Chapter 4

9-1-1 and Emergency Communications Services

In this chapter you will learn the basics about what the ADA requires for 9-1-1 and other emergency communications services operated by or for state or local governments. It answers questions including:

■   What types of emergency communications services are covered?

■   How does a TTY work?

■   What are voice carryover and hearing carryover?

■   How must a call taker handle silent, open line calls?

■   What training should call takers receive?

■   How are technological changes affecting the way deaf people communicate, and what impact does this have on emergency communication services?

■   How can direct emergency communications services be provided to individuals with hearing disabilities who do not have TTYs?

A.   What are the ADA's Requirements for Emergency Communications Systems?

The ADA requires that all Public Safety Answering Points (PSAPs) provide direct and equal access to their services for people with disabilities who use teletypewriters (TTYs).[1]

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[1] Department of Justice Nondiscrimination on the Basis of State and Local Government Services Regulations, 28 C.F.R. Part 35, § 35.162 (2005). See www.ada.gov/reg2.html for the complete text of 28 C.F.R. Part 35.

1. What does direct and equal access mean?

"Direct access" means that PSAPs must directly receive TTY calls without relying on an outside relay service or third-party services.

"Equal access" means that the telephone emergency services provided for TTY users are as effective as those provided for people who make voice calls. Access must be equal in terms of:

■   response time;

■   response quality;

■   hours of operation; and

■   all other features offered (*e.g.*, automatic number identification, automatic location identification, automatic call distribution).

2. Types of Telephone Emergency Services Covered

All basic emergency services provided by public safety agencies are covered, including police, fire, and ambulance services. Direct, equal access must be provided to all services included in the system. An example of another emergency service covered is an emergency poison control information service.

Some emergency communications services use a two-tiered system to dispatch services. In these situations, a primary PSAP is the initial 9-1-1 answering point. It transfers calls to secondary PSAPs, such as fire or emergency medical services. In those transfer situations, PSAPs must understand how to correctly transfer TTY calls. Secondary PSAPs have the same responsibilities under the ADA as do primary PSAPs. They must be able to receive transferred TTY calls as efficiently and effectively as voice calls.

B.   How Does a TTY Work?

Before further discussion of the requirements for emergency communications services under Title II of the ADA, let's do a quick review of how TTYs work. This information is important in order to understand this chapter's discussion of equipment.

A TTY is a device that is used with a telephone to communicate with persons with hearing disabilities or speech disabilities. To communicate by TTY, a person types his or her conversation, which is then read on a TTY display or a computer display by the person who receives the call. Both parties must have a TTY or a computer with a TTY modem and related software to communicate.   The computer equipment must be compatible with the code used by TTYs and capable of translating between the TTY code and the computer code.

9-1-1 or another number?

9-1-1 is a universal emergency number, but it may not be the number used in your area. If your locality has emergency communications services but uses different emergency numbers, such as a seven-digit number, you are still required to comply with Title II's requirements for emergency communications.

The only real difference is the options for TTY users. **Localities that use 9-1-1 are prohibited from requiring TTY users to call a different number.**[2] However, entities that do not use 9-1-1 may have a separate line for TTY users. If a separate line is used, access must be as direct as and equal to access for voice callers. Wherever the emergency numbers are listed, the TTY number must be listed as prominently as the voice number.

Most TTY devices transmit the information typed through the telephone line in an electronic code called Baudot. When it reaches the receiving TTY, the code is translated back to characters. Computers with TTY modems generally operate in American Standard Code for Information Interexchange (ASCII), an electronic "language." Thus, computers must have an ASCII/Baudot modem and related software in order to translate Baudot sent from TTYs.

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[2] See Department of Justice Americans with Disabilities Act Title II Technical Assistance Manual II - 7.300 (1993). See www.ada.gov/taman2.html for the text of the Technical Assistance Manual.

Baudot Format

I heard that there is more than one type of TTY code. Does Title II require that telephone emergency service systems be compatible with all codes used for TTY communications?

No. Currently, telephone emergency services must only be compatible with Baudot format.

When a standard TTY is used, communications can only occur in one direction at a time. In other words, the two people involved in the conversation must take turns sending and receiving. A person sending a communication by TTY indicates that he or she has finished transmitting by typing the letters "GA," which stand for "go ahead."

How do you know when it's a TTY call?

- Some TTYs emit a recorded spoken announcement to the call taker that a TTY call is being received. For example, the announcement may state: "HEARING IMPAIRED CALLER. USE TTY."

- TTY callers may press TTY keys to emit audible tones and more quickly notify the call taker that a TTY call is being placed.

- You may not know you have a TTY call unless you query the line with a TTY. Often, the TTY call will be perceived by the call taker as a silent, open line call. This is because the caller's equipment does not recognize that the call has been answered until the call taker sends a TTY response.

A History of Hang-ups

Historically, many people who used TTYs have not had confidence in the accessibility of emergency communications services. Silent, open lines have commonly been treated as hang-ups even though silence may indicate there is a TTY caller on the line. The number of TTY calls each PSAP receives may increase over time because the ADA is making 9-1-1 and other emergency services more accessible to people who use TTYs.

C. Equipment and Features to Provide Direct and Equal Access to Emergency Communications Services

Now that you have a basic understanding of how TTY communications work, let's look at how Title II of the ADA's requirements translate to what PSAPs need to do. Remember, PSAPs must provide direct and equal access to emergency communications services for people who use TTYs.

1. Number of TTYs

In order to provide equal access to TTY users, every call-taking position within the PSAP must have its own TTY or TTY-compatible equipment.[3] PSAPs must have systems that enable call takers to handle TTY calls as properly, promptly, and reliably as voice calls.

Why must every call-taking position have its own TTY or TTY-compatible equipment? To give TTY users equal access to emergency call services. Experience has shown that:

- With TTY or TTY-compatible equipment at each call-taking position, call takers can handle TTY calls as effectively as voice calls.

- Call takers at PSAPs that have only one TTY have significant difficulties handling TTY calls as quickly as voice calls.

- Sharing a TTY among several call takers may result in undue delay in obtaining the TTY and connecting it to the answering position.

- Transferring a TTY call from a non-TTY capable answering position to a TTY-dedicated position may result in the call being disconnected or undue delay in answering the call. In some cases, transfers may result in the loss of enhanced features, such as automatic number identification and automatic location identification information.

- Each call taker needs to query every silent, open line as a potential TTY call. Because most PSAPs receive many silent, open line calls, often more than one at a time, each call taker must have his or her own TTY equipment to be able to query all of those calls with a TTY.

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[3] 28 C.F.R. §§ 35.130, 35.160 - 35.162.

2. Automatic Identification Features

Many PSAPs have equipment with advanced features that facilitate quicker responses to callers. For example, many have automatic number identification (ANI) and automatic location identification (ALI). These features automatically tell the call taker the phone number and address from which a call originates.

If your area's emergency service provider has these features, you must ensure that TTY calls have the same access as voice calls to such enhanced features whenever feasible. Such features are currently available for TTY calls placed using traditional TTY hook-ups to standard telephone lines. Emergency service providers need to stay current with changing technology to ensure that equal access and services are provided to TTY callers relying on newer technologies when they become available.

TTY calls may not simply be transferred to a third line to get this information because transfers often result in the loss of the automatic phone number and address information.

3. Automatic Call Distribution (ACD)

Another feature employed by PSAPs is automatic call distribution (ACD*)*. ACD places incoming calls into a queue, sends out a programmed message to callers to let them know that their calls have been received, and distributes calls to the next available call taker. This feature, if offered, must also be accessible for TTY calls. For TTY callers transferred to a queue using ACD, there must be a programmed TTY message providing the same information that other callers receive.

4. Switching Between Voice Mode and TTY Mode

All call takers must have the capability to switch back and forth easily from TTY mode to voice mode during the same call. This is especially necessary for silent calls because it allows the call taker to first query the line by voice and then quickly switch to query the line by TTY.

5. Voice Carryover and Hearing Carryover

Voice carryover (VCO) is a communication hybrid of TTY and voice. With VCO, a person with hearing loss can speak directly to the call taker and read the response that is typed back.

Hearing carryover (HCO) allows a TTY user to type words on the TTY and hear call takers' spoken responses through the handset.

Having equipment that can switch back and forth between voice mode and TTY mode is also necessary for VCO and HCO. These types of communication can shorten the length of calls that would otherwise be conducted exclusively by typing.

Both of these types of communication can be accomplished using stand-alone TTY equipment and alternating between speaking into the handset and placing the handset in the TTY when the caller (HCO) or call taker (VCO) types a response.

> **Who uses VCO and HCO?**
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> VCO (voice carryover) is often used by persons who become deaf or hard of hearing later in life and prefer to speak instead of type.
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> HCO (hearing carryover) is often used by persons who are not deaf or hard of hearing but have speech disabilities.

6. Maintenance and Back-up of TTY Equipment

The ADA regulation contains a specific provision requiring that covered entities maintain their accessible features and equipment in operable working condition.[4] To comply with this regulation, PSAPs must implement procedures for maintenance and back-up capability for TTY equipment that are equally effective as the procedures for maintenance and back-up capability provided for voice telephone equipment. For example, TTY equipment must be maintained and tested as often as voice equipment to ensure that it is working properly.

If a PSAP has a plan for back-up equipment in case some of its equipment malfunctions, the telephone lines malfunction, or there is a power failure, the plan must provide for TTY calls and equipment. For instance, PSAPs should keep extra TTY equipment on hand, in case primary equipment fails, if they have back-up voice telephone equipment for such a situation.

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[4] 28 C.F.R. § 35.133.

7. Training Call Takers to Respond Effectively to TTY Calls

PSAPs should train their call takers to effectively recognize and process TTY calls. Providing appropriate equipment is only as effective as your staff training.

The ADA does not specify how call takers should be trained. But the Department of Justice believes that the following are essential for proper training:

- Training should be mandatory for all personnel who may have contact with individuals from the public who have hearing or speech disabilities.

- PSAPs should require or offer a refresher training at least as often as they require or offer training for voice calls, but at a minimum, every six months.

The checklist included with this chapter has additional information about what should be included in a comprehensive training program. You should use this checklist to assess your current training program for emergency call services, policies and procedures, and testing program.

Some Helpful TTY Abbreviations	
GA:	go ahead, your turn to talk
GA or SK:	go ahead, or goodbye, or stop keying
SKSK:	stop keying, end of conversation
U:	you
UR:	your
R:	are
TMW:	tomorrow
XXXX:	error, erase
ASAP:	as soon as possible
CD or CLD:	could
SHD:	should
HD or HLD:	hold, please
MSG:	message
NBR or NU:	number
PLS:	please
Q or QQ:	question mark
VCO:	(voice carryover) TTY user will use his/her voice during call
HCO:	(hearing carryover) TTY user will use his/her hearing during call
TTY:	teletypewriter

8. Testing to Ensure Direct, Equal Access

Frequent testing is essential to ensure direct, equal access to emergency communications services. The best way to test is to implement an internal testing program. The goal of these tests is to determine whether TTY equipment functions properly and whether personnel have been adequately trained to handle TTY calls correctly.

Include these steps in your testing:

- Conduct two types of test calls: silent, open line calls in which no tones are emitted, and calls in which the caller introduces the call by transmitting TTY tones. These tests should be unannounced, and should cover each call taker and each position.

- Keep records of the results of all test calls. Include, at a minimum, the date and time of each test call; the identification of the call taker and the call-taking position; whether each call was silent or transmitted tones; whether the caller received a TTY response and the content of the TTY response; the time elapsed and the number of rings from the initiation of the TTY call until the call taker responded by TTY; and whether the call was processed according to the PSAP's standard operating procedures.

D. Beyond TTYs: Providing 9-1-1 and Emergency Services Via New Communication Technologies

Some people who have hearing disabilities do not have access to TTYs. This is becoming more and more the case as people who are deaf, just like people in general, communicate using the internet and other relatively new technologies. Because of these advances in communication technology, some deaf people and people with speech disabilities no longer have TTYs in their homes and rely instead on instant messaging, text messaging, email, or the video communication features of computers.

State and local governments are responsible under Title II of the ADA for providing effective communication and equal access to 9-1-1 and other emergency services.[5] To achieve effective communication, access to 9-1-1 services should be made available, when feasible, to people with hearing and speech disabilities who use communication technologies other than standard

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[5] 28 C.F.R. § 35.160, 35.162.

telephones or TTYs, such as personal digital assistants (PDAs) or other wireless technologies.

As with TTYs, features and options provided to telephone callers should be provided to individuals communicating via new technologies when feasible. For example, if automatic location identification features enable PSAPs to determine the location of callers, this feature should be effectively employed for new communication technologies when feasible to do so. Similarly, if automatic call distribution features put 9-1-1 telephone calls into a queue, send out messages to callers letting them know that their calls have been received, and distribute calls to the next available call taker, then PSAPs need to provide such features to emergency messages sent from new communication technologies when it is technically feasible to do so.

Stay informed about emerging communication technologies as well as the technical abilities of telecommunications equipment and service providers.   Meet with members of your community who are deaf, hard-of-hearing, or who have speech disabilities to learn what technologies are available in their homes and elsewhere when emergency assistance is needed. Find out about strategies that other emergency communications services are using to provide effective communications to people with hearing and speech disabilities who do not have TTYs. Train PSAP personnel frequently (at least every six months) and update the training as necessary. Finally, use the checklist included in this chapter to determine if your emergency communications service is providing effective communication as required by Title II of the ADA.