3, which is the result of lower noise exposure levels from train traffic along the Union Pacific rail line as well as due to further source to receptor distances.

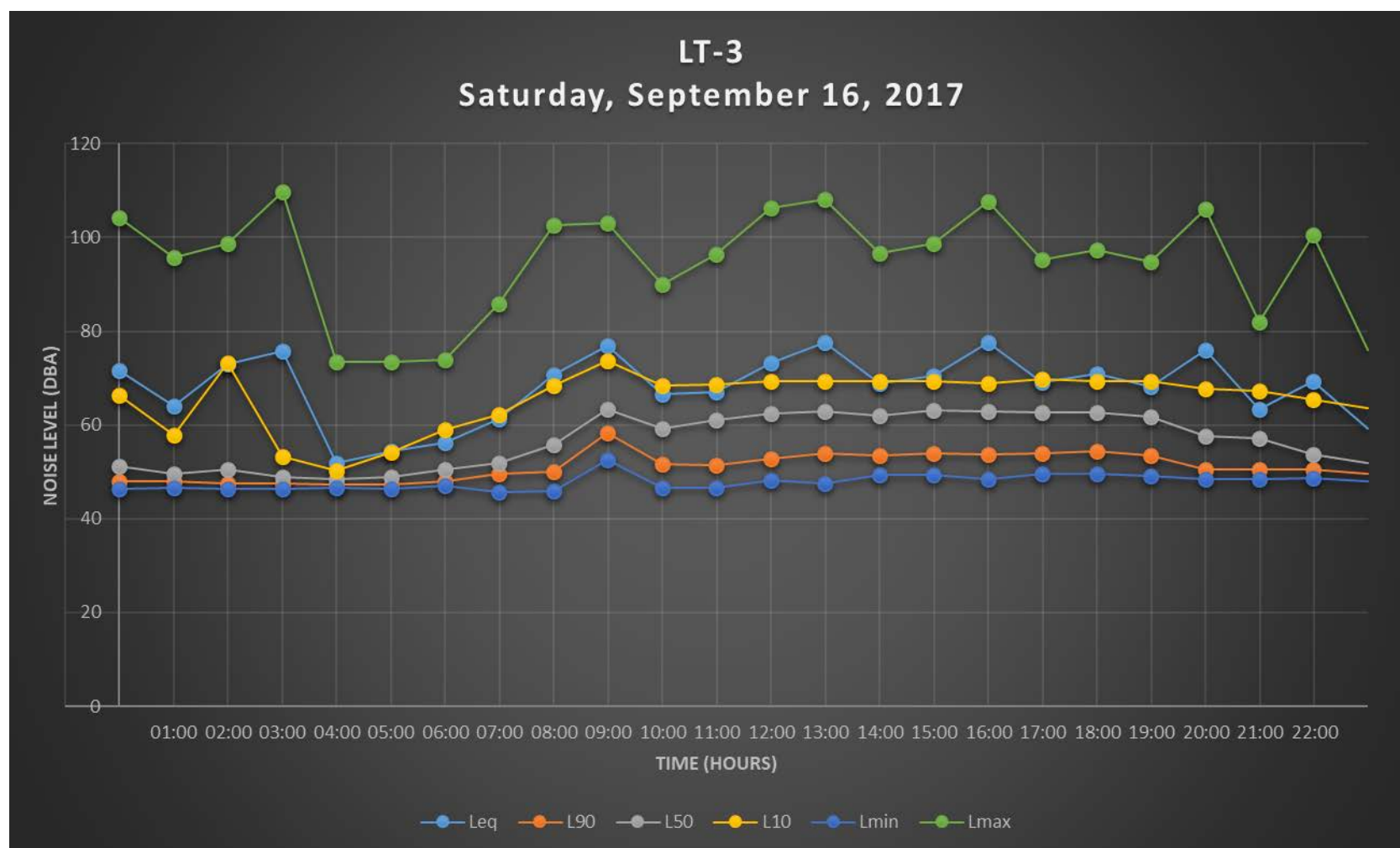
Noise measurement site ST-3a was located near the intersection of Overland Avenue and 65<sup>th</sup> Street, in front of The Courtyards at 65<sup>th</sup> Street Apartments build, approximately 180 feet from the centerline of the Union Pacific rail line. 20-minute measured ambient noise levels at ST-3a

were found to be 69 dBA  $L_{eq}$  during the weekend and 80 dBA  $L_{eq}$  during the weekday. The weekday ST noise measurement included a single heavy freight crossing event, which was measured to be as high as 105 dBA  $L_{max}$ , which resulted in higher measured  $L_{eq}$  noise levels as compared to noise measured during the weekend. The weekend ST noise measurement included a single Amtrak crossing event, which was measured to be as high as 96 dBA  $L_{max}$ . Based on field observations, the area surrounding the ST-3a is dominated by vehicular and rail traffic along I-80 and Union Pacific rail line, respectively.

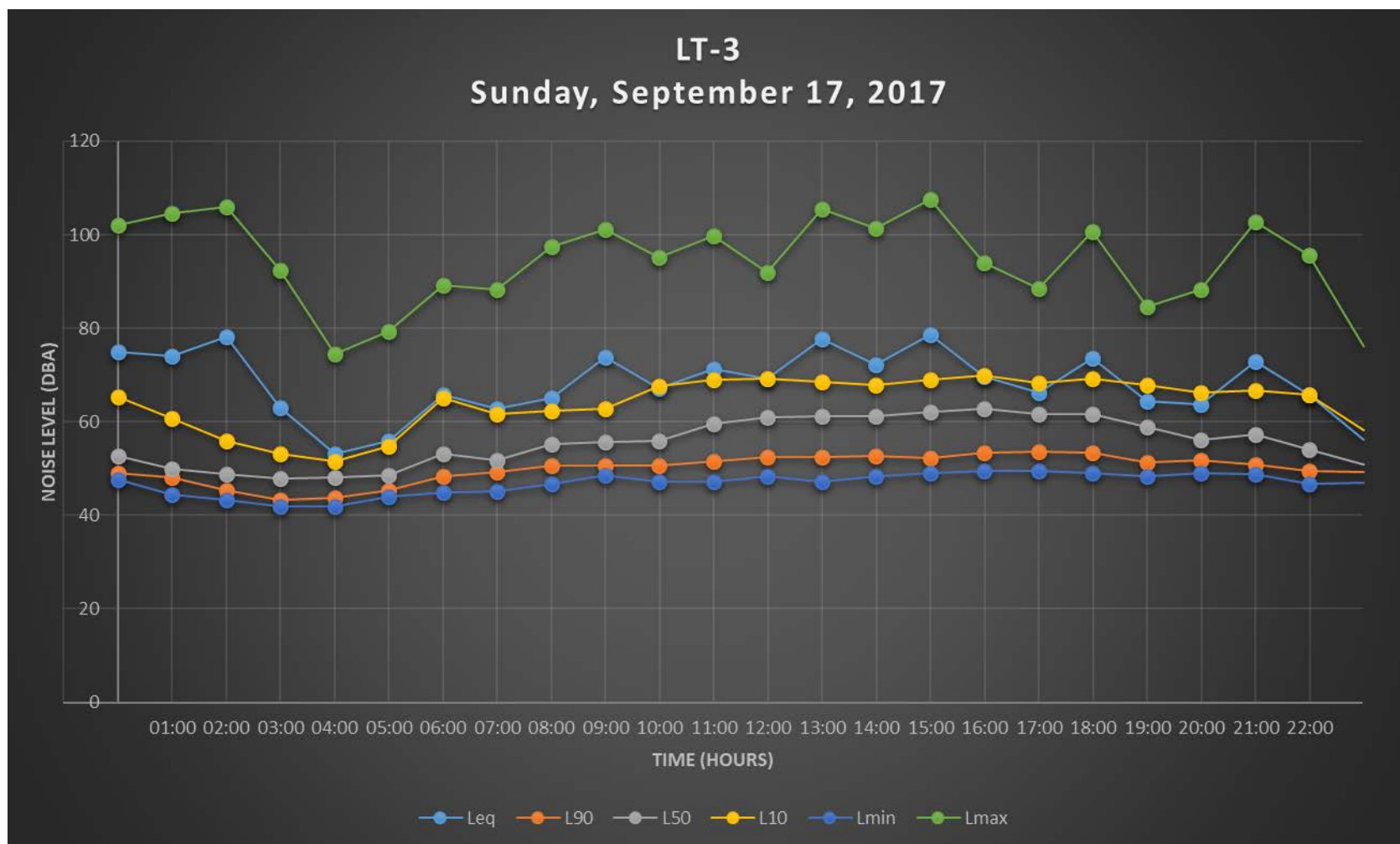
**TABLE 6**  
**20-MINUTE SHORT-TERM NOISE MEASUREMENTS**  
**CORRELATED WITH LT-3 (dBA)**

Site ID	Start Time	Est. $L_{dn}$	$L_{eq}$	$L_{max}$	$L_{10}$	$L_{50}$	$L_{90}$	$L_{min}$
ST-3a	Saturday, September 16, 2017, 12:29	77	69	96	67	58	53	51
ST-3a	Tuesday, September 19, 2017, 11:11	74	80	105	69	58	54	50

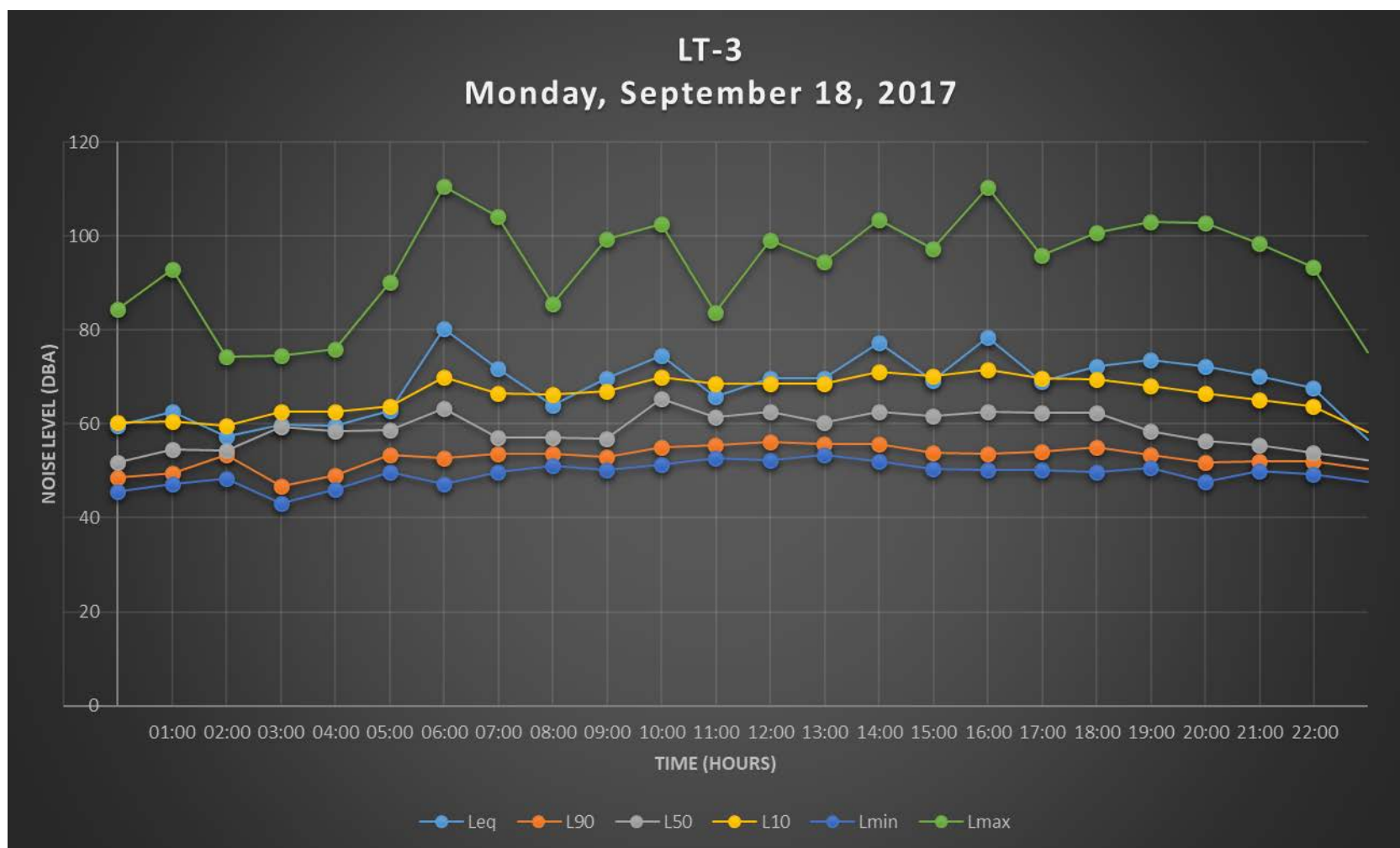
Source: ESA, 2017



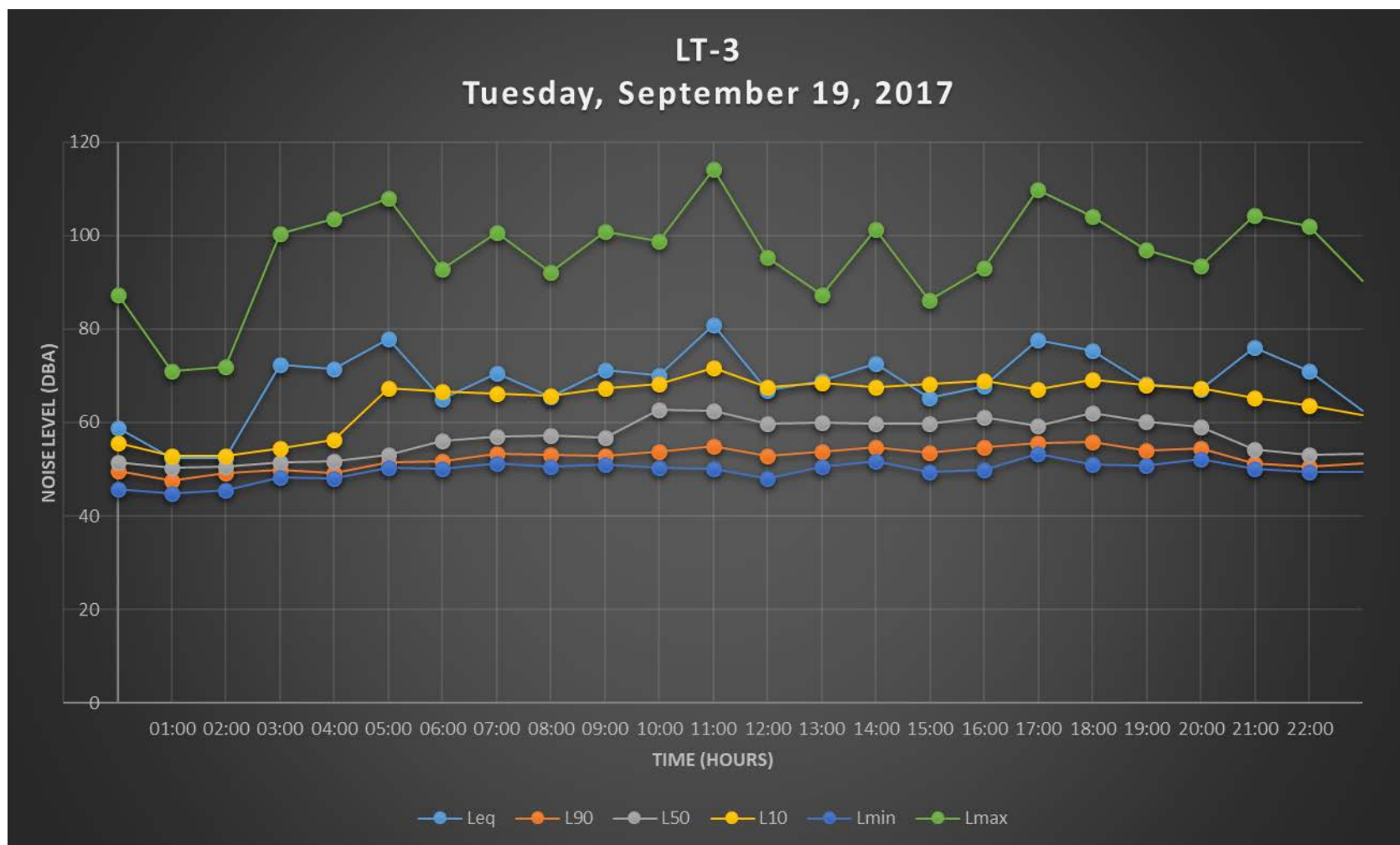
**Figure 12: LT-3 Saturday, September 16, 2017**



**Figure 13: LT-3 Sunday, September 17, 2017**



**Figure 14: LT-3 Monday, September 18, 2017**



**Figure 15: LT-3 Tuesday, September 19, 2017**



## LT – 4: Bay Street Emeryville

A single SLM, designated as LT-4, was placed immediately adjacent to the intersection of Shellmound Street/Ohlone Way in the Bay Street Emeryville shopping area (see Figure 2). According to the City's Zoning Map, LT-4 was located within an area zoned as planned unit development and adjacent to a mixed use residential zone to the west. Based on field observations, there are residential dwelling units located above the shops along Bay Street. The SLM was programed to record continuous noise data from September 15, 2017 to September 20, 2017. **Table 7** provides the measured  $L_{dn}$ , 24-hour  $L_{eq}$  and daytime and nighttime  $L_{eq}$ 's at LT-4. **Figure 16** through **Figure 19** provides graphs of the measured hourly sound levels at the LT-4. From Saturday, September 16, 2017 to Tuesday, September 19, 2017.

As shown in Table 7,  $L_{dn}$  noise levels ranged from 71 dBA to 72 dBA during both the weekends and ranged from 71 to 72 dBA during the weekdays. The daytime averaged  $L_{eq}$ 's were measured to be 68 dBA  $L_{eq}$  during the weekends and ranged from 68 dBA to 69 dBA  $L_{eq}$  during the weekdays. The nighttime averaged  $L_{eq}$ 's ranged from 63 dBA  $L_{eq}$  to 64 dBA  $L_{eq}$  during the weekends and 63 dBA  $L_{eq}$  during the weekdays. Based on field observations, the primary noise sources in the vicinity of LT-4 consisted of vehicular traffic along I-80, Shellmond Street and human activity such as people talking, shouting or laughing.

**TABLE 7**  
**LT-4: 24 HOUR LONG-TERM NOISE MEASUREMENTS (dBA)**

Date	$L_{dn}$	24hr $L_{eq}$	Daytime $L_{eq}$	Nighttime $L_{eq}$
Saturday, September 16, 2017	71	67	68	63
Sunday, September 17, 2017	72	67	68	64
Monday, September 18, 2017	72	68	69	63
Tuesday, September 19, 2017	71	67	68	63
Source: ESA, 2017				

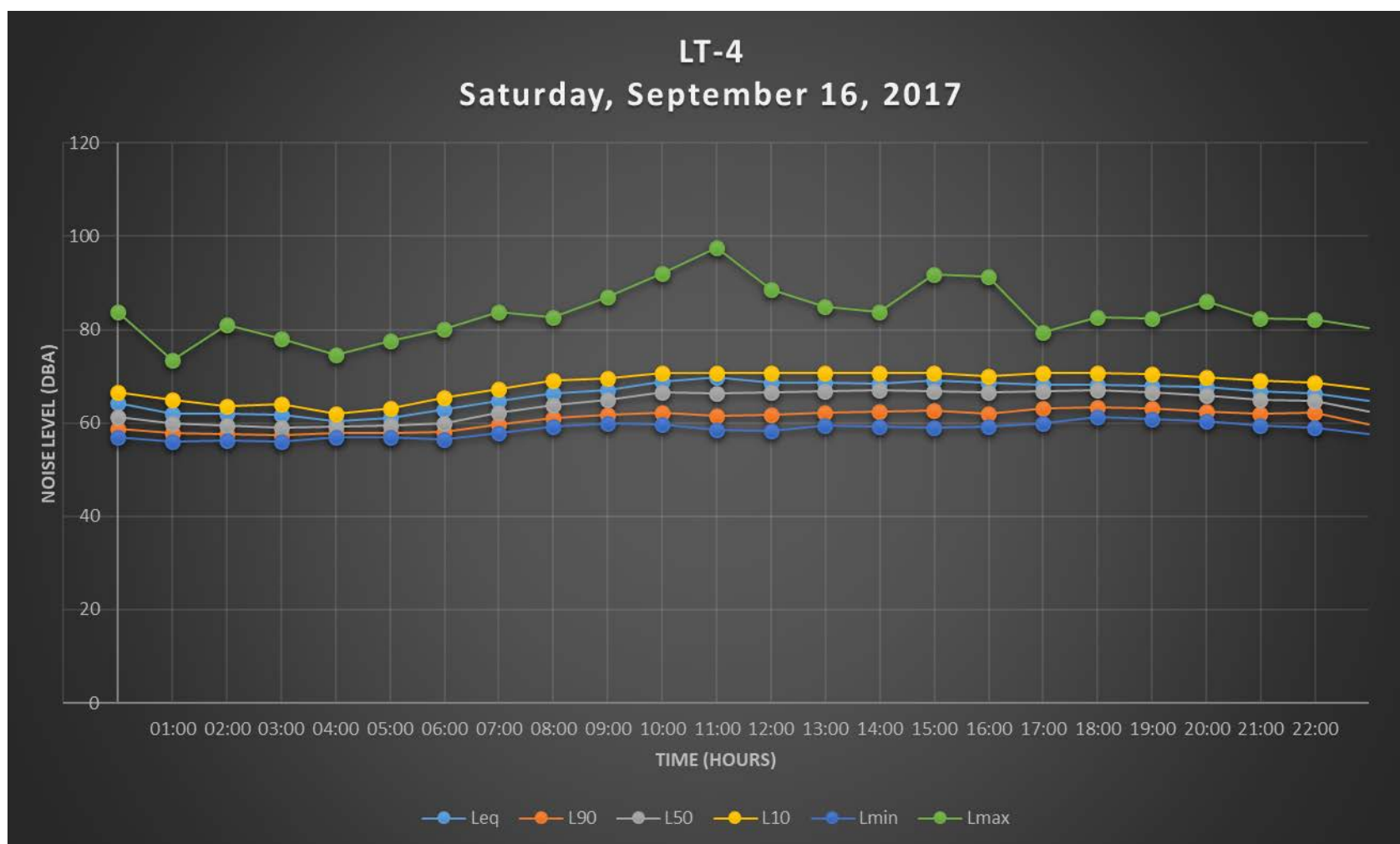
One 20-minute ST noise measurement was conducted at the eastern most end of Ohlone Way, east of Bay Street (see Figure 2). The area surrounding ST-4a is zone as planned unit development under the City's Municipal Code. As shown in Figure 2, ST-4a is located near the Union Pacific rail line and exposed to noise associated with train pass-by events (e.g., wheel screeching, horn blasts) and vehicles entering a parking garage. Based on field observations, train speeds and frequency of horn blasts along the Union Pacific rail line adjacent to ST-4a were less than what was observed at ST-3a and LT-3. **Table 8** provides a summary of the measured  $L_{eq}$ ,  $L_{max}$  and  $L_x$ , as well as the estimated  $L_{dn}$  noise levels at ST-4a. As shown in Table 8, the estimated  $L_{dn}$  noise level at ST-4a was found to be lower than the measured  $L_{dn}$  at LT-4, which is result of lower traffic speeds along Ohlone Way as compared to Shellmound Street. Since ST-4a is not located near any at-grade rail crossings, train horns are not sounded in the vicinity of ST-4a.

Noise measurement site ST-4a was located approximately 190 feet from the centerline of the Union Pacific rail line. Measured ambient noise levels at ST-4a were found to be 62 dBA  $L_{eq}$  during the weekend and 65 dBA  $L_{eq}$  during the weekday. The weekend and weekday ST noise measurements both included a single train pass-by event. Due to low train speeds and no horn blasts, noise generated by the train pass-by events were not noticeable over the existing traffic noise in the area. Based on field observations, the area surrounding the ST-4a is dominated by vehicular and rail traffic along Ohlone Street.

**TABLE 8**  
**20-MINUTE SHORT-TERM NOISE MEASUREMENTS**  
**CORRELATED WITH LT-4 (dBA)**

Site ID	Start Time	Est. $L_{dn}$	$L_{eq}$	$L_{max}$	$L_{10}$	$L_{50}$	$L_{90}$	$L_{min}$
ST-4a	Saturday, September 16, 2017, 15:26	65	62	78	64	61	59	57
ST-4a	Tuesday, September 19, 2017, 14:25	67	65	85	64	59	57	56

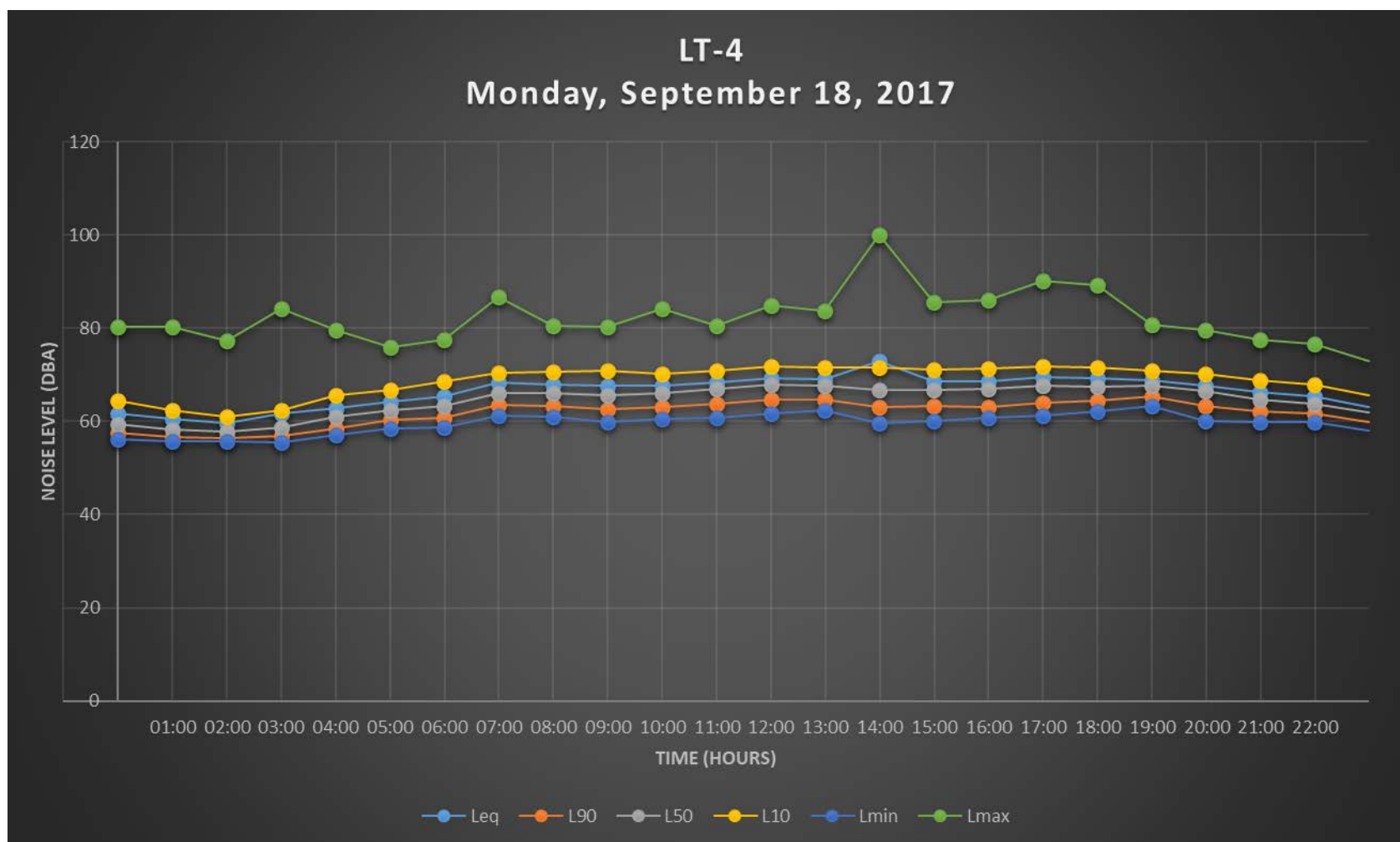
Source: ESA, 2017



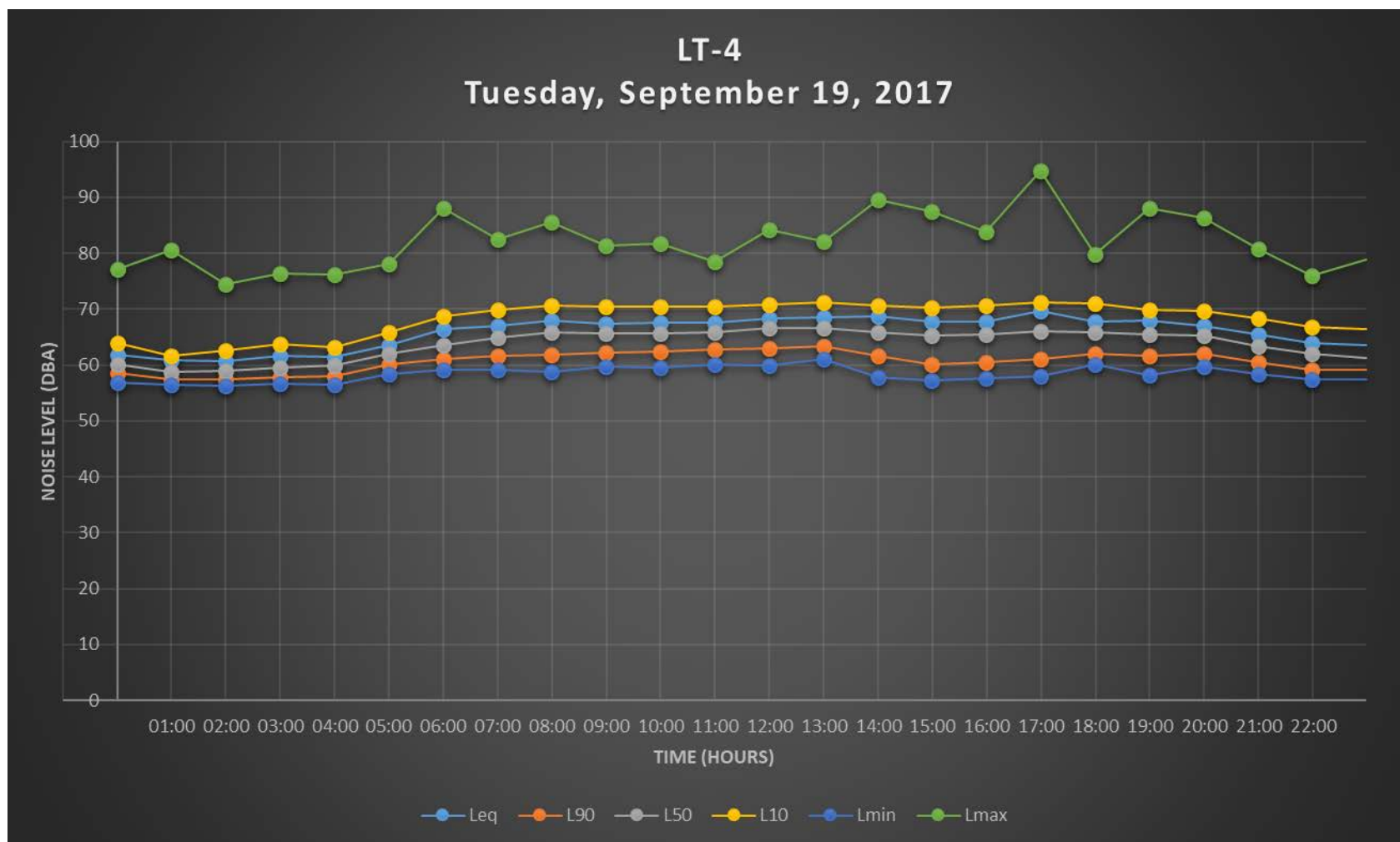
**Figure 16: LT-4 Saturday, September 16, 2017**



**Figure 17: LT-4 Sunday, September 17, 2017**



**Figure 18: LT-4 Monday, September 18, 2017**



**Figure 19: LT-4 Tuesday, September 19, 2017**

## LT – 5: North-East portion of the City of Emeryville

A single SLM, designated as LT-5, was placed immediately adjacent to the Powell-Hollis Greenway trail and 65<sup>th</sup> Street, the north-eastern portion of the City (see Figure 2). According to the City's Zoning Map, LT-5 was located within an area zoned as medium-high density residential and adjacent to a heavy and light and heavy industrial zones to the north-west. The SLM was programed to record continuous noise data from September 15, 2017 to September 20, 2017. **Table 9** provides the measured  $L_{dn}$ , 24-hour  $L_{eq}$  and daytime and nighttime  $L_{eq}$ 's at LT-5. **Figure 20** through **Figure 23** provides graphs of the measured hourly sound levels at the LT-5 from Saturday, September 16, 2017 to Tuesday, September 19, 2017.

As shown in Table 9,  $L_{dn}$  noise levels ranged from 62 dBA to 63 dBA during both the weekends and ranged from 63 to 64 dBA during the weekdays. The daytime averaged  $L_{eq}$ 's ranged from 59 dBA to 61 dBA during the weekend and 61 dBA to 63 dBA during the weekdays. The nighttime averaged  $L_{eq}$ 's ranged from 53 dBA to 54 dBA during the weekend and 53 dBA to 54 dBA during the weekdays. Based on field observations, the primary noise sources in the vicinity of LT-5 consisted of vehicular traffic along 65<sup>th</sup> Street and human activity such as people talking or laughing.

**TABLE 9**  
**LT-5: 24 HOUR LONG-TERM NOISE MEASUREMENTS (dBA)**

Date	$L_{dn}$	24hr $L_{eq}$	Daytime $L_{eq}$	Nighttime $L_{eq}$
Saturday, September 16, 2017	63	60	61	54
Sunday, September 17, 2017	62	58	59	53
Monday, September 18, 2017	64	61	63	53
Tuesday, September 19, 2017	63	60	61	54

Source: ESA, 2017

One 20-minute ST noise measurement was conducted near residential homes located south of the intersection of Vallejo Street and 65<sup>th</sup> Street (see Figure 2). The area surrounding ST-5a is zoned as medium-high density residential under the City's Municipal Code. As shown in Figure 2, ST-5a is located near the 65<sup>th</sup> Street and exposed to noise associated with vehicular traffic.

**Table 10** provides a summary of the measured  $L_{eq}$ ,  $L_{max}$  and  $L_x$ , as well as the estimated  $L_{dn}$  noise levels at ST-5a. As shown in Table 10, the estimated  $L_{dn}$  noise level at ST-5a was found to be lower than the measured  $L_{dn}$  at LT-5, which is result of high set-back distances from 65<sup>th</sup> Street.

Noise measurement site ST-5a was located approximately 140 feet from the centerline of 65<sup>th</sup> Street. Measured ambient noise levels at ST-5a were found to be 59 dBA  $L_{eq}$  during the weekend and 54 dBA  $L_{eq}$  during the weekday. Based on field observations, the area surrounding ST-5a is dominated by vehicular along 65<sup>th</sup> Street.

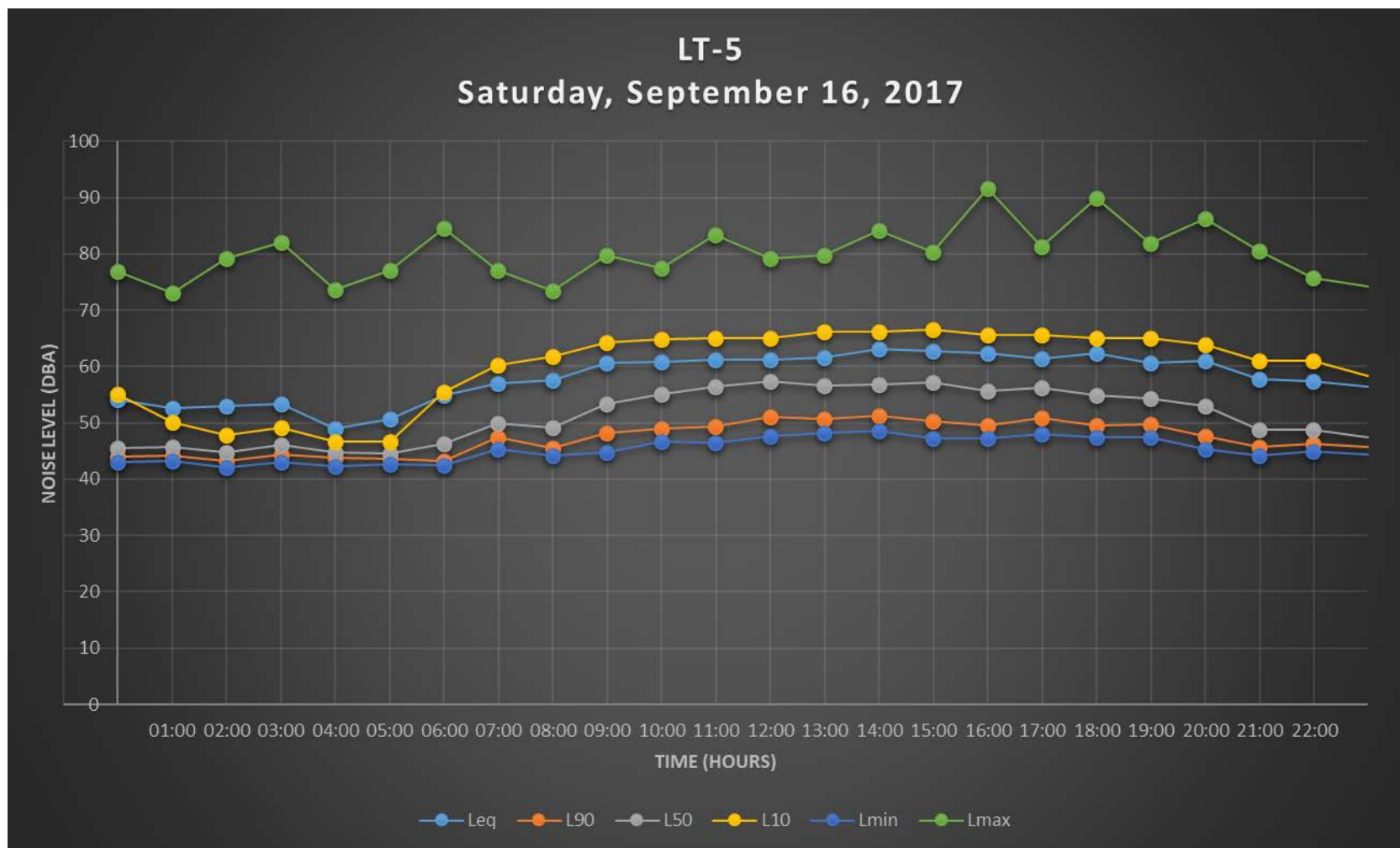
**TABLE 10**  
**20-MINUTE SHORT-TERM NOISE MEASUREMENTS**  
**CORRELATED WITH LT-5 (dBA)**

Site ID	Start Time	Est. $L_{dn}$	$L_{eq}$	$L_{max}$	$L_{10}$	$L_{50}$	$L_{90}$	$L_{min}$
ST-5a	Saturday, September 16, 2017, 11:57	61	59	84	58	52	50	48
ST-5a	Tuesday, September 19, 2017, 10:41	52	54	71	56	49	45	42

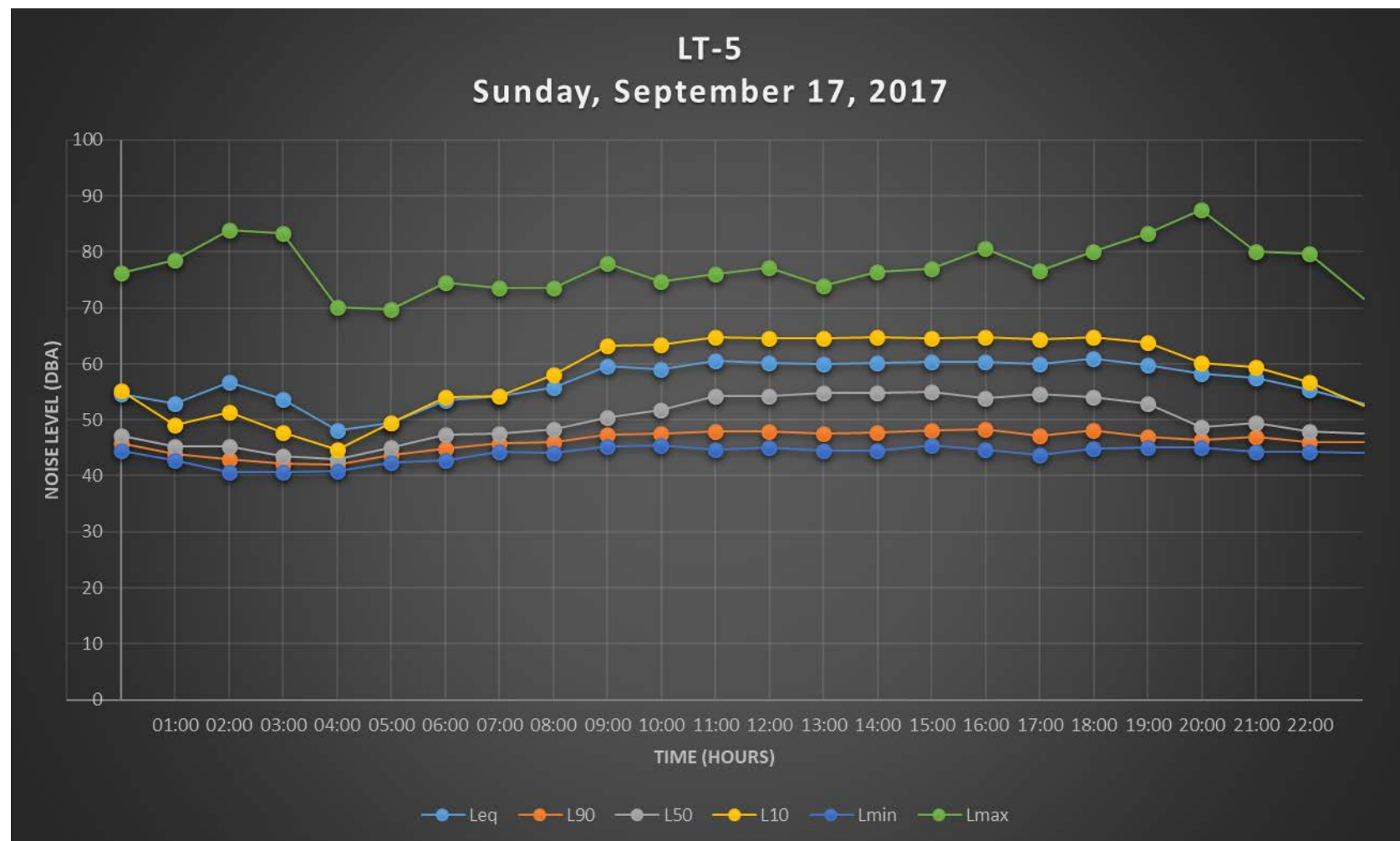
Source: ESA, 2017

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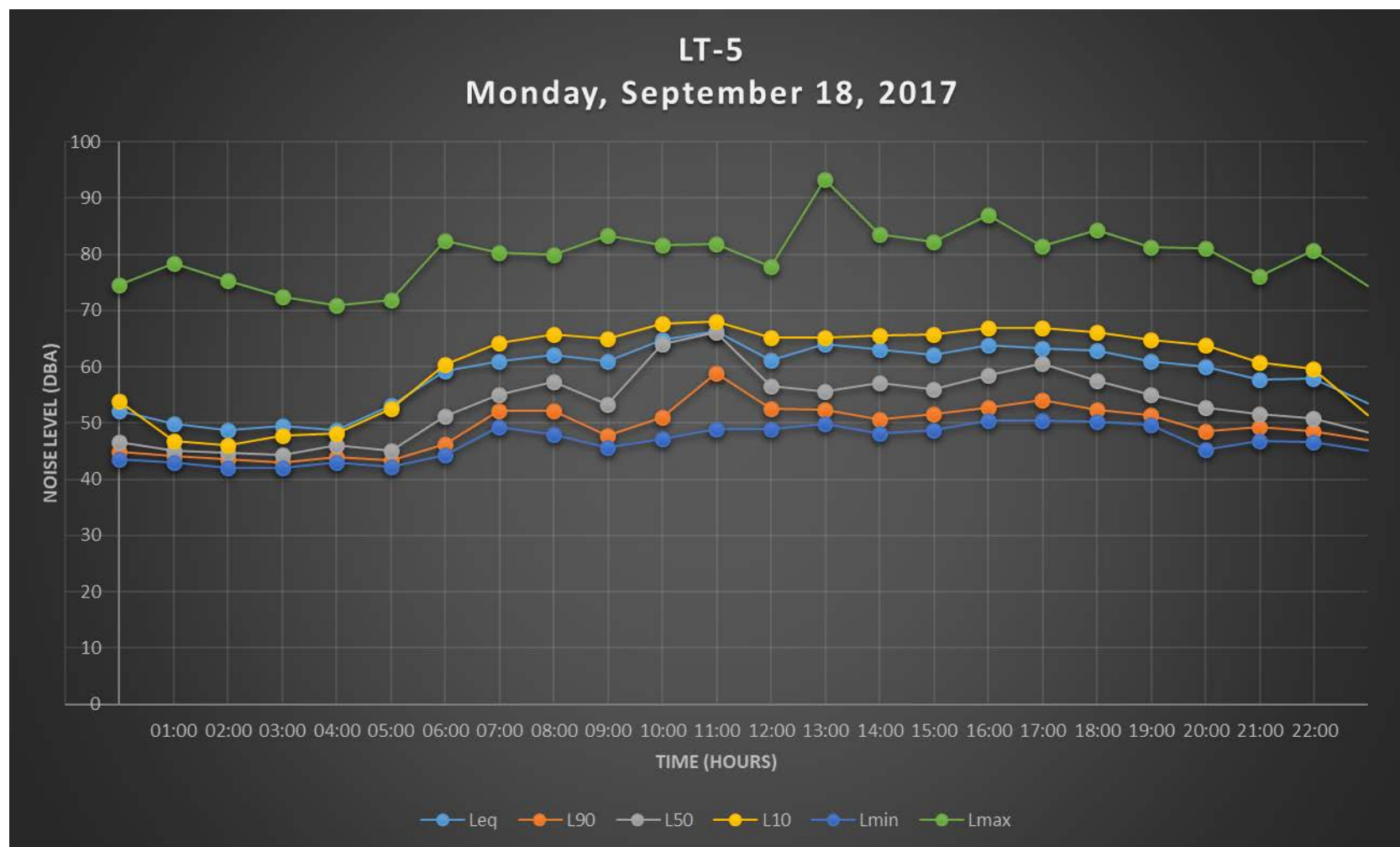




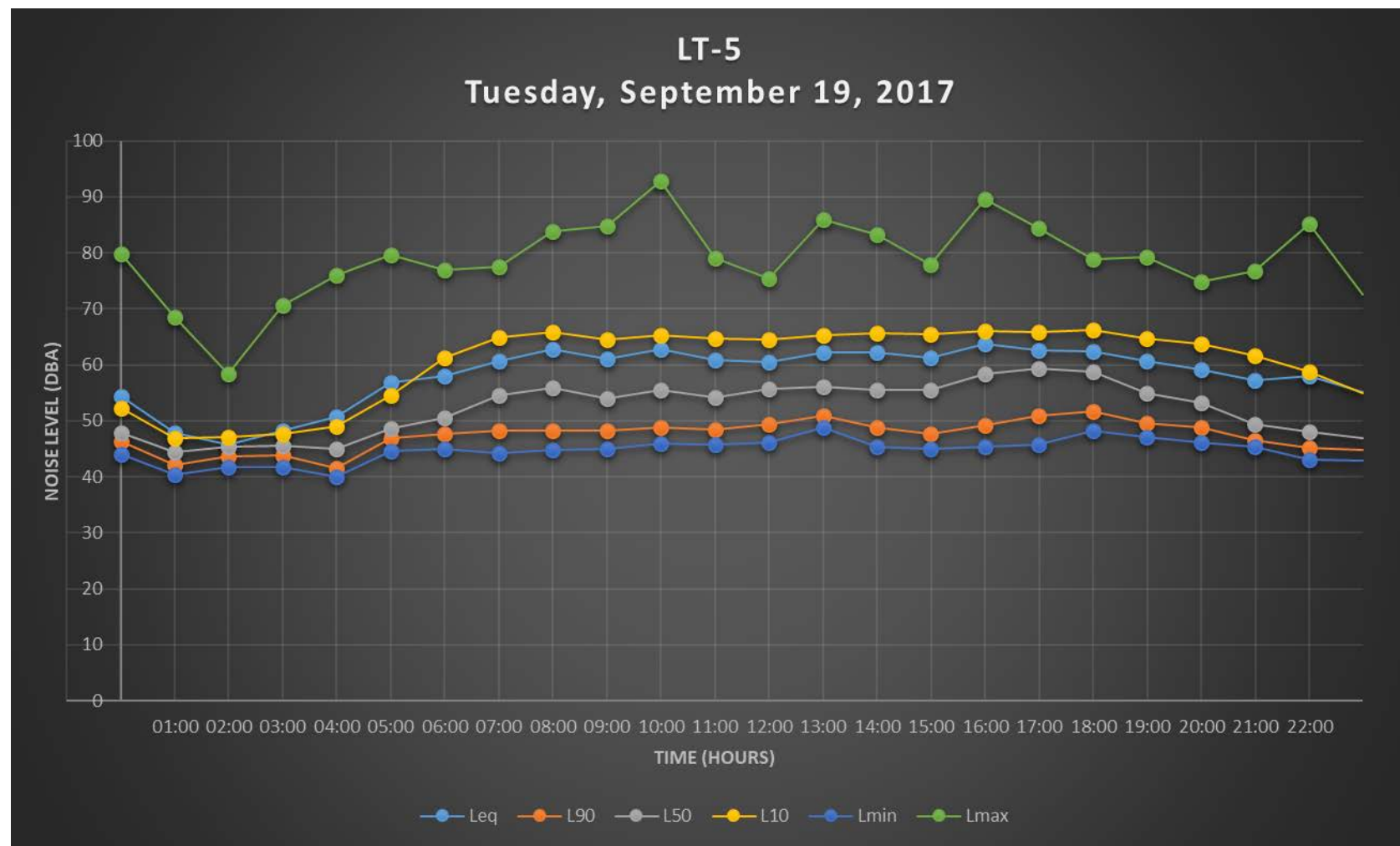
**Figure 20: LT-5 Saturday, September 16, 2017**



**Figure 21: LT-5 Sunday, September 17, 2017**



**Figure 22: LT-5 Monday, September 18, 2017**



**Figure 23: LT-5 Tuesday, September 19, 2017**

## LT – 6: Powell Street & Doyle Street

A single SLM, designated as LT-6, was placed immediately adjacent to the intersection of Powell Street, the north-eastern portion of the City (see Figure 2). According to the City's Zoning Map, LT-6 was located within an area zoned as mixed use with residential. The SLM was programmed to record continuous noise data from September 20, 2017 to September 25, 2017. **Table 11** provides the measured  $L_{dn}$ , 24-hour  $L_{eq}$  and daytime and nighttime  $L_{eq}$ 's at LT-6. **Figure 24** through **Figure 27** provides graphs of the measured hourly sound levels at the LT-6 from Thursday, September 21, 2017 to Sunday, September 24, 2017.

As shown in Table 11,  $L_{dn}$  noise levels ranged from 70 dBA to 72 dBA during both the weekends and 71 dBA during the weekdays. The daytime averaged  $L_{eq}$ 's ranged from 67 dBA to 70 dBA during the weekend and 68 dBA during the weekdays. The nighttime averaged  $L_{eq}$ 's ranged from 61 dBA to 63 dBA during the weekend and 62 dBA during the weekdays. Based on field observations, the primary noise sources in the vicinity of LT-6 consisted of vehicular traffic along Powell Street.

**TABLE 11**  
**LT-6: 24 HOUR LONG-TERM NOISE MEASUREMENTS (dBA)**

Date	$L_{dn}$	24hr $L_{eq}$	Daytime $L_{eq}$	Nighttime $L_{eq}$
Thursday, September 21, 2017	71	67	68	62
Friday, September 22, 2017	71	67	68	62
Saturday, September 23, 2017	72	69	70	63
Sunday, September 24, 2017	70	66	67	61

Source: ESA, 2017

Two 20-minute ST noise measurements were conducted near residential buildings at the intersections of Doyle Street/62<sup>nd</sup> Street and Hollis Street/Powell Street (see Figure 2). The area surrounding ST-6a is zoned as medium density residential under the City's Municipal Code. As shown in Figure 2, ST-6a is located near the 62<sup>nd</sup> Street and exposed to noise associated with vehicular traffic. The area surrounding ST-6b is zoned as office/Technology under the City's Municipal Code. As shown in Figure 2, ST-6b is located near the Powell Street and exposed to noise associated with vehicular traffic. **Table 12** provides a summary of the measured  $L_{eq}$ ,  $L_{max}$  and  $L_x$ , as well as the estimated  $L_{dn}$  noise levels at ST-6a and ST-6b. As shown in Table 12, the estimated  $L_{dn}$  noise level at ST-6a was found to be lower than the measured  $L_{dn}$  at LT-6, which is result of lower traffic volumes along 62<sup>th</sup> Street. The estimated  $L_{dn}$  noise level at ST-6b was found to be very similar to those the measured  $L_{dn}$  at LT-6.

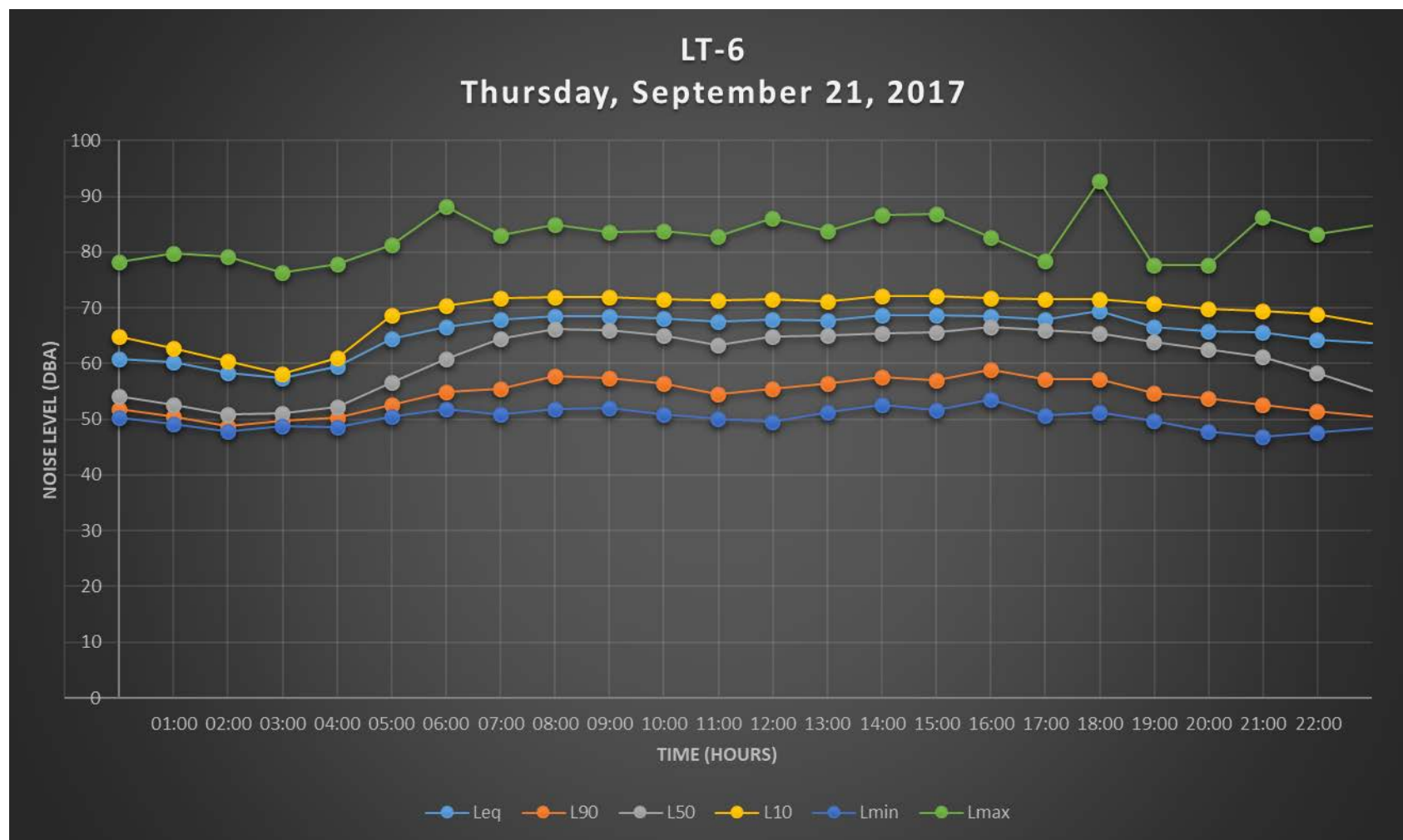
Noise measurement site ST-6a was located approximately 35 feet from the centerline of 65<sup>th</sup> Street. Measured daytime noise levels at ST-6a were found to be 55 dBA  $L_{eq}$  during the weekend and 58 dBA  $L_{eq}$  during the weekday. Based on field observations, the area surrounding ST-6a is dominated by vehicular along 62<sup>nd</sup> Street.

Noise measurement site ST-6b was located approximately 50 feet from the centerline of 65<sup>th</sup> Street. Measured daytime noise levels at ST-6b were found to be 67 dBA  $L_{eq}$  during the weekend and 71 dBA  $L_{eq}$  during the weekday. Based on field observations, the area surrounding ST-6a is dominated by vehicular along 65<sup>th</sup> Street.

**TABLE 12**  
**20-MINUTE SHORT-TERM NOISE MEASUREMENTS**  
**CORRELATED WITH LT-6 (dBA)**

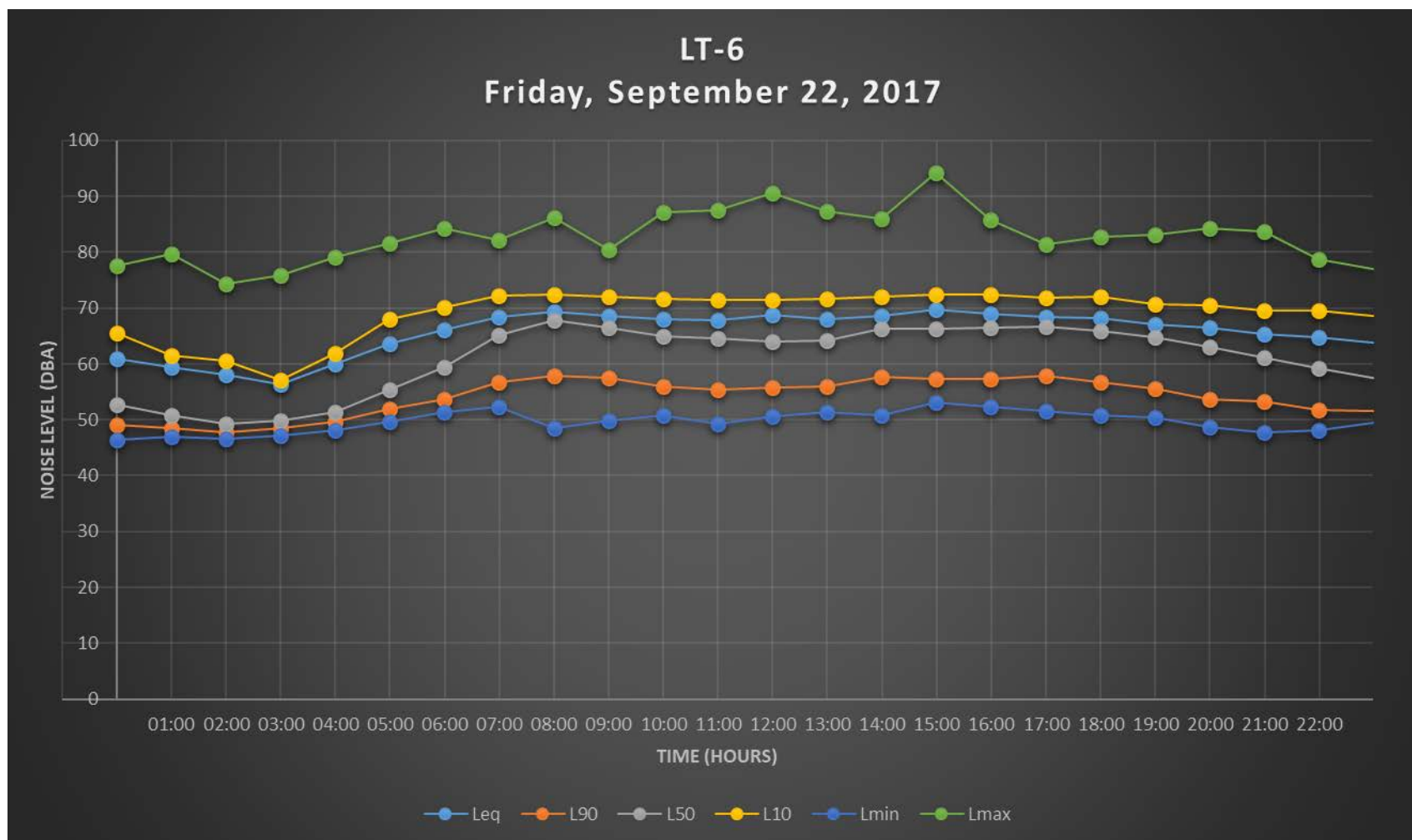
Site ID	Start Time	Est. $L_{dn}$	$L_{eq}$	$L_{max}$	$L_{10}$	$L_{50}$	$L_{90}$	$L_{min}$
ST-6a	Thursday, September 21, 2017, 13:20	61	58	81	59	55	53	51
ST-6a	Saturday, September 23, 2017, 16:27	60	55	69	58	53	51	49
ST-6b	Thursday, September 21, 2017, 12:50	74	71	95	72	66	62	59
ST-6b	Saturday, September 23, 2017, 15:58	71	67	84	69	65	63	60

Source: ESA, 2017



**Figure 24: LT-6 Thursday, September 21, 2017**





**Figure 25: LT-6 Friday, September 22, 2017**





**Figure 26: LT-6 Saturday, September 23, 2017**



**Figure 27: LT-6 Sunday, September 24, 2017**

## LT – 7: 53<sup>rd</sup> Street and Boyer Street

A single SLM, designated as LT-7, was placed immediately adjacent to the intersection of Boyer Street/53<sup>rd</sup> Street (see Figure 2). According to the City’s Zoning Map, LT-7 was located within an area zoned as medium density residential. The SLM was programed to record continuous noise data from September 27, 2017 to September 29, 2017. **Table 13** provides the measured  $L_{dn}$ , 24-hour  $L_{eq}$  and daytime and nighttime  $L_{eq}$ ’s at LT-7. **Figure 28** provides graphs of the measured hourly sound levels at the LT-7 on Thursday, September 28, 2017.

As shown in Table 13, the  $L_{dn}$  at LT-7 was measured to be 63 dBA during the weekday. Due to site access restrictions, an unattended SLM was not deployed at LT-7 during the weekend. The averaged  $L_{eq}$ ’s were measured to be 58 dBA during the daytime and 56 dBA during the nighttime. Based on field observations, the primary noise sources in the vicinity of LT-7 consisted of vehicular traffic along 53<sup>rd</sup> Street.

**TABLE 13**  
**LT-7: 24 HOUR LONG-TERM NOISE MEASUREMENTS (dBA)**

Date	$L_{dn}$	24hr $L_{eq}$	Daytime $L_{eq}$	Nighttime $L_{eq}$
Thursday, September 28, 2017	63	58	58	56
Source: ESA, 2017				

Three 20-minute ST noise measurements were conducted in the vicinity of LT-7 (see Figure 2). **Table 14** provides a summary of the measured  $L_{eq}$ ,  $L_{max}$  and  $L_x$ , as well as the estimated  $L_{dn}$  noise levels at ST-7a, ST-7b and ST-7c. The area surrounding ST-7a is zoned as planned unit development under the City’s Municipal Code. As shown in Figure 2, ST-7a is located near the intersection of Hollis Street/53<sup>rd</sup> Street and expose to noise associated with vehicular traffic. As shown in Table 14, the estimated  $L_{dn}$  noise level at ST-7a was found to be higher to those the measured  $L_{dn}$  at LT-7, which is the result of higher traffic volumes and speeds along Hollis Street.

The area surrounding ST-7b is zoned as public under the City’s Zoning Map. As shown in Figure 2, ST-7b is located near the intersection of San Pablo Avenue/53<sup>rd</sup> street and expose to noise associated with vehicular traffic. As shown in Table 14, the estimated  $L_{dn}$  noise level at ST-7b was found to be higher than the measured  $L_{dn}$  at LT-7, which is the result of higher traffic volumes and speeds along San Pablo Avenue.

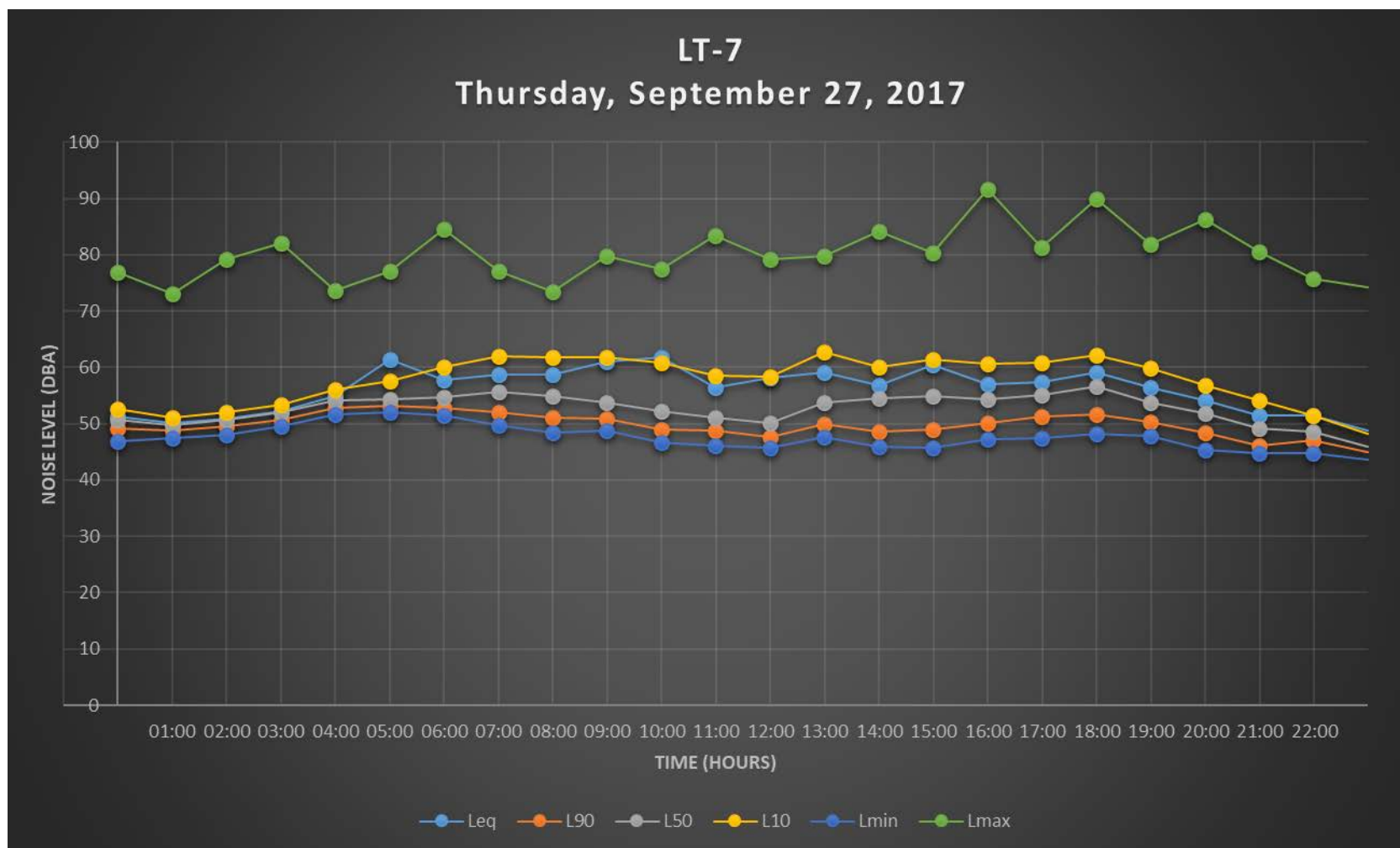
The area surrounding ST-7c is zoned as medium density residential. As shown in Figure 2, ST-7c is located with the Emeryville Bay community and expose to noise sources associated to community noise and distant vehicle traffic. As shown in Table 14, the estimated  $L_{dn}$  noise level at ST-7c was found to be lower than the measured  $L_{dn}$  at LT-7, which is the result of the large setback from 53<sup>rd</sup> street.

**TABLE 14**  
**20-MINUTE SHORT-TERM NOISE MEASUREMENTS**  
**CORRELATED WITH LT-7 (dBA)**

Site ID	Start Time	Est. L <sub>dn</sub>	L <sub>eq</sub>	L <sub>max</sub>	L <sub>10</sub>	L <sub>50</sub>	L <sub>90</sub>	L <sub>min</sub>
ST-7a	Thursday, September 28, 2017, 09:19	66	67	83	69	65	58	54
ST-7b	Thursday, September 28, 2017, 08:26	70	66	78	70	64	58	53
ST-7c	Thursday, September 28, 2017, 08:52	55	50	65	50	46	46	45

Source: ESA, 2017

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**Figure 28: LT-7 Thursday, September 27, 2017**

## LT – 8: 45<sup>th</sup> Street and Adeline Street

A single SLM, designated as LT-8, was placed immediately adjacent to the intersection of Adeline Street/45<sup>th</sup> Street (see Figure 2). According to the City's Zoning Map, LT-8 was located within an area zoned as medium density residential. The SLM was programmed to record continuous noise data from September 20, 2017 to September 25, 2017. **Table 15** provides the measured  $L_{dn}$ , 24-hour  $L_{eq}$  and daytime and nighttime  $L_{eq}$ 's at LT-8. **Figure 29** through **Figure 32** provides graphs of the measured hourly sound levels at the LT-6 from Thursday, September 21, 2017 to Sunday, September 24, 2017.

As shown in Table 15,  $L_{dn}$  noise levels ranged from 63 dBA to 64 dBA during both the weekends and 65 dBA to 69 dBA during the weekdays. The daytime averaged  $L_{eq}$ 's ranged from 61 dBA to 62 dBA during the weekend and 64 dBA to 66 dBA during the weekdays. The nighttime averaged  $L_{eq}$ 's ranged from 54 dBA to 55 dBA during the weekend and 55 dBA to 56 dBA during the weekdays. Based on field observations, the primary noise sources in the vicinity of LT-8 consisted of vehicular traffic along Adeline Street.

**TABLE 15**  
**LT-8: 24 HOUR LONG-TERM NOISE MEASUREMENTS (dBA)**

Date	$L_{dn}$	24hr $L_{eq}$	Daytime $L_{eq}$	Nighttime $L_{eq}$
Thursday, September 21, 2017	65	62	64	55
Friday, September 22, 2017	69	64	66	56
Saturday, September 23, 2017	64	61	62	55
Sunday, September 24, 2017	63	60	61	54

Source: ESA, 2017

Two 20-minute ST noise measurements were conducted near residential buildings along 47<sup>th</sup> Street and 43<sup>rd</sup> Street (see Figure 2). The area surrounding ST-8a and ST-8b is zoned as medium density residential. As shown in Figure 2, ST-8a and ST-8b are both located within a residential zoned area of the City and exposed to community (e.g., people talking, music playing and neighbors washing their cars) and vehicular traffic noise sources. **Table 16** provides a summary of the measured  $L_{eq}$ ,  $L_{max}$  and  $L_x$ , as well as the estimated  $L_{dn}$  noise levels at ST-8a and ST-8b. As shown in Table 16, the estimated  $L_{dn}$  noise level at ST-8a and ST-8b were found to be lower than the measured  $L_{dn}$  at LT-8, which is result of lower traffic volumes and speeds along 47<sup>th</sup> Street and 43<sup>rd</sup> Street.

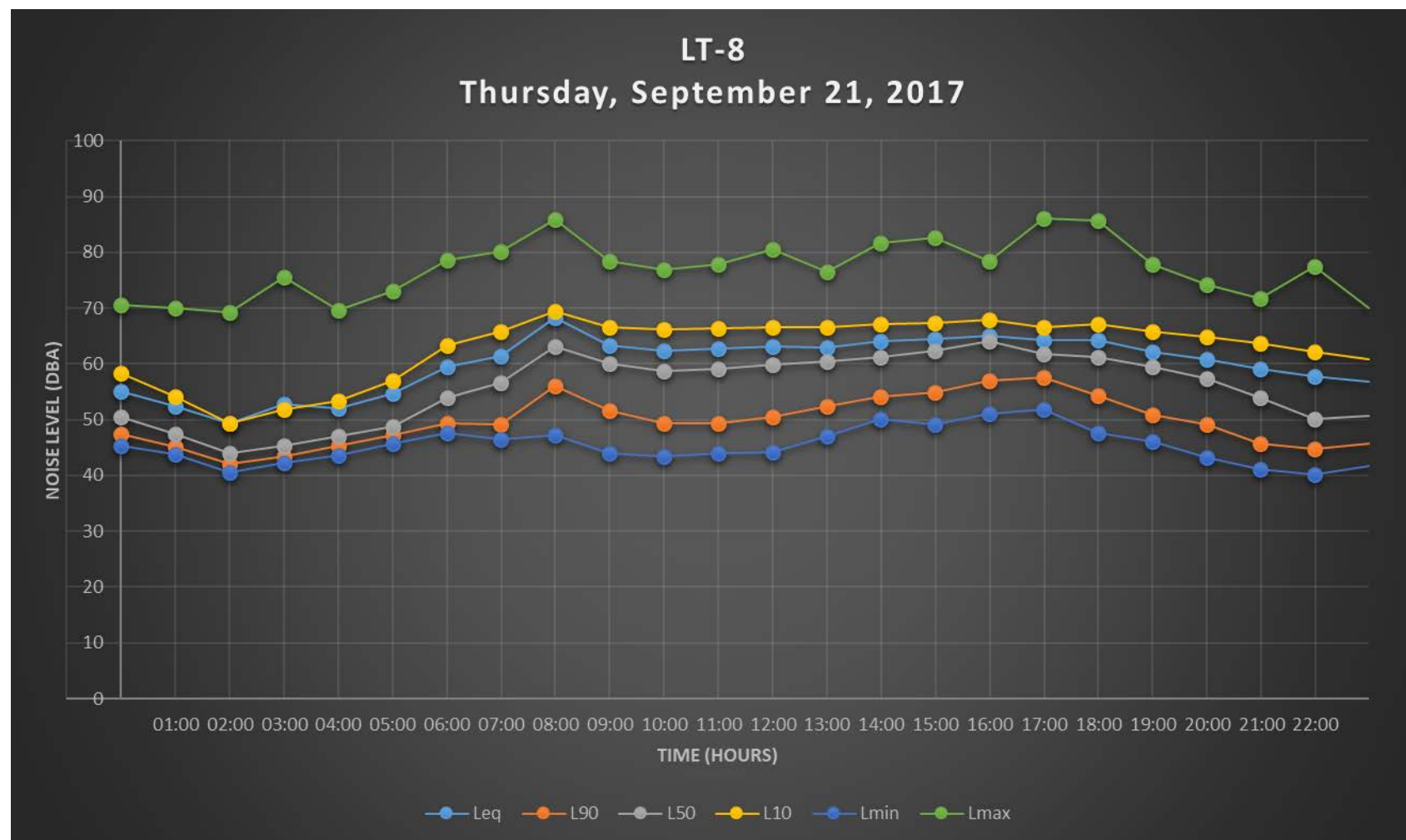
Noise measurement site ST-8a was located approximately 35 feet from the centerline of 43<sup>rd</sup> Street. Measured ambient noise levels at ST-8a were found to be 58 dBA  $L_{eq}$  during both the weekend and weekdays. Based on field observations, the area surrounding ST-8a is dependent on vehicular traffic along 43<sup>rd</sup> Street and children playing at the German International School of Silicon Valley.

Noise measurement site ST-8b was located approximately 35 feet from the centerline of 47<sup>th</sup> Street. Measured ambient noise levels at ST-8b were found to be 53 dBA  $L_{eq}$  during the weekend and 50 dBA  $L_{eq}$  during the weekday. Based on field observations, the area surrounding ST-8b is dependent on vehicular traffic along 47<sup>th</sup> street and neighborhood activities such as music playing and residences washing their cars.

**TABLE 16**  
**20-MINUTE SHORT-TERM NOISE MEASUREMENTS**  
**CORRELATED WITH LT-8 (dBA)**

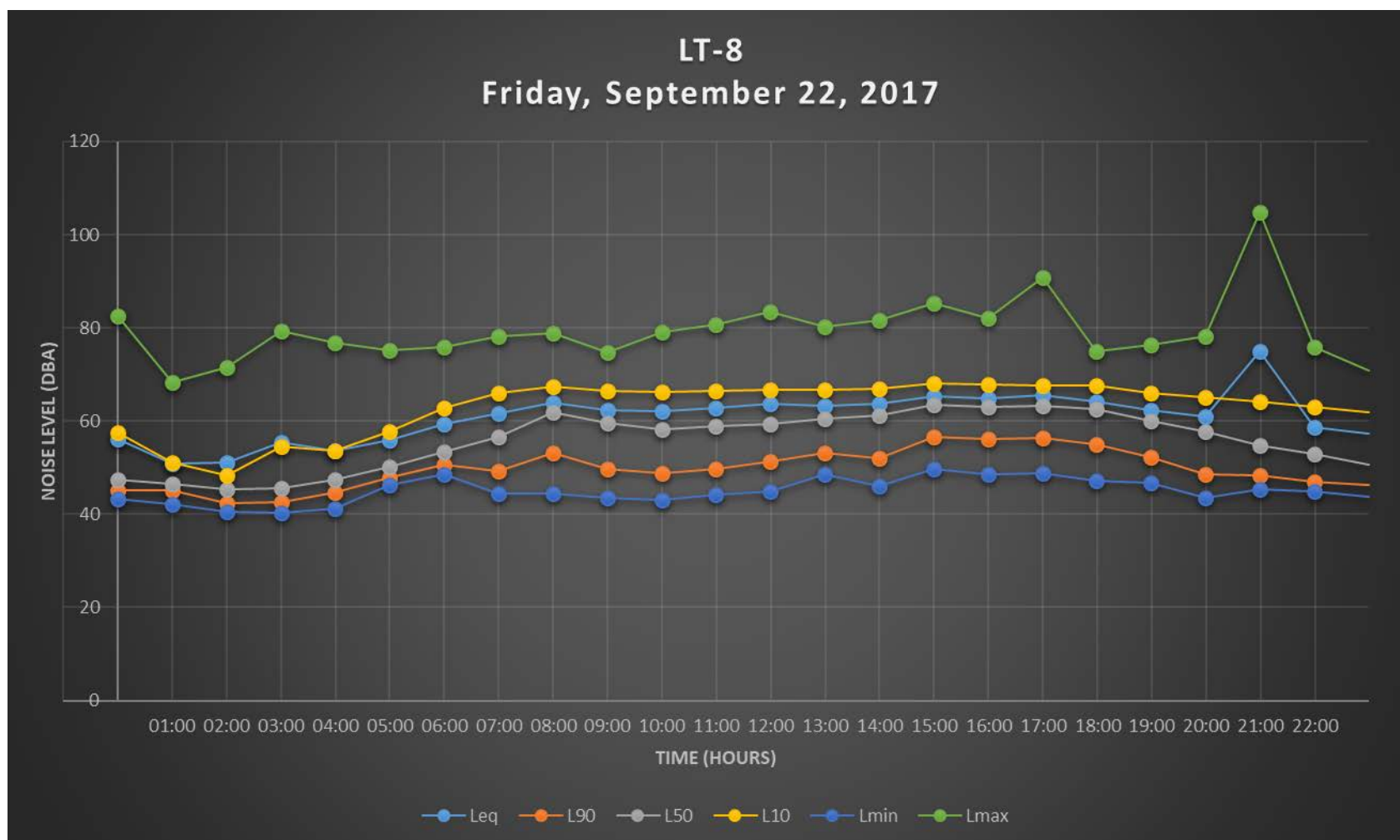
Site ID	Start Time	Est. $L_{dn}$	$L_{eq}$	$L_{max}$	$L_{10}$	$L_{50}$	$L_{90}$	$L_{min}$
ST-8a	Thursday, September 21, 2017, 11:14	60	58	75	61	54	49	45
ST-8a	Saturday, September 23, 2017, 13:37	59	58	80	59	53	50	48
ST-8b	Thursday, September 21, 2017, 10:43	53	50	68	52	44	42	40
ST-8b	Saturday, September 23, 2017, 14:08	54	53	68	56	48	46	45

Source: ESA, 2017

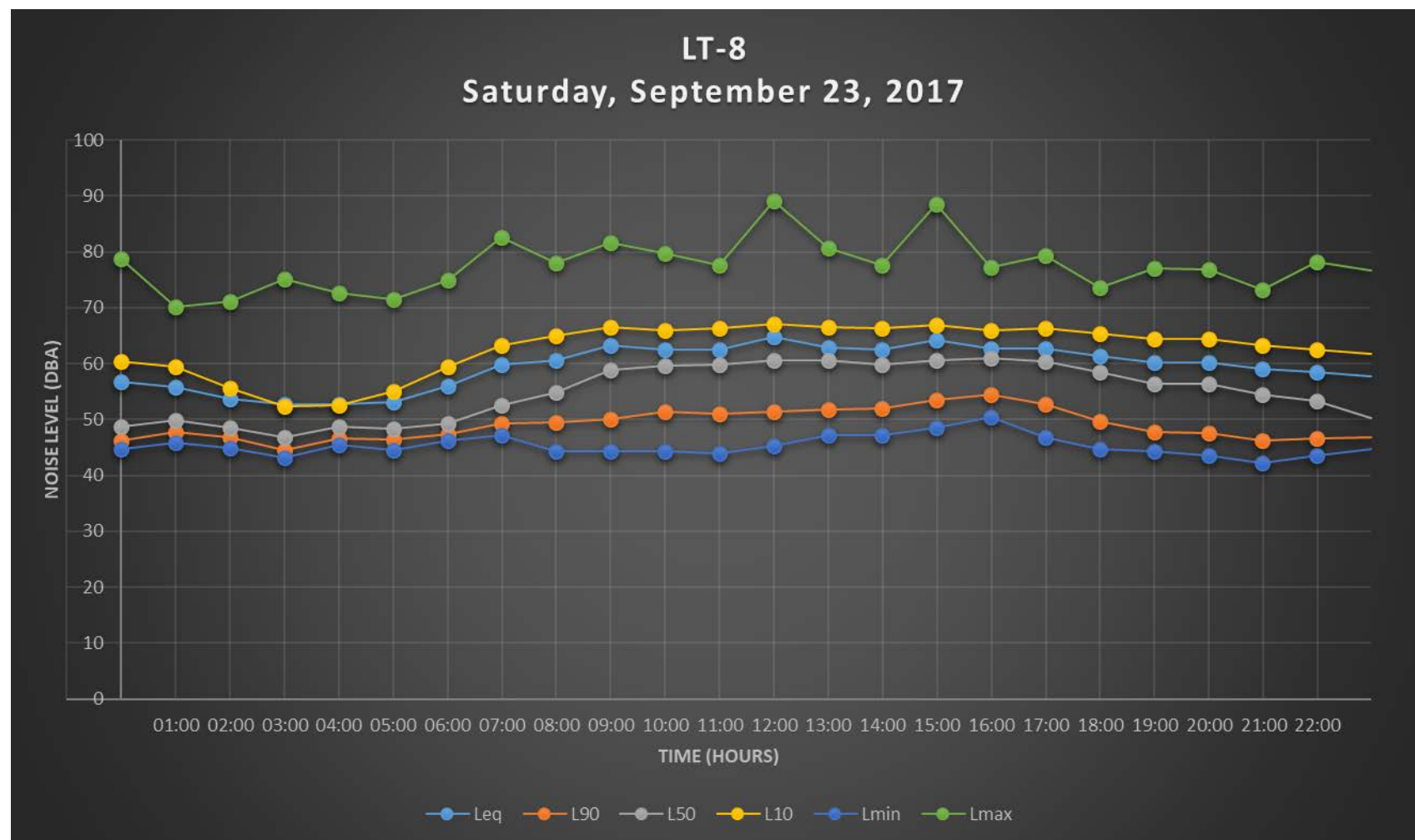


**Figure 29: LT-8 Thursday, September 21, 2017**

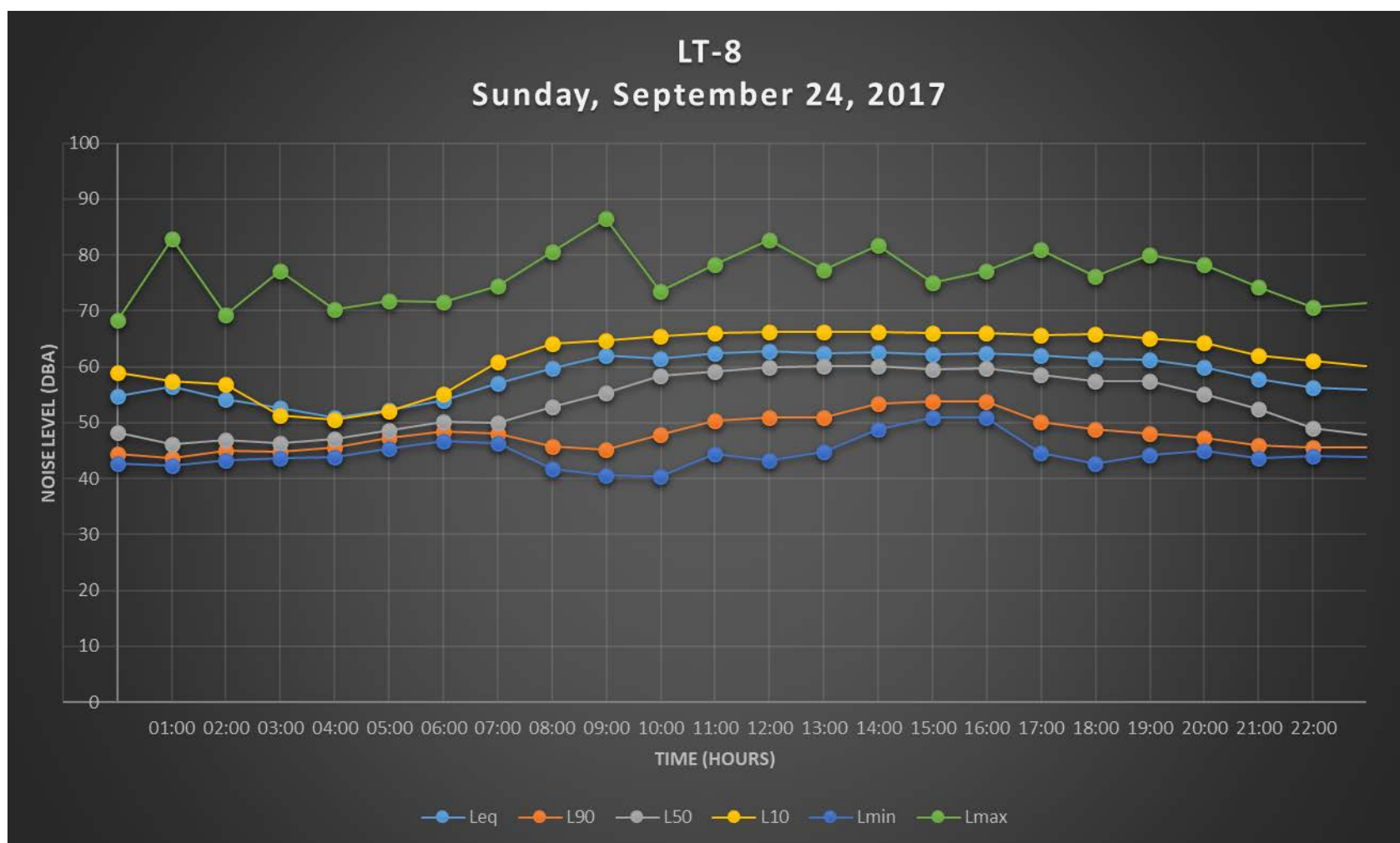




**Figure 30: LT-8 Friday, September 22, 2017**



**Figure 31: LT-8 Saturday, September 23, 2017**



**Figure 32: LT-8 Sunday, September 24, 2017**

## LT – 9: 40<sup>th</sup> Street & Harlan Street

A single SLM, designated as LT-9, was placed immediately adjacent to the intersection of Harlan Street/40<sup>th</sup> street (see Figure 2). According to the City's Zoning Map, LT-9 was located within an area zoned as mixed use with residential. The SLM was programed to record continuous noise data from September 20, 2017 to September 25, 2017. **Table 17** provides the measured  $L_{dn}$ , 24-hour  $L_{eq}$  and daytime and nighttime  $L_{eq}$ 's at LT-9. **Figure 33** through **Figure 36** provides graphs of the measured hourly sound levels at the LT-9 from Thursday, September 21, 2017 to Sunday, September 24, 2017.

As shown in Table 17,  $L_{dn}$  noise levels were measured to be 71 dBA during both the weekends and weekdays. The daytime averaged  $L_{eq}$ 's ranged from 68 to 69 dBA during the weekend and 69 dBA during the weekday. The nighttime averaged  $L_{eq}$ 's were measured to be 61 dBA during both the weekend and weekdays. Based on field observations, the primary noise sources in the vicinity of LT-9 consisted of vehicular traffic along 40<sup>th</sup> Street.

**TABLE 17**  
**LT-9: 24 HOUR LONG-TERM NOISE MEASUREMENTS (dBA)**

Date	$L_{dn}$	24hr $L_{eq}$	Daytime $L_{eq}$	Nighttime $L_{eq}$
Thursday, September 21, 2017	71	68	69	61
Friday, September 22, 2017	71	68	69	61
Saturday, September 23, 2017	71	67	69	61
Sunday, September 24, 2017	71	67	68	61

Source: ESA, 2017

Two 20-minute ST noise measurements were conducted in the vicinity of LT-9 (see Figure 2). The area surrounding ST-9a and ST-9b are both zoned as mixed use with residential under the City's Municipal Code. As shown in Figure 2, ST-9a was located in front of the senior assisted living facility named the Bayside Park a Caring Elder Community. ST-9b was located near commercial and residential buildings at the intersection of San Pablo Avenue/40<sup>th</sup> Street. Noise sources in the vicinity of ST-9a and ST-9b consisted of vehicular traffic and pedestrian noise such as people talking and shouting. **Table 18** provides a summary of the measured  $L_{eq}$ ,  $L_{max}$  and  $L_x$ , as well as the estimated  $L_{dn}$  noise levels at ST-9a and ST-9b. As shown in Table 18, the estimated  $L_{dn}$  noise level at ST-9a were found to be lower than those measured at LT-9, which is primarily the result of lower traffic speeds along 40<sup>th</sup> Street. The estimated  $L_{dn}$  noise level at ST-9b was found to be lower than those measured at LT-9 during the weekends and slightly higher during the weekdays.

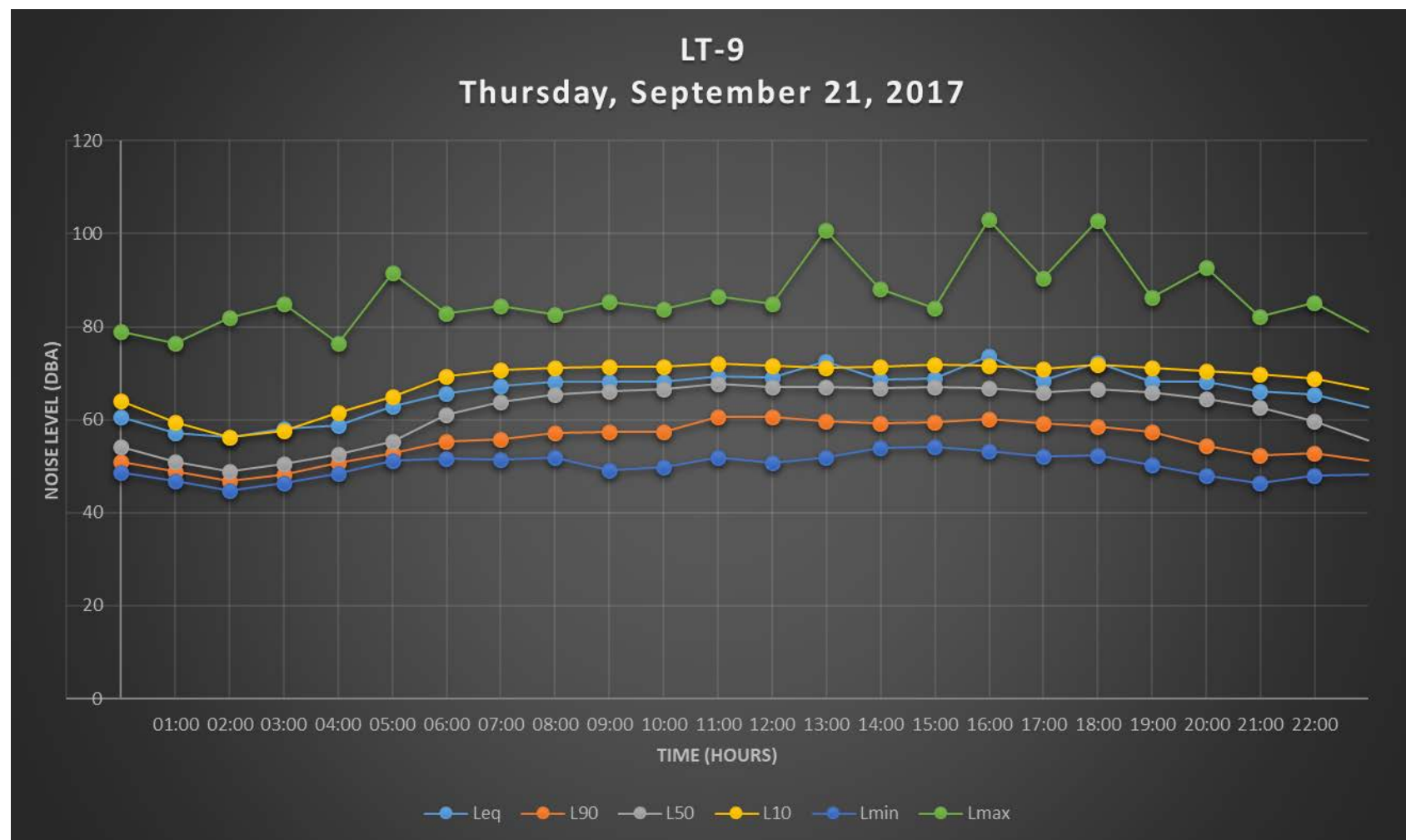
Noise measurement site ST-9a was located approximately 35 feet from the centerline of 40<sup>th</sup> Street. Measured ambient noise levels at ST-9a were found to be 66 dBA  $L_{eq}$  during both the weekend and weekdays. Based on field observations, the area surrounding ST-9a is dependent on vehicular traffic along 40<sup>th</sup> street.

Noise measurement site ST-9b was located approximately 35 feet from the centerline of 40<sup>th</sup> Street and San Pablo Avenue. Measured ambient noise levels at ST-9b were found to be 68 dBA  $L_{eq}$  during the weekend and 70 dBA  $L_{eq}$  during the weekday. Based on field observations, the area surrounding ST-9b is dominated by vehicular traffic along 40<sup>th</sup> street and San Pablo Avenue.

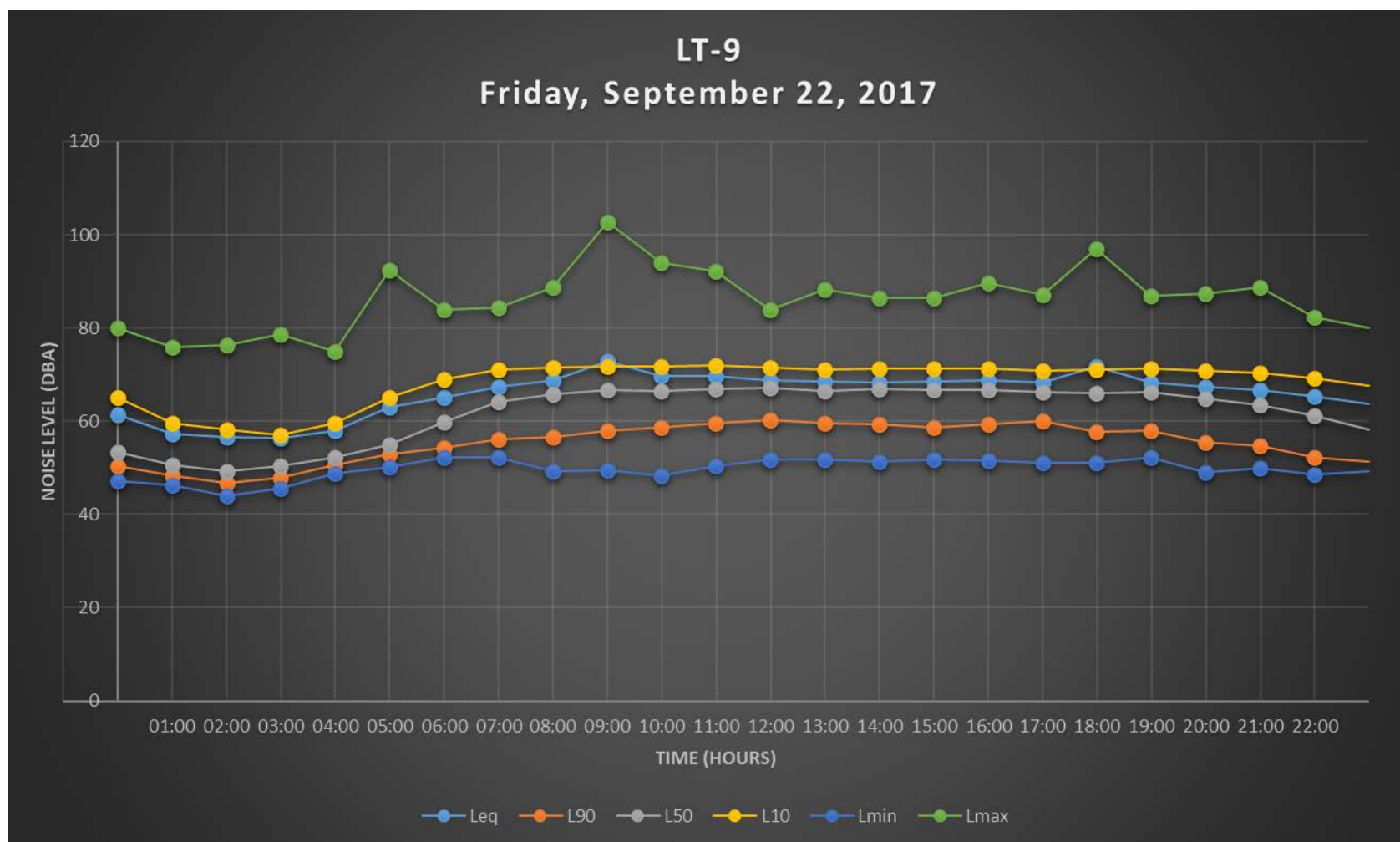
**TABLE 18**  
**20-MINUTE SHORT-TERM NOISE MEASUREMENTS**  
**CORRELATED WITH LT-9 (dBA)**

Site ID	Start Time	Est. $L_{dn}$	$L_{eq}$	$L_{max}$	$L_{10}$	$L_{50}$	$L_{90}$	$L_{min}$
ST-9a	Thursday, September 21, 2017, 08:28	69	66	87	69	60	56	54
ST-9a	Saturday, September 23, 2017, 11:29	68	66	76	70	62	55	50
ST-9b	Thursday, September 21, 2017, 09:03	73	70	83	72	68	63	57
ST-9b	Saturday, September 23, 2017, 12:22	62	68	87	71	67	62	56

Source: ESA, 2017



**Figure 33: LT-9 Thursday, September 21, 2017**



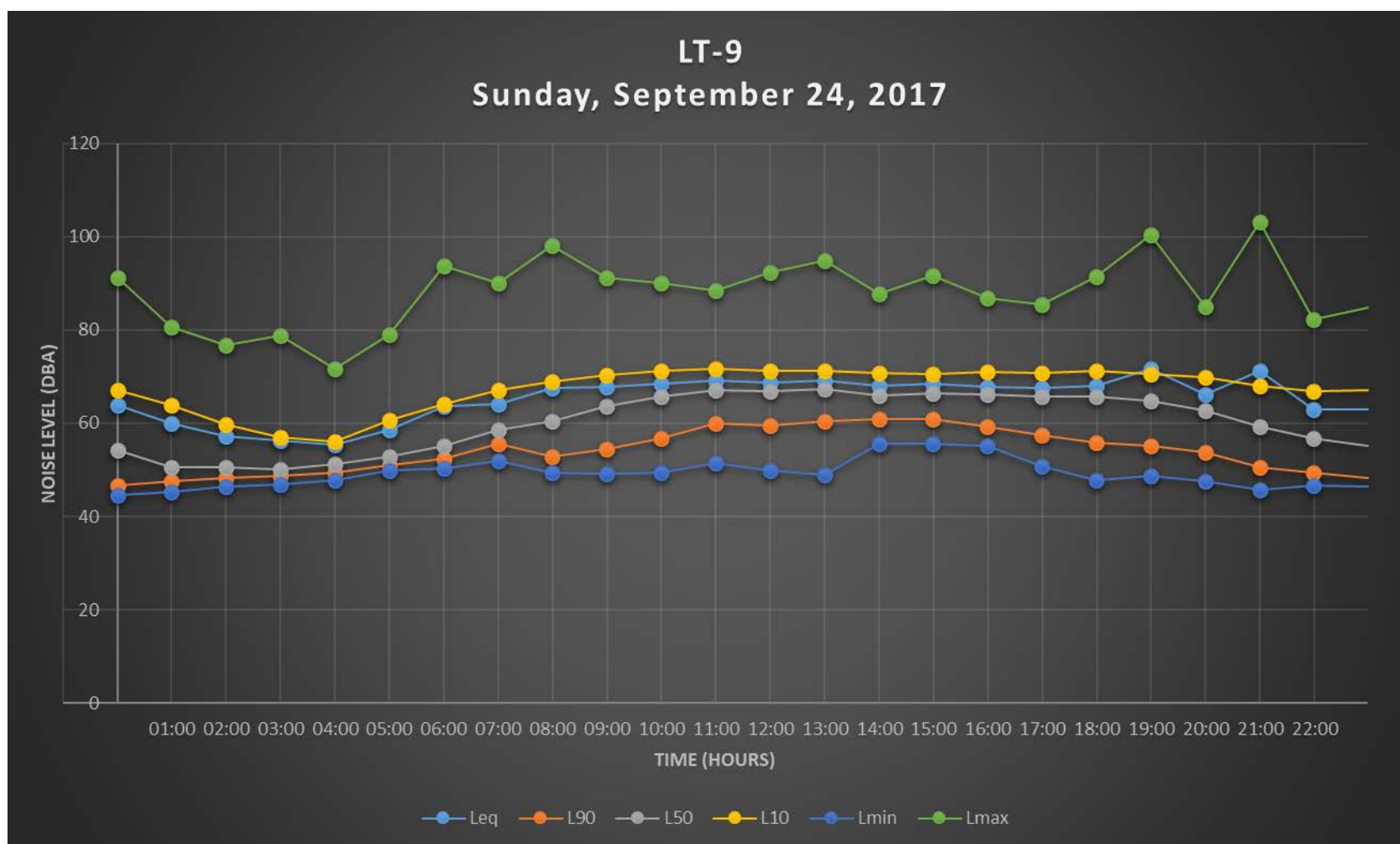
**Figure 34: LT-9 Friday, September 22, 2017**





**Figure 35: LT-9 Saturday, September 23, 2017**





**Figure 36: LT-9 Sunday, September 24, 2017**

## LT – 10: MacArthur Boulevard & Peralta Street

A single SLM, designated as LT-10, was placed in the front yard at 3618 Peralta Street, Emeryville, CA (see Figure 2). According the City's Zoning Map, LT-10 was located within an area zoned as mixed use with residential south. The SLM was programed to record continuous noise data from September 20, 2017 to September 25, 2017. **Table 19** provides the measured  $L_{dn}$ , 24-hour  $L_{eq}$  and daytime and nighttime  $L_{eq}$ 's at LT-10. **Figure 37** through **Figure 40** provides graphs of the measured hourly sound levels at the LT-10 from Thursday, September 21, 2017 to Sunday, September 24, 2017.

As shown in Table 19,  $L_{dn}$  noise levels ranged from 68 dBA to 69 dBA during both the weekends and 67 dBA to 68 dBA during the weekdays. The daytime averaged  $L_{eq}$ 's ranged from 62 dBA to 66 dBA during the weekend and 63 dBA to 64 dBA during the weekdays. The nighttime averaged  $L_{eq}$ 's ranged from 59 dBA to 63 dBA during the weekend and 59 dBA to 60 dBA during the weekdays. Based on field observations, the primary noise sources in the vicinity of LT-10 consisted of vehicular traffic along I-580 and Peralta Street and MacArthur Boulevard.

**TABLE 19**  
**LT-10: 24 HOUR LONG-TERM NOISE MEASUREMENTS (DBA)**

Date	$L_{dn}$	24hr $L_{eq}$	Daytime $L_{eq}$	Nighttime $L_{eq}$
Thursday, September 21, 2017	68	63	64	60
Friday, September 22, 2017	67	62	63	59
Saturday, September 23, 2017	68	65	66	59
Sunday, September 24, 2017	69	62	62	63

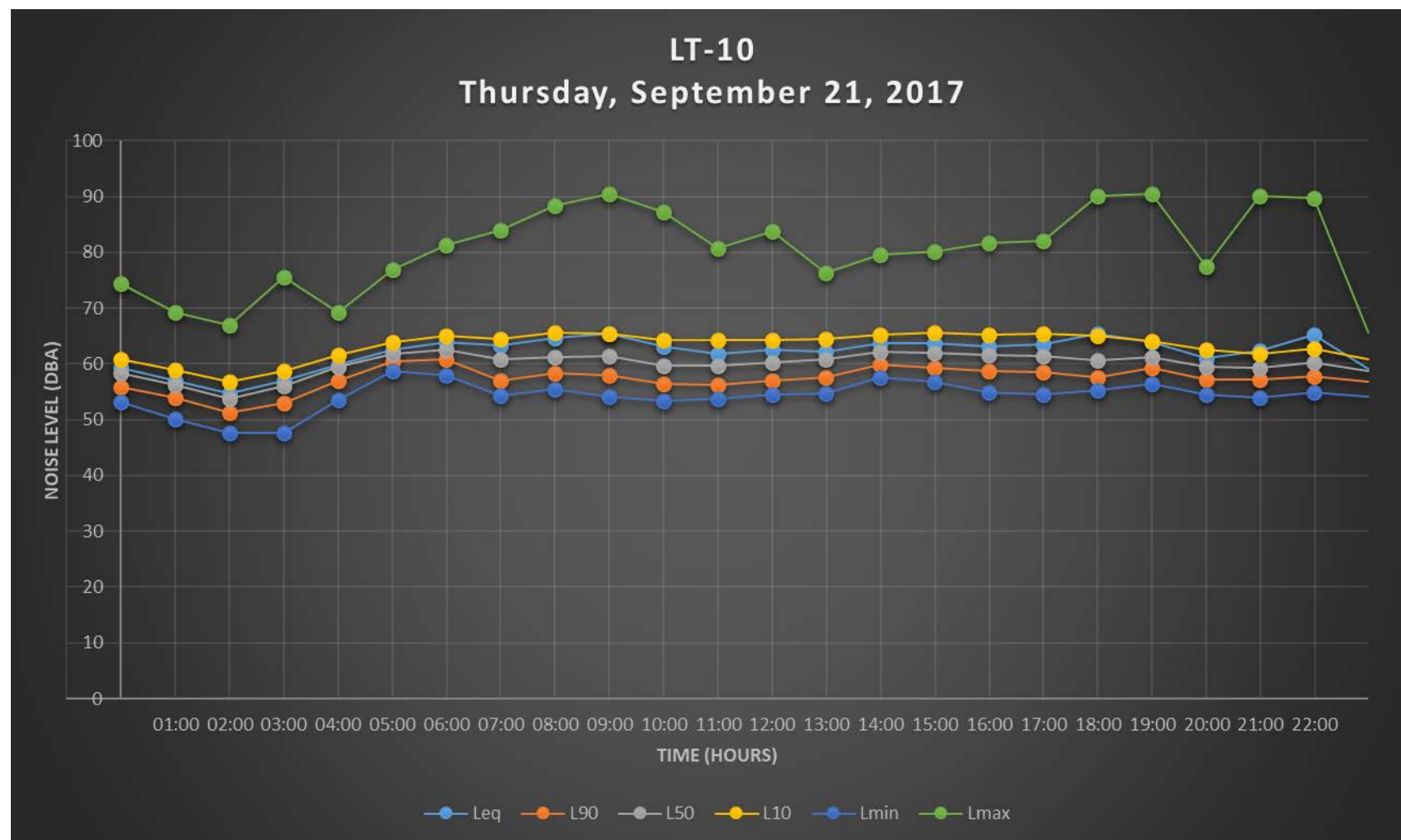
Source: ESA, 2017

One 20-minute ST noise measurement was conducted in the vicinity of LT-10 (see Figure 2). The area surrounding ST-10a is zoned as mixed use with residential south under the City's Municipal Code. As shown in Figure 2, ST-10a was located in front of the residential homes and within line-of-sight of the I-580 roadway. Noise sources in the vicinity of ST-10a consisted of vehicular traffic and pedestrian noise such as people talking and shouting. **Table 20** provides a summary of the measured  $L_{eq}$ ,  $L_{max}$  and  $L_x$ , as well as the estimated  $L_{dn}$  noise levels at ST-10a. As shown in Table 20, the estimated  $L_{dn}$  noise level at ST-10a were found to be slightly higher than those measured at LT-10, which is primarily the result higher noise exposure levels from vehicular traffic along I-580. Noise measurement site ST-10a was located approximately 210 feet from the centerline of I-580. Measured ambient noise levels at ST-10a were found to be 62 dBA  $L_{eq}$  during the weekend and 63 dBA  $L_{eq}$  during the weekdays.

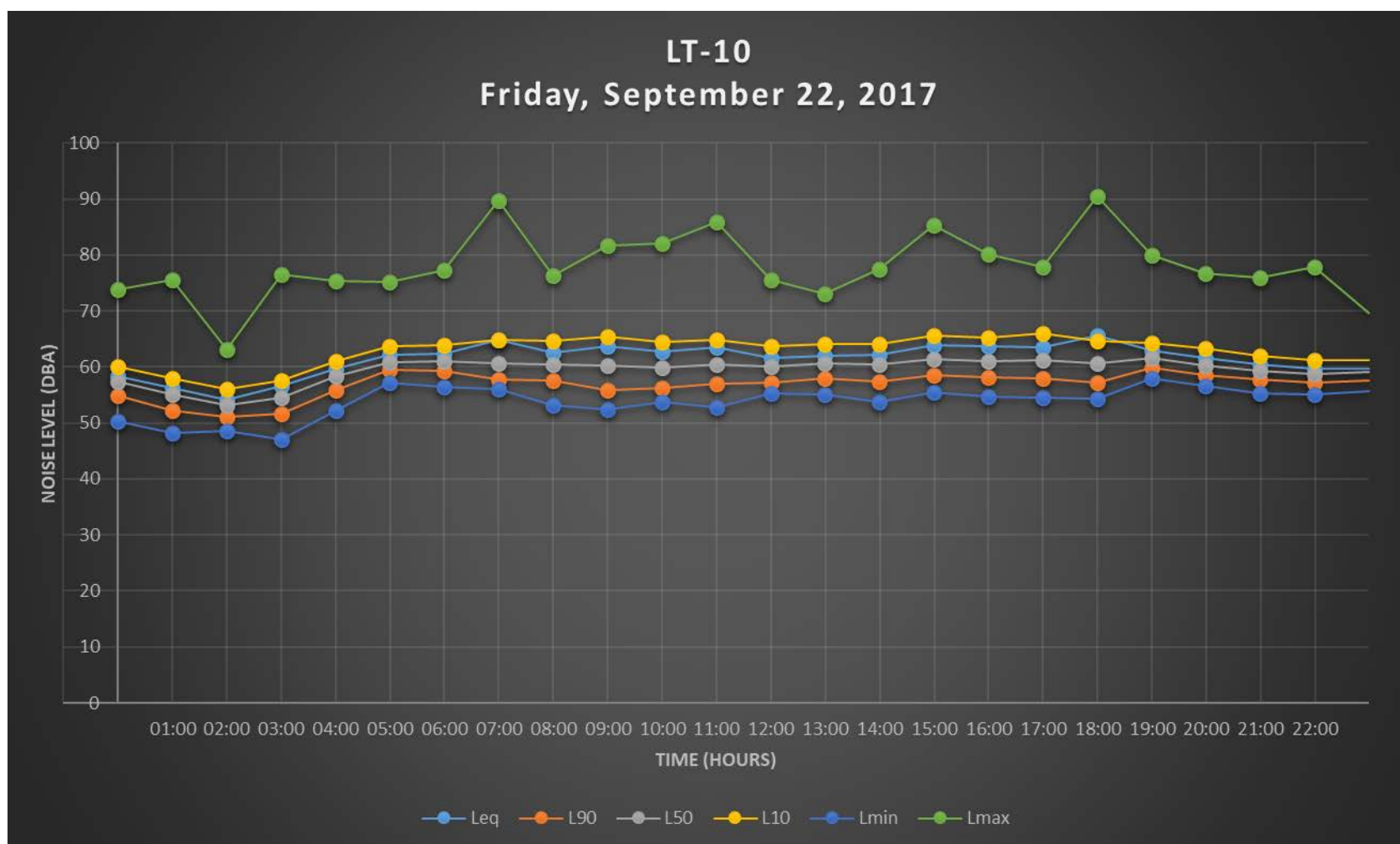
**TABLE 20**  
**20-MINUTE SHORT-TERM NOISE MEASUREMENTS**  
**CORRELATED WITH LT-10 (dBA)**

Site ID	Start Time	Est. L <sub>dn</sub>	L <sub>eq</sub>	L <sub>max</sub>	L <sub>10</sub>	L <sub>50</sub>	L <sub>90</sub>	L <sub>min</sub>
ST-10a	Thursday, September 21, 2017, 09:30	68	63	75	66	62	60	58
ST-10a	Saturday, September 23, 2017, 12:51	70	62	74	64	61	58	55

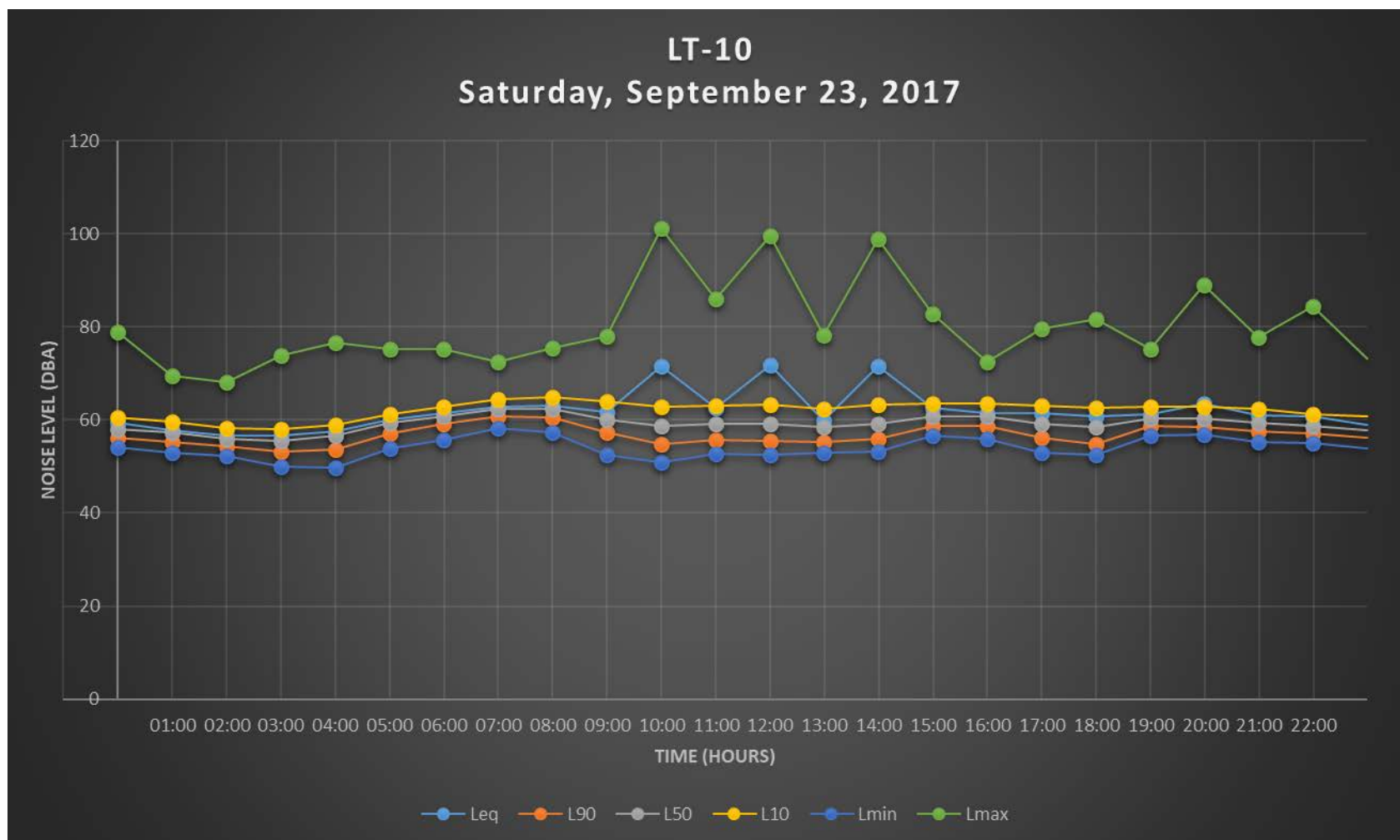
Source: ESA, 2017



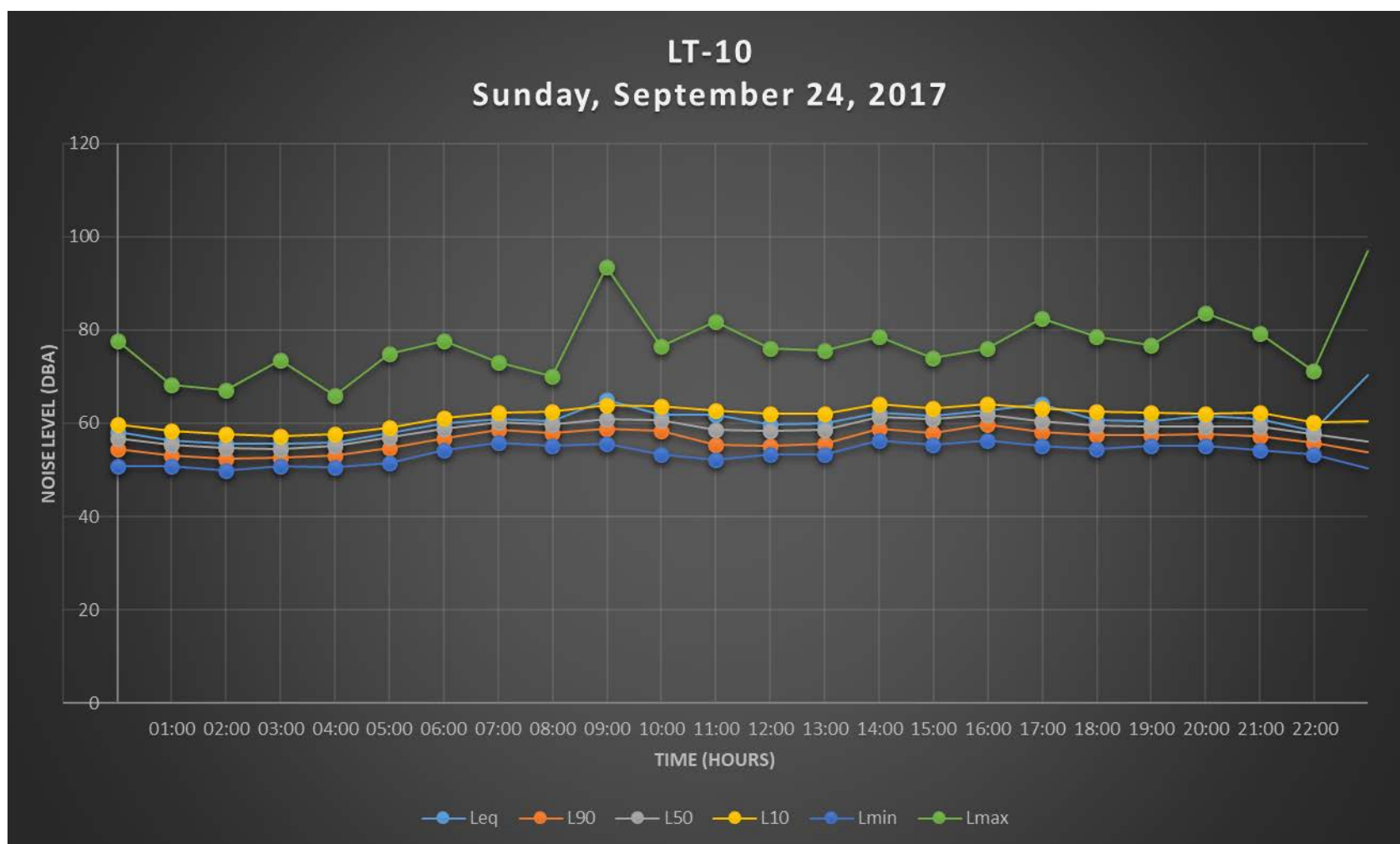
**Figure 37: LT-10 Thursday, September 21, 2017**



**Figure 38: LT-10 Friday, September 22, 2017**



**Figure 39: LT-10 Saturday, September 23, 2017**



**Figure 40: LT-10 Sunday, September 24, 2017**

## 6. Exterior Noise Standards and Options

### City of Emeryville's Existing Exterior Noise Standards

Title 5 ("Public Welfare"), Chapter 13 ("Noise") of the City's Municipal Code currently does not provide exterior noise standards for any of its zoning districts; but rather, provides law enforcement the leeway to determine whether noise generated at property line from which the noise emanating is plainly audible. Since noise generated by sources such as outdoor gatherings, parties and stationary equipment could be perceived differently from person to person depending on their age demographics and the existing ambient noise in their area, the City's current approach in determining compliance with its Noise Ordinance has been inconsistent.

The City does provide exterior noise standards in Title 9 ("Citywide Use and Development Regulations"), Chapter 5.1109 ("Noise"), which can be found in the **Table 21**. These exterior noise standards are applicable to new development constructed after March of 2013 to prevent these new developments from exposing existing adjacent sensitive land use to excessive noise levels and do not regulate noise generated by existing noise sources.

**TABLE 21**  
**CITY OF EMERYVILLE STANDARD SPECIFICATIONS**  
**MAXIMUM PERMITTED NOISE LEVEL (L<sub>50</sub> DBA)<sup>1, 2, 3</sup>**

Zone		Daytime	Nighttime
		Weekdays 7 a.m. to 9 p.m. Weekends 8 a.m. to 9 a.m.	Weekdays 9 p.m. to 7 a.m. Weekends 9 p.m. to 8 a.m.
RM Medium Density Residential Zone		65	55
All other Zones	Abutting a Lot in RM Medium Density Residential Zone	65	55
	Not Abutting a Lot in the RM Medium Density Residential Zone	70	60

1. The noise levels set forth in Table 21 may be exceed by no more than 5 dB for a cumulative period of no more than 15 minutes per hour

2. The noise levels set forth in Table 21 may be exceed by no more than 10 dB for a cumulative period of no more than 5 minutes per hour

3. The noise levels set forth in Table 21 may be exceed by no more than 15 dB for a cumulative period of no more than 1 minute per hour

Source: Title 9, Chapter 5.1109 of the City Emeryville Municipal Code, Table 9-5.119.

## Exterior Noise Standard Options

### Option 1: Zoning Area Based Standards

This option uses the zoning districts in the City's Municipal Code as a zoning area based approach to specifying noise level restrictions. Using noise data collected by ESA, the highest



existing hourly noise levels were determined for each zoning district. Using the existing measured hourly noise levels, an exterior noise standard was developed based on the hour  $L_{50}$  along with allowable noise level increases for specific periods within a single hour. This method of regulating exterior noise is currently used in the City of Berkeley and City of Oakland noise ordinances.

As previously discussed, during a study session on February 16, 2016, the City Council requested that a citywide noise survey be conducted to evaluate potential exterior noise standards that could be included in the City's update noise ordinance. To evaluate potential exterior noise standards, the measured  $L_{50}$  noise levels at each of the LT and ST monitoring locations were broken down to their respective zoning areas. The City's zoning areas relative to the noise monitoring locations are illustrated in Figure 2. The  $L_{50}$  is the noise level exceed for 50 percent of the measurement duration. The minimum, average and maximum measured daytime and nighttime  $L_{50}$  noise levels for each zone area are presented in **Table 22**.

**TABLE 22**  
**EXTERIOR NOISE LEVELS**  
**BASED ON CITYWIDE NOISE SURVEY ( $L_{50}$  DBA)**

Zoning District	Daytime (7:00 am to 10:00 pm)			Nighttime (10:00 pm to 7:00 am)		
	Min	Average	Max	Min	Average	Max
RH	62	63	63	60	61	61
RMH	58	64	68	43	52	61
RMH - Watergate	55	56	58	52	54	56
RM	50	56	64	41	49	55
MUR	59	66	74	52	62	73
MURS	62	63	64	62	63	64
MUN	63	69	74	61	67	73
PUD	63	65	68	60	63	65
Office/Technology	63	65	67	61	63	65
Industrial	62	64	66	51	56	60

NOTES:

RH = High Density Residential  
 RMH = Medium-High Density Residential  
 RM = Medium Density Residential  
 MUR = Mixed Use with Residential  
 MURS = Mixed Use with Residential South  
 PUD = Planned Unit Development  
 MUN = Mixed Use with Non-Residential

Source: ESA, 2017

The measured exterior noise standards represent a brief snap-shot of the existing ambient within the City and may account for other noise sources that may or may not have been active during the citywide survey. Since the daytime and nighttime exterior noise levels presented in Table 22 only provided rough estimate of soundscape within the City's zone districts, the exterior noise levels were adjusted to more align with the City's exterior noise standards in the City standard

specifications (see Table 21). The recommended exterior  $L_{50}$  daytime and nighttime exterior noise standards can be found in **Table 23**. Below is a discussion for each of the zoning areas.

**TABLE 23**  
**RECOMMENDED EXTERIOR NOISE LEVELS ( $L_{50}$  dBA)**

Zone	Daytime (7:00 am to 10:00 pm)	Nighttime (10:00 pm to 7:00 am)
RH	65	60
RMH	70	60
RMH - Watergate	60	55
RM	65	55
MUR	75	75
MURS	65	65
MUN	75	75
PUD	70	65
Office/Technology	70	70
Industrial	70	70

NOTES:  
 RH = High Density Residential  
 RMH = Medium-High Density Residential  
 RM = Medium Density Residential  
 MUR = Mixed Use with Residential  
 MURS = Mixed Use with Residential South  
 PUD = Planned Unit Development  
 MUN = Mixed Use with Non-Residential  
 Source: ESA, 2017

## High Density Residential

As shown in Table 22, the exterior noise levels for high density residential zone areas range from 62 dBA  $L_{50}$  to 63 dBA  $L_{50}$  during the daytime and 60 dBA  $L_{50}$  to 61 dBA  $L_{50}$  during the nighttime hours. As shown in Figure 2, high density zones are located adjacent to the Union Pacific rail line and are exposed to frequent rail pass-byes and train horn blasts. The recommended exterior noise standard for this area is 65 dBA  $L_{50}$  during the daytime hours and 60 dBA  $L_{50}$  during the nighttime hours (see Table 23).

## Medium-High Density Residential – Watergate Community

The soundscapes found in the zoning districts designated as medium-high residential are drastically different the further they are placed from major noise sources such as I-80, I-580, Union Pacific rail line and arterial roadways. The Watergate community is designated as medium-high residential and is not exposed to high noise levels from vehicular traffic and rail traffic as compared to the other medium-high density residential uses located more inland. Since the residents at Watergate community are accustomed to a lower ambient noise compared to the residences within other parts of the City, a separate exterior noise standard was developed for the Watergate community. As shown in Table 22, the exterior noise levels for the Watergate community range from 55 dBA  $L_{50}$  to 58 dBA  $L_{50}$  during the daytime and 52 dBA  $L_{50}$  to 56 dBA

L<sub>50</sub> during the nighttime hours. The recommended exterior noise standard for the Watergate community is 60 dBA L<sub>50</sub> during the daytime hours and 55 dBA L<sub>50</sub> during the nighttime hours (see Table 23).

### **Medium-High Density Residential**

The measured exterior noise levels for medium-high density residential zone districts, not including the Watergate community, range from 58 dBA L<sub>50</sub> to 68 dBA L<sub>50</sub> during the daytime and 43 dBA L<sub>50</sub> to 61 dBA L<sub>50</sub> during the nighttime hours. As shown in Figure 2, medium-high density zones are located adjacent to Powell Street and 65<sup>th</sup> Street and are exposed to vehicular traffic noise. The recommended exterior noise standard for this area is 70 dBA L<sub>50</sub> during the daytime hours and 60 dBA L<sub>50</sub> during the nighttime hours (see Table 23).

### **Medium Density Residential**

The measured exterior noise levels for medium density residential zone districts range from 50 dBA L<sub>50</sub> to 64 dBA L<sub>50</sub> during the daytime and 41 dBA L<sub>50</sub> to 55 dBA L<sub>50</sub> during the nighttime hours. As shown in Figure 2, some of the medium density residential zones are located adjacent to major arterial roadways such as Adeline Street and are exposed to vehicular traffic noise. A majority of the medium density residential zones are located adjacent to less traveled roadways such as 45<sup>th</sup> Street and 43<sup>rd</sup> Street where residents are exposed to less vehicular traffic noise as compared to those near major arterial roadways such as Adeline Street. The recommended exterior noise standard for this area is 65 dBA L<sub>50</sub> during the daytime hours and 55 dBA L<sub>50</sub> during the nighttime hours (see Table 23).

### **Mixed Use with Residential**

The measured exterior noise levels for mixed use with residential zone district range from 59 dBA L<sub>50</sub> to 74 dBA L<sub>50</sub> during the daytime and 52 dBA L<sub>50</sub> to 73 dBA L<sub>50</sub> during the nighttime hours. As shown in Figure 2, a majority of the mixed use with residential zones are located adjacent to high volume roadways such as I-80, I-580, 40<sup>th</sup> Street and Powell Street. Traffic along these roadways are constant throughout the day and nighttime hours. Due to the constant traffic along these roadways, the measured daytime and nighttime hour L<sub>50</sub> noise levels are very similar. The recommended exterior noise standard for this area is 75 dBA L<sub>50</sub> during the daytime hours and 75 dBA L<sub>50</sub> during the nighttime hours (see Table 23).

### **Mixed Use with Residential South**

The measured exterior noise levels for mixed use with residential south zone districts range from 62 dBA L<sub>50</sub> to 64 dBA L<sub>50</sub> during the daytime and nighttime hours. As shown in Figure 2, the mixed use with residential sound zone is located on the south-east corner of the City adjacent to I-580 and MacArthur Boulevard. The residences in this zoning district are exposed to constant vehicular traffic noise from I-580 and major arterial roadways throughout the day and nighttime hours. Due to the constant traffic along these roadways, the measured daytime and nighttime hour L<sub>50</sub> noise levels are very similar. The recommended exterior noise standard for this area is 75 dBA L<sub>50</sub> during the daytime hours and 75 dBA L<sub>50</sub> during the nighttime hours (see Table 23).

## Mixed Use with Non-Residential

The measured exterior noise levels for mixed use with non-residential zone areas range from 63 dBA L<sub>50</sub> to 74 dBA L<sub>50</sub> during the daytime and 61 dBA L<sub>50</sub> to 73 dBA L<sub>50</sub> during the nighttime hours. As shown in Figure 2, the mixed use with non-residential sound zone areas are located adjacent to high volume roadways such as I-80, I-580, 40<sup>th</sup> Street and Powell Street and rail pass-bys along the Union Pacific rail line. Traffic along these roadways are constant throughout the day and nighttime hours. Due to the constant traffic along these roadways, the measured daytime and nighttime hour L<sub>50</sub> noise levels are very similar. The recommended exterior noise standard for this area is 75 dBA L<sub>50</sub> during the daytime hours and 75 dBA L<sub>50</sub> during the nighttime hours (see Table 23).

## Planned Unit Development

The measured exterior noise levels for planned unit development zone areas range from 63 dBA L<sub>50</sub> to 68 dBA L<sub>50</sub> during the daytime and 60 dBA L<sub>50</sub> to 65 dBA L<sub>50</sub> during the nighttime hours. As shown in Figure 2, the planned unit development zone areas are located adjacent to Union Pacific rail line and are exposed to frequent train traffic and horn blasts. The recommended exterior noise standard for this area is 70 dBA L<sub>50</sub> during the daytime hours and 65 dBA L<sub>50</sub> during the nighttime hours (see Table 23).

## Office/Technology

The measured exterior noise levels for office/technology zone districts range from 63 dBA L<sub>50</sub> to 67 dBA L<sub>50</sub> during the daytime and 61 dBA L<sub>50</sub> to 65 dBA L<sub>50</sub> during the nighttime hours. As shown in Figure 2, the office/technology zone areas are located adjacent to Union Pacific rail line and major arterial roadways such as Powell Street and Hollis Street. The recommended exterior noise standard for this area is 70 dBA L<sub>50</sub> during the daytime hours and 70 dBA L<sub>50</sub> during the nighttime hours (see Table 23).

## Industrial

The measured exterior noise levels for industrial zone areas range from 62 dBA L<sub>50</sub> to 66 dBA L<sub>50</sub> during the daytime and 51 dBA L<sub>50</sub> to 60 dBA L<sub>50</sub> during the nighttime hours. As shown in Figure 2, the industrial zones are mainly concentrated in the north-eastern portion of the City. People working within these industrial zoning areas are exposed to rail traffic along the Union Pacific rail line and vehicular traffic along 65<sup>th</sup> Street, 66<sup>th</sup> Street, 67<sup>th</sup> Street and Powell Street. The recommended exterior noise standard for this area is 70 dBA L<sub>50</sub> during the daytime hours and 70 dBA L<sub>50</sub> during the nighttime hours (see Table 23).

Based on the founding detail above, the zoning-area-based standards option would include the following objective noise criteria in its noise ordinance update:

**Section xx.xx.xxx**

- A. *Maximum permissible sound levels shall be determined by the zoning district of the property subject to the noise, not the property from which the noise originates.*
- a. *The noise standards for the zone districts specified in Table 23 shall apply to all such property designated that zone.*
  - b. *No person shall operate or cause to be operated any source of sound at any location within the incorporated City or allow the creation of any noise on property owned, leased, occupied or otherwise controlled by such person, which causes the sound level when measured on any other property to exceed:*
    - i. *The exterior noise standard for that land use specified in Table 23 for a cumulative period of more than 30 minutes in one hour ( $L_{50}$ ); or*
    - ii. *The exterior noise standard for that land use specified in Table 23 plus 5 dB for a cumulative period of more than 15 minutes in one hour ( $L_{25}$ ); or*
    - iii. *The exterior noise standard for that land use specified in Table 23 plus 10 dB for a cumulative period of more than 5 minutes in one hour ( $L_{8.3}$ ); or*
    - iv. *The exterior noise standard for that land use specified in Table 23 plus 15 dB for a cumulative period of more than 1 minutes in one hour; or*
    - v. *The exterior noise standard for that land use as specified in Table 23 plus 20 dB for any period of time ( $L_{max}$ ).*

**Advantages of Option 1:** Provides quantitative standards that vary based on zoning and existing noise levels. Noise sources are allowed to marginally exceed the existing noise level for various increment of time thus allowing some leeway for noise generating activities.

**Disadvantages of Option 1:** Noise levels at some zoning districts can vary dramatically, resulting in less stringent standards for quiet areas. Also, because of the varying noise metrics involved (e.g.,  $L_{50}$ ,  $L_{25}$  etc.), it may be cumbersome for law enforcement to implement. If this option is selected, is recommend that law enforcement be trained in the basic fundamentals of sound and instructed on how to operate a noise meter.

## Option 2: Increase over Ambient Standards

The increase over ambient standards allows for stationary sources and amplified sound sources to increase noise levels up to a limit set relative to the existing noise levels. This methodology is currently employed by the City of San Francisco.

Rather than relying on generalized existing noise levels for given zones, this method creates a standard specific to a given receiving property. For example, the noise limits for commercial and industrial properties could read as, *provide that no person shall produce or allow to be produced a noise level more than 8 dB above the local ambient level at the property line. For noise generated by residential properties, the noise limits are 5 dB above the ambient level at any point outside of*

*the property line of a residential use. The noise limits for public property provide that no person shall produce a noise level more than 10 dB above the local ambient level at a distance of 25 feet or more on public property.*

**Advantages of Option 2:** Provides quantitative standards that are specific to conditions for a given receptor. Noise sources are allowed to marginally exceed the existing noise level allowing some leeway for noise generating activities.

**Disadvantages of Option 2:** Existing noise levels with and without the potentially offending noise source in questions must be monitored by the enforcement officer.

## Option 3: Source-Specific Standards

In addition to the “increase over ambient” standard discussed in Option 2, the City of San Francisco has also adopted standards specific to sound amplified equipment. Consequently, such an addition may be applied in addition to either Option 1 or Option 2 above. An example of restrictions that may be considered for amplified sound include:

1. The only sounds permitted are music or human speech.
2. Hours of operation permitted shall be between 9:00 a.m. and 10:00 p.m.; operation after 10:00 p.m. is permitted only at the location of a public event or affair of general public interest or as otherwise permitted by the City.
3. Except as permitted by the City, sound shall not be issued within 450 feet of hospitals, schools, churches, courthouses, public libraries, or mortuaries.
4. Amplified human speech and music shall not be unreasonably loud, raucous, jarring, or disturbing to persons of normal sensitiveness within the area of audibility, nor louder than permitted in other Subsections of the noise ordinance.
5. Except as permitted by the City for public gatherings, in all cases where sound amplifying equipment remains at one location, the volume of sound shall be controlled so that it will not be audible for a distance in excess of 250 feet from the periphery of the attendant audience.
6. If the noise generated from commercial and industrial properties is generated from a licensed place of entertainment, such use shall not produce or allow to be produced a noise level more than 8 dBA<sup>2</sup> above the local ambient level at the property plane in addition to the 8 dBA standard.

**Advantages of Option 3:** Provides quantitative standards that may be specifically applied to amplified sound or crowd gatherings that are specific to conditions for a given receptor. Noise sources are allowed to marginally exceed the existing noise level allowing some leeway for noise generating activities.

**Disadvantages of Option 3:** Existing noise levels with and without the potentially offending noise source in questions must be monitored by the enforcement officer.

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<sup>2</sup> C-weighted decibels include low-frequency sounds that are more common to amplified sound/concerts.

## 7. Summary of Proposed Changes and Considerations to the City's Noise Ordinance

As provided in Section 6 (Exterior Noise Standards and Options), three potential objective noise criteria were presented that could be used to enforce its noise ordinance. On October 27, 2017, City staff selected Option 1 (noise standards by zoning district) to be used as objective noise criteria in the City's updated noise ordinance. In addition to the exterior noise standards provided in Option 1, City staff requested that their existing noise ordinance be updated to reflect the guidance received from the City Council during a study session held on February 16, 2017 and public input during the community meeting held on August 16, 2017. Listed below are a summary of proposed key changes that could be made to the City's existing noise ordinance.

**Exterior Noise Standards.** It is proposed that the updated noise ordinance provide exterior noise standards based on the citywide noise survey conducted by ESA from September 15, 2017 to September 17, 2017. The recommended exterior  $L_{50}$  daytime and nighttime noise standards are presented in Table 23, above. In addition to the  $L_{50}$  exterior noise standards, it is proposed that the updated noise ordinance include exterior noise standards for the  $L_{25}$ ,  $L_{15}$ ,  $L_{8.3}$ ,  $L_{1.6}$  and  $L_{max}$  as presented under Option 1.

**Interior Noise Standards.** The City did not express an interest in including objective criteria for interior noise. However, many built out communities with a large amount of multi-family uses, including neighboring jurisdictions such as the City Berkeley, include interior noise standards in their noise ordinance. ESA suggests the City consider the addition of an interior  $L_{50}$  noise standard in their updated noise ordinance to ensure noise compatibility with multi-family uses which could provide useful when responding to future complaints between two parties sharing a wall. The suggested interior noise standards are presented in **Table 24**. The suggested interior noise standard assumes a 20 to 25 dB building exterior to interior noise attenuation with windows closed. In addition to the  $L_{50}$  interior noise standards, it is suggested that the updated noise ordinance include interior noise standards for the  $L_{8.3}$ ,  $L_{1.6}$  and  $L_{max}$  similar to those presented under Option 1.

**TABLE 24**  
**PROPOSED INTERIOR NOISE STANDARD ( $L_{50}$  DBA)**

Zoning District	Daytime (7:00 am to 10:00 pm)	Nighttime (10:00 pm to 7:00 am)
RH, RMH, RM, MURS and PUD	45	40
MUR	50	50

**NOTES:**

RH = High Density Residential

RMH = Medium-High Density Residential

RM = Medium Density Residential

MUR = Mixed Use with Residential

MURS = Mixed Use with Residential South

PUD = Planned Unit Development

Source: ESA, 2017

**Noise Measurement Procedures.** To assist law enforcement in responding to noise complaints, it is proposed that the updated noise ordinance include a section describing how noise measurements should be conducted, what equipment should be used and locations of where noise measurements should be made when responding to noise complaints. Once a noise complaint is received, it is suggested that noise data should be measured and collected at the complainant's property using either an American National Standards Institute (ANSI) Type I or II sound level meter set to a slow response on "A" weighted scale.<sup>3</sup> The law enforcement officer or other authorized agent from the City of Emeryville, shall document the following information:

- a. Type of noise sources in the vicinity of the complainant's property.
- b. Location of noise source relative to complainant's property.
- c. Date, time and duration when complainant was exposed to the intrusive noise.
- d. Date and time of noise measurement survey.

It is recommended that exterior noise levels be measured within 50 feet of the affect residential, institutional or commercial building. The microphone should be positioned three to five feet above the ground and away from reflective surfaces. Interior noise levels should be measured within the affected dwelling unit, at points at least four feet from the wall, ceiling or floor nearest the noise source, with windows in the normal seasonal configuration.

**Animal Noise.** As directed by the City Council during a study session held on February 16, 2017, it is proposed that the updated noise ordinance consolidate animal noise standards that are found in Emeryville's Municipal Code 6-1.117 in the draft noise ordinance update. Noise from the marina, personal watercraft, and other land uses are mentioned in the City's existing noise ordinance; ESA could add these particular sections to the Draft Noise Ordinance Update (from other parts of the Municipal Code).

**Construction Noise Standards.** Many jurisdictions exempt construction noise such as the cities of Sacramento, Riverside and Hayward. The City may also continue to exempt construction noise in its updated ordinance between a specified period of time as construction noise is typically temporary and intermittent. However, since the City requested specific standards be identified for construction noise, ESA proposes that the City use the external noise standards plus up to a 20 dB increase. The City of Seattle and the City of Santa Monica use a 25 dB and 20 dB increase over their exterior noise standards, respectively, as their construction noise standard.

**Exemptions:** As direct by the City Council during a study session held on February 16, 2017, ESA proposes the City to include the following exemptions to the updated noise ordinance:

- a. Activities conducted on school grounds such as children at play, bands, sporting and entertainment events during regular hours of operation.
- b. Activities conducted on parks and public playgrounds owned, operated, and leased by the City.

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<sup>3</sup> American National Standards Institute (ANSI) Type 2 sound level meter are considered to have an accuracy of  $\pm 2$  dB, while a Type 1 instrument has an accuracy of  $\pm 1$  dB.



- c. Any mechanical device, apparatus or equipment related to or connected with emergency activities or emergency work.
- d. Indoor or outdoor gatherings, shows, sporting and entertainment events provided they are sponsored by the City.

**Leaf Blowers, Generators and Other Loud Equipment.** The existing noise ordinance provides allowed hours of operation for leaf blowers, generators and other loud equipment. Since the City requested specific standards identified for leaf blower noise, ESA proposes that the City use the external noise standards plus up to a 20 dB increase as a noise standard specific to leaf blowers. In addition to leaf blowers, it is recommended that generators, and other equipment shall be used in such a manner that sound levels at affected properties will not exceed the proposed exterior noise standard (see Table 23).

**Loud Parties or Gathering.** The City's existing noise ordinance does not contain any objective criteria that law enforcement officer can use to determine if a residence is exposed noise levels from a loud party or gathering that would be considered a violation of City's code. It is recommended that when a noise complaint is received, the law enforcement officer should monitor noise levels at the nearest complainant's property line to the property from which the noise is emanating using the procedures described under **Noise Measurement Procedures**, above.

ESA recommends that if the law enforcement officer is unable to collect sufficient or representative noise data to determine whether or not noise generated by a loud party or gathering exceeds the proposed exterior noise standards (shown in Table 23), the law enforcement officer at the scene shall inform the responsible person or property owner or occupant of the property from which the noise is emanating from of the complaint. If the law enforcement officer is unable to collect sufficient noise data from noise generated by the same property three days within the same month, is suggested that the law enforcement officer execute the existing noise ordinance's procedures, which states the following:

*“The law enforcement officer at the scene shall take such actions and give such direction as is necessary to abate the violation or condition, and shall advise the responsible person or property owner or occupant that if additional law enforcement personnel or emergency service providers are called upon to abate the conditions, the responsible persons and the owner and occupant of the property shall be held liable for the cost to the city of providing such services. If the condition is not forthwith voluntarily abated and if additional law enforcement personnel or emergency service providers are necessary to respond on behalf of the city in order to disperse the party or gathering, quell any disturbance, direct traffic, cite illegally parked vehicles or otherwise respond, then the cost to the city of such additional services shall be reimbursed as provided in subsection (dc) of this section.” (Sec. 2 (part), Ord. 03-002, eff. Mar. 6, 2003)*

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