

## PICKLEBALL NOISE ARTICLES AND RELATED MATERIALS

### Centennial noise study:

<https://www.centennialco.gov/files/sharedassets/public/v/1/documents/city-projects-and-initiatives/centennial-pickleball-noise-assessment.pdf>

### Unetich – Pickleball Sound 101:

[file:///C:/Users/Brook%20Brown/Downloads/Pickleball%20Sound%20101%20\(1\).pdf](file:///C:/Users/Brook%20Brown/Downloads/Pickleball%20Sound%20101%20(1).pdf)

P. 8: “Noise is sound that annoys. Community noise ordinances set limits for continuous or impulsive sounds so that these sounds are neither annoying nor bothersome (5). These ordinances are intended to establish a limit where the presence of sound above a steady background level will not be objectionable or annoying. Using the procedures outlined in many existing noise ordinances for measuring continuous noise, the level of pickleball sound will be understated. With no violation evident, pickleball play continues, yet noise complaints continue.”....

One of the most important parameters for judging annoyance of a pickleball impact is the signal to noise ratio. The signal is the impact between the paddle and the ball, and the noise is the background sound level which can vary during the day.

With a background sound level of 47 dBA or lower, the recommended noise limit for pickleball is 50 LAFmax average measured at a property line. Pickleball sound at 50 LAFmax will still be audible but not objectionable. Table 5 shows this limit.

Table 5 – Noise limit for pickleball

Background sound level	Noise limit
< 47 LAeq	50 LAFmax
= 47 LAeq	50 LAFmax
> 47 LAeq	Background LAeq + 3 dB

This limit comes from jury tests of pickleball sounds and successful experience with pickleball sound mitigation. The LAFmax metric and the 50

LAFmax limit have been successfully used to evaluate situations when the community noise ordinance failed to quantify the bothersome nature of pickleball sound.”

### **The Crazy Pickleball Lady**

Link: <https://crazypickleballlady.com/2021/07/13/the-sound-of-pickleball-a-detailed-explanation-and-what-you-need-to-consider-before-building-courts/>

"Pickleball sound levels within 100 feet of courts will usually be around 70 dBa with no sound reduction efforts applied. This is as loud as freeway traffic sound.

At 200 feet, (using the 6 dB drop for doubling the distance) the level will be about 64 dBa. That’s louder than normal conversation.

At 400 feet it will be about 58 dBa. That’s quieter than normal conversation levels. By limiting use of paddles and ball brands based on sound testing, you can achieve below 50 dBa, and usually below local background level at that distance. Adding a 10 ft. high barrier can drop that to below 40 dBa, a level below normal library sound levels.

Even at 100 feet, with consideration for equipment and sound barriers, the level could be about 52 dBa, and may be an acceptable sound level in many neighborhoods. This means that barriers and distance are the most effective tools. It also means that sound levels can be predicted in advance of having complaints, so consider your location and work with your pickleball community to make the sport a welcome addition to your neighborhood.

Bob Unetich,  
Facebook Pickleball Sound Mitigation Group Admin  
USA Pickleball Ambassador-at-large  
USA Pickleball Certified Referee  
A Registered Professional Engineer in Pennsylvania

## The Tower

Jan. 22, 2024:

<https://thebishopstower.com/6334/sports/pickleball-is-picking-up/#:~:text=Bob%20Unitech%2C%20who%20founded%20Pickleball,normal%20conversations%20are%20around%2060dBA>.

The sound made by the plastic ball also makes some people dislike the sport. “The sound of the ball is very annoying,” Sophie said. Bob Unitech, who founded Pickleball Sound Mitigation, found that pickleball wacks that are 100 feet away can reach 70dBA (measure of decibels), according to the New York Times. For comparison, 70dBA is also around the sound of a vacuum cleaner and alarm clock, while normal conversations are around 60dBA. Pickleball sounds can be more than 25 decibels louder than the hardest-swung tennis racket connected to a felt-covered tennis ball.

Hunter Park in Newport has limited the number of hours of play, according to Newport Daily News, due to the loud sounds of pickleball as the homes are 750 feet from the courts. Many residents said that the sound of pickleballs caused frustration, in interviews with Los Angeles Times. This cut the playable hours from 71 hours per week to only 43 hours.

## The Pickler:

<https://thepickler.com/pickleball-blog/pickleball-noise-issue/>

"The sound of a pickleball hitting a paddle reaches a decibel level of 70 dBA when measured 100 feet away from the court. This is higher than tennis (at 40 dBA), city noise (at 55 dBA), and a whisper (at 25 dBA). But, this is lower than a vacuum cleaner (at 75 dBA). However, what may be more striking than the decibel level, is the frequency. Pickleball has a high pitch, with a frequency of about 1.2k Hz, which is similar to the beeping noise that a reversing garbage truck makes. The garbage truck is intended to be loud and “annoying” in order to catch your attention on the roads. So, this “annoying frequency” is an issue for pickleball.

One pickleball player—Bob Unetich—is trying to solve this problem. Unetich is a retired engineer and pickleball advocate, who founded Pickleball Sound Mitigation LLC to study the noise issues around pickleball and to advise communities, municipalities, and others on how to best resolve the sound. His

advice that he provides to these groups (according to The Hustle) is to “Do whatever you can to ensure that the average sound emanating from the court to the nearest homes is 50 dBA or less.”

### **PaddleTek:**

<https://www.paddletek.com/blogs/news/noise-issue-pickleball>

"Consulting engineers agree with residents' claims. They report that being exposed to the noise made by pickleball day in and day out is a health risk, and pickleball's noise levels are higher than the acceptable levels set for community and environmental noise emissions in the US and abroad. Some residents are so fed up that they are taking their problems to councils and attorneys to do something about it.

The biggest issue with pickleball noise is reportedly the high-pitched “pop” sound made when a plastic pickleball hits the paddle. This sound has been measured by noise control experts and they agree that the pop is categorized as an impulsive sound because it starts quickly and disappears within 2 milliseconds. This short burst is the key component in what is causing all the issues.

A study covered in the Journal of Environmental Psychology found that impulsive sounds, like a dripping faucet, annoy people much more than steady-state sounds, such as an air conditioner running. Impulsive sounds also cause stress and decreased performance, as people simply find it harder to work and relax when they keep getting interrupted by impulsive sounds. What's more, the impulsive pickleball pop sound is usually between 1,000 and 2,000 Hertz, which is close to a human being's most sensitive frequency range, so we hear it better and from further away than other games with a soft ball and racquet, such as tennis.

Pickleball noise can be reduced by playing with high-quality paddles, cushioning court surfaces to absorb more sound, regulating play times, and putting up soundproofing materials or sound barriers. Courts should be built at least 500 feet away from residences, in green buffer zones.

One common solution is the introduction of soundproofing materials and acoustic baffles, like Acoustifence. Acoustifence is made of a flexible, high-density material. It has excellent sound absorption properties, so it dampens and absorbs sound waves. It is designed to minimize noise transmission through barriers like

fences or walls and helps contain the sound generated during play within court boundaries, reducing the impact on neighboring areas and nearby residents.

Giving neighbors time off from the sound of pickleball gives them uninterrupted periods to enjoy their home, without being disturbed. Such regulations provide a clear framework for when pickleball can be played, helping to prevent misunderstandings and disputes.

One effective way to reduce noise in pickleball is to use a cushion court system. These surfaces are typically made of materials such as rubber or foam, and the cushioned surface absorbs impact, minimizing the sound of balls bouncing. This results in a quieter playing environment, and the surface is softer on players' knees and joints too.

It's a good idea to keep pickleball courts at least 500 feet away from residences and to surround the courts with green space for better sound absorption. If possible, space courts out so there aren't several close together. This minimizes the amount of noise coming from a single area. Players can also be mindful of noise and not come in big groups, as more people on or by the courts means more noise.

As you can see, reducing pickleball noise is a shared responsibility. By implementing a combination of these strategies and maintaining an ongoing dialogue between players and the community, we can create a more enjoyable environment for everyone involved."

While playing pickleball offers health and other benefits, it also has impacts that need to be considered and mitigated. The major negative impact associated with pickleball is noise. When the hard surface of the pickleball racket connects with the hard surface of the ball, sound waves vibrate rapidly, registering a decibel level of around 70 dBA at 100 feet from the court. (In comparison, tennis noise is closer to 40 dBA.)

## Planteizen

<https://www.planetizen.com/news/2023/06/123762-addressing-noise-impacts-pickleball>

This article by Mark Dent features Bob Unetich, a retired engineer, university professor, and founder of Pickleball Sound Mitigation LLC. He has become a go-to source for information in the pickleball wars, studying everything from paddles to the placement of courts. When Unetich has discussions with clients, he gives a primary piece of advice: Do whatever you can to ensure that the average sound emanating from the court to the nearest homes is 50 dBA or less.

According to Unetich's studies and experience, residents of suburban areas generally do not complain about that noise level, which is a few decibels above typical suburban background noise. In noisier city environments, Unetich has proposed a maximum noise limit of 3 dBA above the background sound. Getting down to 50 dBA is possible with planning.

## Pickleball Sound Mitigation

<https://www.cnn.com/2023/03/11/business/pickleball-sports-noise-complaints-tennis-ctpr/index.html>

Players use a plastic perforated ball, slightly heavier than a wiffle ball, and wooden or composite paddles that are about twice the size of ping-pong paddles.

Pickleball players love the “pop” of their paddles smashing the plastic ball, but that same sound can bother others.

“Cities should not simply convert tennis courts to pickleball. If they do that without considering sound, they’re likely to have unhappy people,” said Bob Unetich, an engineer by training who started [Pickleball Sound Mitigation](#), a consulting firm that advises municipalities, country clubs, and upset neighbors on reducing noises associated with the game. Unetich, who is a trained pickleball referee and avid player, has advised more than 100 clients.

If there are several games going on at the same time, there can be multiple “pop” noises every second, Unetich said. Cheap pickleball paddles and balls are often the loudest.

The “pitch” of pickleball hits is also more annoying to people than a tennis racquet with strings colliding with a soft tennis ball, he said. Tennis and some other common sport sounds are usually lower pitched than pickleball.

New and existing pickleball sites need to take background noise into account, Unitech said.

If courts are built near homes, they should block sound with barriers, enforce the use of quieter paddles and balls, or restrict playing hours, he said.

“I’m an advocate of pickleball, but if it’s right across the street from people’s homes it’s quite a problem,” he said. “The right solution is often to put the court someplace else.”

### **Park City, Utah - pickleball ordinance and related noise ordinance**

See attached pages - Pickleball court requires a conditional use permit.

Courts within 150 feet of a residential property must meet the noise standards. General noise standards: noise levels may not exceed 50 dba between 10pm and 6am, or 55 dba between 6 am and 10pm in residential areas, and standards are reduced by 5dba for any "repetitive impulsive sound". Requires guest parking on site.

### **Denver Colorado**

<https://www.cbsnews.com/colorado/news/colorado-cities-pickleball-policies-noise-ordinance/>

Popular courts at Congress Park were across the street from more than a dozen homes that could hear the "thwack" of a wooden paddle and the plastic ball. That contact is frequently measured at around 70 decibels.

"It's 71 decibels. That violates the noise ordinance by 16 decibels. And when you've got three or four courts going that noise just expands," Gilmore said.

The city also scrapped plans for pickleball courts at Sloan's Lake because they would be about 100 feet from residences.

<https://www.westword.com/news/denver-noise-ordinance-revision-pickleball-recreational-sounds-16657198>

But Cheryl Alongi, another Denverite who lives next to Congress Park, said pickleball is not the same as any other recreational noise she's heard in her 23 years of living there. It is relentless, and it does not stop," she said. "It becomes very difficult to function and work from home. I cannot open my windows. I cannot go outside. ... You have to understand, you can go home to the quiet of your home after you're finished playing pickleball. It doesn't stop for us, period."

**Posting on the USA Pickleball website by Acoustifence, mfg of sound barrier fencing**

<https://usapickleball.org/member-news/put-away-the-noise-complaints-at-the-pickleball-courts/>

This is what members of the pickleball community have told us after their AcoustiFence Noise Curtains were installed:

Coconut Creek, FL- "On behalf of the Wynmoor pickleball community, we are very pleased with the performance of AcoustiFence. They definitely work as advertised, clearly muffling the sound of the pickleballs coming off of the paddles, as well as the voices of the players during competition. I would say that the noise level has been reduced by at least 50%. Thanks for producing such a great product that will only enhance the future growth of the great sport of pickleball."

Yuma, AZ- Remarkably, in a sound meter test conducted by USA Pickleball Association, AcoustiFence installed around a pickleball court reduced the noise by 10-12 decibels. This represents over a 50%-reduction in sound experienced by nearby homeowners. This is the difference between the noise level going from very annoying to just barely perceptible.

Acoustifence website: <https://acoustiblok.com/2013/04/08/pickleball-court-reduced-noise/>