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Presentation of Jamie Banks Zoom Meeting at Westport, Connecticut

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Slide 1

Well, good evening, everybody. And thank you, Kristen, for the very detailed introduction. And thank you, Jessica, and the Health and Human Services Committee for having me today.

After many years working in healthcare, I have ended up talking about leaf blowers and lawn mowers and all sorts of gas equipment. But it was really that background that allowed me to bring a public health and occupational health lens to this issue. And as Kristen alluded to, I first got involved in my own town in this issue and started Quiet Communities back in 2013.

Slide 2

So, Quiet Communities is a national nonprofit organization. We work with communities all around the US and we started out looking at their practices. But today we actually have five programs that include aviation, hospital and health care, a quiet conversation around policy issues, quiet coalition around again, policy and all sorts of noise and then quiet outdoors is our land care program.

Slide 3

The kinds of things we do are listed on the slide, Education and Outreach. We actually organize and participate in doing research. We have some peer review publications in this area. One that we did in collaboration with EPA on national emissions burden from lawn and garden equipment. Others on the quality of noise coming from gas blowers doing a head-to-head comparison with electric blowers and I'll be talking about this more in the presentation tonight. We collaborate with the American Green Zone Alliance (AGZA), on bringing solutions to gas powered lawn care issues, helping communities to transition away from this to electric and manual tools. And we always promote the use of manual tools whenever possible, but also other alternatives. We also make equipment purchasing recommendations and do specifications for government procurement programs. For instance, we worked with the state of Massachusetts and develop the first technical specification for commercial battery electric lawn and garden equipment so that state agencies, public universities, and municipalities could buy commercial equipment by contract. And then we do a variety of communications around this topic.

I do not want to be unkind towards Ms. Banks. That is not my purpose, for I know she has a passion for her convictions. She believes that what she is doing is the right thing. And maybe it is for some people. But as I listen to her, I hear some things that are either not true or are over exaggerated when applied to today's leaf blower. I feel compelled to try to set the record straight in these areas. I wonder, is banning an otherwise legal tool the right think for the majority of local residents because someone

else is annoyed? To most of us, noise is just part of life. Depending on where you live, there are trucks, cars, motorcycles, lawnmowers, and all sorts of things that people use to do their jobs, which annoy us. Most of us just live with it.

When I hear someone working in their yard, I'm happy, because that means this person has pride in their property and they want it to be appealing and attractive, which everyone in the subdivision strives to do.

Here is something that I am reasonably sure you do not know or have given much thought to. There are groups of people, from outside your community, working hard to have gasoline-powered leaf blowers banned throughout the country. The reason for this is not real obvious. They claim to be environmentalists, but there might be a financial incentive as well. One such example is the non-profit organization called Quiet Communities, which is guided by Jamie Banks. By her own admission and by the name alone, it shows clearly that Ms. Banks and her supporters have a more global interest in this issue than that of one community. The term, "non-profit" does not mean "without financial support". It is well organized and apparently, well financed. I count at least 15 employees from the link to their website.

Slide 4

So, your ordinance is based on noise. And that's really what I'm going to focus on. But I'll also be talking about emissions towards the end. Now, I have learned a lot about noise in these years that I've been in the field, but I am not an acoustics engineer, but certainly know a lot about the quality of noise and their health implications. And as mentioned, I serve as the chair of the Noise and Health Committee of the American Public Health Association.

It is clear that she is aware that noise is the true issue when it comes to the reason for banning leaf blowers in your community. Her goal, however, is to provide a more powerful scenario for banning than noise alone, so she warns that she will be discussing other negative traits that are more powerful than the issue of sound.

Slide 5

I'll start out talking about how noise is measured. Noise and its measurement is quite confusing. The most common metric that's used is called an "A" weighted decibel. And that's a measure of sound pressure. Now, the A-weight. You've probably all heard of the decibel. But the A-weight to the decibel is the most common form of the decibel that's used. And it's that metric happens to under-weight low frequency components. And that's because we don't really hear low frequency components as much as feel them and the A-weighted decibel is more tuned to things that we hear with our ears and that impacts our or your hearing health.

Per Bruel & Kjaer, Germany. Manufacturer of sound measuring equipment.

> *Several different types of sound level processing methods may be performed on the signal. The signal may pass through a weighting network. It is relatively simple to build an electronic circuit whose sensitivity varies with frequency in the same way as the human ear, thus simulating the equal loudness contours. This has resulted in three different internationally standardized characteristics termed the "A", "B" and "C" weightings.*
>
> *Nowadays the "A" weighting network is the most widely used since the "B" and "C" weightings do not correlate well with subjective tests. One reason for this lack of correlation between*

subjective tests and "B" and "C" weighted measurements is because the equal loudness contours were based on experiments which used pure tones — and most common sounds are not pure tones, but very complex signals made up of many different tones.

Ms. Banks intimates that the “A” weighting removes the low frequencies, such that the sound level measured is not representative of what a person is actually hearing. That is not so. The frequencies dropped are those below the frequency of 20 dB, which is the lowest frequency a person can hear.

So, the decibel scale is a logarithmic scale. It's not a linear scale. So that means a 10 decibel increase in sound, translates to a tenfold increase in sound pressure, a 20-decibel increase is 10 times 10- or 100-fold increase in sound pressure, and then a 30 or 30 decibel increase is 10 times 10 times 10 or 1000 fold increase in sound pressure.

Sound pressure does not multiply by 10, 100 and 1000 times for increases of 10, 20, and 30 dB(A). It’s increase is 3.2, 10, and 31.6 times respectively. The reason is the increase is a ratio of the initial source value to the final value. Check out the calculations.

Sound propagation in air can be compared to ripples on a pond. When there is no wind, the ripples spread out uniformly in all directions, decreasing in amplitude as they move further from the source. For sound in air, when the distance doubles, the amplitude drops by half — which is a drop of 6 dB. Thus, if you are at a position one meter from the source and move one meter further away from the source, the sound pressure level will drop by 6 dB. If you move to 4 meters, it will drop by 12 dB, 8 meters by 18 dB, and so on.

For every 6 dB(A) drop or increase, the value drops by half or increases by twice the value respectively.

Now, the decibel is not the only metric but it's a primary metric we use today to convey the loudness of sound.

The way that that sound pressure translates to how we as humans perceive the loudness is that a three-decibel increase is noticeable. True. We noticed that something's louder but it takes a 10 decibel increase for that loudness to double and then 20 decibel, two times two quadruples, and a 30 decibel increase is two cubed or eight fold increase in perceived loudness.

You now know that this last sentence is not true. Further, it is contradictory to what is said in the paragraph that talks about 30 dB(A) is an increase of 1000-fold.

Slide 6

There are guidelines on noise levels that are safe for health in hearing. For occupational noise protection, it's an 85. It should (not) be a dBA average over an eight-hour day to protect hearing. For the public safe outdoor community levels are 70 decibel average, to protect hearing, and then a 55-decibel daytime average to protect health. Now I just want to digress for a moment. Noise was first declared a public health problem in 1968, the US Surgeon General at that time the Surgeon General was William Stewart, he noted in the keynote addressed the American Speech and Language Association. Not only that noise is a public health problem, but has health implications that go beyond hearing health, to cardiovascular health, to mental health, etc. And here we are 50 years later. And we're still dealing with this issue but a lot of ignorance about these other health implications of noise apart from hearing and there's reasons for that, that I really can't go into today, but it has to do with a lack of effective federal legislation on noise.

First, the WHO position on noise was actually the position of the Stockholm University and Karolinska Institute, from a paper prepared for the WHO in 1995. The 55 dB(A) is said to disturb sleep. They are talking about this being caused by steady traffic noise of 75 to 80 dB(A) for a 24-hour period, measured adjacent to densely traveled roads. In other words, this does not apply to short duration noises.

Further in the paper, under annoyance, it states that few people during the day are annoyed by 55 dB(A). The key words in this entire document are that 55 dB(A) is an annoyance at night, not a health hazard.

Taken from the WHO website, page 61: *"To protect the majority of people from being seriously annoyed during the daytime, the sound pressure level on balconies, terraces and outdoor living areas should not exceed 55 dB(A) for a steady, continuous noise."*
Slide 7

So, if you can keep those guidelines in mind, this is really to compare the noise levels that are coming from popular models of backpack leaf blowers. And these are the kinds you really see in use by commercial landscapers.

What I'll point out, there's a number in red on each of these graphs. So, this is 7 models of popular backpack blowers. There's a DBA level in red, that exceeds 100. Now this is a DBA level that workers are hearing, it's at the ear of the operator. That's orders of magnitude above safe decibel levels. So, if you remember 85 decibels is the safe level for hearing health. It's a lot less for overall health. So, we're seeing decibel levels that are 20 decibels or more higher at the ear of the operator, and then even at 50 feet, which is how these machines are rated given noise ratings. These decibel levels also exceed what is safe for help. It's 55 decibels as you recall. So, these are very, very loud machines. This little green box that you see in the lower right comes from the industry article that this graph comes from. This is the outdoor power equipment reviews. You can find this online. And it's really telling commercial workers that the noise from these blowers is very dangerous. No matter how you slice it, they are very loud.

I have not checked all her data, but what she is telling you about the ECHO PB770T is not true. The sound level is 74 dB(A) at 50 feet, which admittedly is not quiet. To make a point, however, she exaggerates, and she has chosen all noisy leaf blowers. If you check the referenced link, you will see that there are 5 truly quiet leaf blowers at 65 dB(A) in ECHO's lineup. Those that are at 70 dB(A) are at least 50% quieter than noisy blowers.

Sound from today's leaf blowers can be categorized per the following:

- Sound levels from Quiet blowers 65 dB(A) or less, have been reduced by 75%.
- Blowers 71 dB(A) or less, have been reduced by at least 50%.
- Blowers at 77 dB(A) are loud.
- Blowers greater than 77 dB(A) should be considered too loud for residential use.

The sound level at the operator's ear for the PB770T is 98 dB(A), not 104. Ninety-eight dB(A) is 6 dB(A) lower than 104, what she is showing, which is a 50% reduction. Check out the chart. The upper sound level numbers she shows on her chart may be sound power, which is a whole different concept. It is not the same as sound pressure.

Now you might be wondering why these loud blowers even exist. It's because there are applications where only these blowers can do the job efficiently. These blowers are larger, with bigger engines. They obviously make more noise. They are not intended for use around hospitals, gathering areas at

resorts or even near personal residents. They are intended for commercial use, like golf courses, parking lots and industrial areas. Limiting the use of these blowers to that environment, would go a long way to solving the sound issue in residential areas.

There are deterrents to buying these blowers, meaning they are not very popular. They cost a lot more, they are heavy, and they are not needed by most contractors. They buy only the size they must have to do the job at hand.

Slide 8

There's a lot of concern about the noise that comes from these machines on the left is an infographic from the Centers for Disease Control. It is not coincidental that the source of noise here is a leaf blower, and it's talking about damage to the ear and how it happens. This statement on the right is from a Harvard Medical School Special Report on hearing health. Again, it's highlighting leaf blowers as one of the sources that contributes to chronic regular noise that over time can damage our hearing.

The fact that a leaf blower is shown in the infographic, is insignificant and meaningless. The point of the graph is to highlight that *"decades worth of exposure to the high-decibel accessories in our daily life.",* can cause hearing loss. Ten or fifteen minutes per week from a leaf blower 50 feet away is only annoying at best. The leaf blower is the only one of the examples given that comes with a warning label to wear hearing protection. Bystanders are not in danger of experiencing hearing loss.

Slide 9.

Okay, so, this is a list of adverse health effects of noise. So, hearing damage, it can cause loss of hearing, tinnitus, and hypertension. And then a lot of other health related effects, including cardiovascular disease. Now, the way this works is that the body responds to noise by and the way your body responds to noise is by releasing stress hormones. There's a fight or flight reaction. Your body releases cortisol. What this does is it sets off a physiological cascade of events in the body, that lead to increases in blood pressure, increases in lipids, increases in blood glucose. And all of these things are things that increase risk of heart disease, inflammation, etc. There's also increased anxiety and depression, interruption of children's learning and cognition. One of the people that we work with is Arlene bronze and half that pioneered this field. She could tell you a lot more about it than I can. But in some of these pioneering studies that were done back in the 1980s, she found that children that were in classrooms near the train, did much more poorly in their schoolwork than kids are in quieter environments. And then by installing sound insulation, this effect was reversed. Other studies have repeated those findings. And so, there's an extensive literature on the effects of noise on children and learning. There are also metabolic disturbances mediated, as I said, by this physiological cascade, and then things like reduce work productivity. So certainly, during the time of COVID, we've heard many people complaining, they are unable to participate on the phone and their zoom calls. They're distracted by the noise. They're irritated by the noise. So this is something that's really come to the forefront. And interruption of sleep for first responders. Another issue, that's not listed here. But that's certainly become a concern during COVID. And then just reduction in quality of life, the ability to enjoy being in one's own home and on one's own property, and increased health and societal costs when we're affected by noise in this way, in our health and our productivity, etc.

Assuming all that she has said is true, she is pointing out that during the experience of hearing a noise, whatever the magnitude may be, one can become annoyed or irritated due to Cortisol influx in the nervous system. According to Ms. Banks, this prompts you to fight or run away. I guess it also prompts you to try to get the source of the irritation outlawed. How do you do that? Well, this slide is a

perfect example of how. Blame every age-related illness or personal limitations you can think of, on the leaf blower. Even those that have conducted studies on the subject are inclined to search for markers that will support their initial suspicion on the issue. How can all these adversities be exclusively applied to the limited use of a leaf blower?

Slide 10

This table shows the decibel level at which you start to experience these kinds of effects. So, at the bottom, you see decibel levels as low as 40 to 40 to 60 can cause annoyance.

Now, annoyance and sleep disturbance also feed into the stress related response where you start to get cardiovascular or cardio-metabolic harm as well. And in higher levels that that can cause these diseases.

I snore at night. My wife sleeps. She snores too. I sleep just fine. If someone is running the TV too loud on the other side of the wall, however, then I can't sleep. Sounds that are not a normal routine, or are temporary in nature, can be disruptive. Volume has nothing to do with it. In my experience leaf blowers are not usually used at night. If one sleeps during the day, when trucks, cars and children are making noise, I suspect that person can sleep as well.

Slide 11

More recently, there is evidence that has come to the fore. There is epidemiological evidence at this point. But there are findings here in a couple of other countries that have raised the possibility that noise actually contributes to Alzheimer's disease and other forms of dementia.

Everyone knows that dementia is primarily age related. Now there are other causes suspected, but that is all they are, suspected. Check it out. By the way, leaf blowers are not mentioned.

Slide 12

And then these are some recent statements, more recent statements from the WHO and the CDC about the adverse effects of noise, causing just the sort of things that we've mentioned, and harming people's daily activities and so forth.

There are two key words in this slide that tell it all, "continual" and "excessive". "Continual" can mean ambient or uninterrupted noise and "excessive" can be volume related. Volume, in turn, depends on distance from the source. This entire concept and complaint regarding leaf blower noise is based on annoyance, not health hazard. This argument is generalized and based on innuendo, not true health hazards, as it relates to the leaf blower. The audience is expected to believe that this diatribe applies uniquely to the leaf blower. It doesn't.

Slide 13

Okay, so, the leaf blower among all the different pieces of equipment that are used, appear to be the most egregious. It's what people complain about the most. Why is that? Over the years, they've become used very frequently, for all sorts of purposes. They are used for sometimes hours at a time, several days a week. They are used out of compliance commonly, where more than one blower is used. They're used to not just blow leaves, but also dust and debris that can get onto neighbor's

property, even inside homes through windows. They're constantly throttled up and down and idled. And they have a strong low frequency component to their noise that I'll talk more about in just a minute. And then hearing protection is not very effective against sound that has strong low frequency components. So even unless you have really the best noise cancelling technology, you can hear sound through most ear protection that's on the market today. And then there's a sense of powerlessness. You cannot escape this noise in your home. So that feeds into the stress response as well.

Hearing protection is not intended to make the sound go away completely. That in itself would be unsafe. It is designed to provide protection from sound that is too loud. Professionals have developed protection designed specifically to accomplish this. As for the bystander, because of the distance to the sound being experienced, once again the only issue is annoyance.

Slide 14

Okay, so, I want to talk more about this, this low frequency component and why it's important.

In 2017, we worked with a citizens group in the city of Washington DC, and some of you may know that they were able to pass legislation in 2018, that phases out the use of gas-powered leaf blowers in the year 2022. Starting in the year 2022. That group funded a study, we actually raised money to do this, we hired the acoustic firm of Environ Incorporated. It's a leading international design and engineering firm. We worked with their acoustic engineers that designed the study and they did this head-to-head comparison of leading models of backpack electric blowers and leading models of gas blowers. Because one of the questions that the city had was if you're going to restrict gas blowers and allow electric blowers, is there a possibility that you could have gas blowers that are operating at the same decibel level, a quiet gas blower? And that made a lot of sense. And what the citizen group said is they said, we know even those quiet blowers are very disturbing because we've tested them. Can you design a study that could look at the characteristics of that sound in a very scientifically controlled way?

A researcher that we work with at Harvard School of Public Health and myself had done a study a couple of years before just looking at the sound from gas blowers. What we noted was that there was a strong low frequency component. So, we suspected that this could be a difference. And that's in fact, what we found.

So, the gas blowers the sound from the gas blowers, as opposed to the sound from the battery electric blowers has a strong low frequency component that can carry louder sound over much longer distances then the battery electric blowers. So, the waveform that you can see in the slide here is like a shallow sine wave. It travels over long distances, whereas the higher frequency is more like a stock market curve. And you see that more with a battery electric blower, it dissipates within a much shorter distance. And the sound low frequency sound also has a strong vibrational component. So, it more readily penetrates through walls and windows. And some people will even say that they find the sound of a gas leaf blower to be more disturbing in their house than when they go outside. And that's because it has the ability to vibrate components in walls and windows.

This statement at the bottom, “Low frequency components in noise may increase adverse effects considerably,” this comes directly from the World Health Organization's community noise guidelines.

The slide seriously overstates the impact noise has on people at distance. It may cause an irritation, but it is unlikely to cause harm. Irritation can be caused by any number of objects, totally unlike and unrelated to the leaf blower. At distance and after penetrating the walls, one would truly have to strain to even hear the sound, let alone be harmed by it.

Slide 15

Okay. What we did with the findings from that head-to-head study is that we looked at how many homes within which we originally did it in a suburban neighborhood. We did this for, I'm sorry, in an urban neighborhood, we also looked in a suburban neighborhood. We assumed half acre zoning. And we said, how many homes within a radius of 400 feet or a diameter of 800 feet would be affected by harmful levels of noise, noise over 55 decibels as defined by the World Health Organization, if it were an electric blower versus a gas? So, the slide that you see here, on the left, is a very quiet battery electric blower. It's one of the quietest on the market. Today, it's rated at 56 decibels at 50 feet, you're only going to have 55 decibel noise or less or, or greater at the actual site where the blowers being used. If you now move to the circle on the right, these blowers are a bit more powerful, they're approximately 65 decibels at 50 feet. And you find that sound will affect still just one house because the other houses around tend to be far enough away, that it's not affecting them. But the noise that that 55-decibel level of noise is going to travel a bit farther.

The term “harmful” makes this whole analogy meaningless. Noise near 55 dB(A) is not harmful. Most electric leaf blowers are greater that 55 dB(A). They are even greater than 65 dB(A). Further, most are not even tested for sound, so you can’t even tell what their sound level is. Only one, that I know of, is at 56 dB(A) and it has very low power compared to a gas-powered blower.

Slide 16

So, on the left here, so this is a gas-powered blower, same thing, an echo blower also rated at 65 decibels at 50 feet. But you can see that sound is, that loud sound, is traveling over a greater distance. And here affecting not just the house where it's being used, but the five houses around it as well. So, six homes all together. And then, much more powerful blowers that are in common use today, are going to, the noise from those machines, is really going to travel over a longer distance and affect everyone, every home in that radius.

“Affecting” being the key word. What does that mean? It means if you listen very closely, you can hear it. Is it truly harmful? No! Will the sound from a louder device travel farther? Yes.

But there is one important thing not being considered here. That is, the direction of the wind. The fact is, the diagram should not be a circle, rather it should be an oval and then it should be skewed in the downstream direction of the wind. If you live within a mile or so from a railroad track, from your own experience, some days you can hear the train and on others, you cannot. That’s wind effect.

Slide 17

Now the most interesting finding is really, if you compare a battery blower that's rated 65 decibels at 50 feet to a gas blower rated with that same rating, you find that because of that low frequency component, allowing that harmful noise to travel over a greater distance that you're going to affect more homes. So, it's not just the loudness rating. That's the information you really need to understand the characteristics to know the impact that the blowers are having in your neighborhood.

This test is purely subjective. It can’t be true. It is a scientific fact that the sound level of a 65 dB(A) leaf blower, gas or battery, cannot possibly be greater than 59 dB(A) at 100 feet. Look it up on the

chart. There is no way the sound level can be 55 dB(A) at 200 feet! At 200 feet it can't be greater than 53 dB(A). Double the distance, half the sound. Subtract another 6 dB(A). See response to slide 5.

Slide 18

Okay, so, I'd like to just touch on some other health effects from blowers and I'm going to talk about exhaust that comes out the back from the engine and then ground source particulates.

Slide 19

Gas blowers and other what are called handheld tools. This could be string trimmers, chainsaws, hedge trimmers, etc. Most of these machines are powered by very inefficient two stroke engines. There is a lot of exhaust emissions that come out of the engines of these machines. It's not just the blower.

The exhaust emission consists of what are called volatile organic compounds. That includes benzene, butadiene, formaldehyde, and nitrous oxides. Together, they form ground level ozone in the presence of sunlight or in warm seasons, which is unhealthful. And I'll tell you more about that in just a moment. Carbon monoxide is produced in abundance. And then fine particulate matter also known as pm particulate matter 2.5. Particulate matter 2.5, you can't really see it, it doesn't look like dust, those are, more those are coarser particulates. This is, these are particles that are a fraction of the diameter of a human hair and go all the way down to the molecular level.

The general rule of thumb is that the smaller the particle is, the more dangerous it is. And that's because coarser particles you can generally cough out or sneeze out, they don't go deep into the respiratory system. But these very small particles, especially the ones that are at the molecular level, can go deep into the lung and be absorbed into the bloodstream and can cause a lot of different disorders. There are evaporative emissions when this equipment is stored. It's what you smell when you open up a shed where gas equipment is stored. Those are called, they're passive emissions that come from the machines. It's the permeation through the through the fuel tanks and hoses and so forth. And then I'll talk about ground source particulates that come out from blowing.

Ms. Banks has provided a reasonable explanation of what various types of emissions consist of. However, her comment that leaf blowers are mostly powered by "very inefficient two stroke engines" is not true today. This statement does fall in line with her consistent effort to quote the worst possible scenario, but in this case, only engines built prior to 2005 had a problem. Are there still some old, dirty, engines in service? Yes. If blowers are to be banned, these are the ones that should be banned.

One other thing. She claims that these engines contribute a great deal of carbon monoxide. The carbon monoxide constituent in the exhaust of an untreated gasoline engine is about 4% of the total exhaust. The EPA has required that exhaust emission be reduced by 85 to 90% as of January 2005. In order to do that, fuel consumption had to be reduced significantly. Further, a catalyst was added to the exhaust system, which burns off an additional 80% of that which would have passed through the engine unburned. Considering that a leaf blower is usually used once a week per household for 10 to 15 minutes, burning about 10 ounces of fuel, you can see that this argument is exaggerated.

Slide 20

The exhaust emissions, particulate pollution and ozone pollution cause as I said, a variety of harms asthma, they worsen asthma. They're associated with cancer, wheezing, coughing, shortness of breath, COPD, cardiovascular harm, etc. And even premature death. This is a diagram that came right from the American Lung Association on ozone and fine particulate pollution.

This is all very alarming, but it has little to do with leaf blowers. Scare tactics can have an unwarranted affect.

Slide 21

Okay, and then, we know we all see the, all the dust and debris that can come up when a gas-powered leaf blower is operating. Now, this problem does not completely go away with an electric blower. But that said, the electric blowers are not as powerful.

But they are perfectly sufficient to do most routine maintenance. And the incentive is to try and preserve the battery by operating the electric blowers, not at full power, but to use it more judiciously to extend battery power. So, you tend to get less dispersion because of those two factors. What does come off the ground can be a whole variety of things depending on the surface that's being, that's being blown. If it's used on, alone on a lawn, it might be pesticides, herbicides, fungal spores, pollens, and bacteria. If it's used on a hard surface, you can start to get things like diesel soot, brake dust, even toxic heavy metals. You may have seen highway workers that are on the shoulders of highways blowing up dust and debris. Now there's a lot of lead deposited in that material, because we used to drive cars that used lead fuel. And those lead particles were never removed from a lot of highways. So, there can be toxic heavy metals, and then things like animal fecal material, dry, that can come off of lawns and so forth. So, there's a lot that is harmful to health.

Most of the things she claims leaf blowers can raise into the air, are more likely to be disturbed by lawnmowers that leaf blowers. For the greater part of the year, blowers are used to remove debris from paved surfaces, blowing it back to where these particulates came from.

It's interesting how she excludes battery or electric blowers from impacting these particulates. It's like saying your car raises dust from the highway, but mine does not. The fact is, neither type blower should be at issue. Sure, there are people that use them incorrectly, blowing dust when they shouldn't. but you know that is not the usual case. A leaf blower operator that uses the device properly raises almost no dust. Then if he does, it falls to the ground within a few feet of the blower nozzle. If he is using a very powerful blower, it is so he can cover a greater surface area in less time. Instead of pointing the blower nozzle at the ground two or three feet away from the end of the nozzle, in order to get debris to move, he will hold the nozzle higher and point it ten feet away. The benefit to the bystander is that he will get the job done faster and leave the area quicker. This is why the battery blower is of no use to the professional. Even Ms. Banks admits that they are underpowered. It is the homeowner, with an inexpensive, underpowered blower that will use it for a long period of time.

She alluded to there being lead on the highways that leaf blowers can raise into the air. Lead has been banned from gasoline since January 1, 1996. If any of this gas has condensed on the highway, and can be blown away by a leaf blower, don't you think rain and the wind from cars and trucks would have already done that after 26 years? Think about what it's like when you follow a semi-truck in the rain.

Slide 22

And within our population, this is not good for any of us. But there are particular populations that are more vulnerable to effects. I would say starting with the worker who is exposed to these types of exhaust emission, this type of deafening noise day in and day out several hours a day, and it's very rare to see workers wearing either ear protection or respiratory protection. And then children whose organ systems are developing, seniors that may have coexisting disease, pets, veterans, other people with sensory deficit disorders on the autism spectrum can be especially sensitive to this kind of sound.

The noise that's coming out of these machines, we've heard testimony from people who just say this kind of noise really drives them crazy. And there's millions of people today with these disorders. So, it's something to be aware of.
I understand annoyance. I'm one of those people that finds it annoying when my grandkids are running around the couch, screaming and yelling incessantly, where I am sitting trying to watch television. So, what do I do? I either move or send them outside. I do not send them home.

What's the point I'm trying to make? Ban the noise, not the blower.

When you consider the generalities that have been presented in this document, the conclusion is like saying that untreated coal fired powerplants are harming the environment, so let's ban campfires.

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Okay, so, that's it. Um, so thank you. I'm happy to try and answer any questions you might have. And I wish you the best of luck with the ordinance.