From: JERINE HARTSCH
Sent: Tuesday, September 29, 2020 5:11 PM
To: Centinario, Michael
Subject: Verizon case PL-2020-166 or PL202000-166 10/08/2020 6:00 PM

Hello Mike,

Thanks again for answering questions on the new building addition. I live right across Old Shakopee from the Verizon building in bush lake road circle. My concern is that there will be smoke and strong odors/noise again from the generator weekly runs. Several years ago the city came out and discovered from the EPA and Bloomington health division area that there was a very strong odor on Wednesdays as well as smoke floating across from the weekly generator test that is performed in the afternoon by Verizon. Verizon turned the large smoke stacks on their roof to face away from old shakopee so it helped lessen the smoke, odor and noise. This usually helps unless there is a breeze or wind, but I am concerned that the new building and additional generator will increase the problem for residents especially since the new building will be closer to Old Shakopee and therefore closer to the residential neighbors. The health area was helpful back when they originally recognized several years ago and actually visited and helped with the issue. Would like to make sure that the scent (smells like riding behind a city bus) and smoke/noise are addressed.. Last time they rotated the smoke stacks 180 degrees on their rooftop which was helpful but not an actual fix, depending on the weather,

Thanks again for addressing and considering the local residents impacted.

Jerine Hartsch

From: Gemma Miller
Sent: Sunday, October 4, 2020 6:43 PM
To: Centinario, Michael
Subject: Verizon expansion case file#PL2020-166

Mr. Centinario,
My name is Gemma Miller and I reside at 10952 Highland Road, 55438. My residence is in Highland Villas which is across Bush Lake Rd from Verizon.
I have lived here over 13 years.
I am concerned and adamantly against the Verizon expansion.
The expansion will be to the south of their current facility which moves them closer to Highland Villas.
They will add more generators and ventilators both of which creates noise. In the past several homeowners at Highland have complained about the noise emitting from Verizon. This situation could effect our property values. These townhomes hold their value. I hate to see that diminish.
Please note my dissension in the Verizon expansion.
Gemma Miller

Sent from my iPhone

Submitted by:
Gary Guerin
10714 Garden Circle

10/04/20

Subject: Verizon MSC Expansion – Bloomington, Minnesota

Comments and Concerns:

We have been given little opportunity to prepare for one and done meeting. Notice of Public Hearing letter was received only 2-3 weeks before hearing date. We must literally put our lives on hold to review proposal details, engineering studies, etc. to try to prepare for substantive debate on the issue. Whereas said organization has had planning in the works for (6) months (minimum) and a small army of staff preparing to drop this proposal on the pubic in the 11th hour. Comments and concerns below are considered to be incomplete and are submitted as written due time constraints.

Proposal will amongst other issues become an eyesore (impact home values).

- Substantial reduction of original setback and green space (inconsistent with surrounding businesses)
- Additional generator exhaust stacks (2 more now with undefined future).
- 14' high screen wall to be lengthened by 50% parallel to Old Shakopee Rd and pushed much closer to the roadway

We have presented numerous complaints to the City about the noise originating from Verizon facility dating back to March 2014 - telcons w/ David Boberg and Eric Solie.

Complaints were made based on Existing equipment - AHU(s) and condensers located on the South side of the building complex and (2) generators located on the North side.

Expansion proposal ***adds*** (5) AHU(s) and (6) condensers and (2) generators (with area reserved for future) to the North side of the building.

We understand 50dBA limit is to be maintained not only at the "nearest residential property line" but also at all residences beyond nearest. This limit shall not be exceeded in any and all expected environmental conditions.

- City shall agree to perform dBA testing at any residency so requesting
- City shall agree to perform dBA testing throughout the spectrum of foreseeable environmental conditions (see comments under Engineering Analysis)

Submitted by: 10/04/20
Gary Guerin
10714 Garden Circle

We do not necessarily accept 50dBA as a reasonable limit given Verizon's 24-7-365 continuous operation.

- World Health Organization – annual average night exposure should not exceed 40dBA
- 10dBA reduction is perceived as halving the sound level
- There is a significant difference in human physical and mental health response to noise levels which are ***constant*** with respect to time and dBA verses noise levels which are intermittent both in respect to time and dBA

We disagree generator use is "for life safety" – it is for equipment safety and operational readiness. We disagree with assertion that regulations "do not apply".

- 60dBA shall be design limit
- Analysis shall be based on minimum (4) generators simultaneous

Engineering Analysis - as submitted is flawed:

Per Noise Study dated Sept 01, 2020:

No analysis has been presented for Existing + Expansion equipment operating simultaneously.

- Potentially adding 3dBA to all values within calculated contour plot

No analysis has been provided to account for topography of the residential neighborhood directly to the North - "assumed flat ground elevation".

- Additional residencies are located 500 -1500 feet away (to the North) at various elevations rising 20-70 feet above source (distances cited are approximate)

No analysis has been performed to account for refraction of sound waves.

- Temperature inversions (winter months) – dramatic impact
- Winds out of the South (various wind speeds/ gradients/ known barriers/ restrictions)

Submitted by: 10/04/20
Gary Guerin
10714 Garden Circle

No analysis has been performed to account for potential traffic noise reflection off the longer and closer screen wall back towards the residencies.

- Amplifies traffic dBA
- Potential reverberation effects

No service factor has been applied to account for worn bearings, misalignment, contamination, etc.

- Analysis based on manufactures test data (under ideal conditions)
- Verizon shall continually monitor actual dBA values local to equipment

We hereby move these proceedings be suspended until thorough engineering analysis has been performed to address all issues noted above.

Regards,
Gary A. Guerin

From: Bill Althoff
Sent: Monday, October 5, 2020 7:09 PM
To: Centinario, Michael
Subject: Verizon MSC Expansion Case # PL2020-166

I am totally against "pushing this proposal through" during this time of COVID restrictions. Homeowners potentially affected by this expansion have not been given adequate opportunity to understand the potential quality of life impacts of this expansion.
I live directly across Old Shakopee road from this site. My address is 10734 Louisiana Circle. My wife has lodged at least 2 complaints in the past pertaining to the noise levels coming from the Verizon site. We were told that the generator noise was a result of "monthly" testing. We registered our complaints that these generators were operating "weekly" and the noise lasted for hours on days in the middle of the week. We were told that should not happen, but it has continued to happen.
From what I can tell from the proposed expansion noise levels will potentially be higher, if the expansion happens. In addition to the noise, expanding buildings closer to Old Shakopee, and erecting high fencing will be an "eyesore" to the surrounding neighborhood.
I have invested heavily in upgrading my home recently, and have no appetite to accept industrial expansion that will lower my property value!
I and my neighbors deserve opportunities to be heard. There is no way that this proposal should be allowed to move forward without a more thorough disclosure of the risks to the residents of the city of Bloomington.

Please acknowledge receipt of the communication

Bill Althoff
10734 Louisiana Circle
Bloomington, Mn 55438

From:
Sent: Tuesday, October 6, 2020 8:25 PM
To: Centinario, Michael
Subject: Case File Number: PL2020-166, Verizon Wireless LLC

Attention Planning Commissioners,

We have lived in the same house along Old Shakopee Road since 1987. Since then we have seen Old Shakopee Road go from two lanes to four lanes, with the speed limit increasing as the road expanded. We have had to deal with the traffic noise from speeding cars, loud motorcycles, police sirens, ambulance sirens, fire sirens to the point we don't open our windows. With the land along Old Shakopee and side streets off of it becoming industrial type property, we have had to put up with the screaming of generators from various factories, etc. at all hours of the day and night. We have to wait as semis try to navigate the turns onto the road. We have to stare at unmowed parcels of land behind our house.

Enough is enough!

We are against any expansion by Verizon to their facility bordering Old Shakopee Road. Adding more exterior generators and a 14' concrete wall will greatly amplify the sound pollution we are exposed to already. Car traffic noise will bounce off the concrete. We have already had to deal with the noise from the generators on the existing building. Adding more will amplify that noise tremendously.

Another concern is having a communications operation of this magnitude so close to residential neighborhoods. The safety and security of us homeowners is at stake. A company of this nature should be in a more secluded setting.

You, as part of the Planning Committee of Bloomington, gave us very little notice of this expansion. I feel that it was an attempt to railroad through approval without any concern for those of us living nearby. Based on the Project Description in the Public Hearing Announcement, I don't feel due diligence has been taken on your part to even substantiate any facts as to how this expansion will affect the lives of us residents living in the area, i.e. noise assessment, topography, equipment safety.

No consideration or concern has been taken as to the affect this expansion will have on our home values.

It is time Bloomington officials look after the well-being of its citizens/homeowners and decline expansion of Verizon at 10801 Bush Lake Road.

Thank you.

Tony and Sonja Renko
10732 Louisiana Circle
Bloomington, MN 55438

From: LaVonne Dea
Sent: Wednesday, October 7, 2020 5:47 AM
To: Centinario, Michael
Cc: Bill Dea; gary guerin
Subject: Case File PL2020-166 - Verison Wireless Expansion Project - Bloomington, MN

As a city resident and property owner with a home directly north of Verison across Old Shakopee Rd we want to express we are **strongly opposed to the proposed expansion project and request the City deny Verison's request to expand** for the following reasons:

- Industrial eyesore in our residential neighborhood. (When we moved into our home there was a horse and pumpkin patch located on this property.)
- Reduction of green space between current structure and our residential neighborhood.
- Concern about the negative impact to our property values and ability to resell our homes.
- Noise generated from this facility has already been significant and negatively impacted our neighborhood, to expand and increase the number of generators and other equipment will further increase the noise diminishing the quality of our outdoor neighborhood environment.

At a minimum, we would ask that Version expand to the south toward other industrial buildings and further away from the residential neighborhood.

Thank you for your consideration.

Bill & LaVonne Dea

From: Nate Erickson
Sent: Wednesday, October 7, 2020 12:19 PM
To: Centinario, Michael
Cc: garyaguerin@gmail.com
Subject: Verizon Expansion Project

Hello Michael,

My wife and I live at 10710 Garden Circle and are in receipt of the plans Verizon has in place to expand off of Bush Lake Rd & Old Shakopee. After reviewing the documents and discussing the issue with our neighbors, we are in agreement that more time and due diligence is required to understand the impact of this expansion.

We've noticed buzzing noises from our bedroom windows at night (which face south) on a number of occasions and have been forced to close the windows. To think we'd have more noise pollution from generators and also additional vehicle noise from the 12' concrete wall, is a bit concerning and needs to be addressed with the neighbors.

Gary Guerin has brought up some very important points regarding how sound will be experienced differently at varying temperatures, wind direction, and elevation. **On page 6, the report states the receiver was placed 5' above the ground along Old Shakopee Road. They should be testing at the height of the neighboring second level windows, not 5' above the ground. Also, page 4, they reference an assumption that the study area is flat - which we know is inaccurate**. Our house sits 30-50 feet above this site and I'd imagine the sound will be much more pronounced from our position. It appears the sound study doesn't take into account some of these factors.

I didn't see any aesthetic requirements for the 12' concrete wall. Is this going to look like the side of a prison or will there be some design features that will help it blend into the neighborhood?

We've spent tens of thousands on our house this year alone and we'd like to ensure that something as detrimental as noise pollution doesn't detract from the investment we've made in Bloomington. We respectfully ask you to address these concerns and ensure we're making decisions with the best and most accurate information available.

Best,

Nate & Jessica Erickson

From: Molly
Sent: Wednesday, October 7, 2020 5:40 PM
To: Nelson, Shawn; Centinario, Michael
Subject: Verizon expansion plans and public hearing

Greetings Shawn and Mike,

I am a long-time resident of Bloomington, and the last 15+ years of Highland Villas association on Bush Lake Road. I am writing to express my deep concern over the planned expansion of Verizon Wireless directly across the street. I had previously contacted the City regarding the noise that the Verizon cooling fans create, but was unsuccessful in finding any resolution. I was told that City ordinance allows for the equivalent of a "quiet conversation," and the sound we hear definitely exceeds that. As it is, there is a constant drone of sound that comes from across the street throughout the colder months, and the expansion would only likely increase that.

I am also greatly concerned over how the expansion would significantly affect the look and feel of our neighborhood, as well as potential resale value of our homes. It would also further increase traffic in the area.

Please let me know if it would be of any additional benefit for me to attend the virtual public hearing tomorrow evening, or if this email suffices in voicing my concerns. I would greatly appreciate further conversation on this, as I'm sure my neighborhood would as well.

Thank you very much for your consideration and support.

Sincerely,

Molly J. Lahn

From: Donna K. Thoele
Sent: Thursday, October 8, 2020 9:08 AM
To: Johnson, Nick M
Cc: Centinario, Michael
Subject: Re: Oppose Verizon Expansion

Yes, opposing both. Expansion overall.

Donna K. Thoele

On Thursday, October 8, 2020, 08:57:24 AM CDT, Johnson, Nick M <nmjohnson@bloomingtonmn.gov> wrote:

Ms. Thoele,

Thanks for submitting comments on Case #PL2020-175. I will add your email to the record in this case.

Just to clarify, are you intending to submit these comments on the application for the 30-foot tower with small cell antennas (Case #PL2020-175)? Or are you speaking to the proposed building addition (approximately 17,000 square feet) on the north side of the facility (Case #PL2020-166)? I know it is a bit confusing, but these are two separate applications. I just want to make sure I am honoring your wishes correctly.

Thank you. Let me know if you have any questions.

Take care,

CITY OF BLOOMINGTON MINNESOTA

NICK M. JOHNSON

Planner, Planning Division

Pronouns: (he/him/his)

PH: 952-563-8925 **EMAIL:** nmjohnson@bloomingtonmn.gov

1800 West Old Shakopee Road, Bloomington, MN 55431

From: Donna K. Thoele
Sent: Thursday, October 8, 2020 8:21 AM
To: Johnson, Nick M <nmjohnson@BloomingtonMN.gov>; Planning <planning@BloomingtonMN.gov>
Subject: Oppose Verizon Expansion

Good morning Mr. Johnson-

In regard to the planning proposal for Verizon on Bush Lake Rd, I am **strongly opposing** it.

The situation is bad as it is, constant noise and activity. It can not...increase. I am adamantly opposing the expansion.

Not only the noise level but the depreciation with my home value and all the homeowners in the area.

ABSOLUTLEY NO EXPANSION FOR VERIZON.

Donna K. Thoele

From: linda fletcher
Sent: Thursday, October 8, 2020 11:22 AM
To: Centinario, Michael
Subject: Response to Notice of Public Hearing re: Case File Number: PL2020-166

TO: Michael Centinario Planner

FROM: Linda Fletcher Bloomington property owner and resident 10923 Highland Road

RE: PL2020-166 Verizon expansion

DATE: October 8,2020

The major problem of this application is a re-occurring one: **NOISE.** As currently designed this building has been a continued disturbance to the surrounding residential neighborhoods.

The proposal before you (PL2020-166) imagines the addition of four(4) fans plus a fifth in reserve. How can this scenario possibly alleviate the already existing problem **NOISE**? The property owners in the area require a detailed answer to this question. **We** are the persons who will be forced to live with the situation, **NOT** the applicant.

Here is another unasked and therefore unanswered question. If the noise problem persists, what is the redress for those living near the facility? How can the predicament be corrected once the expansion has been completed? We need to know what rights we have.

Yesterday I received notification of yet another Verizon application; this one for a 30 foot tower on the same property. Are these two applications connected? Can one work without the other? Again, these questions must be satisfactorily answered before a final decision is reached.

Due to the serious and permanent effect of this proposal property owners, including myself, will be filing an appeal to the Bloomington City Council should the Planning Commission decide to approve this application in its present form.

Thank you for your consideration of my concerns.

SUBJECT: Bloomington Residents Vs Verizon Expansion (Case PL2020-166) located 10801 Bush Lake Rd.

RESIDENTS EXHIBIT 01

DATE: 10/19/20

To: Bloomington Planning Commission and City Planners

Commissioners, Planners,

This letter is provided as follow up to residents ongoing testimony initiated during PC Public Meeting dated 10/08/20. In particular this letter will address the assertion by Verizon representative ESI Engineering that City Code is in conflict/stricter than State rules enforced thru the MPCA. This letter will also comment on City comments/ intentions to revise the City Noise Code accordingly.

MPCA Guide to Noise Control in Minnesota:

1.2 Noise area classifications

Noise area classifications (NAC) are based on the land use at the location of the person who hears the noise, which does not always correspond with the zoning of an area. Therefore, noise from an industrial facility near a residential area is held to the NAC 1 standards if it can be heard on a residential property.

Based on above it is clear that the City Code has correctly interpreted the applicable standard. When an industrial facility "is near a residential area" and "can be heard on a residential property" then the noise from said area is held to NAC 1 standards.

7030.0060 MEASUREMENT METHODOLOGY.

Subpart 1. Measurement location. Measurement of sound must be made at or within the applicable NAC at the point of human activity which is nearest to the noise source. All measurements shall be made outdoors.

The above simply indicates measurement of sound be made at the point of human activity nearest the source. In the Verizon case this would be at the Verizon property line and abutting public property sidewalk/ easement.

It is clear from the above that **City Code** Noise Source Requirements 10.29.02-3b (cited below) **has correctly interpreted and applied the State Rules:**

(b) In the event that the property on which an industrial, freeway development, business, commercial, recreational or institutional noise source is located across a street, road or railroad track from, or abuts residentially zoned and residentially use property, source in question shall not exceed an L10 noise level of 60 dBA in the daytime (7:00 a.m. to 10:00 p.m.) and an L10 noise level of 50 dBA in the nighttime (10:00 p.m. to 7:00 a.m.) as measured on the property line of the source.

SUBJECT: Bloomington Residents Vs Verizon Expansion located 10801 Old Shakopee Rd

RESIDENTS EXHIBIT 01

DATE: 10/19/20

Concerning possible intentions of City officials to revise above noted City Code to read "at the property line of the receiver":

- As summarized above this change would be in conflict with proper interpretation of State Code
- Any such change will impact Bloomington residents City wide

Subject City code has been in place as far back as 1958 the best we can interpret from the following:

1958 Code, § 166.03) (Ord. 168, passed 1-8-1952; Ord. 75-49, passed 9-22-1975; Ord. 2006-49, passed 11-20-2006; Ord. 2009-2, passed 2-2-2009; Ord. 2009-36, passed 11-16-2009; Ord. 2012-2, passed 1-23-2012; Ord. 2015-6, passed 1-26-2015)

Changing City Code as suggested would allow for noise levels at any similar residential area to be increased by upwards of 10 dBA (perceived by humans as doubling noise level). Such change **must** therefore be heard by the entire community of Bloomington.

We hereby argue that any such **change to the City Code** of this magnitude **be subjected to Public Hearing, and subsequently approved by City Council prior to proceeding with subject Verizon application.**

We hereby request the following actions:

City Planner(s) reply to this letter not later than 3 weeks prior to the next public hearing on case PL2020-66.

Planners provide formal letter issued by MPCA stating in what ways; if applicable, City Noise Code has improperly interpreted any relevant State/ MPCA Noise Rule(s)

In the case City Managers decide to pursue changes to City Code 10.29.02 we request Planners to advise scheduled date for the applicable PC Public Hearing.

Sincerely,
SW Residents Coalition Representative,
Gary A Guerin, PE (retired)

SUBJECT: Bloomington Residents Vs Verizon Expansion (Case PL2020-166) located 10801 Bush Lake Rd.

RESIDENTS EXHIBIT 02

DATE: 10/23/20

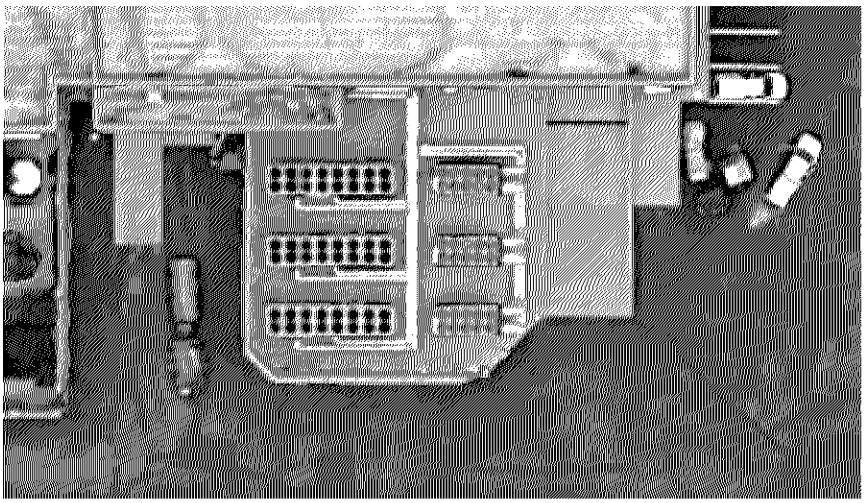
To: Bloomington Planning Commission and City Planners

Commissioners, Planners,

This letter is provided as follow up to residents ongoing testimony initiated during PC Public Meeting dated 10/08/20. In particular this letter will address ESI Engineering's report dated Sept 01, 2020 (presented during 10/08/20 meeting) which offers a crude noise analysis for the expansion proposed.

By inspection the modeling information provided therein indicates **significant equipment omissions**:

- Does not consider simultaneous noise generated by the existing AHU and Condensers located on the south side of the building (shown below)



- Considers addition of only quantity (5) new AHU(s) whereas there is "future 6th AHU"

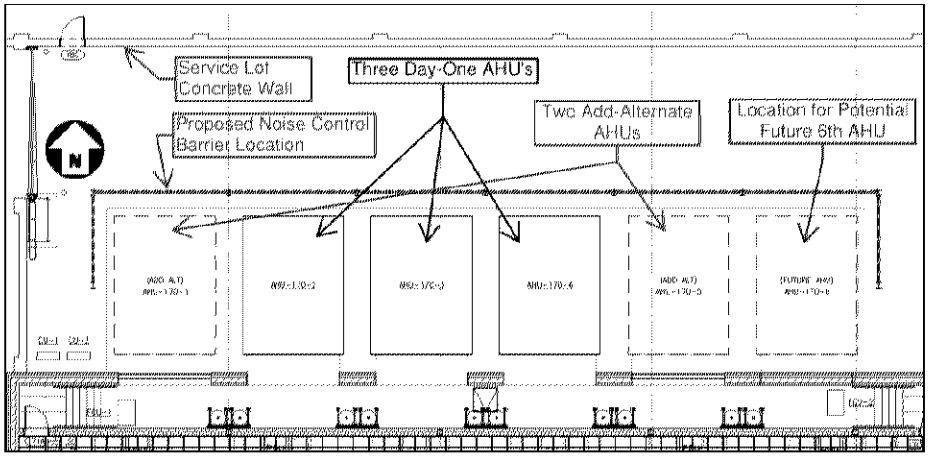


Figure 4 – Partial plan view showing the layout and location of the proposed barrier wall.

SUBJECT: Bloomington Residents Vs Verizon Expansion located 10801 Old Shakopee Rd

RESIDENTS EXHIBIT 02

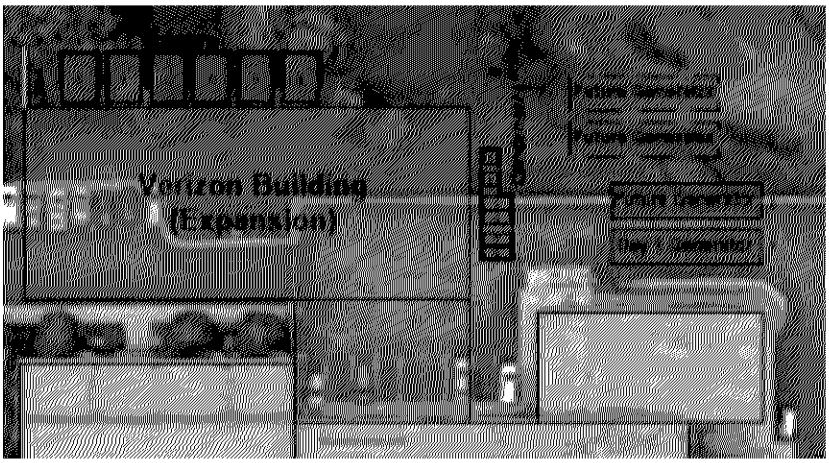
DATE: 10/23/20

Equipment Omissions (cont'd):

- Indicates addition of (2) new generators with area reserved for future (2) additional – (4) total shown in red on RH side diagram below

Emergency Generators (EGs)

- Two (2) Caterpillar 3516 Diesel Generator (with areas reserved for future generators)



By inspection the modeling information provided therein indicates **insufficient design parameters:**

Additional parameters which must be considered:

- Diffraction (over top of barrier)
- Refraction (temperature inversions and wind)
- Reflection

Noise levels must not only be considered at residents directly across from Verizon on Old Shakopee but also at uphill residents on Garden Circle and Daisey Circle, and residents along Louisiana Ave.

As will be discussed and shown below; these parameters have the potential to create observed noise levels at these locations **only 10 dBA lower than the source level.**

The discussion suggests that one isolated test will NOT be representative of the noise potential at these locations and as such will require a comprehensive test procedure performed over extended time period and extensive locations to adequately evaluate the noise amplification caused by these parameters.

Testing to be discussed further within future Exhibit.

SUBJECT: Bloomington Residents Vs Verizon Expansion located 10801 Old Shakopee Rd

RESIDENTS EXHIBIT 02

DATE: 10/23/20

DIFFRACTION:

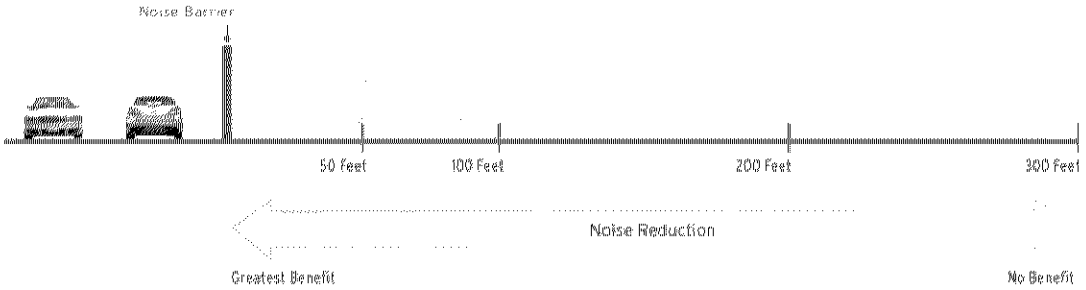
DEPARTMENT OF TRANSPORTATION

Noise Analysis

How effective are noise barriers?

Generally the effectiveness of a noise barrier depends on (1) the distance between the listener and the noise source, (2) the distance between the listener and the noise barrier and (3) the height of the noise barrier above the line-of-sight between the listener and the noise source. Typically, the benefit due to the noise reduction by a noise barrier will be greatest for the listeners nearest the noise barrier. For residences located directly behind a 20 foot noise barrier, a reduction of about 10 dBA would be typical. This benefit decreases as the listener moves farther away from the barrier and is barely perceptible at distances greater than 300 feet.

Noise Barrier Effectiveness



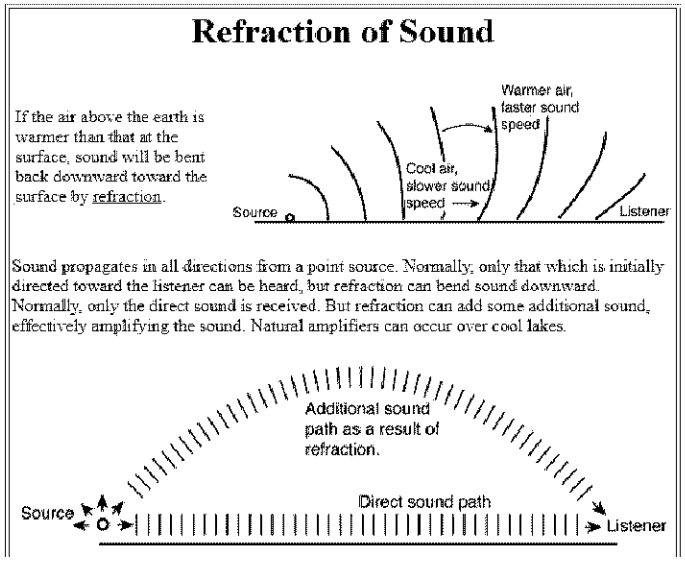
Topography or site geometry also plays an important role in determining a residence or other building's exposure to highway noise. Residences and buildings located farther from a highway may be exposed to higher noise levels, depending on how far above or below the highway the building is located. For this reason, it can be challenging to abate noise for residences up or down hill from a highway.

SUBJECT: Bloomington Residents Vs Verizon Expansion located 10801 Old Shakopee Rd

RESIDENTS EXHIBIT 02

DATE: 10/23/20

REFRACTION:



ATMOSPHERIC EFFECTS ASSOCIATED WITH HIGHWAY NOISE PROPAGATION

Final Report 555

Prepared for:
Arizona Department of Transportation
206 South 17th Avenue
Phoenix, Arizona 85007
in cooperation with
U.S. Department of Transportation
Federal Highway Administration

STUDY CONCLUSIONS

The key overall conclusions of this study on how atmospheric conditions affect long distance sound propagation in the Phoenix valley are:

1. **Nighttime Inversion:** The nighttime inversion condition that is common from October through March results in sound level increases averaging from 5 to 8 dB at distances greater than 400 m (1/4 mile) from freeways. This is probably a year-round phenomenon since nighttime inversions occur in the warm weather months as well.

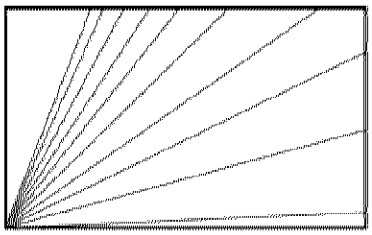
5. **Onset of Refraction Effects:** The computer modeling indicates that there is a rapid onset of refraction effects between about 200 and 300 m (650 to 1000 ft) from Phoenix valley roadways. Closer than 150 to 200 m (500 to 650 ft)from a roadway the atmospheric refraction effects are generally less than ±5 dB. At greater than 300 m (1000 ft) the refraction effects are often on the order of ±10 dB. This is a tentative conclusion based on the computer modeling.

- Inversion, downwind (Figure 2A, nighttime and early morning): In this case the wind tends to strengthen the downward refraction of the inversion conditions. The result is a small increase in the sound levels shown as 2±3 dB in Figure 2A. This 2±3 dB is added to the approximately 8 dB caused by the inversion giving a range of 7 to 13 dB.

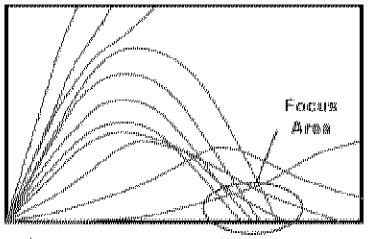
RESIDENTS EXHIBIT 02

DATE: 10/23/20

REFRACTION (cont'd):



(A) Straight ray paths under neutral atmospheric conditions

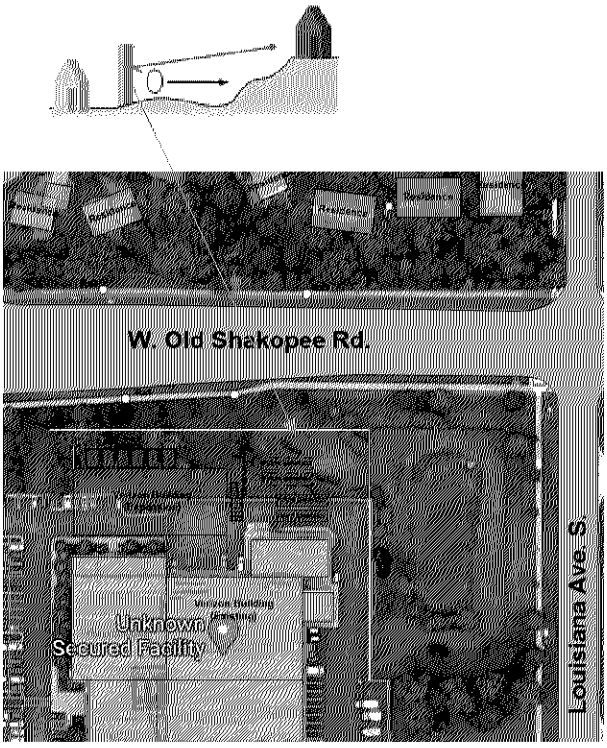


(D) Focusing with complex vertical velocity gradient

(D) Sound focusing in localized regions. Depending on the amount of focusing, sound levels for this condition could be 15 to 20 dB higher than for condition (A) and more than 20 dB higher than for condition (B).

REFLECTION: (Old Shakopee roadway noise will be reflected off the new 14 ft tall concrete screen wall located 30 ft adjacent to eastbound traffic lane)

In the next illustration we see the addition of a sound barrier that is only reflective. It does a great job at reducing noise at the lower house. What happens though, is the house on the hill is suddenly affected when it wasn't before.



RESIDENTS EXHIBIT 02

DATE: 10/23/20

REFLECTION (cont'd):

A noise barrier without any added absorptive treatment is by default **reflective**. In highway applications for example, a reflective noise barrier on one side of the roadway can result in some sound energy being reflected back across the roadway to receivers on the opposite side.

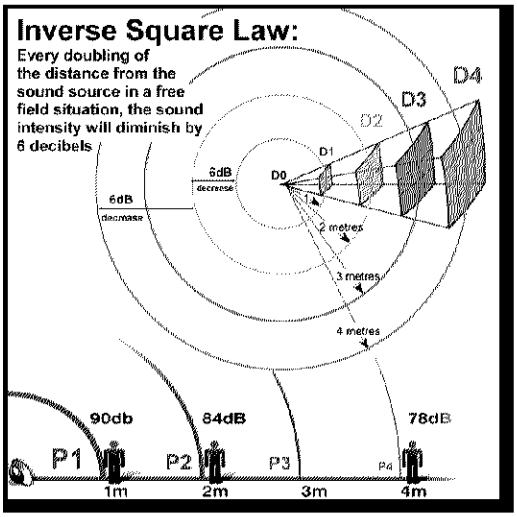
In this situation, it is a common phenomenon for one to perceive a difference in sound after a noise barrier is installed on the opposite side of a roadway. Individuals on the opposite side of the roadway may perceive a change in the quality of the sound; the signature of the reflected sound may differ from that of the source due to a change in frequency content upon reflection.

CONCLUSIONS:

Impact of parameters, as discussed above, on residences effected by Verizon noise sources:

- Diffraction (over top of barrier)
- Refraction (temperature inversions and wind)
- Reflection

Diffraction: Residences beyond 100 ft north of the Verizon noise sources and at elevations above the sound barrier height will **see no benefit from the sound barrier**. Noise levels can then be predicted using standard sound intensity reduction/dissipation of 6 dBA for each doubling distance.



Therefore: residents approx. 600 ft from Verizon noise source would experience reduction/dissipation of the originating noise source(s) by approx. -27 dBA and residents 1000 ft away approx. -32 dBA.

RESIDENTS EXHIBIT 02

DATE: 10/23/20

CONCLUSIONS (cont'd):

Refraction: Residences in the range 600 to 1000 ft could expect additional sound levels of 10 dBA due to refraction (inversions), another 2-3 dBA due wind strengthening, and possible additional 3-7 dBA due focusing effects. Total dBA increase could be in the range of 15-20 dBA.

Reflection: Assuming 100% reflection; noise levels from traffic will be increased by 3 dBA at all residences. As this increase is directly due to the Verizon expansion this value shall be added to calculated and/ or measured Verizon sources.

Hand Calculation:
Assuming the noise level at the "Verizon source(s)" to be 80 dBA (to be confirmed) the consideration of the above parameters would predict **potential noise level of approx. 70 dBA at residences** located 600 to 1000 ft from the noise source(s). **EXCEEDS statutory nighttime limit of 50 dBA.**

The statutory limits for a residential location are L_{10} = 65 dBA and L_{50} = 60 dBA during the daytime (7:00 a.m. – 10:00 p.m.) and L_{10} = 55 dBA and L_{50} = 50 dBA during the nighttime (10:00 p.m. – 7:00 a.m.) (Minn. R. 7030.0040). This means that during the one-hour period of monitoring, daytime noise levels cannot exceed 65 dBA for more than 10 percent of the time or 60 dBA more than 50 percent of the time.

Note also the health impacts as outlined per the World Health Organization Night Noise Guidelines (see Attachment 02).

"Verizon source(s)" - accumulation of ALL existing, new and future AHU(s) and CFU(s).

GENERATORS:

As noted on page Verizon expects future possibility of (4) new 3000 KW generators in addition to the (3) existing 1500 KW generators. These units are understood to be run simultaneously on a weekly basis for a duration of (4-6) hours during daytime hours.

- Running as noted above is considered normal operations and not "emergency use"
- Running is used as means to burn off stored diesel fuel within 6-12 months shelf life
- Verizon's lack of business planning and need to create an extensive generator field local to residential neighborhood shall not be imposed on residents as an unfortunate "new reality"

Given 65 dBA enclosure rating per unit (to be confirmed) with potential for (7) units running simultaneously; hand calculation indicates **total noise level of approx. 72 dBA**

Reflection impact of 3 dBA as noted on page 6 shall be added to this load case

Total noise level approx. **75 dBA** at residents within 300 ft. **EXCEEDS statutory daytime limit of 60 dBA.**

SUBJECT: Bloomington Residents Vs Verizon Expansion located 10801 Old Shakopee Rd

RESIDENTS EXHIBIT 02

DATE: 10/23/20

Residents hereby request the following actions:

City Planner(s) reply to this Exhibit not later than 3 weeks prior to the next public hearing on case PL2020-66.

City Planners request and provide public disclosure listing of ALL existing, planned, **and future** AHUs, CFUs, and Generators. Data sheets indicating equipment noise level performance (dBA) to be included.

City Planners contract with 3rd party to provide **Engineering Noise Model Peer Review** of the ESI Engineering analysis package.

Over the past 20 years noise model peer reviews are getting more common. In some cases RFQ's request that a list of companies are provide that could conduct a peer review. This trend is partly due to the standardization of prediction models, commercial software products, quality control, quality assurance procedures and anticipation of legal actions. A peer review ensures that high engineering standards are achieved.

City Planners request upgrade of modeling and analysis performed by ESI Engineering to include:

- Modeling software to be upgraded to 3D (see Attachment 01) accounting for area topography and related design variables
- Modeling software, or other suitable analysis method, shall provide parameter inputs to account for noise amplification due effects of diffraction, refraction and reflection
- Modeling to provide for multiple load cases for existing equipment/ new equipment/ combination existing plus new equipment

City Planners to post ESI Engineering revised analysis and subsequent Peer Review to the PC web site not later than 2 weeks prior to the next public hearing on case PL2020-66.

Sincerely,
SW Residents Coalition Representative,
Gary A Guerin, PE (retired)

ATTACHMENT 01

3D Noise Modeling for Urban Environmental Planning and Management

Vinay Kumar KURAKULA and Monika KUFFER

(MSc. Vinay Kumar KURKULA, Reliance Industries Limited, Mumbai, India, kura14778@itc.nl)
(Dipl.-Geogr. Monika KUFFER, International Institute for Geo-Information Science and Earth Observation, ITC, Department of Urban and Regional Planning and Geo-information Management; PO Box 6, 7500 AA Enschede, The Netherlands, kuffer@itc.nl)

2 INTRODUCTION

2.1 3D models for urban planning and management

The use of 3D models (e.g. marquets) has a long tradition in the field of urban planning and design. 3D models of buildings set into a landscape are employed to assist in the decision making process to better communicate or discuss urban design issues, e.g. the (re)development of an area. Traditional marquets have the advantage to be easily understood by the audience, however drawbacks are that they cannot be viewed from different viewing angles/perspectives as well as they are isolated from their surrounding environment. The implementation of digital 3D visualizations of urban plans (using CAD or GIS environments) where the user can navigate through the urban landscape has been increasing the degrees of user interaction (Hanzel, 2007). These developments have a great potential to improve and ease the communication process between planning professionals and the community as they help in bridging the frequently observed communication friction between experts and public. Such developments are gaining importance in the context of collaborative planning in which planning professionals enable the community to come to a joined decision (Klosterman and Brail, 2002), essential here is to develop applications that are user-friendly and easily understood. The concept of collective design and planning has been joining several ideas towards a more context sensitive approach of participatory planning (Mantysalo, 2005).

Besides its potential to improve the communication process by assisting in a better understanding of the presented information, 3D models implemented within a GIS environment have a great potential to provide analysis of environmental phenomena that have vertical variations (e.g. environmental pollution). This enables planning professionals and the public to better discuss the implication e.g. of the (re)developed of an urban area as it is possible to model environmental impacts of the proposed plan (e.g. noise or air pollution levels). These developments eventually provide better basis for informed urban decision making (see fig. 1).

SUBJECT: Bloomington Residents Vs Verizon Expansion located 10801 Old Shakopee Rd

RESIDENTS EXHIBIT 02

DATE: 10/23/20

ATTACHMENT 01 (CONT'D)

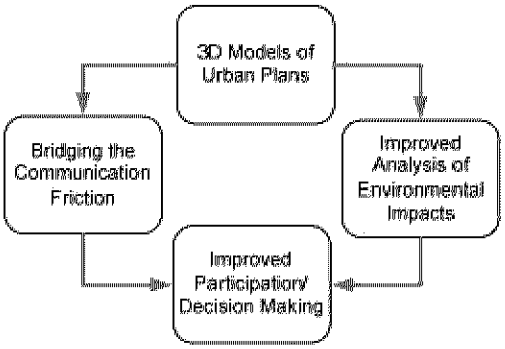
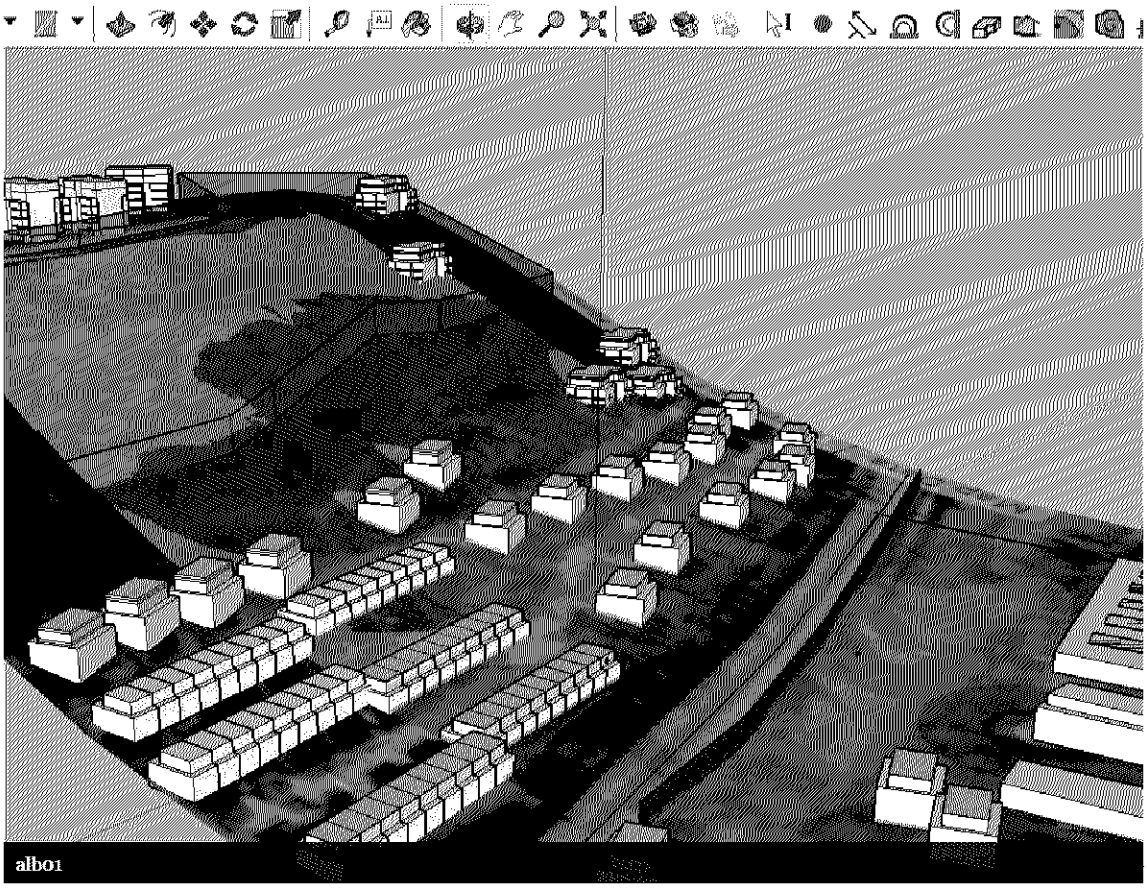


Fig.1: 3D models in urban planning and management



SUBJECT: Bloomington Residents Vs Verizon Expansion located 10801 Old Shakopee Rd

RESIDENTS EXHIBIT 02

DATE: 10/23/20

ATTACHMENT 02

Extracted from World Health Organization Night Noise Guidelines:

5.6 RECOMMENDATIONS FOR HEALTH PROTECTION

Sleep is an essential part of healthy life and is recognized as a fundamental right under the European Convention on Human Rights[1](European Court of Human Rights, 2003). Based on the systematic review of evidence produced by epidemiological and experimental studies, the relationship between night noise exposure and health effects can be summarized as below. (Table 5.4)

Table 5.4
Effects of different levels of night noise on the population's health[2]

Average night noise level over a year $L_{night,outside}$	Health effects observed in the population
Up to 30 dB	Although individual sensitivities and circumstances may differ, it appears that up to this level no substantial biological effects are observed. $L_{night,outside}$ of 30 dB is equivalent to the NOEL for night noise.
30 to 40 dB	A number of effects on sleep are observed from this range: body movements, awakening, self-reported sleep disturbance, arousals. The intensity of the effect depends on the nature of the source and the number of events. Vulnerable groups (for example children, the chronically ill and the elderly) are more susceptible. However, even in the worst cases the effects seem modest. $L_{night,outside}$ of 40 dB is equivalent to the LOAEL for night noise.
40 to 55 dB	Adverse health effects are observed among the exposed population. Many people have to adapt their lives to cope with the noise at night. Vulnerable groups are more severely affected.
Above 55 dB	The situation is considered increasingly dangerous for public health. Adverse health effects occur frequently, a sizeable proportion of the population is highly annoyed and sleep-disturbed. There is evidence that the risk of cardiovascular disease increases.

VERIZON EXPANSION CASE PL2020-1660 RESIDENTS EXHIBIT #3

SW BLOOMINGTON RESIDENTS COALITION
PETITION TO END NOISE AND AIR POLLUTION EXPANSION

Pg 1

We the undersign hereby demand ANY and ALL future EXPANSION within the Industrial Park along CSAH 1 corridor between Bush Lake Rd. and Hampshire Ave. be rejected and/or terminated by Bloomington Planning Commission and City Council.

City/ County/ State actions have significantly increased Noise and Air Pollution along this corridoor:
Industrial Park Noise and Air Pollution Proliferation/ CSAH 1 Expansion/ US Freeway 169 Expansion

STOP ALL NOISE AND AIR POLLUTION EXPANSION NOW!!

NAME	ADDRESS	SIGNATURE
TODD LARIN	10709 LOUISIANA	
Susan Zwiers	10717 Louisiana	
mary Wright	10725 Louisiana	
LaVonne Dea	10720 Lousiana Circle	
BILL ~~ATHLSR~~	10734 Louisiana Circle	
SONJA RENKO	10732 LOUISIANA CR	
Jessica Abrahamson	10728 Louisiana Cr	
REBECCA ANDERSON	10708 GARDEN CR	
Jill Anderson	10708 Garden Circle	
	10708 Garden Circle	
Anne Westman	10712 Garden Circle	
Cathy Norton	10706 Garden Cir	
Christine Jantz	10702 Garden Cir.	
Jessica Erickson	10710 Garden cir	
Cynthony Warnberg	10704 Garden Cir	
GARY WARNBERG	" " "	
Richard Hynh	10642 Louisiana Ave S	
WARD BLOMQUIST	10701 LOUISIANA AVE S	

VERIZON EXPANSION CASE PL2020-166 RESIDENTS EXHIBIT Ø3

SW BLOOMINGTON RESIDENTS COALITION
PETITION TO END NOISE AND AIR POLLUTION EXPANSION

PG 2/

We the undersign hereby demand ANY and ALL future EXPANSION within the Industrial Park along CSAH 1 corridor between Bush Lake Rd. and Hampshire Ave. be rejected and/or terminated by Bloomington Planning Commission and City Council.

City/ County/ State actions have significantly increased Noise and Air Pollution along this corridoor:
Industrial Park Noise and Air Pollution Proliferation/ CSAH 1 Expansion/ US Freeway 169 Expansion

STOP ALL NOISE AND AIR POLLUTION EXPANSION NOW!!

NAME	ADDRESS	SIGNATURE
Brittany Trelstad	10624 Daisy Cir.	Brittany Trelstad
Nate Trelstad	" " "	
Jennifer Blesi	10620 Daisy Cir	Jennifer A Blesi
Ryan Blesi	" " "	Ryan Blesi
D Jonswold	10632 Daisy Cir	D Jonswold
M. Matheson	10628 Daisy Cir	M Matheson
L. Livesay	10626 Daisy Cir	
Jim Pugh	10608 Louisiana Circle	
Marnie Evinson	10620 Louisiana Circle	
Jay O'Sullivan	10664 Louisiana Cir	
Cindy Bigalke	10663 Louisiana Circle	Bloomington, MN
Dan Anderson	10733 Louisiana Ave.	Dan Anderson
David Westman	10712 Garden	David Westman
Eden Ng	10730 Louisiana Cir	
Steve Jung	10630 Daisy Circle	
Lora Halland	10722 Louisiana Circle	
GARY GUERIN	10714 GARDEN CIRCLE	

SUBJECT: Bloomington Residents Vs Verizon Expansion (Case PL2020-166) located 10801 Bush Lake Rd.

RESIDENTS EXHIBIT 04

DATE: 11/14/20

To: Bloomington Planning Commission and City Planners

Commissioners, Planners,

This letter is provided as follow up to residents ongoing testimony initiated during PC Public Meeting dated 10/08/20. In particular; this letter addresses our concerns associated with the diesel engines to be located on site: existing, proposed expansion, and future engines.

It shall be noted that Verizon Expansion documents clearly indicate (2) two new 3000KW generators will be added during this expansion phase. However, page 5 of ESI letter dated Aug 31 2020, suggests a consideration by Verizon for upwards of (4) such generators total at some future date - see excerpt from page 5 shown below.

Verizon Wireless Bloomington MSC - Building Expansion
Executive Summary
Bloomington, MN

V. ELECTRICAL

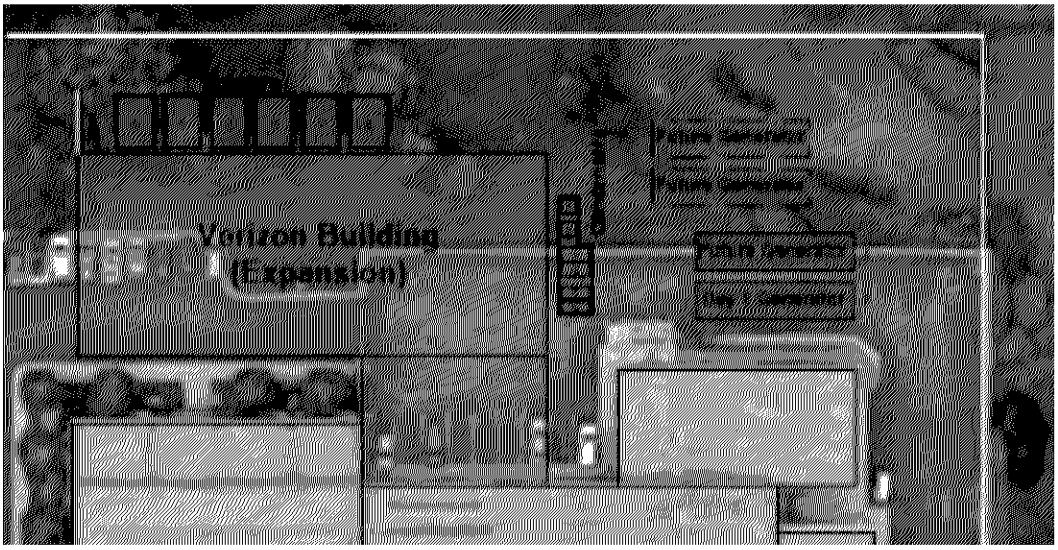
B GENERATORS:

1. Existing: The Vista MSC is provided with two (2) 1500kW generators.

2. Proposed New: Additional one (1) new exterior 3000KW diesel generator with 65 dB sound enclosure and 12,000 gallon base tank will be added to support the HD power. A second 3000KW generator is provided as an Add Alt, but is intended to be installed day one. Day one generator will provide N back up power for HD power only. With the Add Alt generator installed the HD equipment will have N+N power back up.

Ms. Katherine McGah
Morrison Hershfield

August 31, 2020
Page 5



SUBJECT: Bloomington Residents Vs Verizon Expansion (Case PL2020-166) located 10801 Bush Lake Rd.

RESIDENTS EXHIBIT 04

DATE: 11/14/20

Air Quality/ Health Concerns:

The following articles are just a sample of the warnings publicly available regarding Health concerns associated with diesel emissions:

Minnesota Pollution Control Agency

Evidence shows that exposure to diesel exhaust can result in adverse respiratory effects, aggravate allergies, or exacerbate asthma symptoms. Prolonged exposure can even cause lung cancer.

EPA United States Environmental Protection Agency

Why Does EPA Regulate Stationary Engines?

Stationary internal combustion engines are common combustion sources that collectively can have a significant impact on air quality and public health. The air toxics emitted from stationary engines include formaldehyde, acrolein, acetaldehyde and methanol. Exposure to these air toxics may produce a wide variety of health difficulties for people including irritation of the eyes, skin and mucous membranes, and central nervous system problems. Engines also emit the conventional air pollutants created when fuel is burned including carbon monoxide (CO), nitrogen oxides (NOx), volatile organic compounds (VOCs), and particulate matter (PM). The health effects of these pollutants include a range of respiratory (breathing) issues, especially asthma among children and seniors.

Diesel exhaust contains more than 40 toxic air contaminants, including many known or suspected cancer-causing substances, such as benzene, arsenic, and formaldehyde. It also contains other harmful environmental pollutants, including nitrogen oxide, currently the single most important ozone-depleting emission. Nitrogen oxide is unregulated by the Montreal Protocol (2). In relation to human health, it is estimated that up to 70% of cancer risk attributable to inhalation of toxic air pollutants in the United States arise from diesel exhaust (3). Exposure to diesel exhaust has been linked to lung cancer in

SUBJECT: Bloomington Residents Vs Verizon Expansion (Case PL2020-166) located 10801 Bush Lake Rd.

RESIDENTS EXHIBIT 04

DATE: 11/14/20

Air Quality/ Health Concerns: (cont'd)

Data and articles provided below **attempt to quantify** the potential health hazards posed by the diesel generator emissions output at the Verizon site. As of this writing we have not seen the technical specifications for any of the diesel generators so the applicable Tier Standards are unknown.

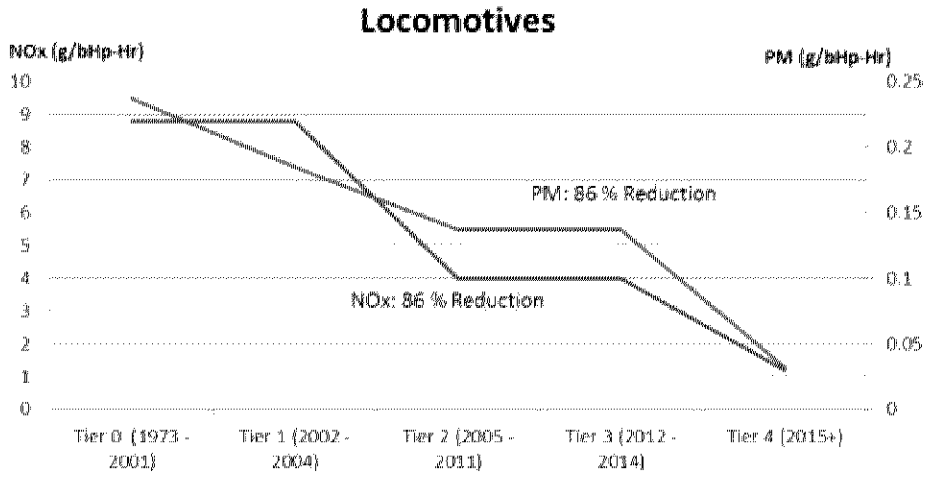
Until data is made known we will assume all generators to be supplied as Tier 2-3.

CAT PRODUCTS INDUSTRIES SERVICES & SUPPORT

the EPA decided that emergency standby generator sets, which by their nature run very few hours per year, would be exempt from Tier 4 regulations, including any associated aftertreatment. Furthermore, the EPA states that emergency standby applications can utilize current tier products, which do not require aftertreatment – such as today's Tier 2 and Tier 3 offerings.

The key to this exemption is the term, "emergency standby." That is, what installations qualify as "emergency standby"? The following definition based upon Caterpillar's interpretation of the EPA regulation should clear up any confusion:

Emergency standby installations are those that operate only on the loss of a normal power source such as the utility or the grid. The



Tier 4 compliant engines significantly reduce emissions of particulate matter (PM) and oxides of nitrogen (NOx) to near zero levels. Relative to previous emissions standards, Tier 4 compliant engines reduce emissions by over 95 percent for most agricultural and construction equipment and just over 86 percent for much larger applications like locomotives and marine vessels.

Eric Grizard, Senior Director, Policy, Bloom Energy
Thursday, August 1, 2019

Typical diesel generator exhaust contains more than 40 toxic air contaminants, including a variety of carcinogenic compounds. The California Air Resources Board estimates that an uncontrolled one-megawatt diesel engine operating for only 250 hours per year would increase the cancer risk to residents within one city block by as much as 50 percent.

Air Quality/ Health Concerns: (cont'd)

Attempt to quantify potential risk to Bloomington Residents posed by the Verizon site Expansion:

Summarizing from the Bloom Energy article above:

"an uncontrolled (1) one megawatt diesel engine operating for only 250 hours per year would increase cancer risk to residents within one city block by as much as 50 percent".

Diesel engine power on Verizon site:

Existing plus proposed expansion = 10,500 KW (10.5 megawatts)

Existing plus proposed expansion plus future expansion = 16,500 KW (16.5 megawatts)

Above articles indicate Tier 2 and Tier 3 emissions are approximately 50% of Tier 0 (uncontrolled).

Extrapolating:

16.5 megawatts x 0.50 = 8 megawatts of Tier 0 (uncontrolled) emissions

Potential Cancer Risk Increase = 8 x 0.50 = 400%

RELATED QUESTIONS:

Existing Engines:

- How many diesel engines are currently on site?
- What are the power ratings (KW) of each engine?
- Which Tier Emission Standard is applicable? (Tier 1, Tier 2-3, or Tier 4)

Expansion – New Engines (3000 KW):

- Which Tier Emission Standard is applicable? (Tier 1, Tier 2-3, or Tier 4)

Future Engines:

- What is the total maximum diesel power (KW) Verizon will accept as Permit Limit for this site?

SUBJECT: Bloomington Residents Vs Verizon Expansion (Case PL2020-166) located 10801 Bush Lake Rd.

RESIDENTS EXHIBIT 04

DATE: 11/14/20

Diesel Fuel Storage Concerns:

Generator specification indicates each new generator includes 12,000 gal. base fuel tank.

Request Verizon to confirm:

- Base fuel tank size (gallons) on each 3000 KW generator
- Total diesel fuel storage capacity on site following completion of Expansion
- Amount of diesel fuel to be brought on to the site annually
-

Request City to confirm:

- By code(s) - amount of diesel storage permitted on the property
- Type of spill containment required
- Type of fire hazard risk analysis to be performed

Diesel Generator Testing Concerns:

Currently Verizon tests the existing generators every Wednesday. Observed hours of testing by residents has been 7AM thru at least 1PM (i.e. six hours of testing min). Assuming testing occurs (52) weeks per year would suggest over 300 hours total.

Unless the City can substantiate otherwise, we understand the CFR (Code of Federal Regulations) and the EPA **limit testing of Emergency Generator Systems to 100 hours/ year.** This limit is NOT per generator but rather, for the entire Emergency Generator System.

How Long Can You Operate Your Emergency Generator?

If you are an area source of HAPs and you are not required to have your emergency generator available more than 15 hr/y for emergency demand response or do not use it for local reliability, the engine must meet the emergency engine operational requirements found at 40 CFR 63 subpart ZZZZ (aka, the RICE rule). In terms of hours of operation, these requirements can be unlimited, up to 100 hr/yr and within that maximum, up to 50 hr/yr.

Here's the breakdown:

You have *unlimited use* of these emergency generators for real emergencies, such as power outages, fires, and floods.

You may operate the emergency generator for up to **100 hr/yr** for any combination of the following:

- Maintenance and testing; *or*
- Emergency demand response in situations when a blackout is imminent—either the reliability coordinator has declared an Energy Emergency Alert Level 2 as defined in the North American Reliability Corporation (NERC) Reliability Standard, or there is a deviation of voltage or frequency of 5% or greater below standard voltage or frequency.

You may operate the emergency generator for 50 hr/yr of the 100 hr/yr allocation for:

- Nonemergency situations, if there is no financial arrangement;
- Local reliability as part of a financial arrangement with another entity if specific criteria met (existing RICE at area sources of HAP only); *or*
- Nonemergency situations as a supply power as part of a financial arrangement with another entity under certain conditions that are meant to avert the interruption of power supply in your local area or region.

SUBJECT: Bloomington Residents Vs Verizon Expansion (Case PL2020-166) located 10801 Bush Lake Rd.

RESIDENTS EXHIBIT 04

DATE: 11/14/20

Diesel Generator Testing Concerns: (cont'd)

In the case of the Verizon site, the Emergency Generator System potentially consists of upwards of (7) generators which we will argue does NOT allow for 700 hours of testing.

Therefore the 100-hour limit requires testing of multiple engines simultaneously.

Per Residents Exhibit 02; page 7 therein, - testing of multiple generators simultaneously **will exceed City Noise Code limits.**

Request Verizon submit:

- Diesel Generator Test Plan (to include):
  - Number of generators to be tested simultaneously
  - Days per week testing to be performed
  - Testing hours planned per generator
  -

Residents hereby request the following actions:

City Planner(s) reply to this Exhibit not later than 2 weeks prior to the next public hearing on case PL2020-166.

Reply should include answers to questions per page 4, Verizon and City confirmation(s) per page 5, and submittal of Test Plan per page 6.

Sincerely,
SW Residents Coalition Representative,
Gary A Guerin, PE (retired)

SUBJECT: Bloomington Residents Vs Verizon Expansion (Case PL2020-166) located 10801 Bush Lake Rd.

RESIDENTS EXHIBIT 05

DATE: 11/16/20

To: Bloomington Planning Commission and City Planners

Commissioners, Planners,

This letter is provided as follow up to residents ongoing testimony initiated during PC Public Meeting dated 10/08/20. In particular this letter addresses the most recent ESI engineering report dated 11/10/20 and includes additional questions for the City.

ESI ENGINEERING REPORT DATED 11/10/20:

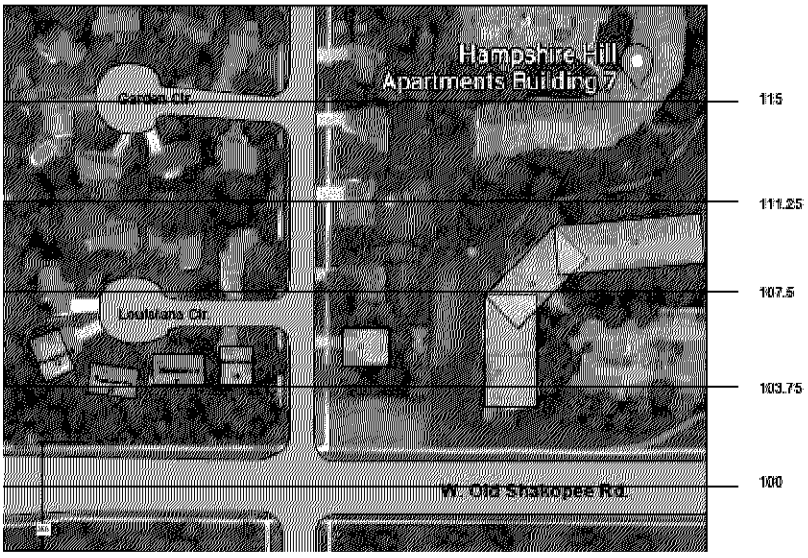
It shall be noted that Residents were afforded only (4) business days to review and comment on this report. Our comments therefore are not considered as all-inclusive and are subject to updates.

Page 6:
Model input based on (5) AHU. As noted per Residents Exhibit 02 Verizon considers future (6) AHU. **Potentially adds approx. 1 dBA to all data results.**

ANSI/AHA method: From the text we understand the method and hence the output data includes the effects of light wind or moderate inversion. Until we can research further or have an opportunity to discuss directly with ESI **we reserve opportunity to comment further.**

Page 7:
Generators: "are tested individually".
City shall require written Diesel Generator Test Plan as requested per Residents Exhibit 04.
Needs to be formally agreed and part of the Case and Permit Files.

Page 8-9:
Topography: values are interpreted as elevations (in feet) relative to a baseline of 100



RESIDENTS EXHIBIT 05

DATE: 11/16/20

Page 8-9: (cont'd)
Request additional calculations be performed adding 15' to all elevations to account for second story bedroom windows on the south side of all applicable homes. This is necessary to understand the full effect of **Diffraction** effects. Every foot of rise to the north of the Sound Barrier further minimizes the effectiveness of the Barrier.

Page 10:
Change verbiage: "at least 4'" TO "at least 5'".

Page 12:
Reflection - "Service lot wall…in our opinion…will not be significantly higher…"
Needs to be quantified.
As noted per Residents Exhibit 02 **reflection could add approx. 2-3 dBA to all data results.**
Request additional calculations adding Reflection Load Cases: Input 85dBA noise point source (360 degree) located on south side Old Shakopee road. Boundary Conditions: with and without Service Wall. Contour plot for each case.

Interpretation of Results:

- Per above; we believe **further calculations are warranted and necessary** prior to any vote by the Planning Commission on Case PL2020-166.
- Current margin (calculated vs. code) is only 2 dBA. Based on above comments it is possible 4 dBA or more (w/ full Diffraction) will be added. **Code Violation still possible.**

Observations:
Comparing actual measurements; per Table 2, to the calculation results; as summarized on page 11, indicates an increase of approximately 5-6 dBA based on 48 dBA max. value. Should final design prove 50 dBA to be achieved the reality for residents will be an **8 dBA increase => twice the perceived noise**.

2.3 Human perception of sound

Sound has qualitative aspects that can be described with adjectives and quantitative aspects that can be described with measurements. Sound can be qualitatively perceived as pleasant or annoying, and quantitatively (as loudness) measured in terms of decibels.

Changes in loudness are described on a logarithmic scale because the human ear can hear such a wide range of sound levels. The human ear can usually tell the difference when sound changes by 3 dBA and a 5 dBA change is clearly noticeable. Because of how the logarithmic scale functions in compressing the measurements associated with sounds, an increase of 10 dBA sounds twice as loud.

± 1 dBA.....	Not Noticeable
± 3 dBA.....	Threshold of Perception
± 5 dBA.....	Noticeable Change
± 10 dBA.....	Twice (Half) As Loud
± 20 dBA.....	Four Times (One Fourth) As

Figure 5. Change in decibel level and perceived change in loudness

RESIDENTS EXHIBIT 05

DATE: 11/16/20

Observations: (cont'd)

Report suggests residents can expect noise to be in the range of 50 dBA (nighttime due Verizon alone) and 60-70 dBA (daytime due roadway) 365 days per year. Including other existing noise sources; such as Entegris located to the east of Verizon, nighttime levels could approach 53 dBA. As noted per Residents Exhibit 02 the W.H.O. classifies this level of continuous noise as **severe and with potential health risks.**

40 to 55 dB	Adverse health effects are observed among the exposed population. Many people have to adapt their lives to cope with the noise at night. Vulnerable groups are more severely affected.
Above 55 dB	The situation is considered increasingly dangerous for public health. Adverse health effects occur frequently, a sizeable proportion of the population is highly annoyed and sleep-disturbed. There is evidence that the risk of cardiovascular disease increases.

Many residents have lived in their homes for 30+ years and raised their families in Bloomington. Many have recently retired or will be and spend a lot more time in and around their homes.
The above is a real situation with real potential consequences.

Potential Remedies:

We note the revised report indicates the Sound Barrier height has been increased by 1' from previous analysis. We expect this was necessary to meet the 50 dBA threshold. But THANKS!

What more can be done to further reduce impact on residents?

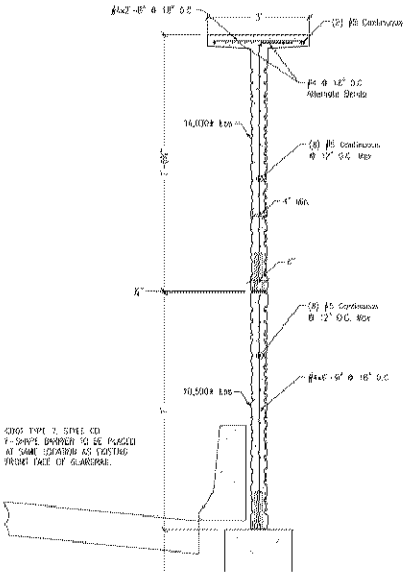
We request Verizon/ ESI consider and evaluate:

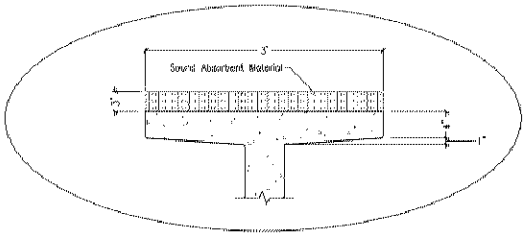
- Add sound absorbtion to exterior wall behind the AHU(s)
- Add T-Top to the Sound Barrier Wall

Innovative Top Treatments to Traditional Noise Barriers As traffic volumes and speeds have increased on highways, noise levels have risen for nearby homes, prompting transportation agencies to look for ways to provide more effective noise attenuation at a reasonable cost. Much of the available research focuses on various treatments for the top edge of the barrier. The intent is to alter the hard linear edge that causes diffraction of sound toward receivers behind the barrier. Some of the earliest research on modified top noise barriers in Japan identified that a T-profile top edge noise barrier wall reduced noise levels in a residential area behind the barrier by 1.0 to 1.5 decibels (dBA), compared with a conventional vertical barrier of the same height. Later studies confirmed the benefits of a T-profile top edge in reducing noise levels, even when compared to variations such as Y-profile and arrow-profile barriers. More recent research into T-profile barriers in the Netherlands has shown that adding an absorptive material to the top horizontal section of the T-profile barrier further increases the noise reduction properties of the barrier. The research showed noise reductions of 2 to 3 dBA at a cost similar to raising the barrier by 3 feet, but did not have the implications for the wall foundation as raising the height of the wall.

RESIDENTS EXHIBIT 05

DATE: 11/16/20





Potential Remedies: (cont'd)

We assume the City benefits significantly from the tax base provided by Verizon and Verizon benefits significantly through this 5G Expansion.

- We propose City and Verizon collaborate and evaluate tax base considerations which would provide sufficient capital recovery to justify **moving ALL noise generating equipment to the southeast corner of the Verizon property.**

SUBJECT: Bloomington Residents Vs Verizon Expansion (Case PL2020-166) located 10801 Bush Lake Rd.

RESIDENTS EXHIBIT 05

DATE: 11/16/20

QUESTIONS FOR CITY:

1) What other properties; located within the City of Bloomington, operate over 10 megawatts of emergency generators?
2) Noise Code:
    a) Is the City planning to revise City Code as suggested by the ESI report?
    b) Will such revision require City Council approval?
    c) Open for City wide Public input and discussion?
    d) Will any potential approval of Verizon Proposal be delayed until Noise Code revisions are formally enacted?
3) Post Expansion Noise Testing:
    a. Will City engineers develop a Noise Testing Plan applicable to this Permit?
    b. Will Testing Plan include testing on cold winter nights?
    c. Will Testing be performed at bedroom elevations on south sides of residential homes?
    d. What Permit Criteria will the City include to assure rapid remedial correct actions by Verizon in such case testing results fail noise compliance?

We hereby request City Planner(s) reply to this letter not later than 1 week prior to the any motion for Approval on the case PL2020-166.

Sincerely,
SW Residents Coalition Representative,
Gary A Guerin, PE (retired)

GUERIN TESTIMONY
ITEM 8.5 VERIZON

EXHIBIT 06
12/21/20

Ref: ESI Report 11/10/20

- No Data on Equip Running During Testing OR Power Levels
  Oct 23 - 5:00pm thru Oct 30 10:00AM

- Reflections "In our opinion Noise From Traffic not significantly higher than now".
  - Can be modeled per Exhibit ___ Request

- Test Results
  Location (A) Verizon Property Line (7) days Attach "A"
  Table 2 - Residential Summary/
  Locations A-P
  Meas. Data Attach "B"
  1:15AM - 2:30 AM Oct 27th.

Note:
Worse Case Actually Oct 24th 12AM - 1AM
45-50 dBA @ location (A)

vs. 43-44 dBA Oct 27th

∴ Adds 6 dBA to all values in Table 2
Location (B) = 44+6 = 50 dBA
(G) = 43+6 = 49 dBA

Q: How can Expansion + Existing BE @ 48 dBA max per Contour Model?
When existing is 50 dBA as measured.

A: Changing Power Levels on other input parameters

To: Christenson, Denise
Subject: RE: Verizon Wireless Proposal

From: ROBERT STUCKEY
Sent: Wednesday, December 30, 2020 3:16 PM
To: City-Council <City-Council@BloomingtonMN.gov>
Cc: Markegard, Glen <gmarkegard@BloomingtonMN.gov>
Subject: Verizon Wireless Proposal

I am writing to add my complaint to the other residents who have spoken up about the Verizon Wireless proposal. I live 3 blocks from the existing site and I can also hear the "constant, unrelenting drone" of the massive air conditioning units. This has been going on since those units were installed. My bedroom is on the second story and faces the site. I was having a hard time sleeping and kept hearing what sounded like a helicopter circling overhead. The next morning I could still hear the droning and got in my car and tracked down the source of the noise to that site and its many, massive turbines. I contacted the Bloomington City and asked that someone come out to measure if it was exceeding noise standards. I was told that it was not exceeding standards, and the technician seemed more concerned about the noise coming from the car wash across the street. It was summer and they had the doors open. I replied that I never hear the car wash and it doesn't run at night and interrupt my sleep. I also doubt that the turbines were running at full capacity when it was being monitored. And within standards or not, I shouldn't be hearing this noise from 3 blocks away. And it's not just in the summer when the windows may be open. I hear it even more so during the winter evenings.

I hope I have Mr. Markegard's email as I want to copy him on this complaint. That site should never have been approved in the first place to be a huge data center in a residential area with all of those turbines needed for cooling, and it should certainly not be approved to add even more noise pollution. I understand that the City Council will be addressing this issue again at the January 11, 2021 meeting. Please let me know if it would be helpful for me to attend and testify to this complaint at that meeting.

Sincerely,
Robert Stuckey
7301 W 112th St.
Bloomington, MN 55438

PL202000166
PL2020-166

SUBJECT: Bloomington Residents Vs Verizon Expansion (Case PL2020-166) located 10801 Bush Lake Rd.

RESIDENTS APPEAL (cont'd dialogue):

DATE: 12/31/20

To: Mayor and City Council Members

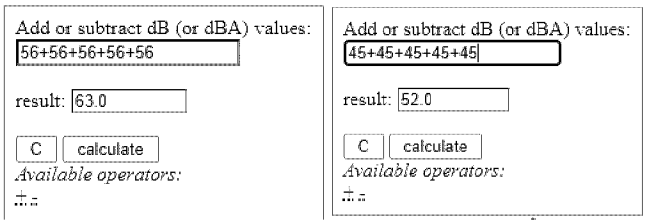
From: Gary Guerin, PE (retired); Resident and Coalition Representative

Subject: Residents Appeal- Continued Dialogue - Guerin 01

Thank-you for the opportunity to provide public testimony during the council meeting of Dec 21.
Time limitations did not allow for me to review key points contained within the residents Appeal Letter and Exhibits 02-05, which were included within the City Council Meeting Agenda Packet, and also Exhibit 06, which was forwarded to you by Denise Christenson on the afternoon of Dec 21.
The following dialog makes direct and therefore relevant reference to some of these documents.

Reference Appeal Letter – pages 317-322 of the Agenda Packet:
Please take a moment to read thru the referenced appeal letter in its entirety before continuing.
Pages 2 therein points to the "contradiction" between ESI engineering reports dated Sept 1 and Nov 10; specifically, the change from (5) AHU(s) operating at 100% load to (5) operating at 80% load.
Note: ESI report dated Sept 1 can be found within Agenda Packet for PC meeting dated Oct 8.
Per ESI statement with Sept 1 report: "the worse-case scenario of (5) units at 100% load are considered to **ensure** MPCA requirements are met".
Page 3 calculations indicate this will NOT be the case.
ESI report of Nov 10 indicates max. decibel at nearest residence will be 48 dBA using 80% power level.
Simple ratio calculations of page 3 indicate modeling using (5) units at 100% power level would produce max. decibel of 58 dBA. Please understand; the value of 70 dBA used in Case 1 for the output level of each of the (5) AHU(s) is approximate. Calculations then use 56 dBA (80% power level) in Case 2. The simple ratio calculation of Case 1 to Case 2 on 48 dBA indicates the max. value will be at least 58 dBA.
In this calculation method; the starting point for Case 1 is not value dependent. So, whether or not the output of each AHU is 70 dBA; or some other value, it is only necessary that the value used in Case 2 be 80% of the value in Case 1.

Example: using 56 dBA as output of each AHU @ 100% and 45dBA @ 80%



Again; by extrapolation; noise level calculation using 100% load (MPCA requirement):
Max. dBA @ nearest residents = 48 dBA * 63/ 52 = 58 dBA **(NON-COMPLIANCE > 50 dBA)**

The above produces the same results as per page 3 of the Appeal Letter. Any 3rd party engineer should be capable to validate these calculations.

PL202000166
PL2020-166

SUBJECT: Bloomington Residents Vs Verizon Expansion (Case PL2020-166) located 10801 Bush Lake Rd.

RESIDENTS APPEAL (cont'd dialog):

DATE: 12/31/20

As cited during my public testimony on Dec 21, State Statute 7030.0030 clearly defines the responsibility and timing required of "any municipality":

Minnesota Administrative Rules

7030.0030 NOISE CONTROL REQUIREMENT.

No person may violate the standards established in part 7030.0040, unless exempted by Minnesota Statutes, section 116.07, subdivision 2a. Any municipality having authority to regulate land use shall take all reasonable measures within its jurisdiction to prevent the establishment of land use activities listed in noise area classification (NAC) 1, 2, or 3 in any location where the standards established in part 7030.0040 will be violated immediately upon establishment of the land use.

To this end the residents have repeatedly requested a 3rd party peer noise analysis review. See initial request per Exhibit 02 dated Oct 23 (Agenda Packet pages 338-348) and discussed during PC meeting dated Nov 19.

Without such a review the City has no visibility to validate the input data, boundary conditions, and parameters used within the ESI engineering report.

- What are the rated output levels of each piece of noise making equipment?
- Has ALL site equipment been modeled at rated load?
- Are there any errors or omissions in the model?
- Are known amplifying effects of refraction, diffraction and reflection properly and adequately considered?
- Applicant claims equipment will never run above 80% load even on the hottest of days - where are the calculations to substantiate this claim? who has reviewed these calculations? what demand/load criteria has been used? what demand growth has been assumed?

A "reasonable" oversight committee would include: 3rd party engineer(s), City engineer(s), ESI engineers, and qualified resident(s). As a registered Professional Engineer (retired) and driver behind the resident's technical challenges to date, I hereby request a seat on said committee and volunteer my time.

Sincerely,
SW Residents Coalition Representative,
Gary A Guerin, PE (retired)

SUBJECT: Bloomington Residents Vs Verizon Expansion (Case PL2020-166) located 10801 Bush Lake Rd.

RESIDENTS APPEAL (Continued Dialogue – Guerin 02):

DATE: 01/01/21

To: Mayor and City Council Members

From: Gary Guerin, PE (retired); Resident and Coalition Representative

Subject: Residents Appeal- Continued Dialogue - Guerin 02

Continuing our discussion concerning key points contained within the residents Appeal Letter and Exhibits 02-05, which were included within the City Council Meeting Agenda Packet, and also Exhibit 06, which was forwarded to you by Denise Christenson on the afternoon of Dec 21.
The following dialogue makes direct and therefore relevant reference to some of these documents.

Exhibit 06 (forwarded to you by Denise Christenson on the afternoon of Dec 21):
This exhibit pointed out discrepancies in regards to "the worst case" implications made throughout the ESI report dated Nov 10. Field test data of existing equipment noise levels, as presented in the report, is based on days, times and conditions which are NOT worse case.

Point 1: Data collection was made for a period of (7) days; but as can be ascertained via ESI own wording within the report, the equipment running at the time of testing (chillers) are not the loudest equipment applicable to resident's noise complaints. Dry coolers are the loudest but were not running during the field-testing period. Excerpts from ESI report dated Nov 10:

Ms. Katherine McGah — November 10, 2020
Morrison Hershfield — Page 4

Measurements lasting several minutes each were made from 1:15 AM to 2:30 AM on October 27, 2020 at 14 locations in the neighborhoods around Verizon and at 2 locations on the Verizon property (see Figure 2). These shorter duration measurements allow us to sample noise from constant sources (such as the mechanical equipment) and exclude unrelated noise from traffic, aircraft and other similar transient sources. Table 2 shows a summary of the measurement results. Chillers on the southside of the Verizon building were running during the measurements but the dry coolers were not. Measurement data for each location are in Attachment B.

Ms. Katherine McGah — November 10, 2020
Morrison Hershfield — Page 6

NOISE ANALYSIS AND CONTOUR PLOTS

ESI prepared calculations and developed a contour plot to illustrate noise levels from mechanical equipment in the areas surrounding Verizon. The calculations followed the method

Ms. Katherine McGah — November 10, 2020
Morrison Hershfield — Page 7

In addition to the new equipment, noise from existing dry coolers on the south side of the Verizon building was also included in the calculations. The dry coolers operate only during the colder winter months. Adding these sources was prompted by comments from residential neighbors who said they can hear noise from Verizon during the wintertime. There are also chillers on the south side of the building that run during the warmer months, however because the chillers are quieter than the dry coolers they were not included in the analysis. The chillers and dry coolers do not operate simultaneously, so the worst-case scenario was evaluated.

SUBJECT: Bloomington Residents Vs Verizon Expansion (Case PL2020-166) located 10801 Bush Lake Rd.

RESIDENTS APPEAL (cont'd dialogue):

DATE: 12/31/20

Therefore, we can with certainty, make the claim that noise levels at residential locations "B-N" would be higher with dry coolers running than the levels presented in Table 2 with chillers only running. The question is how much higher? also percentage of rated load the chillers were running at? To answer these questions the 3rd party peer noise analysis review committee will need to have access to ALL Verizon noise making equipment specifications.

Point 2: ESI report dated Nov 10 and Table 2 therein presents noise test data summary for residential locations "B-N" for the period of Oct 27, 1:15am-2:30am. However; based on detailed readings provided for location "A" (Verizon property line) in Attachment A, the worst date/time case would have been for the period of Oct 28, 1:00am-3:00am. Excerpts from ESI report dated Nov 10:

Attachment A

Ambient Noise Measurement Data

October 23, 2020 to October 30, 2020

Verizon Noise Monitoring Summary

Date	Hour	Measurement Results, dBA				Weather Conditions		
		L10	L50	L90	Hourly L_{Aeq}	Temp	Wind	Condition
Tuesday, October 27, 2020	12:00 AM	60	44	41	56	21 °F	6 mph	Fair
	1:00 AM	57	43	41	54	20 °F	6 mph	Fair
	2:00 AM	58	43	41	56	19 °F	5 mph	Fair
	3:00 AM	59	44	41	55	18 °F	6 mph	Fair
	4:00 AM	65	51	44	60	17 °F	6 mph	Fair
	5:00 AM	68	59	48	64	17 °F	6 mph	Fair
	6:00 AM	70	63	54	66	16 °F	6 mph	Fair
	7:00 AM	71	66	57	68	18 °F	7 mph	Fair
	8:00 AM	72	66	57	68	21 °F	10 mph	Fair
	9:00 AM	71	65	56	67	25 °F	9 mph	Fair
	10:00 AM	70	64	55	66	28 °F	14 mph	Fair
	11:00 AM	71	65	55	67	30 °F	16 mph	Fair
	12:00 PM	71	66	56	67	31 °F	15 mph	Fair
	1:00 PM	71	65	54	67	33 °F	16 mph	Fair
	2:00 PM	71	65	56	67	34 °F	13 mph	Fair

	11:00 PM	64	51	46	59	32 °F	14 mph	Fair
Wednesday, October 28, 2020	12:00 AM	60	48	44	56	32 °F	16 mph	Fair
	1:00 AM	56	46	43	54	32 °F	14 mph	Fair
	2:00 AM	56	45	43	54	32 °F	7 mph	Partly Cloudy
	3:00 AM	60	47	44	57	31 °F	7 mph	Fair
	4:00 AM	64	51	45	60	31 °F	9 mph	Fair
	5:00 AM	68	60	50	64	30 °F	6 mph	Partly Cloudy
	6:00 AM	70	64	55	66	32 °F	6 mph	Mostly Cloudy
	7:00 AM	71	65	57	67	32 °F	7 mph	Mostly Cloudy
	8:00 AM	71	65	58	67	34 °F	6 mph	Mostly Cloudy
	9:00 AM	71	65	57	67	35 °F	8 mph	Cloudy
	10:00 AM	71	65	58	67	36 °F	5 mph	Cloudy
	11:00 AM	71	66	59	68	39 °F	6 mph	Mostly Cloudy
	12:00 PM	71	66	59	70	42 °F	8 mph	Fair
	1:00 PM	71	66	57	68	47 °F	14 mph	Fair

Oct 27 L50 results of 43-44 dBA between 1:00-3:00am
Oct 28 L50 results of 46-47 dBA between 1:00-3:00am

Therefore, 3 dBA must be added to all values reported in Table 2.

SUBJECT: Bloomington Residents Vs Verizon Expansion (Case PL2020-166) located 10801 Bush Lake Rd.

RESIDENTS APPEAL (cont'd dialogue):

DATE: 12/31/20

Figure 2 – Measurement locations in the area around the Verizon property.

Table 2 – Results of Noise Measurements on October 27, 2020

Location	Measurement Results, dBA L10	L50	L90	L_{Aeq}
A	43	38	37	41
B	44	42	40	43
C	43	37	36	40
D	39	38	37	38
E	40	37	36	38
F	40	38	36	38
G	43	41	40	42
H	42	40	38	40
I	43	40	38	41
J	43	42	41	42
K	38	36	35	36
L	41	36	34	38
M	41	40	38	40
N	43	42	41	42
O	54	53	52	53
P	58	57	57	58

Adjusting for worse date/time case and assuming 20% increase for dry cooler vs chiller dBA output:

Table 2 - Location B:
(42 + 3dBA) * 1.20 = 54 dBA > 50 dBA => **non compliance**

The above analysis indicates that the existing equipment alone (located on the south side of Verizon building) may very well be noncompliant during various periods of operation.

The new equipment per the expansion project will be added to the north side of the building – more sound output and much closer to residential locations B and G than the existing equipment.

By inspection, we can with certainty, argue the noise level of existing plus new equipment will far exceed 50 dBA. Most likley within range of 55 – 60 dBA.

Although we continue to request a 3rd party noise analysis review committee we see zero probability that the Verizon expansion will ever be shown to be compliant. Verizon's opertional needs have simply outgrown this location.

We believe we have provided sufficient analysis to deny this expansion on the technical merit of noise analysis alone.

Sincerely,
SW Residents Coalition Representative,
Gary A Guerin, PE (retired)

SUBJECT: Bloomington Residents Vs Verizon Expansion (Case PL2020-166) located 10801 Bush Lake Rd.

RESIDENTS APPEAL (Continued Dialogue – Guerin 03):

DATE: 01/02/21

To: Mayor and City Council Members

From: Gary Guerin, PE (retired); Resident and Coalition Representative

Subject: Residents Appeal- Continued Dialogue - Guerin 03

Continuing our discussion concerning key points contained within the residents Appeal Letter and Exhibits 02-05, which were included within the City Council Meeting Agenda Packet, and also Exhibit 06, which was forwarded to you by Denise Christenson on the afternoon of Dec 21. The following dialogue makes direct and therefore relevant reference to some of these documents.

Ref Exhibit 04 (submitted to PC Nov 14 and included in Council Agenda Packet; pages 351-356): This continuing discussion is intended to point out the long-term plans and operational needs Verizon foresees at this location. The clips below are extracted from ESI report dated Sept 1 and Verizon drawings A110 and A111. These clips clearly indicate Verizon's intentions for this site. Verizon fully anticipates the need for more AHU cooling capacity and emergency power generators as time goes on. Verizon's claim of 80% max utilization on the (5) AHU(s) is a "smoke screen" necessitated by calculation compliance w/ code noise limitations and the 50 dBA threshold. Once the expansion is built nothing will stop Verizon from 100% utilization – "catch me if you can".

As time goes on and memories fade (or old retired guys pass way) Verizon will move to add the 6th AHU and additional generators to address 5G growth demands. All along the way residents will be complaining to the City about the increasing noise levels. Will there be accountability years down the road for allowing this horse out of the barn?

It is very interesting to note that once **residents** pointed out the references to the "future equipment" as cited in the Sept 1 report and demanded calculation modeling include this equipment all mention of "future equipment" disappeared from ESI follow-up report dated Nov 10.

For some reason the Planning Commission ignored all technical arguments made by residents. Commission appears content to reply on post construction noise testing - what a joke – what a mess!

13.	Prior to C/O	Noise source shall not exceed MPCA limits established in Minnesota Administrative Rules Chapter 7030. Prior to the issuance of a Certificate of Occupancy, post installation noise inspections of operational air handling units, air condensers, and back-up generators is required to demonstrate conformance with MPCA requirements.

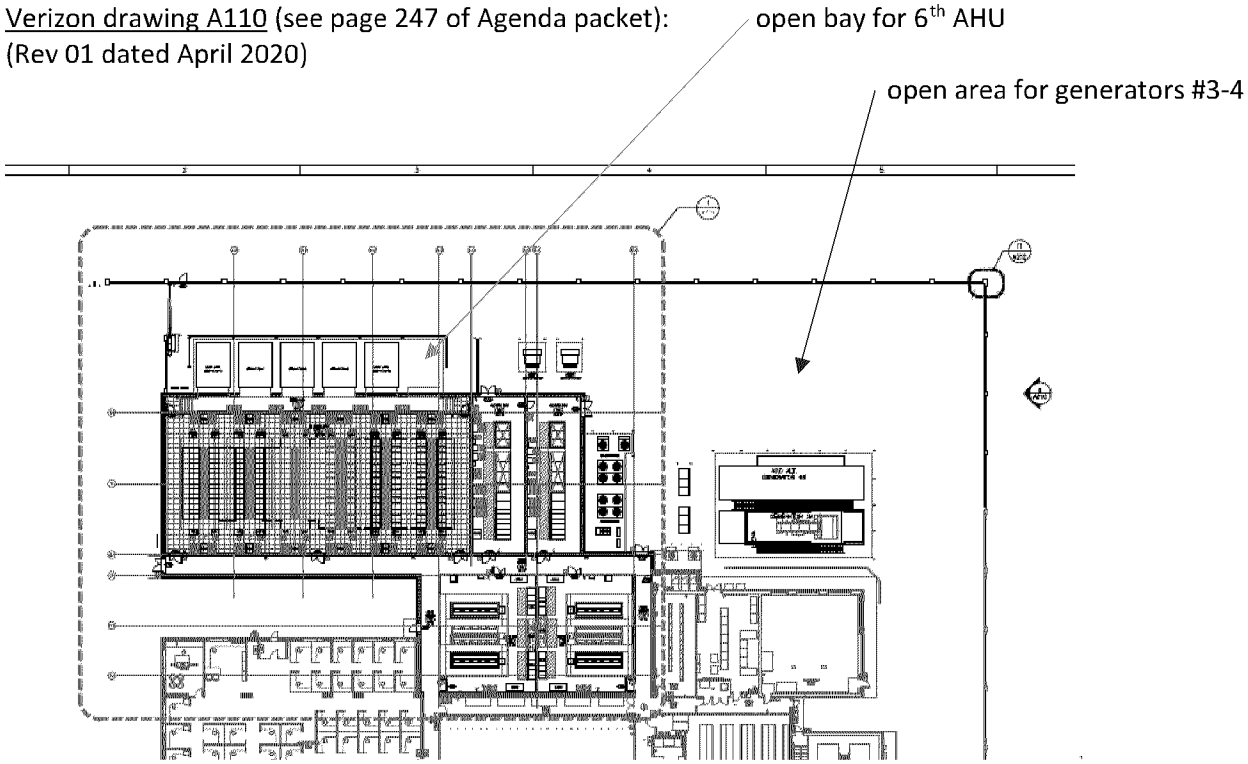
We are now relying on the City Council to get this right. This Expansion should not be allowed to proceed until we have 100% confidence in the end game noise levels.

SUBJECT: Bloomington Residents Vs Verizon Expansion (Case PL2020-166) located 10801 Bush Lake Rd.

RESIDENTS APPEAL (Continued Dialogue – Guerin 03):

DATE: 01/02/21

Verizon drawing A110 (see page 247 of Agenda packet):
(Rev 01 dated April 2020)



ESI report dated Sept 1:

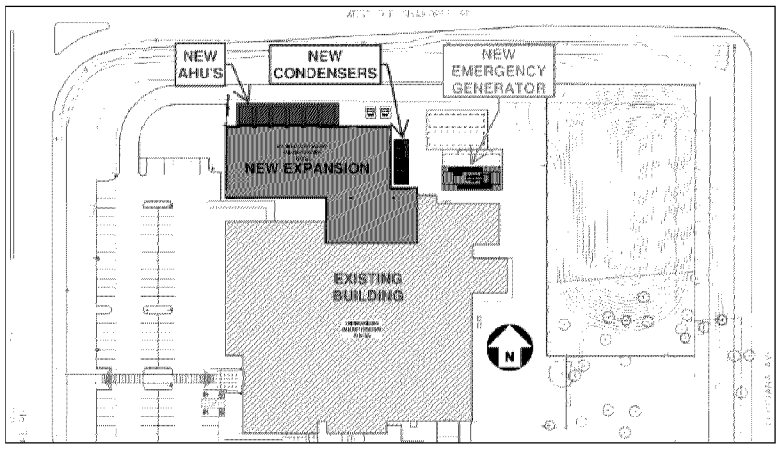


Figure 1 – Site plan of the Bloomington Verizon building.

SUBJECT: Bloomington Residents Vs Verizon Expansion (Case PL2020-166) located 10801 Bush Lake Rd.

RESIDENTS APPEAL (Continued Dialogue – Guerin 03):

DATE: 01/02/21

Ms. Katherine McGah
Morrison Hershfield

September 1, 2020
Page 4

NOISE CONTOUR CALCULATIONS

ESI performed calculations and developed a noise contour model to determine the noise levels at areas surrounding the MSC expansion with the new outdoor mechanical equipment. The current design is planning for the following new mechanical equipment:

- Air-Handler Units (AHUs)
  - Five (5) Liebert DP500's (with an area reserved for a 6th unit)
    - Four of the five units will always be running, with the fifth unit in reserve
- Condenser Fans (CFs)
  - Four (4) Liebert MCL110's
  - Two (2) Liebert MCM040's
- Emergency Generators (EGs)
  - Two (2) Caterpillar 3516 Diesel Generator (with areas reserved for future generators)

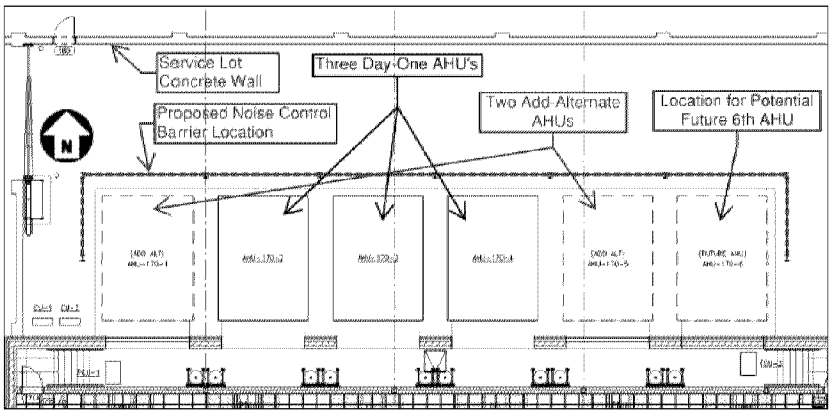
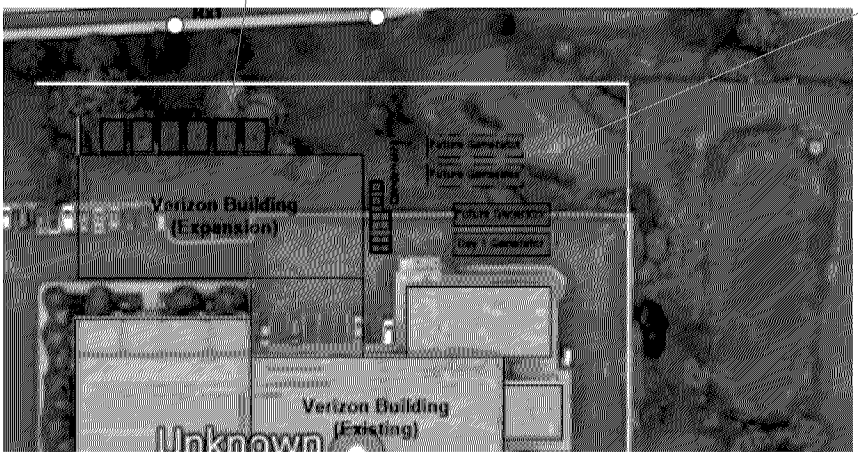


Figure 4 – Partial plan view showing the layout and location of the proposed barrier wall.



SUBJECT: Bloomington Residents Vs Verizon Expansion (Case PL2020-166) located 10801 Bush Lake Rd.

RESIDENTS APPEAL (Continued Dialogue – Guerin 03):

DATE: 01/02/21

Generator Toxins & Air Pollution:

Please take some time to read through residents Exhibit 04 (copy attached to the email containg this letter). The emphasis herein is the **toxic chemical** risks to residents. The proposed expansion will approximately triple the current diesel emissions output. Future expansion would push the level to nearly 400%. As noted per Exhibit 04 calculation and cited references therein the increased cancer risks are considerable. Scrubbers as proposed by the applicant do nothing to mitgate the health issues fom emission toxins.

We find the Planning Commission permit condition to be humorous – ever hear of wind?

		by the City Engineer.
18.	Prior to C/O	Generator exhaust stack locations must be approved by the City Environmental Health Division. Environmental Health staff must inspect post-installation generator testing to confirm exhaust is directed away from residential properties.

As previously asked in our appeal letter to Council - what other location in Bloomington has 9,000KW of generator output located within 200' of residents? future expansion would be 16,000KW.

What actions has the City taken to understand the health consequences of the proposed generators? Are you making an informed decision?

Residents hereby request: City offer substainiated justifications for exposing residents to the cited increased health risks. We request the City make their disposition known prior to the meeting of Jan 11 and include a written statement within the Agenda packet.

We are now relying on the City Council to get this right. This Expansion should not be allowed to proceed until we fully understand the health impact on residents.

Property Values:

Verizon is proposing a 12-14 foot high concrete wall the full length of their property parallel to Old Shakopee and directly across the street from resident's homes. Rising high above the wall will be (3) existing plus (2) new larger generator exhaust stacks. W/ future potential for (2) more large stacks.

Any potential buyer of surrounding homes is going to ask a lot of questions about this facility – what goes on there? how often? what is hiding behind that wall?

Therefore; what actions will the City be taking to understand the impact this eye sore will have on local homeowner property values?

We are now relying on the City Council to get this right. This Expansion should not be allowed to proceed until we fully understand the potential negative impact on homeowner property values.

Sincerely,
SW Residents Coalition Representative,
Gary A Guerin, PE (retired)

PL202000166
PL2020-166

esi engineering

September 1, 2020

Ms. Katherine McGah
Morrison Hershfield
1455 Lincoln Parkway, Suite 500
Atlanta, Georgia 30346

Subject: Summary Report for
Generator and HVAC Outdoor Noise Control
Verizon MSC Expansion – Bloomington, Minnesota

Dear Ms. McGah:

We understand Morrison Hershfield is designing an expansion for the Verizon Mobile Switching Center (MSC) in Bloomington, Minnesota. The expansion includes a new area to the north of the existing building, which will be served by numerous new exterior air-handling units (AHUs), condenser fans, and emergency generators (see Figure 1).

ESI Engineering was asked to review the new mechanical equipment noise levels and locations, prepare a noise contour plot for the area surrounding the MSC, and to make recommendations to meet the City of Bloomington codes and State of Minnesota requirements. ESI was also asked to perform noise testing once the expansion is complete to confirm city and state codes are met. The following is a summary of our design analysis.

Executive Summary

Calculations were prepared to evaluate noise from the air-handling units and condensers that will be located on the north side of the new expansion at Version. The primary concern was to control noise levels at the residences on the north side of Old Shakopee Road. The calculations indicated that barrier walls were needed to meet the City of Bloomington and the Minnesota Pollution Control Agency (MPCA) noise requirements. Noise levels were evaluated at the point of the nearest receiver on the north side of Old Shakopee Road as directed by the MPCA, and not on the Verizon property line as required by the City. The emergency generators will have enclosures that reduce noise to the nearest residential properties.

As currently designed, noise from the outdoor mechanical equipment is expected to meet the City of Bloomington and the MPCA nighttime requirement of 50 dBA at the property line of the nearest residential receivers. The location evaluated was consistent with the MPCA requirements.

The MPCA nighttime requirement is inconsistent with the City of Bloomington nighttime requirement. The City's legal staff will

Noise mitigation must meet MPCA and City of Bloomington requirements.

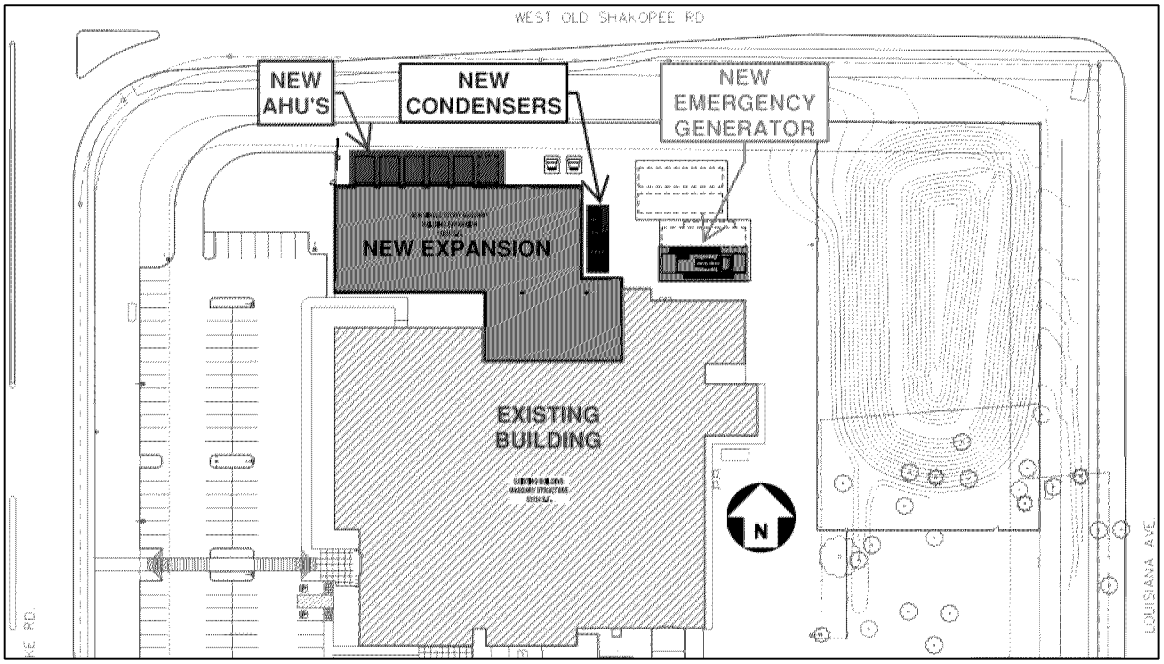


Figure 1 – Site plan of the Bloomington Verizon building.

NOISE REQUIREMENTS

The following summarizes the noise requirements:

- The City of Bloomington Code, Section 10, Article 4: Noise Code, has requirements for outdoor noise. Section 10.29.02: Noise Source Requirements, has the following L10[1] noise limits (in dBA[2]) per receiver zoning district, measured at the property line of the source:
    - Industrial or freeway development zoning districts: 70 dBA at all times
    - Business or commercial-recreational: 65 dBA at all times
    - Residential (includes hotels): 60 dBA in the daytime (7:00 AM to 10:00 PM) and 50 dBA in the nighttime (10:00 PM to 7:00 AM)
- The State of Minnesota also has requirements for outdoor noise. Minnesota Administrative Rules Chapter 7030: Noise Pollution Control, prepared by the Minnesota Pollution Control Agency (MPCA), has requirements for maximum allowable sound levels by receiving land use. Table 1 shows the Rule 7030 L50[3] and L10 noise limits (in dBA) per noise area classification (NAC). In general, NAC 1 is residential and recreational, NAC 2 is commercial, and NAC 3 is industrial.

[1] L10 is the sound level that is exceeded 10% of the time during a measurement period.
[2] dBA is the abbreviation for an A-weighted decibel. A-weighting is a filtered decibel level that reflects the human ear response to sounds of a low pressure level.
[3] L50 is the sound level that is exceeded 50% of the time during a measurement period.

Table 1 – MPCA Code Requirements

Noise Area Classification	Receiver Type	Daytime (7AM - 10PM)		Nighttime (10PM - 7AM)	
		L10	L50	L10	L50
1	Residential	65 dBA	60 dBA	55 dBA	50 dBA
2	Commercial	70 dBA	65 dBA	70 dBA	65 dBA
3	Industrial	80 dBA	75 dBA	80 dBA	75 dBA

- Minnesota Administrative Rules 7030.0060 Measurement Methodology, § Subpart 1. Measurement location, states, "Measurement of sound must be made at or within the applicable NAC at the point of human activity which is nearest to the noise source."
- Minnesota Statute § 116.07 Powers and Duties, Subdivision 2. Adopting standards states, "No local governing unit shall set standards describing the maximum levels of sound pressure which are more stringent than those set by the Pollution Control Agency."
    - The city L10 requirement is 5 dBA lower than the state requirement, which in our opinion is not consistent with this statute and more stringent than the MPCA requirements.
    - The city requirement is also measured at the property line of the source, not at the point of the nearest receiver as prescribed by the MPCA, which makes the city's location more stringent and not in line with the statute.
- The new AHU's and condenser fans will be running at all hours of the day, therefore noise from the AHU's and condenser fans at the nearest property line must meet the city requirement of 50 dBA (strictest nighttime requirement for residences). Because the equipment noise is steady over a 1-hour period, there is no differentiation between L10 and L50. We will compare the calculated equipment noise to the state requirement of 50 dBA in this report.
- The emergency generators are expected to only run during emergency power outages and during monthly testing and maintenance. We assume the noise limits do not apply during emergency use since the generators are for life safety. We understand that the testing/maintenance will only take place during the daytime hours, and thus the specified design goal for the generators was a maximum of 65 dBA measured 20' from the generators. This equipment requirement will help achieve noise levels below the daytime requirements for nearest residential property lines.

NOISE CONTOUR CALCULATIONS

ESI performed calculations and developed a noise contour model to determine the noise levels at areas surrounding the MSC expansion with the new outdoor mechanical equipment. The current design is planning for the following new mechanical equipment:

- Air-Handler Units (AHUs)
  - Five (5) Liebert DP500's (with an area reserved for a 6th unit)
    - Four of the five units will always be running, with the fifth unit in reserve
- Condenser Fans (CFs)
  - Four (4) Liebert MCL110's
  - Two (2) Liebert MCM040's
- Emergency Generators (EGs)
  - Two (2) Caterpillar 3516 Diesel Generator (with areas reserved for future generators)

Figure 2 below illustrates the site plan used for the calculations and includes the new equipment locations on the north side of the expansion.

In discussions with Morrison Hershfield, the following design assumptions were included in the noise contour calculations:

- Verizon will always operate 4 of the 5 new AHUs. Four of the units will be running at 100% load with the 5th unit in reserve to handle any extra load. The noise contour calculations assumed a worse-case scenario of 5 units running at 100% to ensure MPCA requirements are met in the case that all 5 units would be running at the same time.
- We assumed the 6 condenser units will be running at a full load, which is considered worst-case.
- Since the generators will not be running constantly, they were not included in the noise contour calculations. A separate review of the generator noise is included in a later section of this report.
- The current service lot at the Verizon property has a concrete barrier around the perimeter. This will be continued on the north side of the property around the paved service lot. We understand this wall will be approximately 12' above ground.
- We are assuming a flat ground elevation for the site plan shown in Figure 2.
- It should be noted, that in our previous project experience and noise measurements at this site, the noise from vehicular traffic on Old Shakopee Road and Bush Lake Road greatly exceeds 50 dBA.

Figure 2 – Site plan model for noise contour calculations and plot.

ESI developed a noise contour model with barrier wall calculations to determine what the expected noise levels will be at the nearest residential properties. The nearest residential property lines are approximately 180' north of the new equipment, across W. Old Shakopee Road. Dimensions and elevations were measured from architectural drawings and Google Earth, and noise levels for the equipment were provided by Liebert.

Figure 3 shows an elevation sketch of the planned noise control barrier, which will help to reduce the sound propagating to surrounding residences. The dimensions shown are not finalized and may vary a little from the built barrier wall. However, the minimum 4' height extension above the tops of the AHUs is required.

Figure 4 shows a partial plan view of the layout and location of the proposed noise control barrier wall. The AHU (interior) sides of the barriers should have an acoustical absorption material to help reduce reflections that propagate to other adjacent areas around the Verizon site.

The noise control barrier near the AHUs will be located along the north side of each AHU, with wings that wrap down the east and west sides of the outer AHUs as close to the building as possible. This barrier should start as low as possible above the service lot to provide whatever minimum height is possible for repair and maintenance access, and extend to a height at least 4' above the tops of the AHUs. The barrier wall can be mounted on and anchored to bollards that are planned around the perimeter of the AHUs to prevent vehicles in the service drive from hitting or running into the units. The wall should not be more than 3' away from the units, as that was the assumed distance between units and the wall in our model.

Figure 5 illustrates noise levels on the project site with the noise control barrier wall near the AHU's and the 12' concrete wall around the perimeter of the service lot. The receiver height was 5' above the ground level at Location X on Figure 5.

The calculated noise level at the nearest residential property line is 50 dBA, which meets the MPCA nighttime noise requirement. This is the calculated noise level for a worst-case scenario of 5 fans running at 100% load. We expect levels will be about 1-2 dB less than that since only 4 fans will run during typical operating conditions.

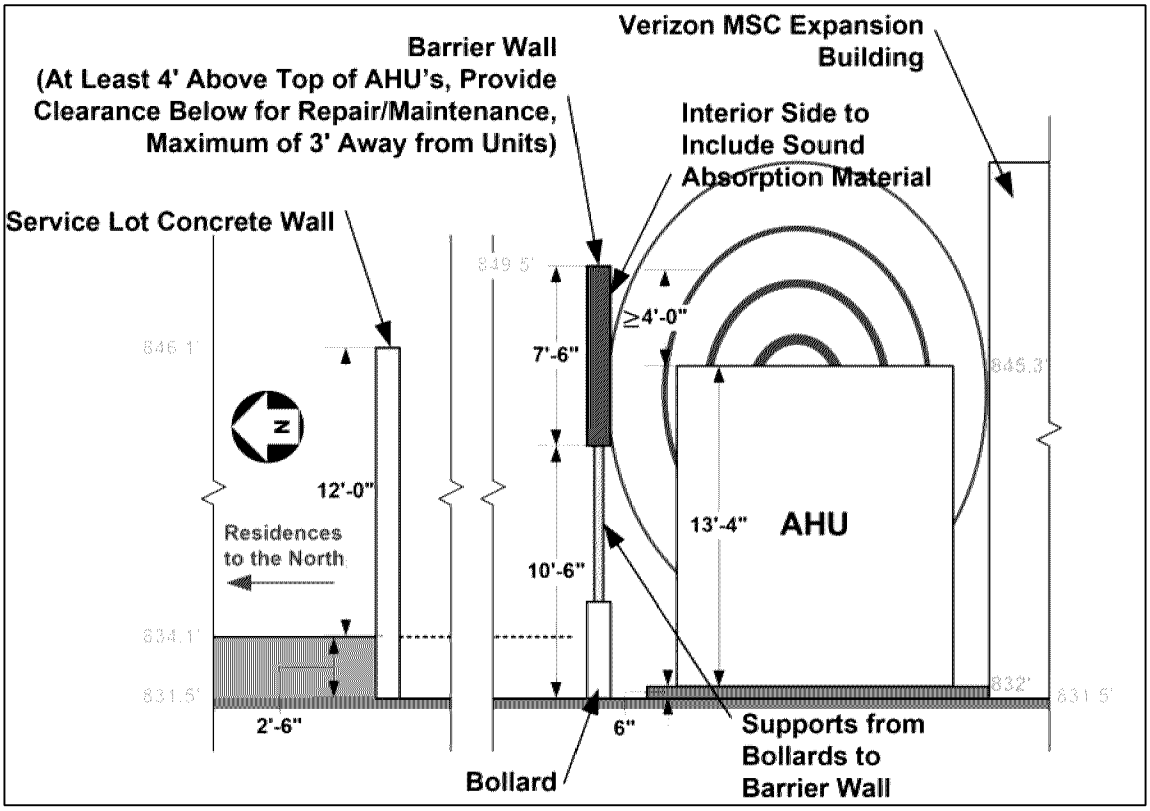


Figure 3 – Elevation sketch of the proposed AHU noise control barrier wall.

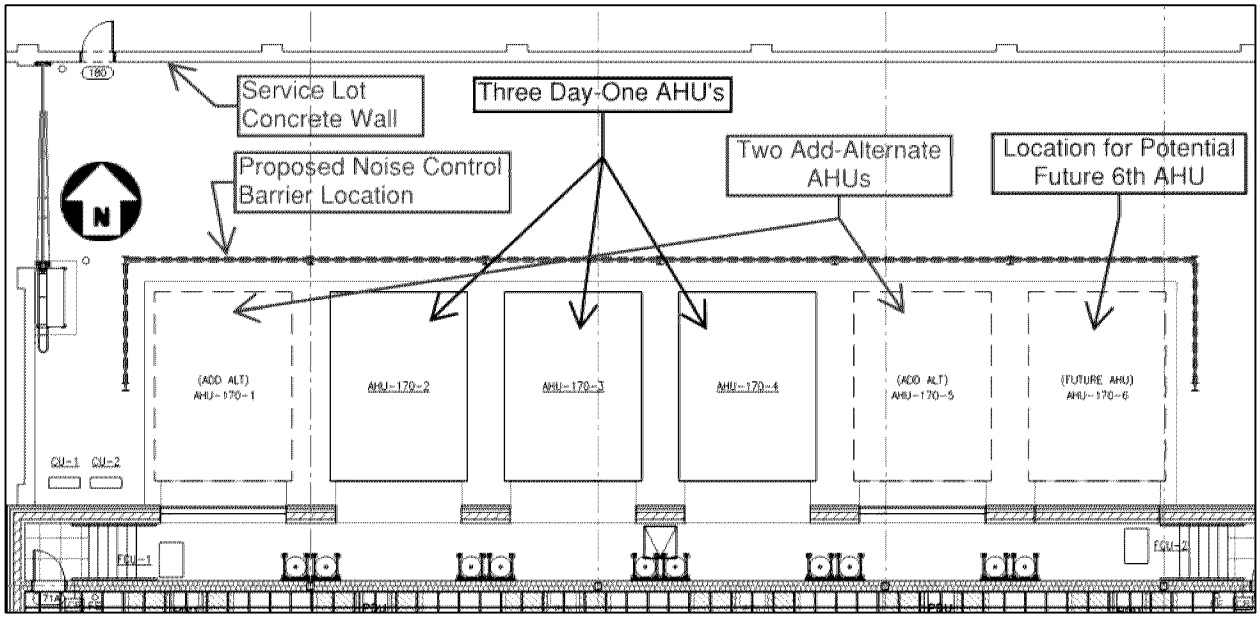


Figure 4 – Partial plan view showing the layout and location of the proposed barrier wall.

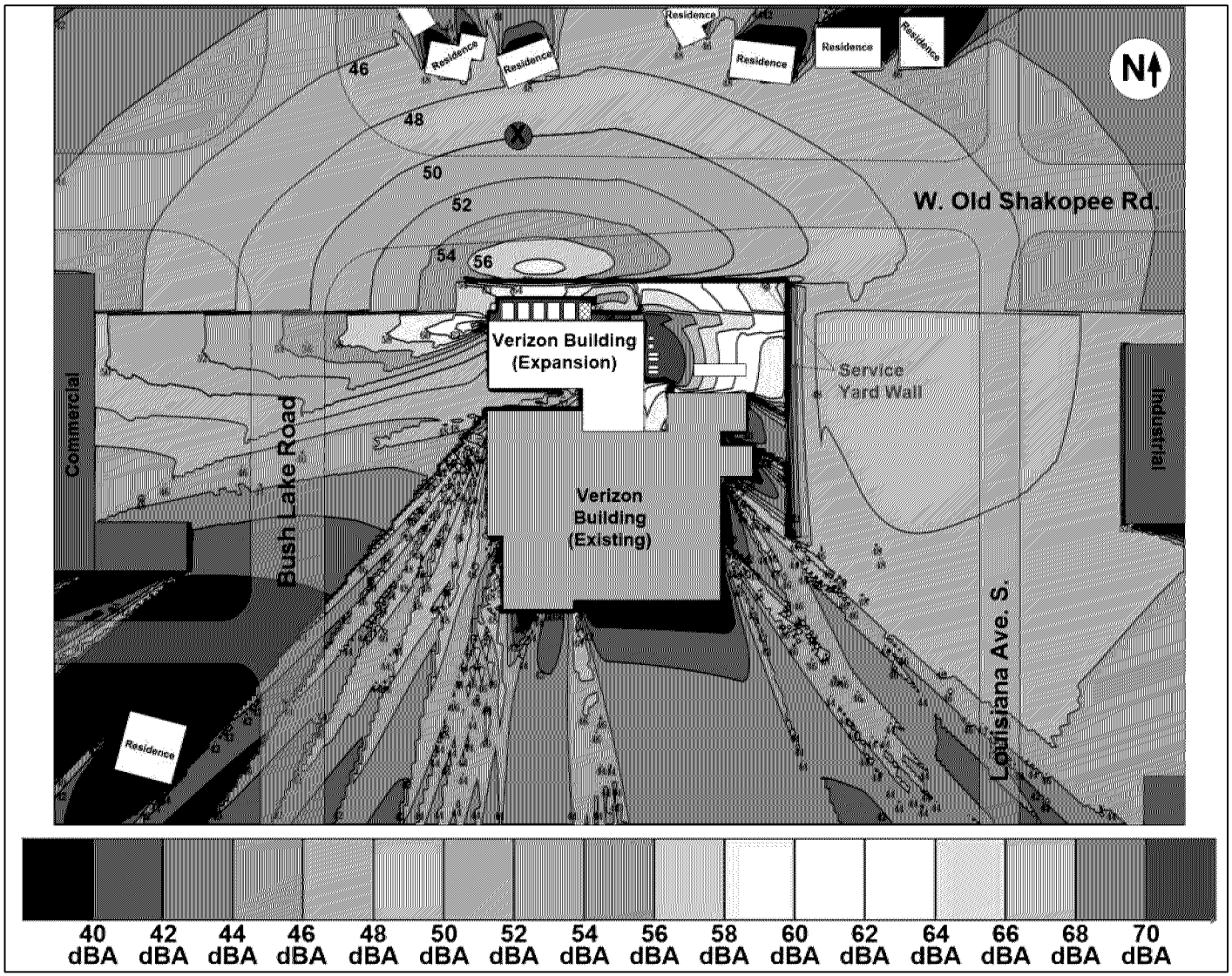


Figure 5 – Calculated noise contour plot of the area surrounding the Verizon Bloomington expansion.

GENERATOR NOISE REVIEW

As mentioned above, we understand that the emergency generators chosen for the project are Caterpillar 3516 Diesel Generators. We also understand that these generators will be in noise control enclosures designed to meet 65 dBA measured at 20' from the enclosures. Since the generators will not be running consistently, but only in times of power failure or during monthly testing and maintenance, it was not included in the calculations above. If generator noise meets the 65 dBA at 20' requirement, there should be no issues in meeting the requirement of 60 dBA during the daytime at the nearest residential property lines, which are approximately 250' from the generator enclosures.

CONCLUSIONS

ESI Engineering was asked to review the new mechanical equipment noise levels and locations, prepare a noise contour plot showing noise levels at areas surrounding the Verizon MSC with the new equipment, and to make recommendations to meet the City of Bloomington and State of Minnesota codes as necessary. Our calculations indicate that the 12' barrier wall around the service lot and the noise control barrier wall near the AHUs will reduce noise at the nearest residential property line to meet the MPCA nighttime residential code requirement of 50 dBA. This is for a worst-case scenario of 5 AHU's running at 100% and maximum noise levels, which probably will not occur very often. Levels will be 1-2 dBA lower with only 4 AHU's running simultaneously. Based on past measurements made at this site, we expect traffic noise to be much higher than 50 dBA.

The emergency generators will be in noise control enclosures designed to meet a noise level of 65 dBA when measured at 20' away from the enclosures. In our opinion, noise from the generator will meet the daytime code requirement of 60 dBA at nearby residential property lines.

ESI was also asked to perform noise testing once the expansion is complete to confirm city and state codes are met. The post-construction testing will be performed at a later date, and the results from that testing will be included in a separate report.

We appreciate the opportunity to work with Morrison Hershfield on this project to serve the needs of Verizon. We remain available to assist in the resolution of these and any other matters. Please let us know if you have any questions or need more information.

Sincerely,

Andrew A.J. Schmitt
Consulting Engineer
ESI Engineering, Inc.

Anthony J. Baxter, P.E. (MN and WI)
Principal
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