StreetSounds

Music for your Main Street

Design & Planning Guide

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Contents

The Nuts and Bolts of Getting Started.

Many cities and small towns have thought that it would be nice to have background music on their Main Street during holiday shopping periods or for local events like festivals, farmers markets, and parades. StreetSounds® wireless technology is now available which simplifies the process and lowers the overall cost of installing such a system. Streets and sidewalks no longer need to be excavated to run wires. In this article we'll explore the process of planning, funding, installing, operating, and enjoying Music on Your Main Street.

Should we do this?

The first question you should ask yourselves is "should we do this?" This is an excellent question and one you should spend some quality time examining. The answer is not always "yes" and there are many parties to consider when arriving at your answer. Groups such as your downtown merchants, your DDA, your tourism board, your local government officials, and your townspeople will all have "opinions", some of which may surprise you. There will be concerns over "what kind of music will be played and who will choose it?", as well as "will the music be too loud, and will it play all night long?", or "can we stream Pandora?", and "can we use the system to distribute our local band's music during a festival?"

All these questions need good answers, or your plans will die early in the process. For a successful system to thrive, you must satisfy your "customers", i.e. the listeners.

Early in the thought process you will need to decide if you've got the proper venue. Does your Main Street have the right "physical attributes" for a sound system? In other words, do you have a concentration of shops and businesses in a central part of the town that can be easily covered by "background-level" audio? If your shops are spread out with large gaps or vacant lots between them, your music level may have to be turned up beyond "background level" to get good audio coverage. Your "customers" may not be happy about this and you may be asked to turn the music down.

However, if you have a classic small-town Main Street, or a classic downtown square/courthouse surrounded by a high concentration of shops, businesses, and restaurants with outdoor seating, you may have the perfect venue for the system. If you frequently have events in your downtown area, you could augment the "vibe" with background music, as well as provide announcements for weather emergencies or the proverbial "lost child".

Select your Coverage Area

The first step in the planning process is to decide exactly where you want the audio coverage. This may sound simple, but in fact may be a bit more difficult due to physical limitations. The wireless audio system is designed to be mounted on existing street light poles from which it gets its AC power. Most small-town city blocks are between 200' and 300' long. Street light poles are typically situated about 120' to 150' apart so that the light illumination coverage is adequate for the surroundings. This provides the perfect mounting location for the wireless speakers. A good way to begin the planning process is to walk your streets and locate which poles would be good candidates for the speakers. Some of the poles have been installed in an alternating pattern on opposite sides of the street. Good audio coverage can be achieved by placing the speakers in a zig-zag pattern on these poles.

You will need to identify exactly which poles you would like to mount each StreetSounds unit on. We recommend that the poles be 100' – 120' apart. If your street is not too wide, remote units can be mounted in a zig-zag patter across the street for better audio and radio coverage. The poles will need to be clear of any mounting obstructions, such as flower baskets, flag holders, banners, or signs near the top where the remote unit will be mounted. The StreetSounds units should be mounted as high as possible on the pole (i.e.12' or higher) for optimum radio performance and sound coverage. It is best if the radio can be mounted on the "street side" of the pole instead of the "shop side". The speakers have some degree of adjustment so that they can be aimed in the desired direction. They will need to be mounted with a down-tilt of 5 – 10 degrees to keep rain from collecting inside.

You will need to come up with a "name" for each pole, such as "North Main #1" (NM1), "East Square 2" (ES2), or "Flower Shop". This will help identify the units on the Network Management System software.

Plan your Applications

You also need to decide how you want to use the system. Background music and public address announcements are quite simple to implement for farmer's markets, shopping music, parades, etc. However if you plan to "mic your band" (called "sound reinforcement") you will need to take "delays" into account. Since sound travels through the air at ~1msec per foot, a StreetSounds unit 200 feet away from the audio source (your band on stage) will need to have an audio delay of 200 msec (.2 sec) to prevent annoying echos. Each StreetSounds unit can be delayed up to 500 msec. Delay settings can be controlled through the Network Management System application that runs the network.

Who Owns the Poles?

The next planning question is "who owns the poles?" If the local municipality owns the poles the plan is simplified. If the local or state power company owns the poles, you will need "Pole Attachment Permission" like what is needed for holiday decorations or hanging baskets. The power company will consider the size and weight of the speaker system as well as the power consumption.

Finally, you will need to make sure the AC power is always "ON" as opposed to power that only comes on in the evening (photo cell or timer). This is a very important consideration and enables the StreetSounds network to be monitored and controlled remotely at all times.

What is the Pole Diameter?

We offer two sizes of mounting bands for the remote units. One fits a pole from 4" to 6" in diameter, which is typical. However, some poles are tapered or larger in diameter and require a larger band. We also offer a band that can accommodate a pole up to 9" in diameter. We will need to know the size of mounting band required for your poles. If your poles are larger than this (i.e. wooden utility poles), you will need to provide the appropriate mounting bands.
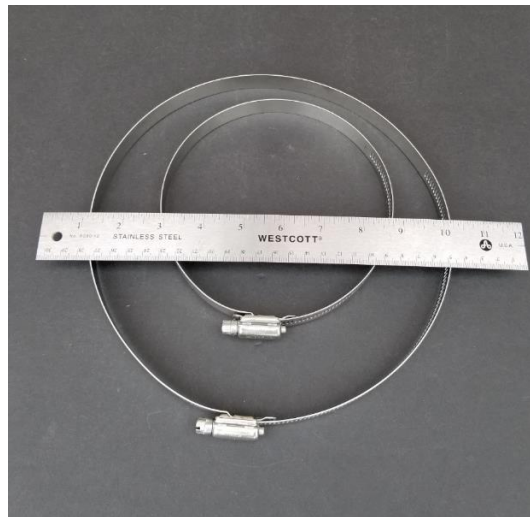
Choose the Location for the Master Transmitter

A StreetSounds network has one Master Transmitter that feeds audio to the network. If the network consists of more than ~5 remote units, you will need to place the "Fixed Master" on a roof-top location near the center of the network coverage. If you are trying to cover 4 blocks, the ideal location for the Fixed Master would be on the roof of a 1 or 2 story building at the intersection of blocks 2 & 3. When properly located and mounted, the Master transmitter can normally cover 2 – 3 blocks in either direction from its location if there are no solid obstructions in the way.

There are several ways to mount the Master on a roof-top. Below are two examples using inexpensive satellite dish mounts. You will need to get permission from a building owner to place this unit on his/her roof.

The Fixed Master consists of an outdoor unit (ODU) and an indoor unit (IDU) which are connected together by a Cat5e shielded cable up to 150' long. The IDU has inputs for power (for the ODU), audio (from your streaming audio source), and USB (for the Network Management System). The USB attaches to a PC which runs the Network Management System application.

Mobile Master

A second type of Master Transmitter is the "Mobile Master" (Mobi). The Mobile Master (Mobi) is a battery powered "mobile" Master Transmitter that can easily be transported down to the street during a special outdoor event, such as a festival or parade. The Mobi includes a built-in 2-channel mixer for a microphone and an audio player (iPod, smartphone) so that you can eliminate the need for an external, bulky mixer and all the wires and knobs that come along with it. A function called "Mic Priority" automatically reduces the level of the audio player when you speak into the microphone. The audio level automatically returns to its previous level when you stop speaking, eliminating the need to "fiddle" with the knobs. The Mobi includes a 12-hour rechargeable battery that can be recharged with any standard USB port so that you can keep rockin' all day long.

When using the Mobi for a street-side event, the roof-mounted Master is reconfigured to be a "repeater". Thus, the Mobi talks to the repeater, and the repeater retransmits the signal to all the remotes. This means the Mobi does not have to cover the entire network from the ground.

Funding

After deciding on how many remote units you need and where you want them, you will need to decide on how you want to fund the project. Many sources are available, such as local, state, and federal government grants, local merchant associations, DDA funding, or even residents who wish to give a gift to their town. Typical projects can range from $5000 to $35,000 depending upon the desired area of coverage.

Installing

Once the system has been funded installation can begin. Since we do not provide installation services, you will be responsible for providing the primary installation personnel (i.e. Public Works, or volunteers) and any ladder or lift required. An AirNetix representative can optionally be on-site during the install to give guidance to your personnel with the placement and attachment of the radios to the poles. Normally, it takes two people for the install. One person must hold the radio in place while the second person tightens the mounting bands. This process can take as little as 10-15 minutes if AC power is present, and there are no obstacles (flag holders, handing baskets, etc.) on the pole that prevent the radio from being mounted in the optimum location

Verify AC Power

You will need to verify that "always ON" 110VAC power exists at each of the selected poles on a standard 3-prong outlet. Power cannot be on a timer or photocell since we need 24/7 remote access to these remote units. Lack of this verification can significantly slow down the installation process. Also, we recommend that the AC power plug have a weather cover include a GFI (ground fault interrupt) breaker in case there is an issue with the AC line. The AC power cable on the radio is ~7' long. So the AC power plug will need to be with 5 to 6' of the radio mounting location. It is best to mount the radios a minimum of ~12' above ground for best signal coverage and theft prevention.

When playing "background-level" music, the StreetSounds unit consumes ~10 watts of power. The maximum power the unit can consume is ~110 Watts when driven at full output power.

Laptop for Network Management.

You will need to provide a laptop that is dedicated to the StreetSounds network. It must be a Windows PC running either Windows 7 or Windows 10. The Network Management System will not run on a Mac. There are no special hardware requirements for the PC, so a mid-range or used laptop should work fine. Below are desired specs for the laptop:

Windows 7 or 10
6GB RAM
Inter i5 or better processor.
Minimum screen resolution of 1366 x 768
(Note: Dell offers refurbished PC's with these capabilities for $400 - $450).

Prior to installation, we ask that you download and install the Chrome browser (if not already installed). Then download and install Chrome Remote Desktop. This will allow us to keep an eye on your network during the first few weeks. Finally, download and install the StreetSounds Network Management System application. See separate installation document for details.

Internet Access.

The PC that runs the Network Management System will need internet access. It is best to have a wired LAN connection, but Wi-Fi will work also.

Remote Access to Network Management.

We will remotely monitor your network for the first few weeks after install to make sure everything is operating correctly. This will require that the laptop have Chrome Remote Desktop installed, and that the Google account for the laptop is accessible by us. We will assist in installing and setting up the Google account.

IT Contact.

We will need someone to be the point of contact for PC and internet related questions and/or issues. We will need to work with this person during the final part of the install when we have everything up and working. At some point in the future, you or your IT person will need to assume responsibility for "driving" the system (i.e. song selection and addressing any system alarms). For the first few weeks we will be keeping track of the system remotely and can make any changes that you like.

Operating

Now that your system is installed and operating, you'll need to feed it....audio!

There are numerous sources of "streaming" audio. Some legal, some not so legal. Obviously staying legal is of utmost importance for a public outdoor system. Services such as Mood Mix and CloudCover offer very affordable, fully legal, licensed music of all varieties. For example, Mood Mix offers a business license for unlimited play for ~$35/month. Another streaming service, CloudCover offers a business license for $17/mo. Both of these services run on a web-based application that runs on the Network Management System PC.

The wireless speaker system also includes the ability to remotely adjust the volume of each speaker individually. So if a certain merchant feels that the speaker outside his/her shop is too loud or too soft, it can be adjusted by the central network management system.

Enjoying

Once your outdoor audio system is installed and working you can enjoy the new "vibe" it creates along your Main Street. Holiday music is extremely popular with merchants and townspeople and has been received with rave reviews. Festivals and other Main Street events take on a new life when music is playing. Studies have shown that people actually spend more time and money when music augments the shopping experience. Plus having an emergency communications system in the downtown area will certainly make the Emergency Services folks happy.

Putting Music on Main Street may not be appropriate for every town, but with the right planning and preparation, many towns are very much enjoying the sound of Music on their Main Street.

Additional Resources

For more information on the StreetSounds® products, please visit www.streetsoundswireless.com

Mike Hooper is President and Founder of AirNetix, LLC, a Smyrna, GA based wireless audio company that designs products for Main Street as well as for professional audio markets. Mike is an Electrical Engineering graduate of University of Florida and has led several startup technology companies in the fields of wireless, optical, semiconductor, and satellite communications.