

# One Voice

## Hearing Accessibility Handbook

### A Guide for Congregations

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*By his breath the skies became fair; his hand pierced the gliding serpent. And these are but the outer fringe of his works; how faint the whisper we hear of him! Who then can understand the thunder of his power?"*

*Job 26*

*Listen, O heavens, and I will speak; hear, O earth, the words of my mouth. Let my teaching fall like rain and my words descend like dew, like showers on new grass, like abundant rain on tender plants. Deuteronomy 32*

*Incline your ear, and come unto me; hear, and your soul shall live...so shall My word be that goes forth out of My mouth; It does not come back to Me unfulfilled, but performs what I purpose, achieves what I sent it to do.*

*Isaiah 55:3, 11*

*He that hath ears to hear let him hear.*

*Matthew 11:15 (Kjv)*

*The day when they shall hear the cry in truth; that is the day of coming forth.*  
*Qur'an [50.42]*

#### **One Voice is:**

One Voice was created in 1995 to respond to congregations in need of information about the installation and maintenance of assistive listening systems to make their buildings more accessible for people who are hard of hearing. Called "One Voice" because it was originally a collaborative effort among several human service agencies, our major sponsor now is the Rochester Chapter of Self Help for Hard of Hearing People (SHHH).

One outcome of the project has been this handbook which has input from engineers, social workers, and sound system contractors. In addition to providing information, OneVoice volunteers provide site visits, workshops, and instruction in the proper use of such devices.

#### **One Voice does:**

One Voice brings together the most useful and cost effective information, materials and professionals available to answer questions regarding types of assistive listening systems and, how congregations can better respond to the needs of hard of hearing people.

One Voice provides workshops/presentations for staff and congregations, as well as individual consulting regarding the installation and maintenance of assistive listening systems.

This handbook was prepared as an introduction to the consequences of hearing loss in houses of worship and to help congregations become more sensitive to the needs of people who are hard of hearing. If you are interested in learning more about assistive listening systems or hearing loss in general, please contact one of the members of One Voice listed on the back page, or if there is no label there, find your local SHHH chapter in the phone book

## **Hearing Challenges in Places of Worship**

### **The Problem:**

Hearing loss affects people of all ages but is especially prevalent in the older segment of the population who, in turn, represent a growing number of church-goers. These faithful are often unable to "hear the Word" and seldom receive the message that "sets thoughts astir." If scripture and prayers are unintelligible, worshipers miss the element of communion in worship and food for reflection and growth. Even sacred music to the hard of hearing person is diminished in beauty and meaning.

The after service fellowship, marred by the noise of many voices, is a stressful rather than nourishing event. Hard of hearing people fail to receive the nurture and inspiration of a spiritual community and feel left out and uncared for because their communication disability is rarely understood or taken into consideration.

### **Part of the Solution:**

One Voice's Hearing Accessibility Handbook: A Guide for Congregations is designed to be part of the solution to the problems outlined above. In this handbook you will find helpful guidelines to use when speaking to a group, a good outline of the types of assistive listening systems available, and a sample survey that may be of benefit to you as you explore what your congregation's response will be to people who are hard of hearing.

At the end of the handbook, you will find opportunities for your congregation to explore the nature of hearing loss to a greater degree thus sensitizing those around you to the needs of people who are hard of hearing. We hope the handbook will be the start of something important in your congregation!

### **Guidelines for Speakers**

Statistics show that one in every ten people and one in three in the "65 and over" age group has a significant hearing loss. It is a virtual certainty that you will find in your congregation people who have a difficult time hearing what is going on around them. Much more often than not, the solution is providing an environment that is conducive to being heard and understood and not simply providing a person who knows sign language since very few hard of hearing people can use it. The following guidelines will help when communicating with people who have this disability.

#### **In the Sanctuary or Auditorium**

- Always use the microphone. It is not only a part of the sound system that helps the general congregation and those with mild hearing loss but if your place of worship is equipped with an assistive listening system for hard of hearing people, it is part of that system as well.
- Speak slowly and distinctly and project your voice to the person farthest away. Given the fact that women's voices are softer and at a higher frequency range (a range most often lost in the aging or damaged ear) women have to make a special point of speaking more powerfully.
- People who are hard of hearing usually speechread to help them understand. The standard microphone should not be directly in front of the mouth, but preferably no higher than chin level.
- Wireless microphones have become much available and we encourage their use. Speakers should be careful that it is properly placed just below the chin, certainly above the heart. Head mounting with a light boom is even better.
- Have a small lamp at the lectern to illuminate the speaker's face as well as any text during a candlelight service.

#### **In meeting rooms:**

- If the room is equipped with an assistive listening system, you should determine first if anyone in the group has a hearing problem and ask them if they would like the system to be used.

- Be prepared to hand out receivers and headphones or neckloops and suggest that anyone in the group who wears a hearing aid with a telephone switch should turn on that switch. This enables a telecoil in the hearing aid to pick up a signal from either a room loop or a neckloop. Terms telephone switch, T-switch and telecoil are used interchangeably. When using the system, make sure it is working properly by asking if it is okay.
- Do a check at the beginning of the meeting. Ask if everyone can hear. Occasionally, you may have to rearrange seating so a hard of hearing person can see speakers more clearly.
- Although visual aids are often helpful, avoid speaking while facing a chalk board, screen, or easel, or when looking away from the audience. Speakers should avoid turning too far away from the microphone as can happen during a slide presentation for example, and waving a hand-held microphone to point.
- Avoid covering your mouth with your hands or other objects. Remember, chewing gum or eating while talking interferes with speechreading.
- Keep sufficient ambient lighting when showing slides or movies to allow for speechreading

### **Assistive Listening Systems**

More and more congregations are employing the use of assistive listening systems to help people who are hard of hearing understand what is going on. There are three different types of listening systems summarized in the table following this section: induction loop, FM, and infrared. Each system has its own advantages and disadvantages and cost considerations. The most dependable system, the induction loop, is the easiest to use but is often the most expensive due primarily to installation costs.

There are a several things to consider about assistive listening systems. The first is that the mere presence of a system is not enough to include hard of hearing people in the activities of the congregation. The system has to be in good repair and people have to be educated about its existence and how to use it. It is important to realize that most people lose their hearing gradually and do not always know what to do about it. Secondly, large meeting rooms as well as the sanctuary must be equipped with assistive listening systems to ensure total inclusion. Thirdly, no one system is going to reach all hard of hearing people.

### **Induction Loop System**

The induction loop system connects the public address (PA) system with a wire loop, which encircles the room and acts as an antenna. See the diagram on the next page. The loop wire is typically 22-24 gauge CL2-rated telephone station wire. This is only a guide. The actual choice of wire is best left to the installer.

People who have a severe hearing loss should have a hearing aid with a telecoil, which is able to pick up the signal radiated by the loop. People with milder losses may not have such a hearing aid and will have to use an inductive receiver with headphones or ear buds. People with cochlear implants can use the receiver if they have (their own) patch cord.

### **The Loop Amplifier**

The loop amplifier will need much more power than is normally used for audio speakers. This additional amplifier is one of the major expenses of this type of system. It has been our experience that most faulty loop systems are underpowered, in part because the expense goes up dramatically with increases in power capacity. Nevertheless this is not the place to economize.

Hearing aid telecoils from different manufacturers vary in their ability to pick up signals and furthermore are susceptible to electromagnetic interference or hum from fluorescent lights, generators, or other ac power sources. Dimmer switches are deadly sources of noise and alternatives to them may have to be found. If background hum is a problem, it can be at least partially overcome by increasing the loop amplifier power thus allowing hearing aid sensitivity to be reduced. The signal in the room is also not completely uniform. It will be strongest near the wire but there may be a "dead spot" in the center of the loop. For these reasons, it is best to get the more expensive, more powerful loop amplifier to compensate for these problems.

The loop system is automatically turned on when the PA system is turned on so once properly installed, it generally requires no more attention.

### **Loop installation**

The loop system can be difficult to install because of the need for the loop to go around doors, windows, and alcoves. While design guidelines are available, installations still tend to be somewhat trial and error in terms of signal strength and uniformity simply because of architectural constraints.

The labor costs are influenced by the necessity of preserving church aesthetics, which may mean hiding the loop wire somehow. It is most easily installed in a basement ceiling which typically takes two technicians one day. Crawl space or basement design can increase the difficulty and time required. It can also be installed high up the wall of the nave and so avoid doors and windows. Surface wiring around the nave may involve conduits (nonmetallic!), molding, and/or painting to match wall color.

Church committees may be able to gauge the difficulties of loop placement and estimate labor costs using a rate of \$100/hr for two technicians. For a medium church, seating 500 people, typical loop costs would be \$1000 for wire and amplifier, and \$1000 for labor. Costs scale roughly with size.

If the contractor is willing, volunteers could do much of the labor. The whole installation is not beyond the capabilities of a high-fi hobbyist. Keep in mind that fishing wire in basement crawl spaces is not the best use of a sound technician's time! (This is a low voltage installation and the code requirements are the same as for speaker wire.)

The best place to look for professional loop installers is under "Sound Systems and Equipment" in the yellow pages of the phone book, but congregations should be aware that not all sound system engineers are familiar with loop systems. It is essential to ask for references from previous installations. We believe it is very important that hard of hearing members of the congregation test the installation before it is considered complete.

### **FM Systems**

In this system, an FM transmitter is connected to the existing PA system amplifier. Every user must have a FM receiver, which, like the previously mentioned inductive receivers, is used with either headphones or more comfortably with a neckloop if the user has a hearing aid with a telecoil. The inexperienced hearing aid wearer may not know if he has a telecoil but may recognize the term "telephone switch" since the original purpose of the telecoil was to improve telephone hearing. If they have a telephone switch, the FM receiver is most efficiently used with a neckloop and the hearing aid on "T". Both headphones and neckloops are accessories your place of worship should provide with the receivers.

The FM receivers are battery-powered devices about the size of a pack of cigarettes and must be kept charged. The FM system is essentially a wireless radio system and can suffer from interference from pagers and monitors. This is usually corrected by changing the device's frequency.

The transmitter and receiver are relatively small, inexpensive, and portable although the transmitter needs to be connected to the sound system. This is usually the least expensive assistive listening system and costs are not greatly affected by the size of the room. The FM signal penetrates walls so, like the loop system, cannot ensure privacy. If more than one room is being used at the same time, two transmitting channels at different frequencies are needed with matching receivers. Usually the portable receivers are color coded with a color assigned to the room and its transmitter.

Small battery operated transmitters with their own microphones are available for situations without a sound system. They can be used just about anywhere and are termed "personal FM" devices. They are often individually owned by profoundly hard of hearing people because of their versatility.

### **Infrared**

The infrared system is similar to a FM system. The signal from this system is radiated from an infrared transmitter connected to the sound system amplifier. Generally, a line of sight is needed from the user to the transmitter, so the transmitter (a bank of light emitting diodes) is mounted fairly high above the audience. The members of the audience or congregation must each have a personal infrared receiver, recognizable by its glass eye that must "see" the transmitted light. The infrared signal may be adequately reflected from walls and ceilings so that aiming the receiver is not necessary, but if the signal is interrupted by some nearby object an annoying hiss can result. Some receivers are integrated with earpieces and lack phono jacks so they can't be used with neckloops or patch cords. These should not be purchased. Bright windows or strong incandescent light can cause static.

Costs are affected by the size of the room (a larger area requires more light emitting diodes for coverage) and infrared systems can be very expensive especially for small (200 square feet) to medium (500 square feet) rooms. Infrared systems ensure privacy because the signal does not pass through walls so they are common in multiplex theaters. Another advantage is that they are not subject to radio interference. They are rarely used in churches because of their higher cost.

### **Recommendations**

We emphasize that no one system is going to reach all hard of hearing people, nor will any one person receive the message perfectly with this help. Hearing loss is just not compensated in the same way that eye problems are by glasses. There is a spectrum of hearing losses, a wide variation in adaptability and auditory processing capability.

Loop systems are preferred for houses of worship because personal receivers and especially headphones are often a problem. There is good evidence that many people do not extend themselves to identify their need, collect personal receivers ahead of time, and wear rather noticeable headsets. Such receivers are always required for FM and infrared systems. While required for loop systems by people without telecoils, the demand is less and may be nonexistent. This reluctance to use personal receivers is particularly indicative of the greater number of people experiencing the beginnings of hearing losses.

Our recommendation of a loop system is aimed at people who have hearing aids with telecoils. Our experience is that a loop helps the majority of people who need the most support and who are most willing to make an effort to hear. (And it does require an effort!) These are the people with the more severe hearing losses. If the induction loop will help them, they will almost certainly take advantage of it since all that is required is that they turn on a switch on the hearing aid to enable telecoil operation. Therefore an induction loop will usually reach a greater number of people in the whole spectrum of hearing disabilities. We admit that our recommendation is sometimes mooted. Induction loops are complicated in that with rare exceptions they are not usually a purchased commodity. (But see some references at the end.) Much still depends on the knowledge of the installer. Installation labor can be a big unknown. FM systems by contrast are easy to install and labor is generally insignificant.

Another significant advantage of the induction loop system is freedom from maintenance. Personal FM or infrared receivers get a great deal of handling, cords and headsets will need replacement and batteries replaced/recharged regularly. In addition, someone will have to inventory the receivers and loan them out whenever there is a service or function. Even for loop systems some inductive receivers will have to be on hand but the demand will be much lower. Staff turnover is a problem in keeping the distribution/maintenance process current.

We want to emphasize in any case that the use of personal receivers provided by a place of worship should be strongly promoted. Ushers and greeters must be aware of them and of the individuals who may need them. People who have not experienced the benefit of personal receivers will be rather passive in trying out equipment that after all is not their own, especially if they are unfamiliar with it.

For a very large room, or when multiple rooms must be accommodated, an FM system is recommended. If adjacent rooms will be used simultaneously, FM systems with several frequencies can be obtained. They are readily obtainable from sound system contractors.

System/Cost	Pros	Cons
<i>Induction Loop</i> \$300 -\$400 for a conference room \$2000 and up for a large room (50'x50')	Minimum maintenance/inventory Most convenient for people with telecoil hearing aids. Receivers/headsets still available for users without T-switch hearing aids Will reach the greatest number of people with a severe hearing loss via their hearing aids	Cost increases dramatically for large rooms Not portable Ease of installation varies according to architecture or aesthetic considerations Designs for very large rooms not available or very difficult to install unless seats/carpet can be temporarily removed.
<i>FM System</i> \$400-\$900 depending on model, three or four receivers	Least expensive option for large rooms Easiest to install Portable in the sense that it connects easily to almost any sound system	Requires personal receivers to be stored, maintained, and distributed to all users Users must identify their needs ahead of time Requires batteries for receivers Some maintenance required due to constant handling, batteries Radio interference and hiss possible, may be correctable Users may need instruction Signals not confined to room
<i>Infrared System</i> \$600 for conference room and one receiver \$1,000 for 80'x160' room, one receiver	Signals confined to room, privacy assured No electrical interference Portable in the sense that it connects easily to almost any sound system	Line of sight probably required Requires batteries for receivers Sunlight and incandescent light interfere-can't be used out of doors Users must obtain receivers Users may need instruction Some maintenance required due to constant handling, batteries

### Surveying the Congregation

If done properly, surveys can be a good way of determining how many people will benefit from the proposed system and also to promote the assistive listening system in general. It is important to note that surveys should not be used to determine whether or not a system should be installed. Unless the surveys are distributed in optimum conditions, the results will not reflect the needs of the entire congregation.

Survey results can raise some interesting dilemmas. What if only three people out of 150 say that they actually need an assistive listening system to hear? Is it "worth it" to install a system for only three people? Think: how many wheelchairs does it take to justify a ramp? What about people who don't realize how much they would benefit from an assistive listening system but would try one if it

were provided? What about people that no longer attend services because they were unable to hear? How would they be reached? How about visitors at weddings or funerals?

Still surveys can be helpful in making choices and we suggest that more than one method be employed to distribute them. The bulletin insert is the most popular way but is not particularly effective. We suggest that, in addition to the insert, groups that meet in the building be surveyed while there. This increases the likelihood of a response. Informal interviews are often effective as long as the person being interviewed knows they are being surveyed and the information is recorded accurately.

At the end of the book you will find a sample survey that may be of benefit to you as you form your own plan. Most questions are appropriate for congregations without a system in place while the optional ones assume that a system is already functioning and tests awareness and use of it.

### **Other Opportunities**

There are other accommodations some of which are still not common but with advancing technology and increased sensitivity to people with disabilities will become more common in the future. These include:

- Interpreters for the deaf: The number of deaf people is small compared to the number of hard of hearing people, but if it is known that there are signing deaf members in the congregation, reserved seating in front of a sign language interpreter is necessary.
- Places of worship should consult human service agencies to find interpreters if volunteers are not available.
- Captioning or notetaking: Some places of worship have a large blank wall in front where slides or computer output can be projected. This is most common for hymns but, if available, computer generated displays of prepared text or real time notetaking also could be projected.
- Copies of homilies: If copies of homilies are given out ahead of time to the hard of hearing and deaf worshippers, they may follow the spoken homily better.
- Signage: When assistive listening systems are in place, there should be a sign somewhere in the narthex or foyer saying so. Such notification should be part of the standard information in the bulletins. It has become customary to use the logo below to indicate the presence of assistive listening systems:

### **Workshops**

As a follow-up to the hearing survey presented on the previous pages, you may want to take advantage of the workshops that Self Help for Hard of Hearing People presents regularly. These workshops include:

Sensitization and awareness of the impact of hearing loss (a description of the demographics, types of hearing loss and terminology)

- Barriers in places of worship
- Tips on connecting hard of hearing people to worship, fellowship, meetings, and welcoming them into your community
- Demonstrations of assistive listening devices and how to use them
- Facilitating a working session on unmet needs for people who are hard of hearing in the congregation

Arrangements for any of the workshops mentioned above can be made by calling One Voice. You can also clip the coupon on the next page and mail it to the local address beneath. Thank you!

### **Other sources of information**

A considerable amount of technical information is available at the following web sites:

<http://hearingresearch.org/LargeAreaALS.htm>

<http://www.hearingresearch.org>

<http://www.rit.edu/ntid/crtl/er/equipment.html>

Following are some manufacturers' sites:

<http://www.phonicear.com>

<http://www.williamssound.com>

<http://www.assistiveaudio.com/products.htm>

<http://www.listentech.com>

<http://www.weitbrecht.com>

<http://www.centrumssound.com/la.html>

<http://www.centrumssound.com/s-als.html>

<http://www.audex.com>

Following is a useful tutorial:

<http://www.wou.edu/education/sped/nwoc/demyst>

Your church (temple) wants to ensure that everyone can hear the services. Please fill out the survey below to help us understand if there's a problem and return to the church office or put in the collection basket.

## Hearing Survey

We are currently evaluating ways to improve the ability of all people to hear during worship and meetings in our congregation. Please take a minute to fill out this brief survey to help us make a decision. Thank you for your assistance.

1. How often do you have problems hearing in our building?

\_\_\_\_\_ frequently \_\_\_\_\_ seldom

2. If you ever have problems, can you be more specific about where and when you cannot hear? \_\_\_\_\_

3. Do you ever avoid educational programs, religious activities, or other involvement because you may not be able to hear? \_\_\_\_\_ frequently \_\_\_\_\_ seldom

4. Do you wear a hearing aid or aids? \_\_\_\_\_ yes \_\_\_\_\_ no

5. If "yes," does your hearing aid have a T-switch?

\_\_\_\_\_ yes \_\_\_\_\_ no

6. Have you ever used an assistive listening device other than a hearing aid to help you hear? \_\_\_\_\_ yes \_\_\_\_\_ no

7. Would you use a hand held device to help you hear in our building if one was made available to you? \_\_\_\_\_ yes \_\_\_\_\_ no

8. Would you use headphones to help you hear in service if a set was made available to you? \_\_\_\_\_ yes \_\_\_\_\_ no

9. Please share any other suggestions or ideas you have that will make our decision easier to make:

Optional questions for places already equipped with assistive listening systems:

10. Are you aware of the assistive listening system used in the sanctuary?

\_\_\_\_\_ yes \_\_\_\_\_ no

11. Is it useful? \_\_\_\_\_ yes \_\_\_\_\_ no

12. If "no," why not? \_\_\_\_\_

Thank you for filling out this survey. Please return it to the parish office.