PRESSMAN AND ASSOC., INC.

GOVERNMENTAL AND PUBLIC AFFAIRS
200 2ND AVENUE, SOUTH, #451, ST. PETERSBURG, FL. 33701
727-804-1760, FX. (888) 977-1179
E-MAIL, TODD@PRESSMANINC.COM

Project Narrative

Tarpon Development Properties, LLC

2551 Tarpon Woods Blvd.

The proposed use is a car wash facility with vacuum usage on a former bank building site.

The car wash is a tunnel-oriented proposal that will use the newest technology and quiet machinics. The rear of the site will be screened and buffered with increased landscape material, A 6' solid wall and increased building setback. Tanglewood Trail separates the proposed use from the rear owners. There is approximately 242' feet that separate this proposed structure to the closet structure to the rear. A similar commercial use exists abutting on the North, of which that car wash is one use of several operating on that site.
East Lake Road is a major arterial roadway of which at this transportation node is characterized by substantial commercial activity of which Forward Pinellas reports 69,000 vehicles per day on East Lake and 7,700 vehicles per day on Tarpon Woods Road.

Zoning throughout the immediate vicinity is RPD-W and RPD. The CN FLU category is proposed and the CN category is existing abutting north and adjacent west of which this commercial node is already providing intensive commercial support uses for the area and the significant high volume transportation users on East Lake Road. This node will continue to provide the commercial and retail uses that have proven to be successful and needed for many years.

DMP-25-00001 - DMP-25-01

Menu Reports Help

File Date: 04/21/2025

Application Status: In Review

Application Type: Development Master Plan

Application Detail: Detail

Description of Work: Development Master Plan Modification for Tarpon Woods Master Plan

Application Name: DMP-25-01

Site Address: 2551 TARPON WOODS BLVD, PALM HARBOR, 34685

Owner Name: TARPON DEVELOPMENT PROPERTIES LLC

Owner Address: 300 BEACH DR NE APT 402, ST PETERSBURG, FL 33701-3404

Parcel No: 332716000004100100

Contact Info:

Name	Organization Name	Contact Type	Contact Primary Address	Status
todd pressman	Pressman & Asso...	Consultant		Active

Licensed Professionals Info:

Primary	License Number	License Type	Name	Business Name	Business License #

Total Fee Assessed: $1,760.00

Total Fee Invoiced: $1,760.00

Balance: $0.00

Custom Fields: **Dev Master Plan**

Request Type
Modification

Current Zoning
RPD

Current Land Use
ROG

Current Structures
Bank

Proposed structures and improvements
Carwash

Contract for Sale
Yes

Contract Status
Conditional

Option to Purchase
Yes

Has there been a previous application made before?
No

If yes then what is the case number
–

Does applicant own any property contiguous to subject property?
No

If Yes, what is the parcel number
–

Date subject property acquired
01/21/2025

DRC Meeting Date
05/12/2025

LPA Hearing Date
06/11/2025

BOCC Hearing Date
07/22/2025

SURROUNDING PROPERTY

Direction	Land Use	Zoning	Existing Use
North	CN	RPD-W	Commercial
East	RL	RPD-W	Condominiums
South	ROG	RPD-W	Office Building
West	CN	RPD	Commercial

MULTI_MODAL

State Account Description	Impact Fee Amount (Money)

Workflow Status:

Task	Assigned To	Status	Status Date	Action By
Completeness Review		Deemed Complete	04/21/2025	Michael Schoder...
Zoning Manager Review		Complete	04/21/2025	Michael Schoder...
Admin Support Review	Jennifer Admire			
DRC Meeting				
Staff Report and Recom...				
Case Noticing				
Planning Director Review				
LPA Packet Prep and Di...				
LPA Public Hearing				
BOCC		Preparing		
Final Action				

Condition Status:

Name	Short Comments	Status	Apply Date	Severity	Action By

Documents:

File Name	Document Group	Category	Description	Type	Docun
Project Narrative	PLN_LUPC	Justification D...		application/pdf	Uploac
Certification of Owner...	PLN_LUPC	Development Mas...		application/pdf	Uploac
Property Ownership	PLN_LUPC	Certification o...		application/pdf	Uploac
Authorization Letter	PLN_LUPC	Letter of Autho...		application/pdf	Uploac
Concept Plan	PLN_LUPC	Concept Plan		application/pdf	Uploac
Survey	PLN_LUPC	Survey		application/pdf	Uploac
Proposed Master Plan	PLN_LUPC	Development Mas...		application/pdf	Uploac
Case Maps	PLN_LUPC	Other	Staff Maps	application/pdf	Uploac

Show all

Application Comments:

View ID	Comment	Date
BCC34830@...	Approximately 1.16 acres located at 2551 Tarpon...	04/21/2025

Initiated by Product: AV360

Scheduled/Pending Inspections:

Inspection Type	Scheduled Date	Inspector	Status	Comments

Resulted Inspections:

Inspection Type	Inspection Date	Inspector	Status	Comments

DMP-2... | STATUS | LOCATION | CONTACT | WORKFLOW

DMP-25-01 Developm... | > Submit... 04/21/2... | > 2551 T... PALM ... | > todd pr... | > 11 total T ...

DMP-25-00001 - DMP-25-01

Save Add Delete CSV Export Help

Table Subgroup SURROUNDING PROPERTY | Filter table...

Direction	Land Use(Text)	Zoning(Text)	Existing Use(Text)
North	CN	RPD-W	Commercial
East	RL	RPD-W	Condominiums
South	ROG	RPD-W	Office Building
West	CN	RPD	Commercial

DMP-25-00001

DMP-2... | STATUS | LOCATION | CONTACT | WORKFLOW

DMP-25-01 Developm... | Submit... 04/21/2... | 2551 T... PALM ... | todd pr... | 11 total T ...

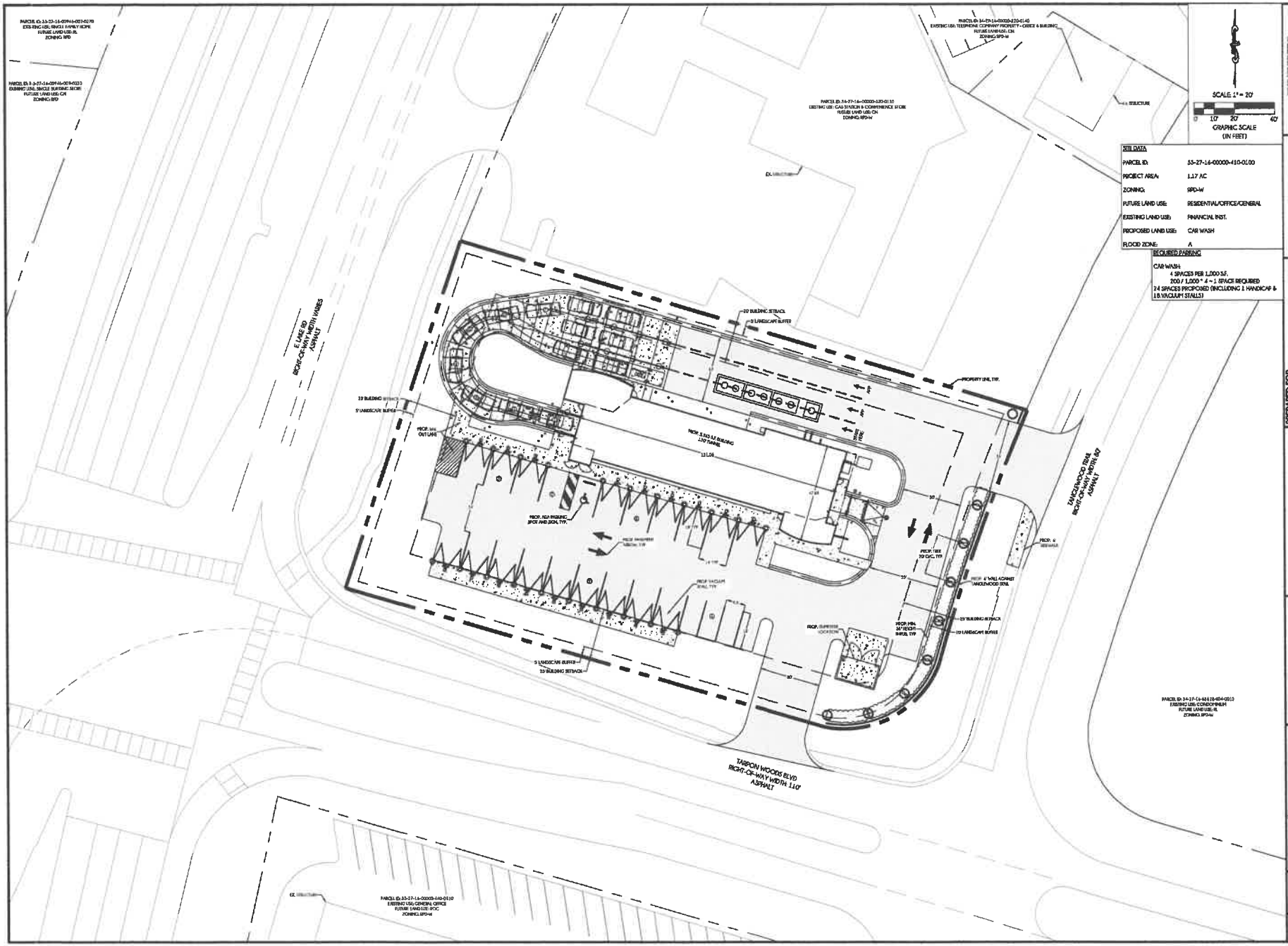
DMP-25-00001 - DMP-25-01

Save | Reset | Synchronize | Address Locator | Cancel | Help

Street #
2551
Street Name
TARPON WOODS
Dir
--Selec
Street Type
BLVD
Unit Type
--Select--
Unit #

Primary
Yes
City
PALM HARBOR
State
FL
Zip Code
34685
Location Description
2551 TARPON WOODS BLVD

Legacy Fields
Street Address
2551 TARPON WOODS BLVD
Address Line 1
2551 TARPON WOODS BLVD
Address Line 2



3 WORKING DAYS BEFORE YOU DIG CALL SUNSHINE ONE CALL OF FLORIDA, INC. 1-800-432-4770 WWW.SUNSHINE811.COM

PREPARED FOR:
TARPON DEVELOPMENT PROPERTIES LLC
1000 BEACH DRIVE NE, APT. 402
ST PETERSBURG, FLORIDA 33701

TOPPO'S @ TARPON WOODS BLVD
PARCEL ID: 33-27-16-00000-410-0100
2533 TARPON WOODS BLVD.
PALM HARBOR, FLORIDA 34685

PROJECT #: 2025-175

SUNCOAST ONE
2816 CYPRESS RIDGE BLVD, STE 150,
WESLEY CHAPEL, FL 33544

ALEX KUSMIREK LICENSE No. 93043 STATE OF FLORIDA PROFESSIONAL ENGINEER

Alex Kusmirek, P.E.
State of Florida, Professional Engineer, License No. 93043

This item has been digitally signed and sealed by Alex Kusmirek on the date adjacent to the Seal.

Printed copies of this document are not considered signed and sealed and the signature must be verified on the electronic copies.

CONCEPT PLAN

CP-1

Tommy Car Wash Systems | 581 Ottawa Ave. | Holland, MI 49423 | tommycarwash.com

Tommy Car Wash Systems – Recycled Water Usage per California AB-2230

The following information is based on a study conducted at two standard 130' Tommy Express facilities over the course of a six-month period from 7/1/20 to 12/31/20 at our Tommy's Express Hudsonville, MI and Jenison, MI locations. These sites use the typical reverse osmosis water purification system and water reclamation system (reclaim) used in all our sites. The belt speeds during this study were set to 72Hz which has the capacity to process 223 vehicles per hour. The test sites are "busier" sites with high process speeds.

Based on the studies data, the **average city water usage** per vehicle is **28.11 gallons per vehicle**. This includes RO/Reject water due to these functions feeding from prefilled tanks which are filled in the first day of operation and remain filled by filtration equipment. 80% of this water is reclaimed. Studies* have been done nationally on what the carwash industry calls carryout and evaporation (C&E). The consistent C&E average is 20% nationwide and is not shown to be environmentally biased. **Total city water reclaimed for recycling is 22.49 gallons per vehicle = (28.11 x .08)**

We use **46.55 gallons per vehicle** of **reclaim/recycled water** at minimum. 13.81 gallons are used on the vehicle between our Pre-Blast function and Double Threat wheel blaster applications and 32.74 gallons is average used per vehicle for the conveyor belt cleaning and lubrication which is critical to our process efficiency.

Conclusion:

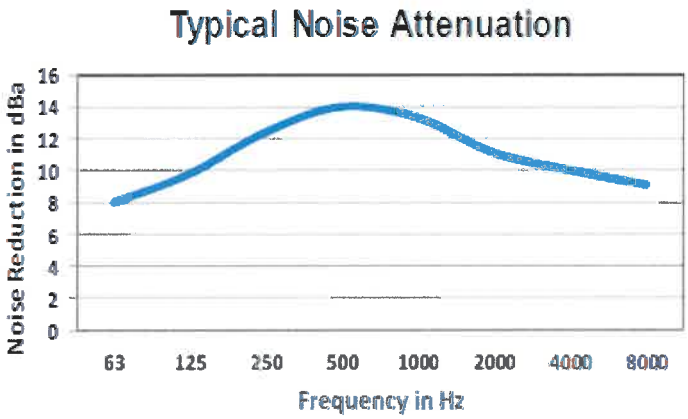
A typical Tommy's Express car wash **recycles and reuses 80%** of the total gallons of city water used per car. The percent of recycled water used per vehicle is **67% = 46.55 / (22.49 + 46.55)**.

*Brown, Chris. 2018. Water Use, Evaporation and Carryout – ICA 2018

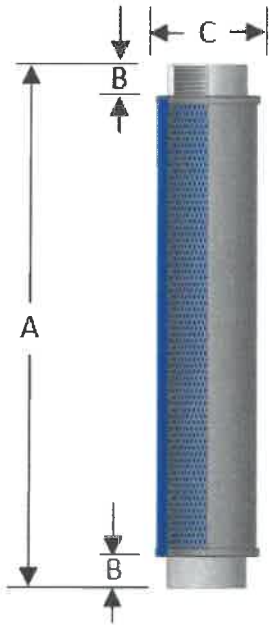
Elmo Rietschle

SILENCERS

Applications: Regenerative Blowers, Vacuum Pumps, Compressors



- Noise attenuation may vary due to the wide range of applications and machines



Part No.	Connection (MNPT)	Capacity (CFM)	A	B	C	Weight (lb.)
25176001	1/2"	25	13-7/8	2	2-1/2	2
25176002	3/4"	35	14-1/2	2	2-1/2	2
25176003	1"	42	14-1/2	2	2-1/2	2
25176004	1-1/4"	55	14-1/2	2	2-1/2	2
25176005	1-1/2"	155	14-1/2	1-3/4	2-5/8	3
25176006	2"	270	18-1/2	2-1/8	3-5/8	4
25176007	2-1/2"	385	23-11/16	2-5/8	4-5/8	8
25176008	3"	575	28	2-5/8	5-1/8	10
25176009	4"	575	29-5/16	4	10	26

TCWS Muffler Report

Introduction: Vacuum mufflers were tested at TX Hudsonville for 2 weeks' time. The goal of this test, was to test three types of mufflers on site to attempt to reduce the noise output of the vacuums without loss of performance.

Methodology: Performance of the mufflers were tested with 4 criteria

1. Noise reduction (dB)
2. Additional Maintenance necessary / clogging (Yes or No)
3. Suction loss (kPa and % loss)
4. Aesthetics (Great, Good, Fair, Poor)

Results: Test results based on Methodology

1. BASELINE RESULTS (No mufflers attached)
    a. Noise
        i. Ambient (no vacs running): 65.7 dB (See figure 1.1)
        ii. Running Vac with no muffler: 88.1 dB (See Figure 1.2
    b. Additional Maintenance necessary / clogging: NO
    c. Suction: 50 kPa/ 0%
    d. Aesthetics: Great

FIGURE 1.1

FIGURE 1.2

FIGURE 1.3

2. P-VAC-334 RESULTS

a. Noise reduction (dB):
    i. Reading: 77.6 dB (See Figure 2.1)
    ii. Reduction: 10.5 dB
b. Additional Maintenance necessary / clogging
    i. Yes: Minor (additional maintenance and clogging)
        1. Reverse pulse vacs to help with this
        2. Wash Mufflers to help with this
c. Suction loss (KPa and %)
    i. Reading: 40kPa (see Figure 2.2)
    ii. Loss: 10kPa – 20% loss in suction
d. Aesthetics
    i. Good (See Figure 2.3)

Figure 2.1

Figure 2.2

Figure 2.3: P-VAC-334

1. P-VAC-335 RESULTS

a. Noise reduction (dB):
    i. Reading: 79.1 dB (See Figure 3.1)
    ii. Reduction: 9 dB
b. Additional Maintenance necessary / clogging
        1. Yes: Minimal (additional maintenance, no clogging)
            a. Eventually replace filter of muffler.
c. Suction loss (KPa and %)
    i. Reading: 50kPa (see Figure 3.2)
    ii. Loss: 0kPa – 0% loss in suction
d. Aesthetics
    i. Fair (See Figure 3.3)

FIGURE 3.1

FIGURE 3.2

FIGURE 3.3 (P-VAC-335)

ABD Engineering & Design

Architectural Acoustics • AV Design • Noise & Vibration

May 29, 2024

Izabella Welling
Tommy Car Wash Systems
240 E 8th St
Holland, MI 49423
izabellaw@tommycarwash.com | (616) 212-7886

Re: Tommy Car Wash – Byron Center – Noise Study Report

Introduction

ABD Engineering & Design, Inc., (ABD) was asked to complete a noise study at the existing Tommy Car Wash located at 8334 Bryon Center Ave SW, Byron Center, MI. As part of this noise study, long-term (24-hour) noise measurements were completed at the site and along the property line of adjacent commercial properties from Tuesday morning on April 30, 2024, to Thursday morning on May 2, 2024.

The primary goal for this report is to capture the Tommy Car Wash noise levels during operation at the site and nearby commercial property lines. These noise levels have been compared to the Byron Center Noise Ordinance (BCNO) and the existing noise levels measured at the site during times the car wash is not operating. The following report details relevant acoustical concepts and the results of our long-term acoustical measurements.

Acoustical Terminology and Concepts

When dealing with sound, the physical quantity is expressed as sound pressure level (SPL), while the perceived level is expressed as loudness. Sound pressure level is measured in units called decibels (abbreviated dB), which are power ratios quantified using logarithmic units. Using the logarithmic scale, an increase of 10 dB corresponds to a doubling of the perceived loudness; therefore, an increase of 20 dB is considered 4 times as loud, and an increase of 30 dB is considered 8 times as loud. Table 1 describes the subjective evaluation of how humans perceive a change in sound level.

Table 1: Subjective Effects of Changes in Sound Levels

Change in Sound Level	Change in Apparent Loudness
3 dB	Just perceptible
5 dB	Clearly noticeable
10 dB	Twice or half as loud
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Adapted from Table 12.2 in *Engineering Principles of Acoustics* by Douglas D. Reynolds (1981)

Audible sound occurs over a wide frequency range, from approximately 20 Hertz (Hz) to 20,000 Hz. Human hearing does not respond equally to sounds at different frequencies (or pitches) – low-frequency noise (bass/rumble) is perceived as quieter than high-frequency noise (treble/hiss) of the same decibel level. To accommodate this variation in frequency sensitivity of human hearing, a frequency weighting can be applied to sound level measurements. When the weighting is applied, the resulting sound level measurements are said to be "A-weighted," and the decibel level is abbreviated dBA. Table 2 lists some commonly encountered noises, their A-weighted sound pressure levels, and associated subjective evaluations.

Table 2: Noise Source Comparison

Subjective Evaluation	A-weighted Decibels		Examples
Deafening	140 dBA		Near Jet Engine
	130 dBA		Threshold of Pain
	120 dBA		Threshold of Feeling – Hard Rock Band
Very Loud	100 dBA		Loud Auto Horn (at 10 ft)
	90 dBA		OSHA 8 Hour Noise Exposure Limit
Loud	80 dBA		Shouting at 1m (3 ft)
	70 dBA		Busy Office
Moderate	60 dBA		Conversational Speech at 1m (3 ft)
	50 dBA		Average Office
Faint	40 dBA		Soft Radio Music in Apartment
	30 dBA		Average Residence without Stereo Playing
Very Faint	20 dBA		Average Whisper
	10 dBA		Human Breathing
Threshold of Hearing	0 dBA		Threshold of Audibility

Adapted from *Concepts in Architectural Acoustics* by M. David Egan (1972) and *Architectural Acoustics: Principles and Design* by M. Mehta, J. Johnson, and J. Rocafort (1999)

While the decibel or A-weighted decibel are the basic units used for noise measurement, other indices are also used. One common index, the equivalent sound level (abbreviated as L_{eq}, or LA_{eq} when A-weighted), is commonly used to indicate the average sound level over a period of time. The L_{eq} represents the steady level of sound which would contain the same amount of sound energy as does the actual time varying sound level. Although it is an average, it is strongly influenced by the loudest events occurring during the time period because these loudest events contain most of the sound energy.

Other common metrics indicate the sound level exceeded a certain percentage of time. The L_{90} is the sound level that is exceeded 90% of the time and is representative of average continuous noise without influence from short-term noise events.

Noise Ordinance

Below is an excerpt from the Byron Center Noise Ordinance (BCNO).

Sec. 16-52. Sound pressure levels in zoning districts.

(a) In the D-1 district and the PUD planned unit development district, at no point on the boundary of a residence, business, or commercial district shall the sound pressure level of any individual operation or plant, or the combined operations of any person, firm or corporation, exceed the decibel levels in the designated octave bands shown below for the zoning districts indicated as measured using test equipment per ANSI standards S1.1-1960, S1.4-1961, S1.11-1966, and S1.12-1967, and SAE J-184, and with reference to sections 16-54 and 16-55.

Zone	Maximum Sound Pressure Levels (dB) Along District Boundaries (Daytime, Steady Noise)								
	31.5 Hz	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz
Residence	72	71	65	57	51	45	39	34	32
Commercial	79	78	72	64	58	52	46	41	39

(1) Maximum repetitive impulse noise sound pressure levels to be 10 dB lower than the values shown for steady noise.
(2) For monitoring purposes, the A scale levels (slow response) of 55 dBA and 62 dBA respectively for residence, business and commercial districts may be used. Any noise levels in excess of these values constitute a violation of this article.
(3) Where noise levels below the above-mentioned 55 dBA and 62 dBA are measured, the octave band test is to be applied in order to determine compliance with this section.
(4) Maximum nighttime sound pressure levels, 10:00 p.m. to 7:00 a.m., are to be 7 dB lower than the values shown for daytime steady noise for each octave band center frequency.

Existing Ambient Noise Study

To determine the existing sound levels at the Byron Center Tommy Car Wash site, ABD performed long-term sound level measurements over a 48-hour period. The noise study was started on April 30, 2024, at 10:00 a.m. and was concluded on May 2, 2024, at 10:00 a.m. This time frame was chosen to capture plenty of ambient data since there was the possibility of high wind speeds on Wednesday. Unfortunately, many of the daytime hours on Wednesday and

Thursday contained high wind speeds, which impacted the results. We have used data during the acceptable wind speed periods and TCW operation for comparison to the BCNO. It is important to note that the BCNO does not specify a measurement period for determining noise exceedances. We have presented the hourly, 1-minute, and in some cases, 1-second LAeq depending on the variability of the noise source.

Atmospheric Conditions

ABD performs noise measurements within the weather limitations specified in ANSI S12.9 *Quantities and Procedures for Description and Measurement of Environmental Sound* and S12.18 *Outdoor Measurement of Sound Pressure Level* for environmental noise measurements. Data measured during higher wind speeds risk reliability contamination due to wind noise on the microphone, and repeatability limitations due to the directionality of the receiver relative to the noise source. High wind speeds were present for the majority of daytime hours on April 30 and May 1, 2024. At the time of measurements, high winds were only expected during a few hours of one day of measurements.

The environmental conditions were obtained from www.wunderground.com for the Gerald R. Ford International Airport Weather Station (KMIGRAND151), in Grand Rapids, MI. Figure 1 summarizes the weather parameters during the measurement period.

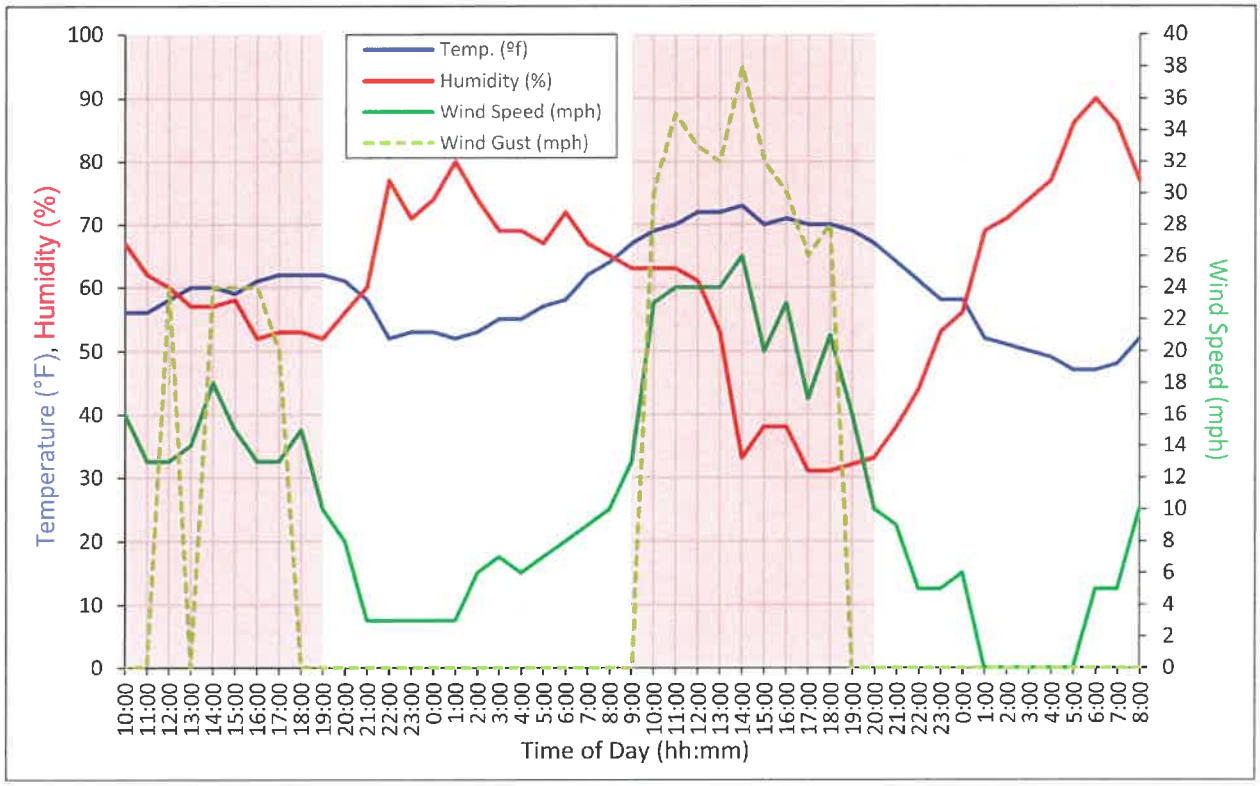

Figure 1: Environmental Conditions During Noise Study on May 1, 2024

Measurement Locations and Results

To determine the existing outdoor noise levels at the site, ABD conducted sound level measurements at three locations as seen in Figure 2 and described below:

Location M1: south property line, near entrance to car wash

Location M2: east, near vacuums

Location M3: north property line, near exit of car wash

Location M4: west, along Byron Center Ave

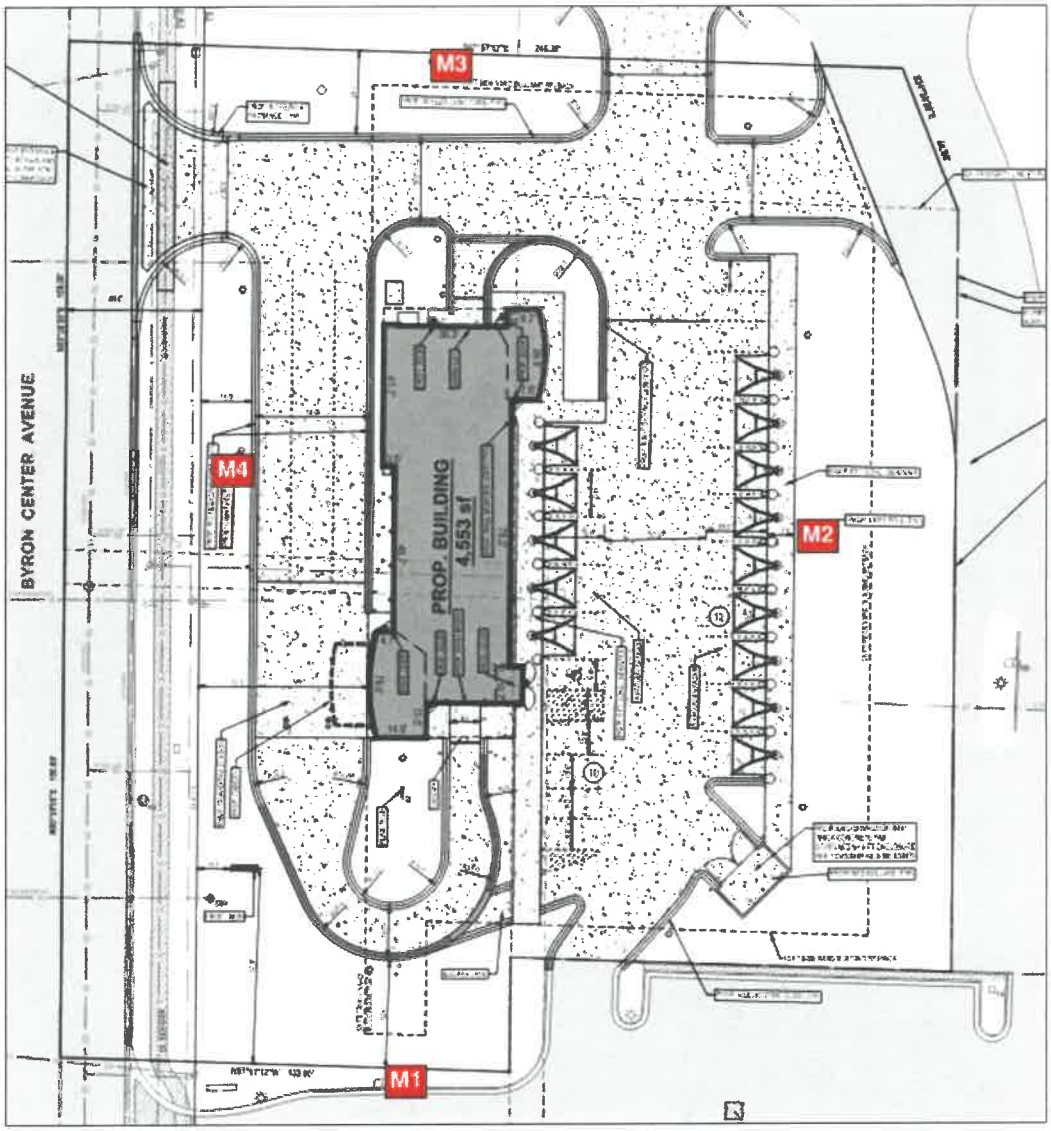

Figure 2: Site Plan with Measurement Locations

The long-term measurements (M1 – M4) were taken using the Soft dB Piccolo II sound level meters located at the four sides of the car was (shown in red in Figure 2). All meters were set to run with a 1-second sampling interval and using exponential (slow) detector integration. The time-history results of these long-term measurements are shown in Figures 3 through 6 in terms of 1-second LA_{eq} sound levels over the 24-hour measurement period. The operating hours of the TCW are highlighted by the yellow box while the periods of high wind speeds are highlighted in red.

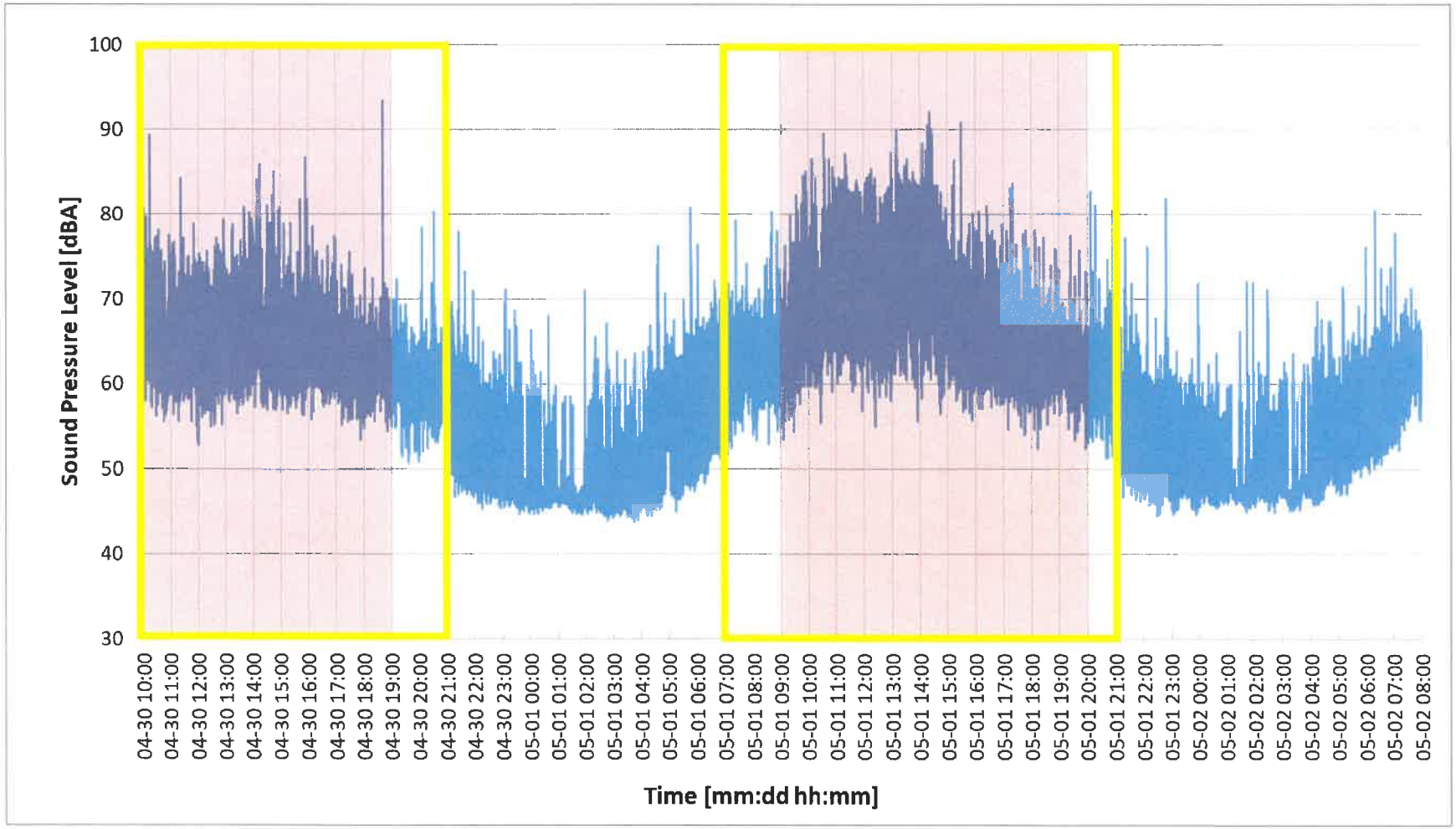

Figure 3: Location M1 (Car Wash Entrance) – 1-Second LAeq Sound Levels

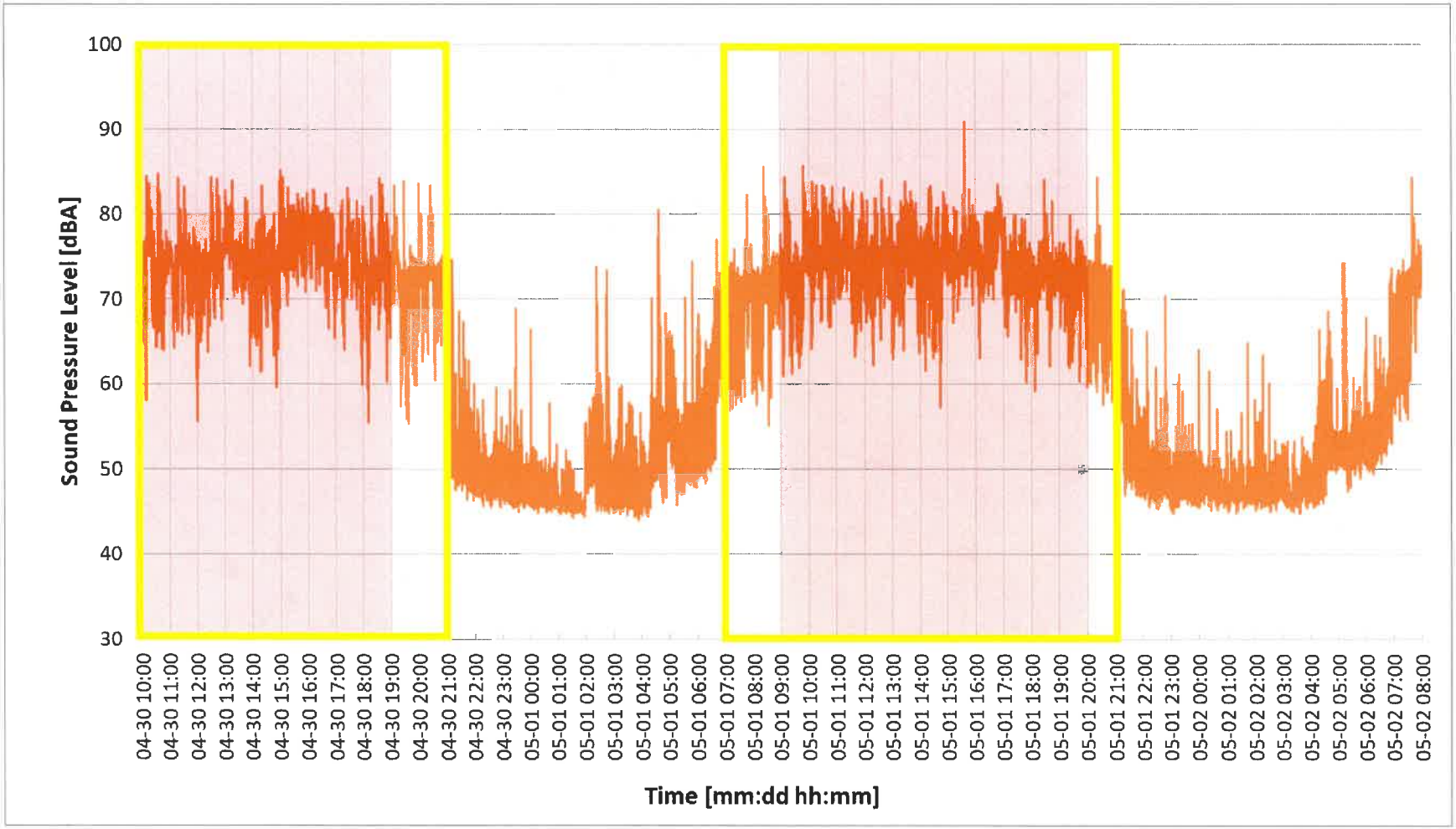

Figure 4: Location M2 (Vacuums) – 1-Second LAeq Sound Levels

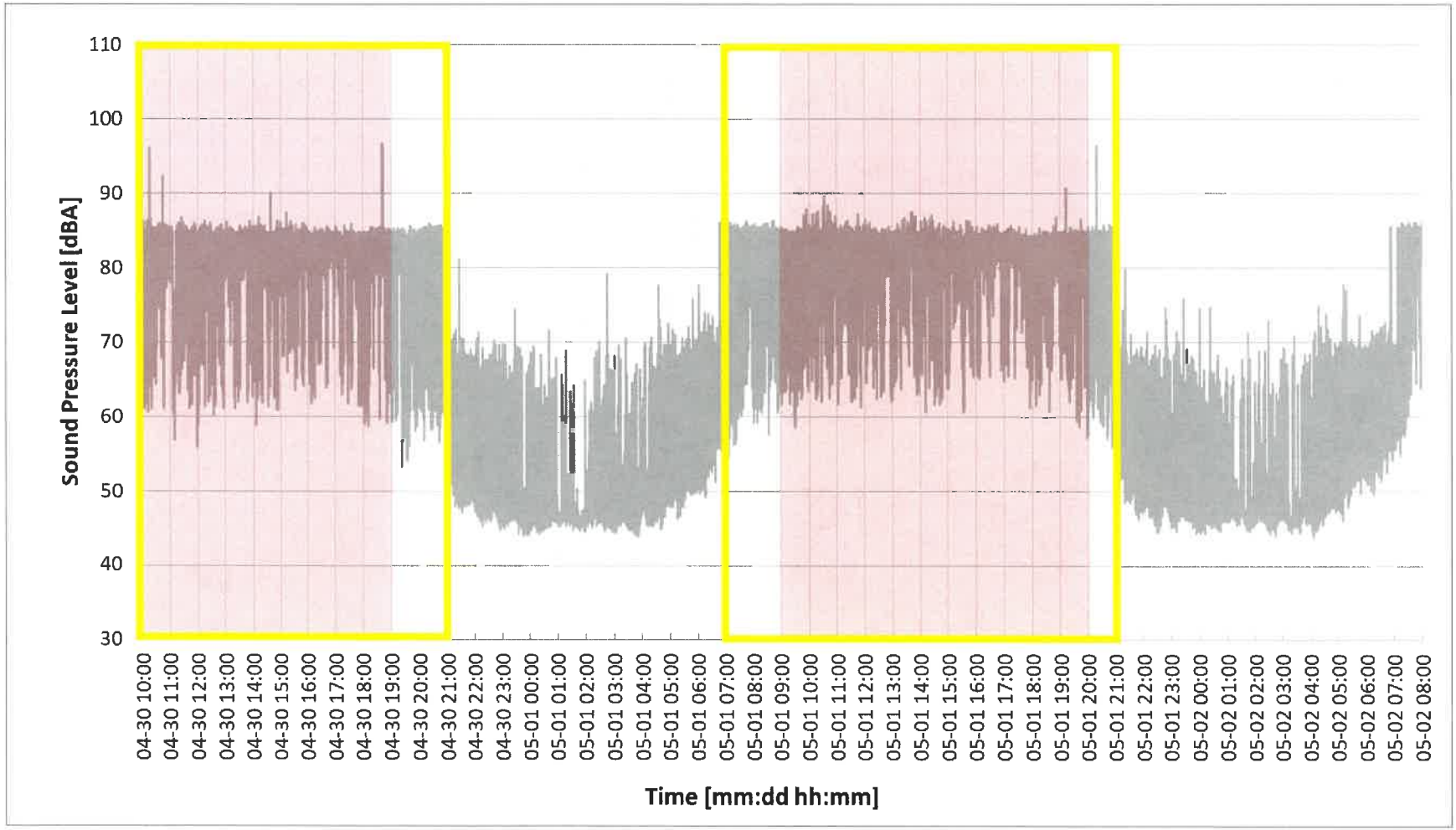

Figure 5: Location M3 (Car Wash Exit) – 1-Second LAeq Sound Levels

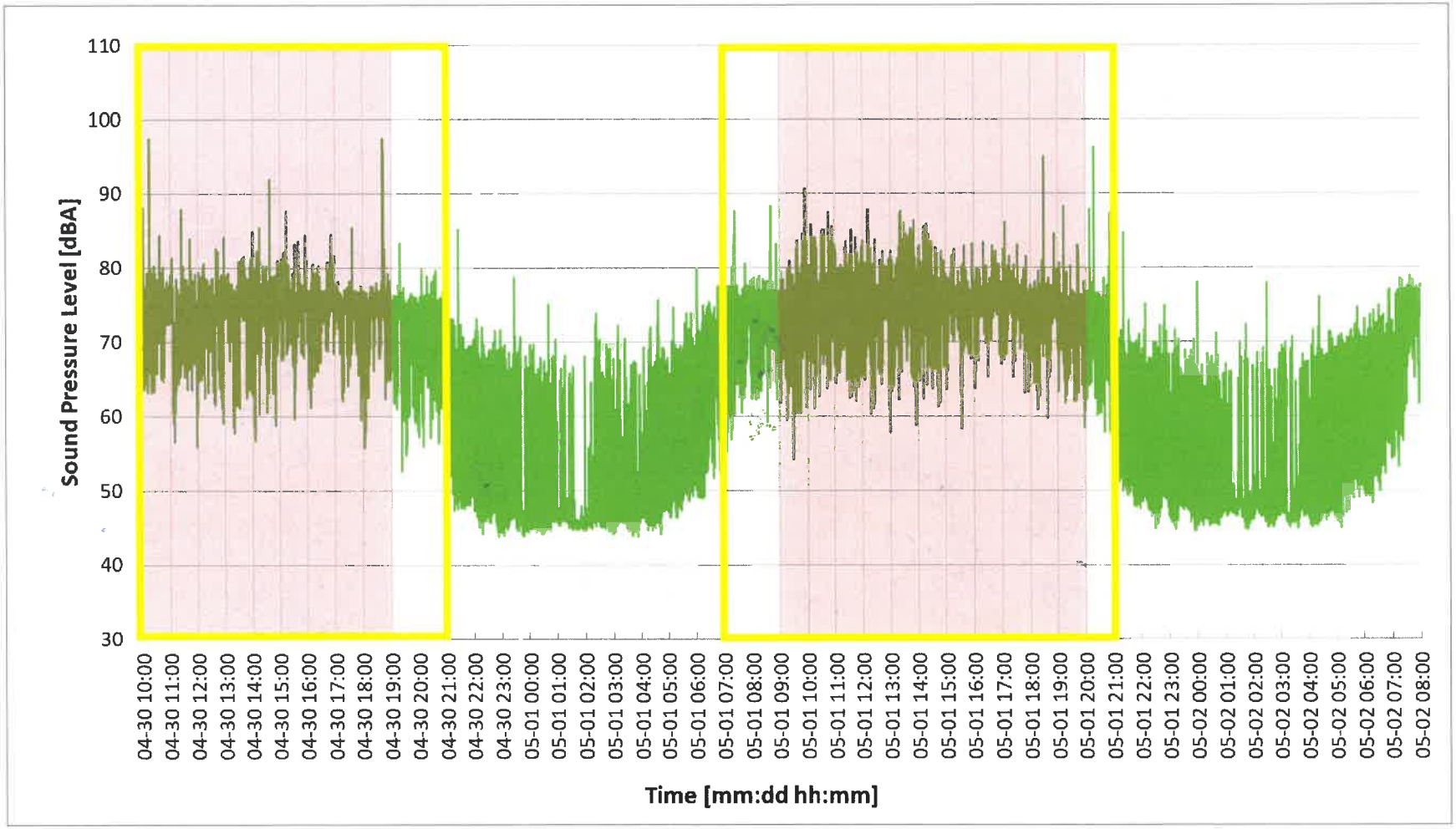

Figure 6: Location M4 (Byron Center Ave) – 1-Second LAeq Sound Levels

Dir. comm.
Ed. 400 Tarpon Woods Blvd

will lose generating trips
homes
- keeps cars off roads

oppo = 1200 Tarpon Woods Blvd

- Environmental
8000 recycled
storm water

@ d18
Tarpon Woods Blvd
F. => 400 trips/day
Add'l improvements
increase East Lake

ABD Engineering & Design

Architectural Acoustics • AV Design • Noise & Vibration

July 24, 2024

Izabella Welling
Tommy Car Wash Systems
240 E 8th St
Holland, MI 49423
izabellaw@tommycarwash.com | (616) 212-7886

Re: Tommy Car Wash – Hudsonville – Noise Study Report

Introduction

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Threshold of Hearing	0 dBA		Threshold of Audibility

Adapted from *Concepts in Architectural Acoustics* by M. David Egan (1972) and *Architectural Acoustics: Principles and Design* by M. Mehta, J. Johnson, and J. Rocafort (1999)

While the decibel or A-weighted decibel are the basic units used for noise measurement, other indices are also used. One common index, the equivalent sound level (abbreviated as L_{eq}, or LA_{eq} when A-weighted), is commonly used to indicate the average sound level over a period of time. The L_{eq} represents the steady level of sound which would contain the same amount of sound energy as does the actual time varying sound level. Although it is an average, it is strongly influenced by the loudest events occurring during the time period because these loudest events contain most of the sound energy.

Other common metrics indicate the sound level exceeded a certain percentage of time. The L_{90} is the sound level that is exceeded 90% of the time and is representative of average continuous noise without influence from short-term noise events.

Noise Ordinance

The section of Code of Ordinances of Hudsonville, Michigan (COHM) addressing noise is regarding disturbances of the peace. Below is an excerpt from Article V of the COHM. Note that normal conversation levels between people are around 60 dBA on average.

Sec. 16-49. Disturbance of the peace.

It shall be unlawful for any person to:

(4) Willfully create any noise originating from a residence or business between the hours of 9:00 p.m. and 7:00 a.m. which is unreasonably loud under the circumstances. Such noise will be considered unreasonably loud under the circumstances if:

a. Such noise is clearly audible at a distance of fifty (50) feet from the property line of that residence or business;
b. At a distance of fifty (50) feet from the property line such noise is louder than that of a normal conservation between two (2) people; and
c. Such noise would be unreasonably loud and disturbing to the average member of the community under the circumstances.

It is important to note that the time period specified in the COHM falls outside of the Tommy Car Wash normal operating hours (7 a.m. to 9 p.m.). Additionally, these types of qualitative descriptions do not provide any quantitative acoustical criteria for comparison or enforcement. However, based on Table 2, we can quantify the noise levels of normal conversation between two people as typically ~60 dBA.

Noise Study

To determine the existing sound levels at the Hudsonville Tommy Car Wash site, ABD performed long-term sound level measurements over a 24-hour period. The noise study was started on May 30, 2024, at 8:00 a.m. and was concluded on May 31, 2024, at 8:00 a.m. This time frame was chosen to capture ambient data during and outside of the Tommy Car Wash operating hours of 7 a.m. to 9 p.m. We have presented the hourly, 1-minute, and in some cases, 1-second LAeq depending on the variability of the noise source.

Atmospheric Conditions

ABD performs noise measurements within the weather limitations specified in ANSI S12.9 *Quantities and Procedures for Description and Measurement of Environmental Sound* and S12.18 *Outdoor Measurement of Sound Pressure Level* for environmental noise measurements. Data measured during higher wind speeds risk reliability contamination due to wind noise on the microphone, and repeatability limitations due to the directionality of the receiver relative to the noise source. High wind speeds were only present for a one-hour period before business hours on May 31, 2024 during the measurement period.

The environmental conditions were obtained from www.wunderground.com for the Gerald R. Ford International Airport Weather Station (KMIGRAND151), in Grand Rapids, MI. Figure 1 summarizes the weather parameters during the measurement period.

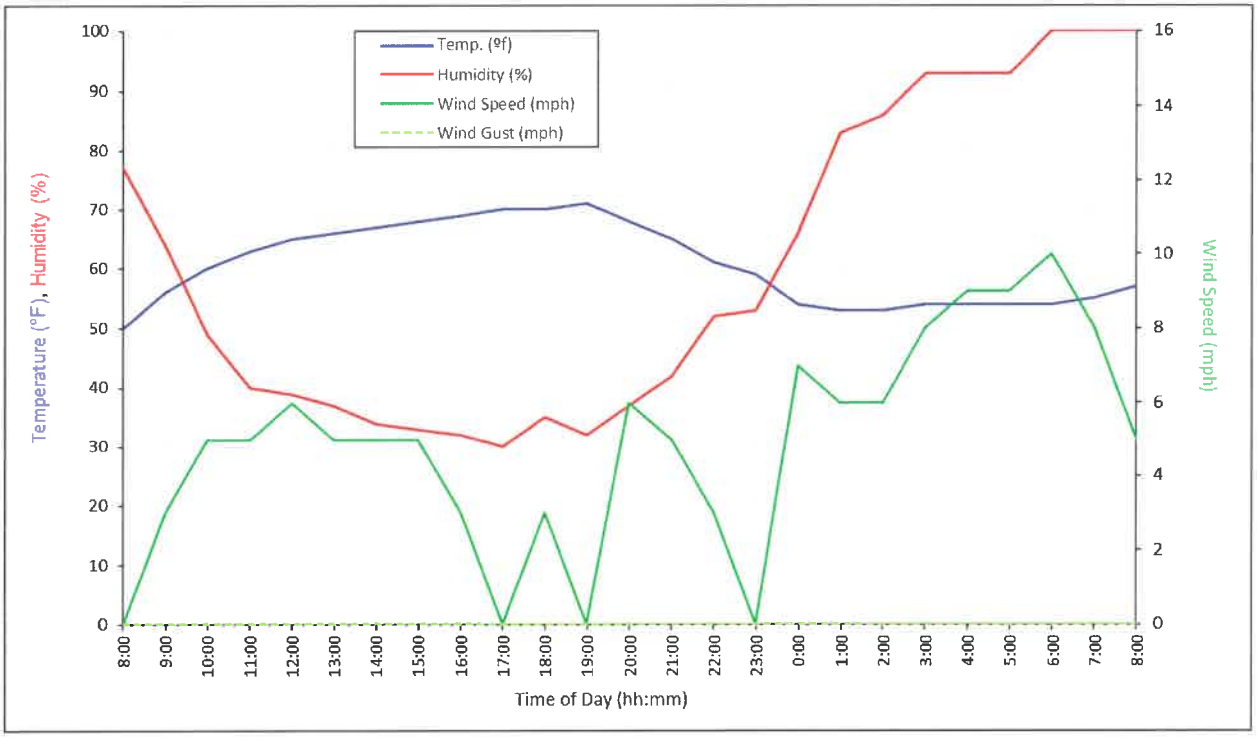

Figure 1: Environmental Conditions During Noise Study on May 30, 2024

Long Term Measurements

To determine the existing outdoor noise levels at the site, ABD conducted long term sound level measurements at three locations as seen in Figure 2 and described below:

Location M1: east property line, near entrance to car wash

Location M2: south, along 32nd Ave

Location M3: west property line, near exit of car wash

Location M4: north, near vacuums

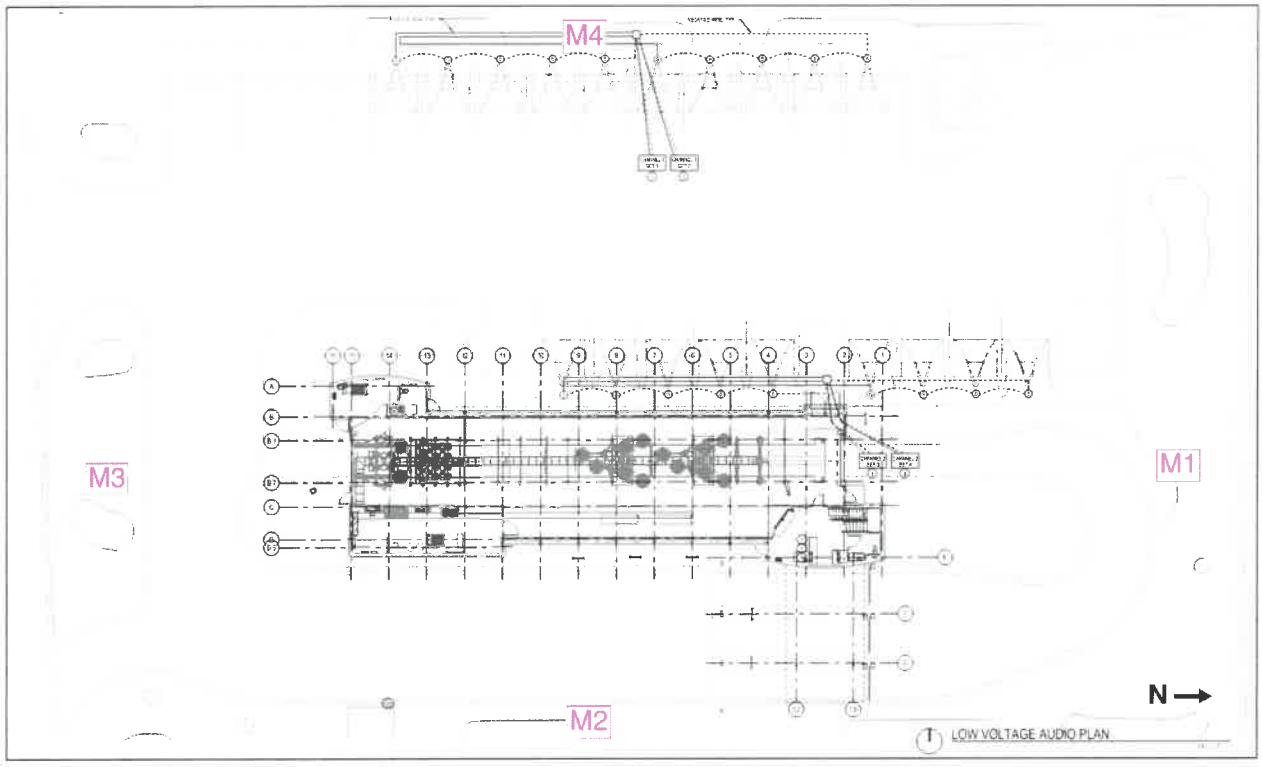

Figure 2: Hudsonville Site Plan with Long-Term Measurement Locations

The long-term measurements (M1 – M4) were taken using the Soft dB Piccolo II sound level meters located at the four sides of the car wash (shown in magenta in Figure 2). All meters were set to run with a 1-second sampling interval and using exponential (slow) detector integration. The time-history results of these long-term measurements are shown in Figures 3 through 6 in terms of 1-second LA_{eq} sound levels over the 24-hour measurement period. The operating hours of the TCW are highlighted by the yellow box.

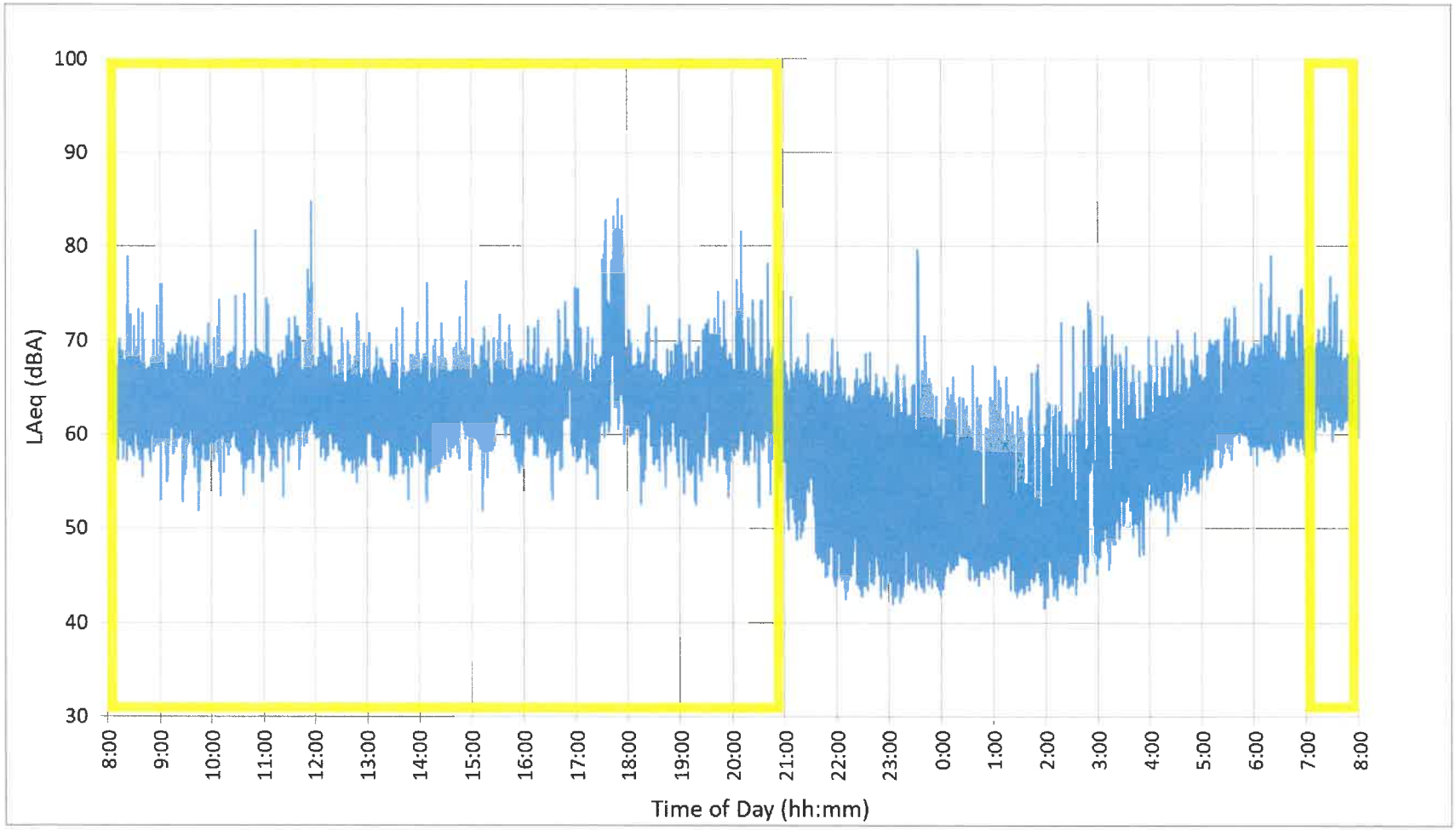

Figure 3: Location M1 (Car Wash Entrance) – 1-Second LAeq Sound Levels

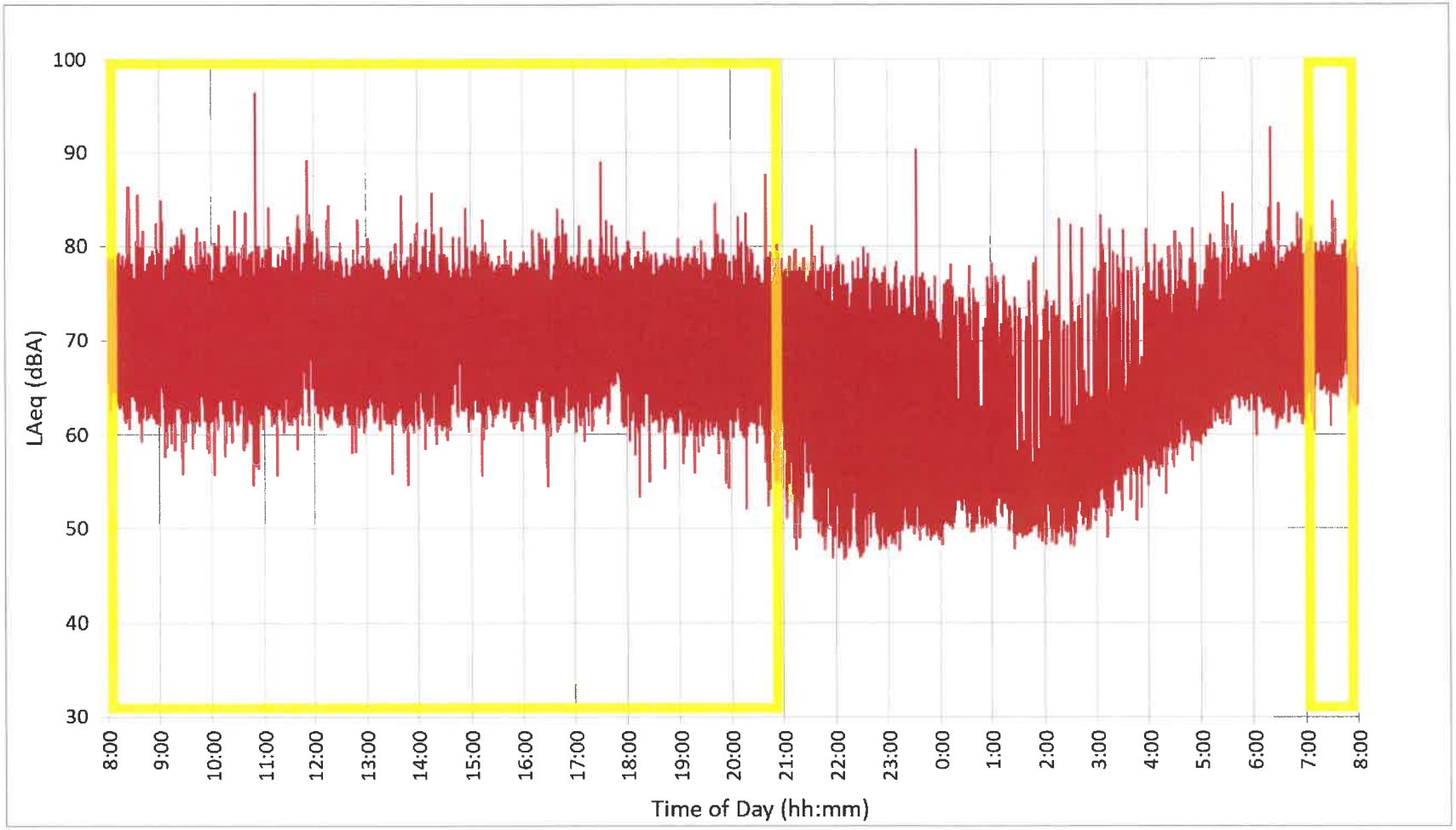

Figure 4: Location M2 (32nd Ave) – 1-Second LAeq Sound Levels

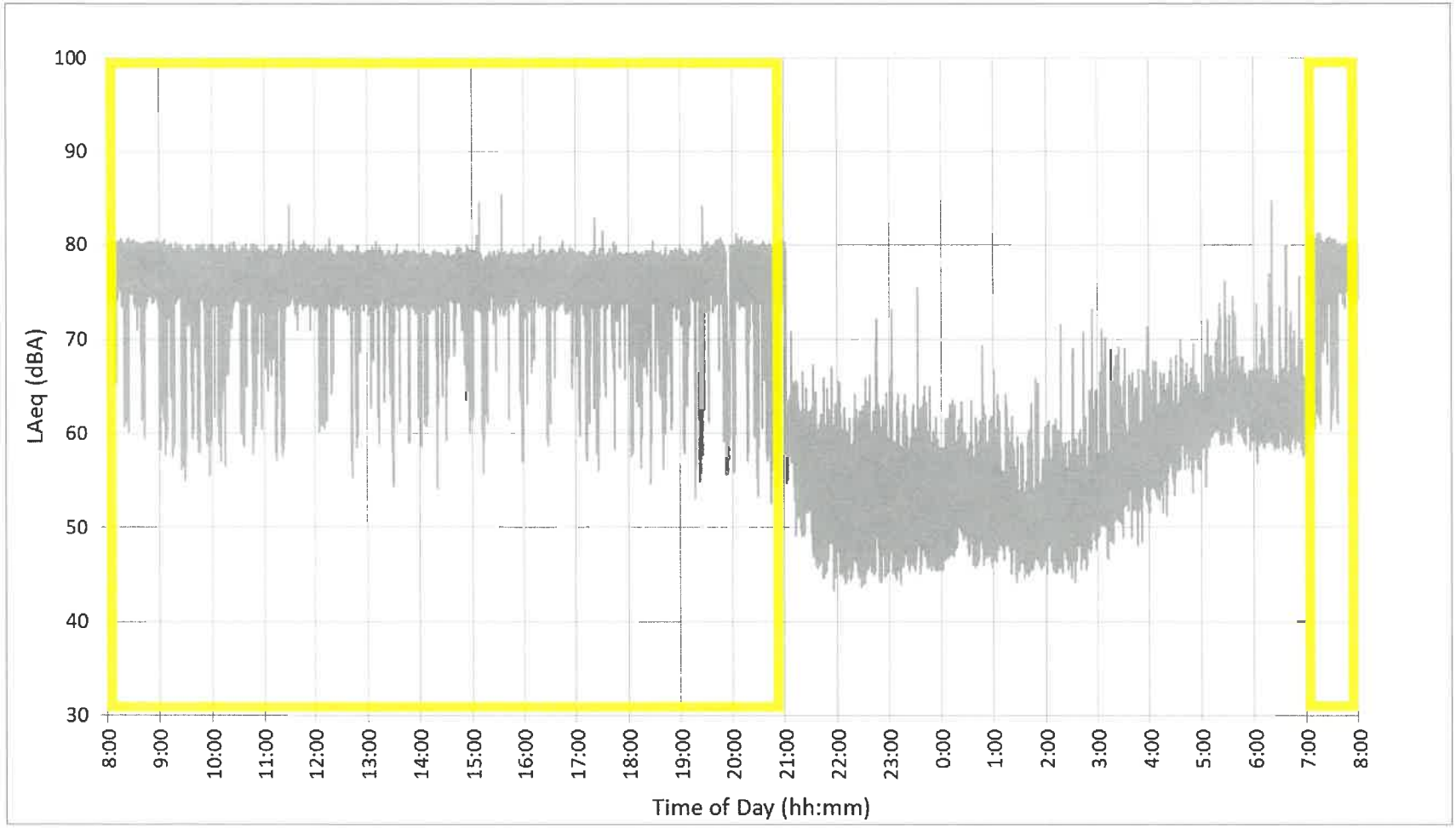

Figure 5: Location M3 (Car Wash Exit) – 1-Second LAeq Sound Levels

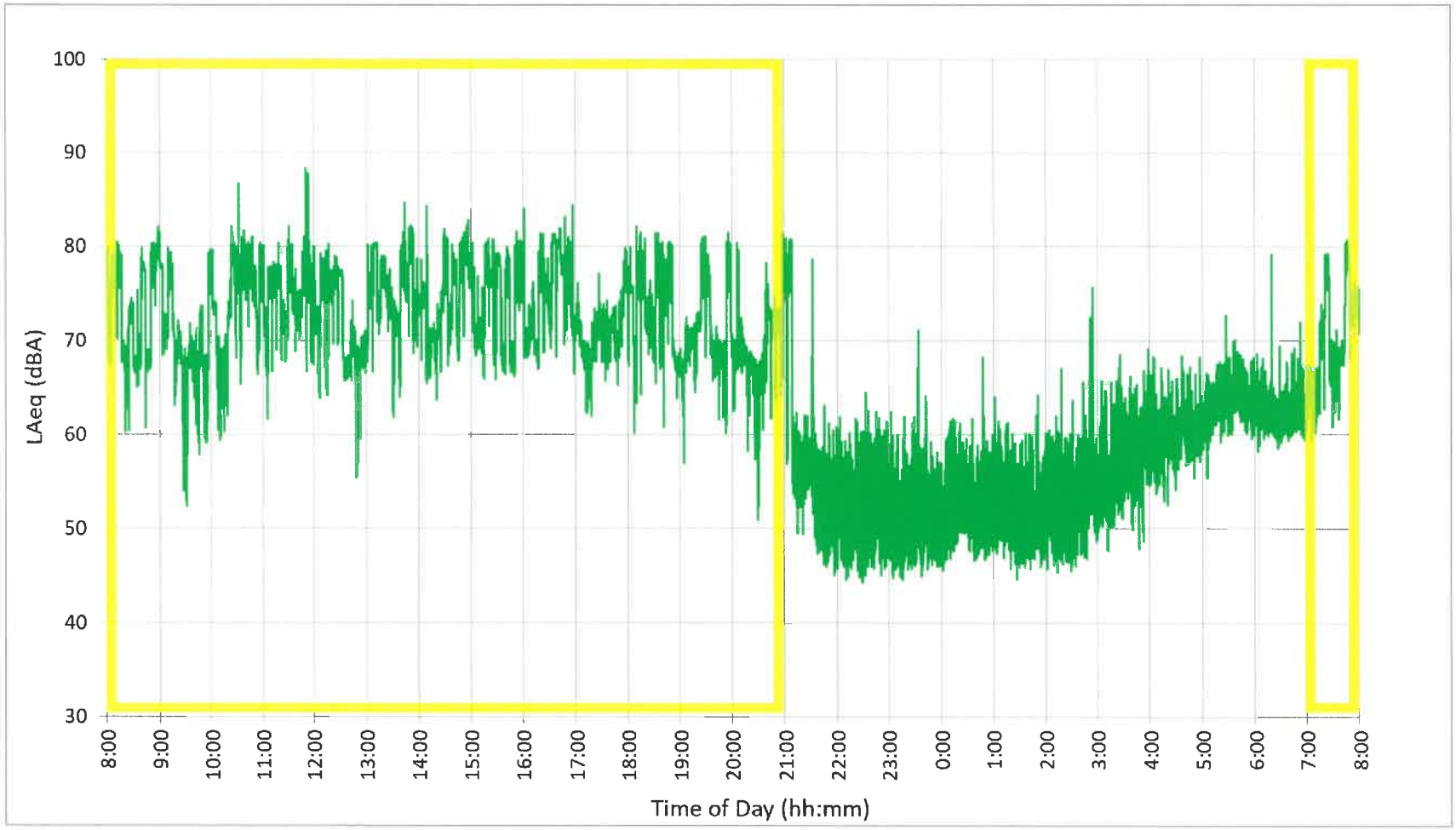

Figure 6: Location M4 (Vacuums) – 1-Second LAeq Sound Levels

As the figures above show, noise levels were significantly higher during the daytime while the car wash is in operation. Locations M1, M2, and M3 are close to 32nd Ave and influenced by traffic noise, with M2 being closest. Despite the noise from 32nd Ave, all measurement locations show noticeable noise impact during the car wash operation. Location M4 is located by the vacuums on the north side of the Tommy Car Wash and is shielded from traffic noise by the building. The maximum peaks in noise levels throughout the day are identifiable as emergency vehicles, and the elevated levels at M1 between 5 pm and 6 pm on May 30th are likely caused by activity near the Piccolo II meter M1 and unrelated to normal TCW operations.

Figure 3 shows the car wash noise levels at the entrance of the TCW. While the noise from inside the car wash generates significant noise levels at the entrance, the noise levels at M1 are not consistent. Noise levels at the car wash exit, shown in Figure 5, are consistently higher, around 77 to 80 dBA during operating hours, due to the blowers. Noise levels at M1 and M3 drop to nighttime ambient levels once TCW is closed, showing direct correlation between the heightened noise levels and operating hours.

Figure 5 shows the impact of traffic noise near 32nd Ave to the south of TCW and shows daytime levels between 55-80 dBA during operating hours, depending on traffic volume throughout the day.

Figure 6 shows the measured noise levels near the vacuums to the north of the TCW building at the M4 position. Traffic noise is largely absent at this position, and the measured noise levels vary significantly due to inconsistent vacuum usage by customers. Noise from the car wash building is also much lower at M4, and noise drops to ambient nighttime levels once TCW is closed.

Short Term Measurements

In 2020, ABD completed measurements at this TCW location to capture short term measurements of the main noise-generating equipment. These measurements captured the frequency content of each of these noise sources and overall A-weighted noise levels (dBA) of the car wash operation.

The blowers and vacuums have been updated at the Hudsonville location and will be the new basis of design for future TCW locations. To determine the noise levels of this updated equipment at the site, ABD conducted sound level measurements using Larson Davis 831 sound level meters at the locations described and seen in Figure 7 below:

Location 1: Tunnel Entry

Location 2: Tunnel Exit

Location 3: Vacuums

Location 4: Blower Room

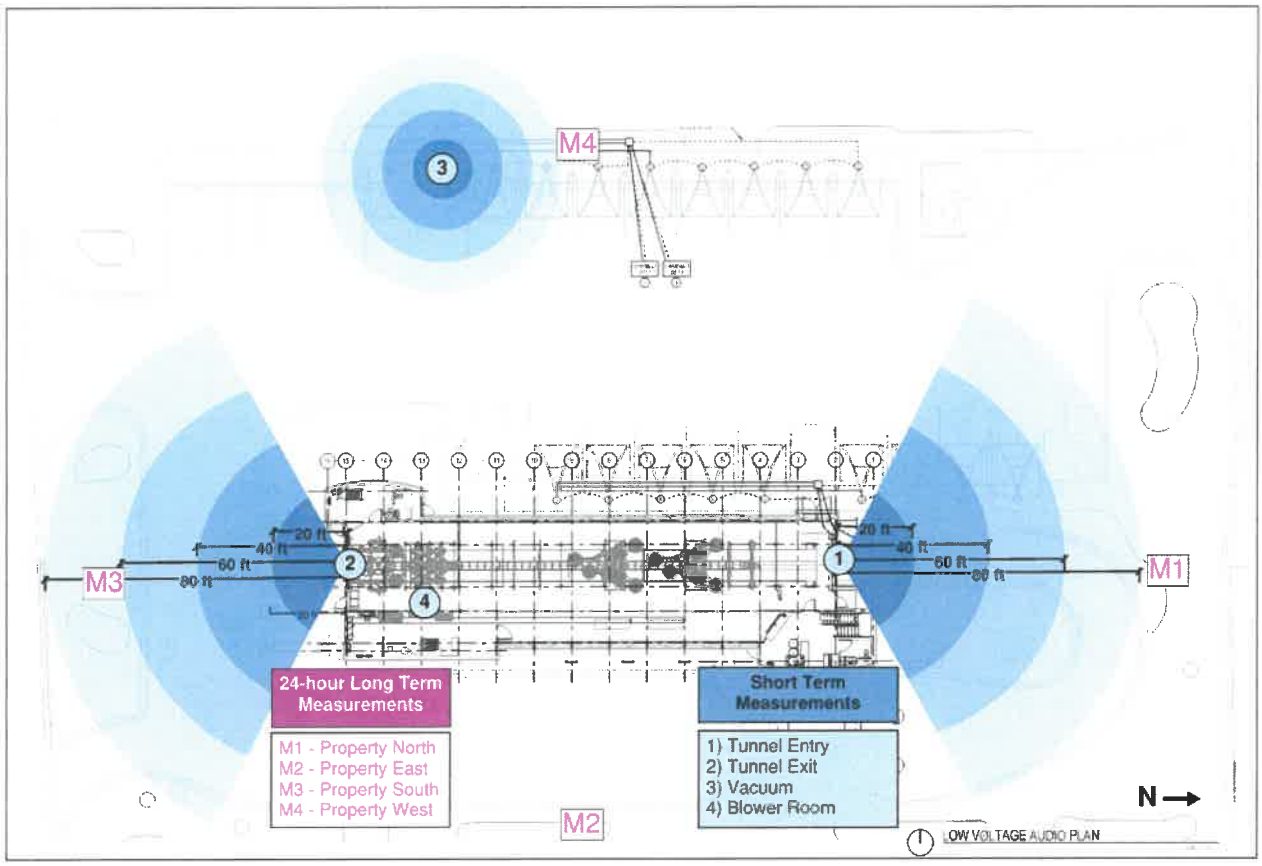

Figure 7: Site Plan with Short Term Measurement Locations

The main contributors of noise are the blowers, which generate significant noise at the exit of the car wash; the vacuums, which operate outside the car wash and can collectively add significant noise in the parking lot; and the entry where cars are being washed and announcements are taking place. The exit noise created by the blowers is the primary noise source and generates noise far above the ambient background noise when the car wash is not in operation.

Table 3 below shows the short-term measurement results at key areas during the 2020 and 2024 measurements.

Table 3: Short-Term Measurement Comparison 2020 vs 2024

#	Location	2020 Measured Sound Pressure Level (dBA)	2024 Measured Sound Pressure Level (dBA)
1a	Tunnel Entry (0 ft)	86	84
1b	Tunnel Entry (40 ft)	70	69
1c	Tunnel Entry (80 ft)	n/a	65
2a	Tunnel Exit (0 ft)	95	101
2b	Tunnel Exit (40 ft)	83	86
2c	Tunnel Exit (80 ft)	79	78
3a	Vacuum	81	78
3b	Vacuum (60 ft)	73	69
4	Blower Room	106	104
5	Ambient at Exit (80 ft)	n/a	53

As the table indicates, the noise levels at the car wash entry are slightly lower, but a 1-2 dBA difference is not noticeable to an average listener. The 2024 blower noise levels at the tunnel exit are 5-6 dBA higher than 2020 measured noise levels. As stated by Table 1 in the Acoustical Terminology section, this increase in noise level is clearly noticeable. However, as indicated by the 40 ft and 80 ft measurements, the blower noise levels decrease with distance to 78 dBA, which is close to the 2020 noise levels. We note that 15 of the total 18 blowers were active during measurements. If all 18 blowers are operating simultaneously, we predict a 1 dB increase in the noise levels at the exit, which is not a noticeable increase but may be impactful for meeting noise level limits set by local noise ordinances.

Although these noise levels at 80 ft are similar, they are still 20-25 dBA louder than the measured background noise levels. For the 2024 Hudsonville ambient noise levels, we measured 53 dBA with no car wash operation and only light traffic. During this early morning condition, the resulting increase in noise level with the operating blowers is significantly louder and exceeds some noise limits of city noise ordinances, such as the Byron Center noise ordinance.

Conclusion

Since the COHM does not specify quantifiable limits on noise levels at property lines during daytime hours, it is not possible to confirm if the measured noise levels would constitute a violation of the ordinance. Note that the COHM specifies that noise levels are not to exceed normal conversation levels between the hours of 9 p.m. and 7 a.m., when TCW is closed.

While the COHM may not technically apply, the noise levels at the TCW exit are significantly high, with the blowers being the main source. During car wash operation, the blowers consistently generate approximately 80 dBA at the property line. Due to the high level of noise generated by the blowers, we recommend providing mitigation to reduce the noise level at the property line, so that there are fewer disturbances to neighboring properties. Possible mitigation strategies include noise barriers, adding absorptive materials at the blower area, modifying how the blowers are utilized, or installing quieter blowers. If it is desired to analyze and develop these mitigation strategies, we will analyze potentially achievable noise reductions in Phase 2: Mitigation Recommendations upon approval.

Finally, note that our comments only apply directly to acoustics; we cannot comment on such things as local codes, ordinances, electrical systems, fire suppression systems, or any other non-acoustic issues. Our recommendations should be reviewed by the appropriate design professionals for code compliance before they are implemented.

If you have any questions, please contact us.

Sincerely,

ABD Engineering & Design, Inc.
Per:

John Kramer
Acoustical Consultant

Quincey Smail, INCE Bd. Cert.
Senior Acoustical Consultant

cc: Melinda Miller, Marci Boks – ABD Engineering & Design