



## Telecommunications Access Minnesota

### 2016 Annual Report to the Public Utilities Commission

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Docket No. P999/PR-17-5

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## EXECUTIVE SUMMARY

In accordance with Minnesota Statutes section 237.55, “The commissioner of commerce must prepare a report for presentation to the Public Utilities Commission by January 31 of each year. Each report must review the accessibility of telecommunications services to persons who have communication disabilities, describe services provided, account for annual revenues and expenditures for each aspect of the fund to date, and include predicted program future operation.” The Minnesota Department of Commerce created this report to comply with this requirement.

In order to provide equal access to the telecommunications network for people who are deaf, hard of hearing, speech disabled, or physically disabled, the Minnesota Legislature created what is presently known as the Telecommunications Access Minnesota (TAM) program. The Minnesota Relay and the TED Program were established to achieve this objective. The programs are funded by a surcharge on all wired and wireless telephone access lines in the state of Minnesota, and by a fee on each Minnesota retail transaction for prepaid wireless telecommunications services.

The current TAM surcharge is \$0.05 per access line; by statute, the surcharge may not exceed \$0.20 per access line.

The state procedures and requirements regulating Minnesota Relay, the Telephone Equipment Distribution Program, and the Telecommunications Access Minnesota fund fall under Minnesota Statutes sections 237.50 to 237.56 and Minnesota Rules chapter 8775.

The state contracts with Sprint Communications Company, L.P. for the provision of Telecommunications Relay Services (TRS) in Minnesota. The contract is effective from July 1, 2014, through June 30, 2019. In 2016, Minnesotans placed 405,510 relay calls for a total of 1.01 million conversation minutes of use. Overall, Minnesota Relay experienced the following changes in call volume from 2015 to 2016:

- 20% decrease in TTY-based relay calls
- 11% increase in Speech-to-Speech relay calls
- 11% decrease in CapTel relay calls

The migration to Internet-based relay services, which are under the Federal Communications Commission’s (FCC) jurisdiction and paid for through a federal fund, continues to grow as more and more consumers gain access to high-speed Internet. Internet-based relay services tend to be easier to use and have more features. In addition, there are free relay applications that can be downloaded to wireless devices such as smartphones and tablets, allowing the relay user to make calls on the go. There are currently no Internet-based Speech-to-Speech relay services available, which may be why we are still seeing increased usage on the state funded level for this service.

*Although there is a notable shift to Internet-based relay services, until all consumers have access to high-speed Internet, and at an affordable price, there still will be many Minnesotans who rely on traditional relay services.*

The TED Program is administered through an interagency agreement between the Department of Human Services – Deaf and Hard of Hearing Services Division and the Department of Commerce – TAM program. In 2016, the TED Program served 547 new participants, 1,396 repeat participants, and distributed 4,031 telecommunications and auxiliary devices.

TED Program staff provide outreach for both the TED Program and Minnesota Relay from Deaf and Hard of Hearing Services Division offices located in St. Paul, Mankato, St. Cloud, Duluth, and Moorhead. In 2016, TED Program staff performed 114 outreach activities reaching 2,675 Minnesotans.

In addition to Minnesota Relay and the TED Program, five additional programs are funded by TAM:

- The Department of Employment and Economic Development – Accessible News for the Blind program has a maximum annual budget of \$100,000.
- The Department of Human Services – Rural Real-time Captioning program has a maximum annual budget of \$300,000.
- The Commission of Deaf, DeafBlind and Hard of Hearing Minnesotans (MNCDHH)<sup>1</sup> receives \$800,000 annually.
- MN.IT Services receives \$290,000 annually for coordinating technology accessibility and usability.
- The Legislative Coordinating Commission (LCC) receives \$150,000 annually to provide captioning of live streaming of legislative activity on the LCC’s website and for a consolidated access fund for other state agencies.

## TAM Fund Activity in Fiscal Year 2016

### Revenues

- Wired and Wireless Surcharge Revenue: \$5,355,512
- Prepaid Wireless Surcharge Revenue: \$558,988
- Account Interest: \$10,346
- Refund From TRS Vendor for Billing Error: \$11,613

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<sup>1</sup> Effective August 1, 2008, the Minnesota Legislature passed legislation to change the name of the Minnesota Commission Serving Deaf and Hard-of-Hearing People to the Commission of Deaf, DeafBlind and Hard of Hearing Minnesotans. The commission uses the initialism MNCDHH.

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## Expenditures

- TAM Administration: \$142,443
- Minnesota Relay Services: \$1,885,432
- Minnesota Relay Outreach: \$0
- TED Program: \$1,402,714
- Rural Real-time Captioning: \$260,758
- Accessible News for the Blind: \$95,775
- MNCDHH: \$800,000
- MN.IT: \$290,000
- LCC: \$150,000

## PROGRAM HISTORY

In 1987, the Minnesota Legislature passed legislation creating the Telecommunications Access for Communication Impaired Persons (TACIP) Board for the purpose of enabling people who have difficulty hearing or speaking on the telephone to talk to standard voice telephone users. Two programs were established to accomplish this goal: Minnesota Relay, which began service on March 1, 1989; and Telephone Equipment Distribution (TED) Program, which began as a pilot program on October 1, 1988.

Minnesota Relay is a federally mandated Telecommunications Relay Services (TRS) program that allows an individual who is deaf, hard of hearing, deaf-blind, or speech disabled to communicate over the telephone in a manner that is functionally equivalent to the ability of an individual who does not have hearing loss or a speech disability. Minnesota Relay must be in full compliance with the requirements and intent of Title IV of the Americans with Disabilities Act of 1990, United States Code, title 47, section 225, Code of Federal Regulations, title 47, sections 64.601 to 64.606, and Minnesota Statutes section 237.50 to 237.56.

The TED Program provides specialized telecommunications equipment to enable persons who are deaf, hard of hearing, deaf-blind, speech disabled, or physically disabled to access telecommunications services. Program participants must meet eligibility requirements.

There have been significant changes and improvements to Minnesota Relay since its early years of operation. In 1995, the Minnesota Legislature eliminated the board that oversaw the TACIP program. The responsibilities for administering the TACIP fund and the Minnesota Relay were transferred to the Department of Public Service.<sup>2</sup> The Department of Human Services (DHS), through an interagency agreement with the Department of Commerce (Commerce), administers the TED Program (Minn. Stat. § 237.51, subd. 1).

On July 1, 1996, the TACIP program contracted with Communication Service for the Deaf (CSD) and Sprint Communications Company, L.P. (Sprint) for TRS. CSD's contract was for the provision of management, human resources, and outreach components for Minnesota Relay. Sprint's contract was for the provision of the call center facility, equipment and maintenance, and access to Sprint's fiber optic telecommunications network. Initially, Minnesota Relay traffic was forwarded to relay centers operated jointly by CSD/Sprint. The Minnesota Relay center, located in Moorhead, began processing calls on December 16, 1996.

Effective August 1, 2002, the name of the Telecommunications Access for Communication Impaired Persons program changed to Telecommunications Access Minnesota (TAM). Commerce sought the name change at the request of consumers, who objected to the inclusion of the word "impaired" in the program name.

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<sup>2</sup>The Departments of Public Service and Commerce merged on September 15, 1999.

In 2005, the Minnesota Legislature passed legislation that created two new state programs, Accessible News for the Blind and Rural Real-time Captioning, that are funded via the TAM surcharge.

The Accessible News for the Blind program provides accessible electronic information (news and other timely information) for people who are blind or have other disabilities that make it difficult for them to read print. This program is administered by the commissioner of the Department of Employment and Economic Development (DEED) and has a maximum annual budget of \$100,000.

The Rural Real-time Captioning program provides real-time captioning of certain local television news programs for people who are deaf, hard of hearing, or deaf-blind. This program is administered by the commissioner of DHS and has a maximum annual budget of \$300,000.

On October 17, 2005, TAM issued a Request for Proposal for the provision of TRS and associated outreach. The TRS contract was awarded to Communication Service for the Deaf (CSD) – with Sprint as a subcontractor – and was effective from July 1, 2006, through June 30, 2011, with the option to renew up to an additional 60 months. TAM extended the basic relay and captioned telephone relay services components of the TRS contract with CSD through June 30, 2014. The Minnesota Relay outreach component was not included in the contract extension.

In 2006, the Minnesota Legislature passed legislation that appropriated \$200,000 annually from the TAM fund to the MNCDHH for operational expenses. MNCDHH is a governor appointed commission that advocates for equality of opportunity for Minnesotans who are deaf, deaf-blind, and hard of hearing. In 2007, the Minnesota Legislature passed legislation appropriating an additional \$100,000 annually from the TAM fund to MNCDHH, for a total direct appropriation of \$300,000 annually.

In 2008, the Minnesota Legislature passed legislation allowing for two direct appropriations from the TAM fund in FY 2009: \$85,000 for a State Video Franchising study and \$175,000 for a Broadband Mapping project.

In 2009, the Minnesota Legislature passed legislation allowing for three one-time direct appropriations from the TAM fund in FYs 2010 and 2011. MN.IT Services (formerly the Office of Enterprise Technology) was appropriated \$100,000 each year for technology accessibility and usability. The Legislative Coordinating Commission (LCC) was appropriated \$100,000 each year for captioning of live streaming of legislative sessions. MNCDHH was appropriated \$100,000 each year for American Sign Language website content.

In 2010, the Minnesota Legislature approved transfers of \$246,000 in FY 2010, and \$270,000 in FY 2011, from the TAM fund to the general fund.

In 2011, the legislature again passed legislation allowing for one-time direct appropriations from the TAM fund to MN.IT, LLC, and MNCDHH in FYs 2012 and 2013. MN.IT received \$230,000 each year for coordinating technology accessibility and usability. LCC received \$150,000 each year in to provide captioning of live streaming of legislative activity on the LCC's website and for a consolidated access fund for other state agencies. MNCDHH received \$20,000 each year in to provide information in American Sign Language on their website and to provide technical assistance to state agencies.

In 2011, the Minnesota Legislature approved a transfer of \$1,100,000 from the TAM fund to the general fund; the transfer was processed in FY 2012.

In July 2011, Commerce began contracting with DHS for the provision of Minnesota Relay Outreach services. With this transition, outreach is provided from five regional Deaf and Hard of Hearing Services office (in the past, Minnesota Relay outreach was provided from one office located in St. Paul. The contract saves the TAM fund over \$250,000 annually.

In 2013, the legislature passed legislation modifying the direct appropriations from the TAM fund to MN.IT, LCC, and MNCDHH. In FY 2014, MN.IT's funding increased to \$290,000 and became a permanent annual allocation. The LCC's \$150,000 appropriation became a permanent annual allocation. MNCDHH's appropriation increased to \$500,000 in FY 2014 and to \$800,000 in FY 2015; the FY 2015 funding level became a permanent annual allocation.

Also in 2013, the legislature passed legislation that imposes a TAM fee on each retail transaction for prepaid wireless telecommunications services, in the amount of the monthly charge provided for by Minnesota Statutes section 237.52, subdivision 2. The prepaid wireless fee became effective on January 1, 2014.

On March 5, 2014, Commerce issued a Request for Proposal for the provision of TRS. The TRS contract was awarded to Sprint Communications Company L.P. and is effective from July 1, 2014, through June 30, 2019.

## TELECOMMUNICATIONS ACCESS MINNESOTA (TAM)

### TAM Administration

The Department of Commerce administers the TAM fund and manages vendor contracts and interagency agreements. Minnesota Relay services are provided to the state under contract with Sprint Communications Company L.P. The TED Program, Minnesota Relay Outreach services, and the Rural Real-time Captioning program are provided by interagency agreements with the Department of Human Services. The Accessible News for the Blind program is provided by an interagency agreement with the Department of Employment and Economic Development.

## TAM Funding

### TAM Funding Sources

- Monthly surcharge on all wired and wireless telephone access lines in the state of Minnesota, including managed/fixed voice over Internet protocol (VoIP) service.<sup>3</sup>
- Fee on each Minnesota retail transaction for prepaid wireless telecommunications services.

TAM surcharge revenue is deposited into a dedicated account. The monthly surcharge is capped at \$0.20 per access line or retail transaction.

### Current Surcharge

In May 2016, the PUC approved TAM's fiscal year 2017 Budget and Surcharge Recommendations. The PUC accepted TAM's recommendation to decrease the surcharge from \$0.07 to \$0.05, which will support all TAM fund programs and will maintain an adequate reserve for operating expenses. The \$0.05 surcharge became effective August 1, 2016.

### TRS Jurisdictional Separation of Costs

Minnesota's Telecommunications Relay Services (TRS) program observes all jurisdictional separation of costs as required by Code of Federal Regulations, title 47, section 64.604 (c)(5), section 410 of the Communications Act of 1934, Minnesota Statutes section 237.10, and Minnesota Rules chapter 7810.6400. All Minnesota Relay intrastate and interstate minutes are reported separately and distinctly to the state and are included in monthly invoices from our TRS vendor.

Minnesota Relay local and intrastate minutes of service (including 49 percent of toll-free and 900 minutes, and 89 percent of two-line CapTel minutes) are reimbursed through the TAM fund. Minnesota Relay interstate and international minutes of service (including 51 percent of toll-free and 900 minutes, and 11 percent of two-line CapTel minutes) are reimbursed by the Interstate TRS Fund.<sup>4</sup>

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<sup>3</sup> Cable companies that offer telecommunications services provide a managed VoIP service offering. The service is fixed, as it is only available to the customer's premise. Managed VoIP services are not transported over the public Internet.

<sup>4</sup> Interstate TRS is funded by contributions from every carrier providing interstate telecommunications services (including interconnected and non-interconnected VoIP service providers) based on interstate end-user revenues. The fund administrator is currently Rolka Loube.

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## Programs Funded

- Telecommunications Access Minnesota Program Administrative Expenses
- Minnesota Relay Services
- Minnesota Relay Outreach
- Telephone Equipment Distribution Program
- Accessible News for the Blind
- Rural Real-time Captioning
- Commission of Deaf, DeafBlind and Hard of Hearing Minnesotans
- MN.IT (for coordinating technology accessibility and usability)
- Legislative Coordinating Commission (for captioning of live streaming of legislative activity and for a consolidated access fund for other state agencies)

## Population Served

The Minnesota Relay and TED Program serve Minnesotans who have a hearing, speech, vision, or physical disability that makes it difficult or impossible to use standard telecommunications services and equipment. These programs also serve the people who want to communicate with these individuals.

## Role of the Public Utilities Commission

In accordance with Minnesota Statutes section 237.55, “The commissioner of commerce must prepare a report for presentation to the Public Utilities Commission by January 31 of each year. Each report must review the accessibility of telecommunications services to persons who have communication disabilities, describe services provided, account for annual revenues and expenditures for each aspect of the fund to date, and include predicted program future operation.”

Commerce must also submit an annual budget and surcharge recommendation to the Public Utilities Commission (PUC) for approval. The PUC reviews the recommendation for reasonableness, may modify the budget to the extent it is determined unreasonable, and sets the annual TAM surcharge amount (Minn. Stat. § 237.52, subd. 2).

## Minnesota Relay Progress in 2016

### CapTel

A CapTel call center opened in Tampa, Florida. This is the sixth CapTel call center, and further ensures redundancy of operation and sufficient capacity to meet call demand.

A Bluetooth enabled CapTel device was introduced. This device allows the user to connect with a Bluetooth headset, providing “hands-free” listening of the telephone conversation.

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## Communications Assistants

Relay communications assistants received training for TRS enhancements, including ongoing skill training, desktop refresher training, and improving the customer experience. They also received training on disability and diversity awareness.

Internal quality testing was performed monthly to ensure that the relay communications assistants were meeting mandatory minimum standards (such as typing speed/accuracy and relaying verbatim), and were following proper call handling procedures.

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## Anticipated TRS Enhancements in 2017

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### Long Distance Relay Calls

In August 2016, the FCC released an *Order*<sup>5</sup> granting temporary waivers of two mandatory minimum requirements for traditional (text-based) TRS, Speech-to-Speech relay service (STS), and captioned telephone relay service (CTS).

Previously, TRS providers were required to allow relay users to designate their preferred long distance carrier for routing and billing of their long distance relay calls. TRS providers were also required to offer the same billing options (direct, collect, third-party, and calling card) that were offered by telecommunications carriers. In the *Order*, the FCC temporarily waived these two long distance call requirements for traditional TRS, STS, and CTS, to the extent that the TRS provider does not charge the relay user for long distance relay calls.

In October 2016, Minnesota's TRS provider, Sprint, issued a statement that they will migrate to a process where they no longer assess toll charges for long distance traditional TRS, STS, and CTS calls. Sprint stated that they will be shutting down all long distance service on June 30, 2017, and they expect to have the new process for long distance relay calls in place before that time. Therefore, we anticipate that by the summer of 2017, Minnesota consumers will no longer be charged for their long distance relay calls.

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### Transition from TTY to RTT

In December 2016, the FCC released a *Report and Order and Further Notice of Proposed Rulemaking* regarding the transition from legacy TTY technology to Real-Time Text (RTT) for communications using wireless IP-based voice services.<sup>6</sup> TTY use has been declining for quite some time, mainly because the technology is cumbersome and slow, is difficult to use, requires costly equipment, and requires an analog telephone line.

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<sup>5</sup> See *Telecommunications Relay Services and Speech-to-Speech Services for Individuals with Hearing and Speech Disabilities*, Order, CG Docket No. 03-123, released August 24, 2016.

<sup>6</sup> See *Transition from TTY to Real-Time Text Technology*, CG Docket No. 16-145; *Petition for Rulemaking to Update the Commission's Rules for Access to Support the Transition from TTY to Real-Time Text Technology*, and *Petition for Waiver of Rules Requiring Support of TTY Technology*, GN Docket No. 15-178, *Report and Order and Further Notice of Proposed Rulemaking*, released December 16, 2016.

RTT allows the user to send messages in real-time. With RTT, each character of the message appears for the recipient to read as it is typed. In addition, RTT does not require turn taking, as TTY communication does; if you want to interrupt while the other party is typing, you can do so. RTT has more characters (and symbols) than a TTY, and allows you to communicate in multiple languages. In addition, RTT works with off-the-shelf equipment such as smartphones, tablets, and computers so consumers will not need to buy special equipment to use the service.

The *Order* allows, in part, wireless carriers and equipment manufacturers to support RTT in lieu of supporting TTY technology. It also allows wireless communications support for TRS access, including access via 7-1-1 abbreviated dialing through RTT communications, in lieu of support through TTY technology. In addition, RTT must be interoperable across networks and devices, be backward compatible with TTY technology, and must support 9-1-1 communications and simultaneous voice and text in the same call session.

The *Order* requires that by December 31, 2017, Tier I Commercial Mobile Radio Services providers who choose to support RTT must do so either through a downloadable RTT application (or a plug-in), or by implementing RTT functionality into its core network and offering at least one handset that supports RTT. The *Order* establishes other timelines for implementation as well.

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### Braille CapTel

A new Braille CapTel device became available in January 2017. Individuals with hearing and vision loss who read Braille and are able to voice for themselves are able to receive word-for-word captions of what the other party on the call is saying on a dynamic Braille display.

The Braille CapTel device also allows a user with low vision to view captions of what the other party on the call is saying on their HDMI-enabled TV Screen. Captions can be as large as the TV screen allows.

### Minnesota Relay Services Provided

Minnesota Relay is a free service that provides telephone accessibility to persons who are deaf, deaf-blind, hard of hearing, or speech disabled. A specially trained communications assistant (CA) facilitates the telephone conversation between a person who has hearing loss or a speech disability and other individuals. Calls can be made to anywhere in the world (long-distance charges apply), 24 hours a day, 365 days a year, with no restrictions on the number, length, or type of calls. All calls are strictly confidential and records of conversations are not kept.

TAM and the TED Program aim to be proactive in monitoring trends and rapid advances in telecommunications technology. We strive to provide services and equipment that allow people with disabilities to independently access telecommunications services so that they can stay connected with family, friends, businesses, and services.

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## Minnesota Relay Features

- **7-1-1:** A nationwide abbreviated dialing code for accessing some types of relay services.
- **800/877/888 Numbers:** Minnesota Relay users are able to reach regionally-directed and regionally-restricted 800, 877, and 888 toll-free numbers and business offices of local telephone companies that have special prefixes, all of which would normally be accessible to consumers in their calling area.
- **900 Service:** allows Minnesota Relay users to access 900 number pay-per-call services.
- **Answering Machine Retrieval:** TTY users can request the CA to retrieve messages from the user's voice answering machine or voice mail.
- **ASCII Split Screen:** allows high-speed ASCII computer users to view both sides of the relay call, at the same time, on a split window. Similar to voice-to-voice conversation, ASCII Split Screen provides the relay user and the other party the ability to interrupt when appropriate.
- **CA Gender Request:** The relay user can request the CA gender that they would prefer to handle their call (either on a call-by-call basis or permanently through their Customer Preference/Profile). Every effort will be made by the relay service to fulfil this request.
- **Call Release:** allows the CA to sign-off or be "released" from the telephone line after the CA has set up a telephone call between the originating TTY caller and a called TTY party. For example, when a TTY user needs to go through a TRS facility to contact another TTY user because the called TTY party must be reached through a voice-only interface, such as a switchboard.
- **Caller ID:** Calls placed through Minnesota Relay will provide the originating calling party number (ANI), or caller ID information, through the local exchange carrier for all local and most long distance calls. The relay provides the calling parties 10-digit telephone number to the called party (if not blocked by the calling party).
- **CapTel®** is an amplified telephone and relay captioning service that allows people who are hard of hearing to see captions of their telephone conversation on a bright, easy-to-read display window built into the CapTel phone, while also listening to what is being said using their residual hearing (much like TV captioning). The CapTel user speaks directly to the other person on the call, and the relay communications assistant transcribes everything the other person says into written text.
  - **Two-Line CapTel:** With two-line CapTel, the conversation is carried on one telephone line and the captions are provided on a second line. This gives two-line CapTel relay users the ability to caption any phone call – incoming or outgoing – at any point in the conversation. Two-line CapTel also supports enhancements that the user has purchased from their telephone service, including call waiting.

- **Carrier of Choice (COC):** allows a relay user to choose their preferred carrier for intrastate, interstate, and international calls. This requires the user's long distance phone carrier to enter into a billing and collection agreement with Sprint.
- **Customer Preference Database:** Offers relay users numerous ways to automatically expedite the initiation of custom calls. These pre-selected customer calling features include, but are not limited to, communication modes (TTY, voice, and ASCII), long distance carrier of choice, preferred billing method, frequently dialed numbers, emergency numbers, and customer notes for call processing.
- **Deaf-Blind Relay:** Individuals who are deaf and blind can use a special TTY equipped with a braille display or a large visual display.
- **Deaf-Blind Transmission Speed:** A modification of the default transmission speed for Telebraille users. Relay users who are deaf-blind can set their transmission speeds anywhere from 15 through 60 words-per-minute.
- **Directory Assistance:** A CA will relay directory assistance calls between a relay user and the Local Exchange Carrier directory assistance operator. Once the caller makes a request for directory assistance, the CA will contact a Local Exchange Carrier directory assistance operator. After obtaining the requested phone number, the caller may choose to place the call through the relay or dial it directly (i.e. TTY to TTY). Note: Directory Assistance is often subject to charges by the caller's local telephone service provider.
- **Emergency Assistance:** Although relay users are discouraged from placing 9-1-1 calls through the relay, calls to 9-1-1 will be placed at the caller's request. Through the provider's E911 database, the CA uses a "hot button" to automatically place a call to the most appropriate Public Safety Answering Point.
- **Enhanced Turbo Code (E-Turbo™):** allows a TTY user to automatically submit dialing and call set-up instructions when they call into Minnesota Relay. This significantly reduces the amount of time necessary for the CA to set-up and process the outbound call. The result is that the TTY user is connected to their desired party at a speed that is more functionally equivalent to that of a non-relay call.
- **Error Correction:** This feature automatically corrects many typographical errors and spells out non-TTY abbreviations that may be used by the CA in voice-to-text transliteration.
- **Flexible Billing:** allows Minnesota Relay users to complete long distance calls using pre-paid calling cards, carrier calling cards, third party billing, or by placing collect calls.
- **Hearing Carry Over (HCO):** allows a person who can hear but who has very limited or no speech capability to make and receive phone calls. The HCO user types his or her conversation for the CA to read to the other person, and listens directly to the other person's response.

- **Two-line HCO:** is an enhanced form of Hearing Carry Over that offers more control and allows for interactive conversation without the use of “GA” (go ahead) instructions. The HCO user can respond in real time, and can even interrupt, rather than wait for the other party to say “GA.”
- **Intelligent Call Router:** Technology that automatically and seamlessly routes relay calls to the first available CA in the network.
- **International Calls:** allows the relay user to place and receive calls to and from anywhere in the world (using English or Spanish languages only).
- **Last Number Redial:** allows the relay user to call the last person dialed through the relay without having to provide the telephone number to the CA.
- **Recording Machine Capabilities:** allows the CA to record and play back audio-text interaction messages to reduce numerous callbacks to convey entire messages to calling parties.
- **Spanish Relay:** the CA relays calls between a Spanish-speaking person with a hearing or speech disability and another Spanish-speaking person.
- **Speech-to-Speech (STS):** allows a person who has difficulty speaking or being understood on the phone to communicate using his or her own voice or a voice synthesizer. The CA revoices the words of the person with a speech disability so that they can be understood by the other person on call.
- **Telecommunications Service Priority (TSP):** On October 31, 2005, Sprint activated their call centers under the TSP program. If a national or regional emergency causes service to be disrupted and the Moorhead relay center cannot receive or place calls, Sprint’s participation in the TSP program means that Local Exchange Carriers will be required to restore service as rapidly as possible consistent with the priority status assigned to the Moorhead relay center.
- **Three-Way Calling Feature:** allows more than two parties to be on the telephone line at the same time with the CA.
- **Transfer Gate Capabilities:** allows the CA to transfer a caller to another form of relay service (i.e. CapTel, Speech-to-Speech, Spanish), to customer service, or to a relay center manager.
- **Text telephone (TTY):** allows a person who is deaf, hard of hearing, or who has a speech disability to use a TTY to communicate with the other person on the call. The CA reads the TTY user’s words to the other person, and types the other person’s words for the TTY user to read.

- **Text Telephone (TTY) Operator Service:** is available to complete a TTY to TTY call, obtain directory assistance information, or receive credit for erroneous billing.
- **Turbo Code Capability:** allows users to send information at the same speed it is typed, resulting in a more natural conversational flow and the ability to interrupt one another.
- **Variable Time Stamp Macro:** This macro enables the relay caller to know when their called party has disconnected from the call.
- **Voice Carry Over (VCO):** allows a person who can speak clearly but has hearing loss significant enough to prevent them from hearing and understanding conversations over the telephone. Using VCO relay and a specially designed telephone with a text display, the VCO user speaks directly to the other person on the call. The CA types what is spoken by the other person for the VCO user to read.
  - **Two-Line VCO:** is an enhanced form of Voice Carry Over that offers more control and allows for interactive conversation without the use of “GA” (go ahead) instructions. The user can respond in real time, and even interrupt, rather than wait for the other party to say “GA.”
  - **VCO Gated Calling:** Minnesota Relay has dedicated VCO and two-line VCO toll-free phone numbers, which provide significant improvements in service by directing VCO users to specifically trained VCO and two-line VCO CAs.
  - **VCO-With-Privacy-and-No-GA:** allows VCO users to use the standard VCO feature without needing to say “Go ahead” or “GA”. Additionally, the CA does not listen to the VCO user’s spoken words.
- **Voice Call Progression:** allows voice or HCO callers to listen during call set-up (i.e. ringing or busy).

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## Call Volumes

The following Minnesota Relay call charts can be found in [Appendix A](#):

- 2016 Minnesota Relay Conversation Minutes by Type
- 2007 – 2016 Minnesota Relay Call Volume
- Traditional (TTY-based) TRS<sup>7</sup> Call Volumes
- Speech-to-Speech Call Volumes
- CapTel Call Volumes

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<sup>7</sup> Traditional TRS includes TTY, VCO, and HCO relay services.

In 2016, Minnesota Relay processed 405,510 calls.

Service	Total Calls
Speech-to-Speech	12,772
Traditional (TTY-based) TRS	112,180
CapTel	280,558

Overall, Minnesota Relay experienced the following changes in call volume from 2015 to 2016:

- 11% increase in Speech-to-Speech relay calls
- 20% decrease in traditional (TTY-based) relay calls
- 11% decrease in CapTel relay calls

Telecommunications Relay Services are currently split into two categories:

1. Those administered and funded on a state level, which include local and intrastate minutes of service for traditional (TTY-based) relay, Speech-to-Speech relay, and Captioned Telephone relay services.
2. Those under the Federal Communications Commission's jurisdiction and paid for by an Interstate TRS Fund, which include *all minutes* for Internet-based relay services, which are comprised of Video Relay Service (VRS), Internet Protocol (IP) Relay, and Internet Protocol Captioned Telephone Relay Service (IP CTS). The FCC authorized the recovery of the cost of interstate and intrastate minute of use for Internet-based relay services from the federal Interstate TRS Fund, but stated that the special funding arrangement is temporary.

This category also includes interstate and international minutes of service for traditional (TTY-based) relay, Speech-to-Speech relay, and Captioned Telephone relay services.

The migration to Internet-based relay services continues to grow as more and more consumers gain access to high-speed Internet. Internet-based relay services tend to be easier to use and have more features. In addition, there are free relay applications that can be downloaded to wireless devices such as smartphones and tablets, allowing the relay user to make calls on the go. There are currently no Internet-based Speech-to-Speech relay services available, which may be why we are still seeing an increase in usage on the state-funded level for this service.

To provide perspective on the use of relay services *outside* state jurisdiction, below is a chart indicating 2016-2017 projections for relay services reimbursed through the federal Interstate TRS Fund:<sup>8</sup>

Interstate TRS Fund Projections for the 2016-2017 Fund Year			
Type	Billable Conversation Minutes	Projected Rate per Minute	Projected Fund Requirement
Traditional TRS	1,930,710	\$2.6245	\$5,989,052
Speech to Speech	111,389	\$2.6245	\$341,183
Caption Telephone	4,671,658	\$1.9058	\$10,830,953
IP Caption Telephone	232,555,978	\$1.9058	\$521,554,496
IP Relay	4,852,050	\$1.2122	\$7,223,039
VRS	133,552,592	\$3.49 - \$5.29	\$525,504,968
<b>Total:</b>	<b>343,125,999</b>		<b>\$1,071,443,691</b>

The projected cost for these services for the fund year is over **\$1.07 billion**. If the FCC were to impose a jurisdictional separation of costs for Internet-based relay services (that is, each state would pay for the local and intrastate Internet-based relay calls of their residents) state TRS funds would need significant increases to their funding.

## Accessibility of Telecommunications Network – Minnesota Relay Services

### Switching System Configuration

All Sprint Relay call centers use a digital switching system that is an integral part of the Relay platform. The system offers availability in excess of 99.99%, redundancy of all major system components (including the Central Processing Unit) and catastrophic fault recovery that provides for call continuity in the event of a switch failure. Sprint’s Intelligent Call Manager ensures that required levels of service are maintained in the event of a processor failure. If a center shuts down for any reason, all calls are automatically re-routed around the affected center to the remaining operating centers in the Sprint Network.

Sprint’s switch is fully redundant to provide a non-stop environment for the relay call center. The switch is designed to allow maintenance without interrupting service and incorporates a back-up processor, memory and disk subsystems. All Sprint Relay call centers also include fully redundant power systems incorporating a combination of battery and generator Uninterrupted Power Supply systems to condition and maintain electrical power in case of a power outage from the local electrical provider.

<sup>8</sup> See Rolka Loube, *Interstate Telecommunications Relay Services Fund Payment Formula and Fund Size Estimate Supplemental Submission*, CG Docket Nos. 03-123, 10-51 (filed June 7, 2016) (2016 TRS Rate Filing Supplement)

If a failure of the switch or supporting systems occurs, the Sprint TRS dynamic call routing will, within seconds of detecting the outage, route all new Minnesota Relay calls to another call center until the failing system is repaired and the TRS call center is returned to service. Sprint's call center and Relay system design permits the maximum availability with minimal loss of service to users.

All of the system preventive maintenance functions can be performed on-line, with no effect on call processing. In addition, on-line and off-line diagnostic routines will identify system faults or failures at the individual board level. Diagnostic procedures are continually processed by the switching system software to detect defective components before they are used. Manual on-line diagnostics can be launched at any time from the maintenance and administrative terminal located within the unit; without affecting call processing, calls in progress or calls waiting in queue. The maintenance and administrative terminal includes a keyboard, screen and printer capabilities.

Each Data Center and Sprint Relay call center maintains a complete system's spare inventory to meet any malfunction or emergency. In addition to spares for switch components, spare units include Communications Assistant position units, computer desktop spares, and Local Area Network and modem equipment.

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### Uninterruptible Power System

Sprint utilizes both an Uninterrupted Power Supply (UPS) and backup power generator to ensure that all Data Centers and Sprint Relay Centers have uninterrupted power even in the event of a power outage. UPS is used only long enough for the backup power generator to come on line – a matter of minutes. Backup power generators are supplied with sufficient fuel to maintain operations for at least twenty-four hours. Generators can stay in service for longer periods, as fuel availability permits.

In the event of a power outage, the UPS and backup power generator ensures seamless power transition until normal power is restored. While this transition is in progress, power to all basic equipment and facilities essential to the center's operation is maintained. This includes:

- Switch system and peripherals
- Switch room environmentals
- Communication Assistant positions (consoles/terminals and emergency lights)
- Emergency lights (self-contained batteries)
- System alarms
- Call Detail Record recording
- 

As a safety precaution (in the event of a fire during a power failure), the fire suppression system is not electric powered. Once the back-up generator is on line, stable power is established and maintained to all TRS system equipment and facility environmental control units until commercial power is restored.

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## Transmission Circuits

Sprint is a certified interexchange carrier in all 50 states. Using Sprint's nationwide all-digital fiber-optic network, transmission circuits meet, if not exceed, Federal Communications Commission and TAM intraexchange performance standards and ANSI T1.506-1990 Network Performance – Transmission Specifications for Switched Exchange Access Network standards for circuit loss and noise.

Sprint's Synchronous Optical Network (SONET), using four-fiber bi-directional line switched ring capability, allows automatic switching to alternate paths to provide for traffic rerouting in the event of a route failure. The SONET fiber optic backbone topology is currently designed with more than 100 overlapping rings to ensure sufficient alternate paths for total network survivability. As such, Minnesota Relay is linked to a coast-to-coast telecommunications route, which ensures voice, data, and video services without interrupting the call. This guarantees that Minnesota Relay calls are safeguarded by automatically rerouting service around disruptions in approximately 60 milliseconds.

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## Alternate Facilities

Sprint's network of TRS call centers uses three centralized Avaya Automatic Call Distributors. If the TRS platform experiences an outage with one of the Avaya Automatic Call Distributors, the Peripheral Gateways connected to the Avaya experiencing the issue would go offline, notifying Intelligent Call Management to stop routing traffic to that Avaya Automatic Call Distributor. The traffic routed to that Avaya Automatic Call Distributor would be routed to all other functioning Avaya Automatic Call Distributors.

Simultaneously, the Traffic Management Control Center contacts all other TRS centers notifying them of technical issues and requests additional staffing at all other functioning centers. Any center employees who are conducting ongoing training or other meetings will be requested to return to the call center floor to assist in handling calls. CAs may also be offered overtime.

Sprint TRS services are supported by six geographically dispersed centers including the Moorhead center. The TRS centers are managed by a 24/7 control center that dynamically monitors and manages the centers for all operational issues. If an event occurs that affects a center's ability to handle TRS calls, the Control Center re-routes incoming traffic to other TRS centers. All re-routing is transparent to customers.

Likewise, Sprint offers a redundant CapTel solution with five CapTel-dedicated centers and two co-located CapTel centers with Business Continuity programs to ensure that any issues are resolved quickly with minimal customer impact.

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## 7-1-1 Dialing Access

On August 9, 2000, the FCC released a *Second Report and Order* concerning nationwide 7-1-1 dialing access to TRS<sup>9</sup>. The Order required all common carriers, wireless providers, payphone vendors, and Private Branch Exchange (PBX) vendors to provide 7-1-1 dialing access to relay services on or before October 1, 2001.

In 2016, an average of 49 percent of Minnesota Relay calls were placed using this dialing shortcut. Relay users are also able to access Minnesota Relay by dialing the 10 digit toll-free access numbers.

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## Handling of Emergency Calls

Minnesota Relay encourages users to dial 9-1-1 or other existing emergency numbers directly in an emergency as using relay may result in a delay in getting their call through. However, some consumers are more comfortable using relay to access emergency services.

Minnesota Relay automatically and immediately transfers emergency relay calls to the appropriate Public Service Answering Point (PSAP) that the caller would have reached by dialing 9-1-1 directly, or to a PSAP that is capable of dispatching emergency services in an expeditious manner. An emergency call is considered to be one in which the relay user indicates the need for police, fire department, paramedics, or ambulance. Minnesota Relay utilizes a standard E911 database (provided by Bandwidth.com) that serves all of the United States.

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## Speed of Answer

Minnesota Relay meets the FCC mandatory minimum standard for TRS speed of answer (47 C.F.R. § 64.604), which states “TRS facilities shall, except during network failure, answer 85% of all calls within 10 seconds by any method which results in the caller’s call immediately being placed, not put in a queue or on hold.” Minnesota Relay’s average speed of answer and service levels are:

	Service Level	Speed of Answer
Traditional TRS	1.3	97%
Speech-to-Speech	8.0	89%
CapTel	0.7	99%

Minnesota Relay is equipped with sufficient facilities to provide a Grade of Service (GOS) of P.01 or better for calls entering the relay call center(s) switch equipment.

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<sup>9</sup> *In the Matter of the Use of N11 Codes and Other Abbreviated Dialing Arrangements*, Second Report and Order, CC Docket No. 92-105, released August 9, 2000.

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## Equal Access to Interexchange Carriers

The Code of Federal Regulations, title 47, section 64.604 (b)(3) requires that “TRS users shall have access to their chosen interexchange carrier through the TRS, and to all other operator services, to the same extent that such access is provided to voice users.”

Minnesota Relay users are able to have their intrastate, interstate and international calls carried by any interexchange carrier who has completed the steps necessary to be available as a Minnesota TRS Carrier of Choice (COC). When a caller indicates their COC preference, the CA will verify that the requested carrier is available as a COC in Minnesota; if they are, the call will be routed accordingly. Callers are able to use any billing method made available by the requested carrier including collect, third party, prepaid, and calling cards.

If a Minnesota Relay caller does not indicate a COC preference to the CA, either at the time of the relay call or via their Customer Preferences, or if the user’s preferred carrier is not available as a COC in Minnesota, the long distance relay call will be carried and billed by Sprint.

When a relay user requests a long distance carrier that is not a COC participant in Minnesota, Sprint notifies the TAM administrator. The TAM administrator sends the non-participating long distance carrier a letter notifying the company of its obligation to provide access to TRS users, as well as instructions on how to become a COC in Minnesota.

Please see [Appendix B](#) for carriers currently available as a COC for Minnesota Relay.

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## Rates

Minnesota Relay users are charged no more for services than those charges paid by standard “voice” telephone users; relay users placing long distance calls are only billed for conversation time.

Relay users who select a preferred COC are rated and invoiced by their selected interstate carrier. Minnesota Relay users who do not select a preferred COC will have their long distance relay calls rated and invoiced by Sprint.

Sprint offers the following long distance discounts to Minnesota Relay users:

- 75% discount off of MTS standard intrastate toll rates
- 50% discount off of MTS standard interstate toll rates

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## Consumer Complaints

In 2016, Minnesota Relay received complaints on 0.004 percent of relay calls; 405,510 calls were relayed and 15 complaints were filed.

Minnesota Relay users have many options for filing a complaint or commendation. The CA has the capability to transfer the caller directly to the Sprint or CapTel 24-hour Customer Service department, or the relay user may request to speak to a relay supervisor during or

immediately after a call. Relay users may also file a complaint with the TAM administrator, Minnesota Relay outreach staff, or the FCC.

All complaints and commendations are recorded electronically by Sprint on a Customer Contact form. Sprint provides copies of each Customer Contact form to the TAM administrator monthly. In the event that TAM and the relay provider fail to resolve a Minnesota Relay complaint within 180 days after the complaint was filed, the FCC exercises jurisdiction over the complaint. Failure to meet the deadlines for complaint resolution may adversely affect the continued certification of Minnesota Relay (47 C.F.R. § 64.606).

TAM submits an annual Complaint Log Summary to the FCC in accordance with Code of Federal Regulations, title 47, section 64.604 (c)(1).

## Outreach

### Minnesota Relay Outreach

Minnesota Relay outreach is provided under an interagency agreement with the Department of Human Services – TED Program. Outreach staff is responsible for providing a comprehensive statewide outreach program to educate people about Minnesota Relay services. Outreach personnel distribute informational pamphlets, train consumers and businesses, make presentations, staff exhibitions, and perform other similar forms of consumer contacts.

Outreach staff and the TAM administrator serve as the point of contact for Minnesota consumers who have questions, concerns, complaints, commendations, etc. Outreach efforts are tailored to target appropriate demographics, including consumers who are deaf, deaf-blind, hard of hearing, late deafened, speech disabled, hearing consumers, and businesses.

Outreach activities primarily include:

- Staffing a booth at exhibitions, seminars, and fairs.
- Presenting at senior centers, health care facilities, and social services agencies.
- Providing brochures and instruction sheets.

In 2016, staff performed 100 Minnesota Relay outreach activities reaching 2,513 Minnesotans. Reports containing Minnesota Relay outreach efforts are compiled monthly and sent to the TAM administrator. A summary of 2016 outreach activities is provided in [Appendix C](#).

### DHSD Regional Advisory Committee Meetings

The Department of Human Services – Deaf and Hard of Hearing Services Division has established six advisory committees throughout Minnesota. Each advisory committee meets quarterly and serves as a venue to provide information to, and gather information from, the community. Advisory committee meeting minutes are provided to the TAM administrator

and TED Program administrator so that issues, questions, and concerns regarding Minnesota Relay and the TED Program may be addressed.

The TAM administrator attends the Metro advisory committee meetings, and a Minnesota Relay Outreach/TED Program staff person attends one meeting per region, per year.

## TELEPHONE EQUIPMENT DISTRIBUTION PROGRAM

### TED Program Administration

The TED Program is responsible for distributing specialized telecommunications devices to income eligible Minnesotans, informing the public of services available through the program, and providing training for the use of distributed equipment.

The TED Program is administered through an interagency agreement between DHS and Commerce. The DHS Deaf and Hard of Hearing Services Division (DHHSD) has six regional offices around the state staffed with professionals experienced in working with people who are deaf, hard of hearing, deaf-blind, speech disabled, or physically disabled. TED Program services are provided through five of the DHHSD regional offices: Moorhead, Duluth, St. Cloud, St. Paul, and Mankato.

### Authority to Provide Equipment

Minnesota Statutes section 237.51, subdivision 5(a)(3) provides DHS with the authority to establish specifications for telecommunications devices to be provided under section 237.53, subdivision 3.

The types of equipment distributed include:

- Amplified Telephones (both hearing and voice)
- Bluetooth Cordless Amplified Phones
- Captioned Telephones
- Remote Control Speaker Phones
- Amplified Cell Phones
- Basic Smartphone
- Wireless accessories (Bluetooth neckloop, cell phone amplifier, and visual signaler)
- Ring Signaling Devices (auditory, visual, and tactile)
- Text Telephones (TTYs)
- Braille Phones
- Hearing Carry Over Phones
- Voice Carry Over Phones
- Special Needs Devices (for multiple disabilities)
- iOS Tablets and Smartphones (for pilot program)

## Population Served

The TED Program serves a wide range of individuals with a variety of communication needs. *Currently, the oldest TED Program participant is 102 years of age, and the youngest is age 12.* The average consumer served is female, 78 years old, and hard of hearing. In 2016, 66 percent of TED Program participants were female and 68 percent lived outside of the seven-county metropolitan area. Eighty-six percent of TED Program participants are hard of hearing, five percent are deaf, five percent are physically disabled, and four percent have other disabilities (deaf-blind or speech disabled).

In recent years, more clients with multiple disabilities have utilized the TED Program. In 2016, 27 percent of TED Program participants had two or more disabilities, such as a speech and physical disability or a loss of hearing and vision.

## Program Outreach

DHHS is responsible for the promotion of TED Program services. TED Program specialists conducted much of their outreach by traveling to client homes and providing information and training “face-to-face.” While websites, e-mails, and telephone calls can be an efficient, effective, and convenient way of providing information, TED Program specialists find that many consumers are more receptive if material is provided to them in person. Traveling to consumers to provide information, equipment, and training of the complexity of the device helps eliminate apprehension and results in a more personal, relaxed, and productive experience for the consumer.

A large portion of Minnesotans with hearing loss (33 percent) are 65 years of age or older. It is expected that by age 65, one out of three people will have a hearing loss, and the number is expected to rise as the Baby Boomer generation matures.

2016 outreach efforts included:

- 71 presentations statewide to groups of professionals and potential consumers.
- 35 booths at health fairs and senior expos to professionals and potential consumers.
- Mass mailings sent out to churches and schools statewide.
- Exhibit at Minnesota’s celebration of the 25th anniversary of the Americans with Disabilities Act.
- E-mail blasts to over 13,000 statewide contacts at the Minnesota Board of Social Work and the Minnesota Veterans Administration.
- Exhibit at the Wellness Expo in St. Cloud. 500 TED Program postcards were included in attendant bags and there was a program advertisement on WJON radio station during the event.
- Printed advertisements with the St. Cloud Times Media, Whitney Senior Expo directory, Women’s Press, Minnesota Physician Publishing Medical Directory, Senior Perspectives (40 counties), St. Cloud Times Senior Expo guide, Duluth Forum Communications, Sun Media, Volunteers of America Care Options Network senior

directory, and Central Minnesota Council on Aging 2016 Housing and Services magazine.

- Program posters provided to the Minnesota Chippewa Tribe Aging Eye Initiative event.
- Sponsor the Hearing Loss Association of America Walk for Hearing.
- Attend and network at the Minnesota Nursing Home and Social Worker Association and Brain Injury Alliance conferences.
- Attend and participate in monthly meetings of the Cross Agency Assistive Technology Workgroup.

## Statistical Information

The chart below lists the number of *new* program participants served by the TED Program, as well as the number of devices distributed to *new* program participants for calendar years 1998-2016.

Year	Number of New Program Participants Served	Number of Devices Distributed to New Program Participants
1998	2,069	2,120
1999	2,141	2,340
2000	2,105	2,695
2001	1,882	2,431
2002	1,913	2,584
2003	1,906	2,337
2004	1,988	2,485
2005	1,872	2,405
2006	1,976	2,081
2007	1,771	2,073
2008	1,566	1,820
2009	1,638	2,728
2010	1,381	2,319
2011	1,317	2,529
2012	1,055	989
2013	935	1,027
2014	763	764
2015	642	764
2016	547	700

The TED Program provides *repeat* service to equipment recipients who need further assistance after equipment is initially provided to them. Program participants often contact the TED Program to receive additional training, repair/replacement of equipment, or to exchange equipment because their communication needs have changed (e.g. a person's hearing deteriorates and the equipment they initially received no longer meets their needs).

This past year the TED Program served 547 new participants and 1,396 repeat participants. TED Program specialists also provided information and referrals to 261 consumers and agencies, for a total of 2,204 Minnesotans receiving service in 2016.

A report of TED Program activities is submitted quarterly to the TAM administrator. The report documents outreach activity, the number of individuals served, and the types of equipment distributed. The charts provided in [Appendix D](#) demonstrate TED Program activities in 2016.

## TED Program Progress

### TED Program/TAM Fund Study

Two research studies were conducted in 2015 -2016 on the TED Program/TAM Fund and Deaf and Hard of Hearing Services. The purpose of the TED Program/TAM Fund study was to:

- Provide an assessment of the TED Program to determine the current communication needs of Minnesota residents and if the program is meeting those needs.
- Solicit input from Minnesotans who are deaf, hard of hearing, deaf-blind, speech disabled, or physically disabled to determine challenges as well as their current and future needs.
- Review how other state equivalent programs are meeting the needs of their consumers and using the funding sources.
- Recommend policy changes to the program to meet the communication needs of the user.

Each vendor of the two studies produced two separate reports. The recommendations from the two studies were compiled into a Legislative report. Staff from the Deaf and Hard of Hearing Services division were brought together to develop a three to five-year strategic plan using the recommendations from the studies.

### TAM Audit Recommendations

In 2016, the TED Program established procedures for the two recommendations for the program from the TAM audit conducted in 2015. The first recommendation was to develop policies and procedures for performing a periodic review of client's status. The second recommendation was to establish metrics to measure the effectiveness of the program's outreach efforts.

In 2016, the program began contacting clients initially served three years prior to determine if they are still using the equipment they received and/or if they need additional assistance. The results of the contacts are being recorded in a centralized spreadsheet, the data is being updated in the database, and pick up of equipment has occurred according to policy and procedures.

The program has established a process of measuring the effectiveness of outreach activities. Additional metrics were established and are being used to gather data that is more meaningful.

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### Wireless iPad/iPhone Pilot

In April 2016, a statewide pilot program was established from a workgroup of division staff. The purpose of the pilot was to determine if enhanced wireless devices provide increased communication access to people with disabilities. A Request for Proposals was released and a vendor was selected who sells iPads and iPhones. Each device is pre-installed with telecommunications and communication apps based on the client's disability. Clients applied for the pilot and their eligibility was verified. Clients are required to complete three surveys during the pilot to gather feedback on their experience. The pilot will end on February 28, 2017.

#### Equipment distributed (141 devices):

- 76 iPad Air 2 (Wi-Fi and 4G)
- 7 iPad Mini (Wi-Fi and 4G)
- 26 iPhone 7s
- 26 iPhone 6S Plus
- 6 iPhone 6S

#### Age of participants:

- 12 older than 80 years old
- 49 between 60-79 years old
- 49 between 40-59 years old
- 12 between 25-39 years old
- 15 between 10-24 years old
- 4 did not provide a date of birth

#### Types of disabilities served:

- 77 hard of hearing
- 25 deaf
- 13 multiple disabilities
- 12 physically disabled
- 8 speech disabled
- 6 deaf-blind

#### Participant geography:

- 32 clients in northeastern MN
- 31 clients in northwestern MN
- 30 clients in the Twin Cities
- 27 clients in southern MN
- 21 clients in east/western central MN

A report on the results of the pilot will be developed and shared with Commerce and DHS. It will be determined at that time if the TED Program should create a full distribution program for enhanced wireless devices.

## TAM FUND BUDGET SUMMARY

REVENUE	FY 2016 Actual	FY 2017 Budgeted
Per Wired/Post-Paid Wireless Customer Access Line (FY 2016 = \$0.07; FY 2017 = \$0.05)	\$ 5,355,512.05	\$ 3,748,648.00
Prepaid Wireless Retail Transactions	\$ 558,987.76	\$ 327,274.00
TAM Fund Interest	\$ 10,346.25	\$ 7,000.00
Refund From TRS Vendor for Billing Error	\$ 11,612.60	\$ 0
<b>Total TAM Fund Revenue</b>	<b>\$ 5,936,458.66</b>	<b>\$ 4,082,922.00</b>

EXPENDITURES		
TAM Program Administration	\$ (142,443.34)	\$ (135,700.00)
Sprint (TRS)	\$ (1,885,431.96)	\$ (1,785,007.31)
Minnesota Relay Outreach	\$ 0	\$ (1,000.00)
DHS-TED Program	\$ (1,402,714.24)	\$ (1,659,730.00)
DHS-Rural Real-time Captioning	\$ (260,758.38)	\$ (300,000.00)
DEED-Accessible News for the Blind	\$ (95,775.16)	\$ (100,000.00)
Commission of Deaf, DeafBlind and Hard of Hearing Minnesotans	\$ (800,000.00)	\$ (800,000.00)
MN.IT Services	\$ (290,000.00)	\$ (290,000.00)
Legislative Coordinating Commission	\$ (150,000.00)	\$ (150,000.00)
<b>Total TAM Fund Expenditures</b>	<b>\$ (5,027,123.08)</b>	<b>\$ (5,221,437.31)</b>

<b>REVENUE VS. EXPENDITURES</b>	<b>\$ 909,335.58</b>	<b>\$ (1,138,515.31)</b>
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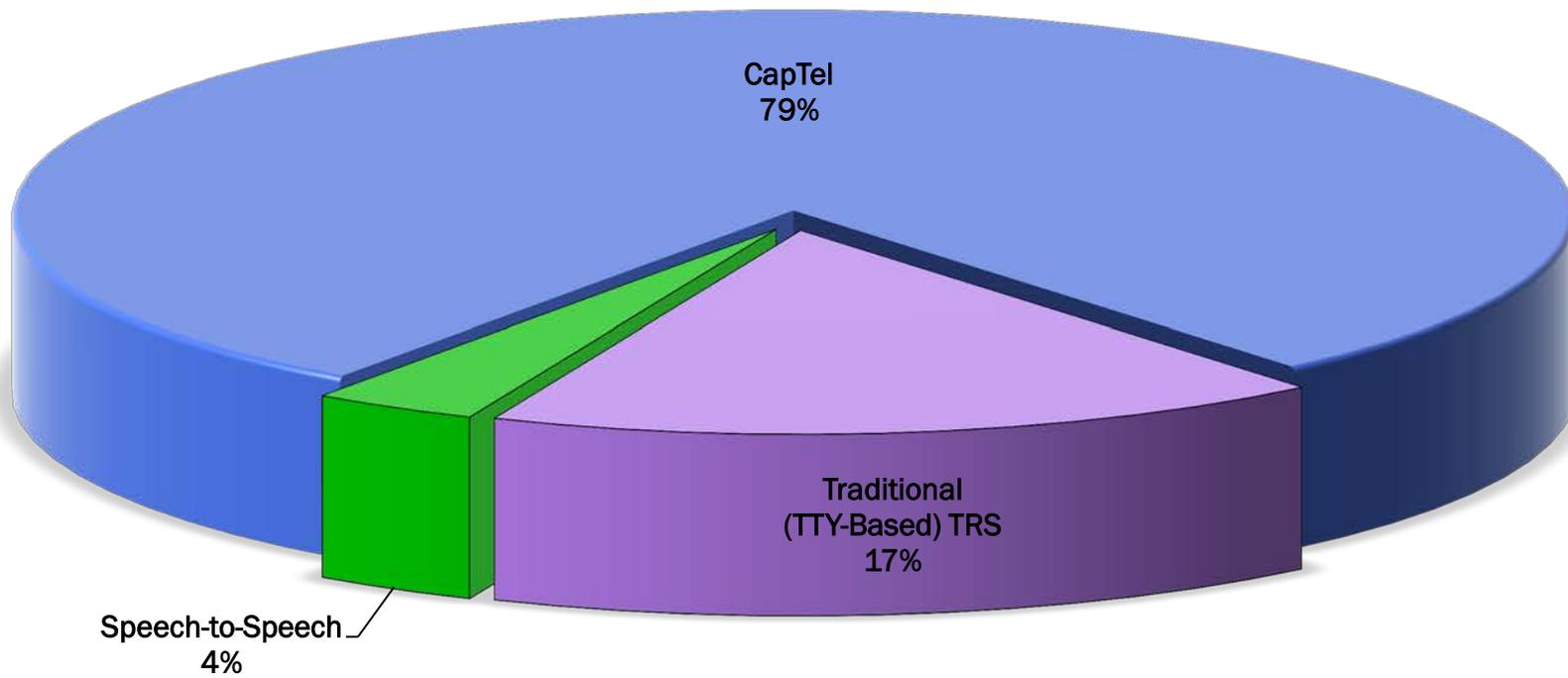
STATEMENT OF TAM FUND BALANCE		
TAM Fund Balance at Beginning of Fiscal Year	\$ 2,268,710.70	\$ 3,025,303.15
TAM Fund Revenue & Interest	\$ 5,936,458.66	\$ 4,082,922.00
DHS-TED Program Cash Advance	\$ (200,000.00)	\$ (200,000.00)
DHS-Minnesota Relay Outreach Cash Advance	\$ (500.00)	\$ (500.00)
Return of DHS-TED Program Cash Advance	\$ 200,000.00	\$ 200,000.00
Return of DHS-Minnesota Relay Outreach Cash Advance	\$ 500.00	\$ 500.00
TAM Fund Expenditures	\$ (5,027,123.08)	\$ (5,221,437.31)
<b>TAM Fund Balance at Close of Fiscal Year</b>	<b>\$ 3,178,046.29</b>	<b>\$ 1,886,787.84</b>

## APPENDICES

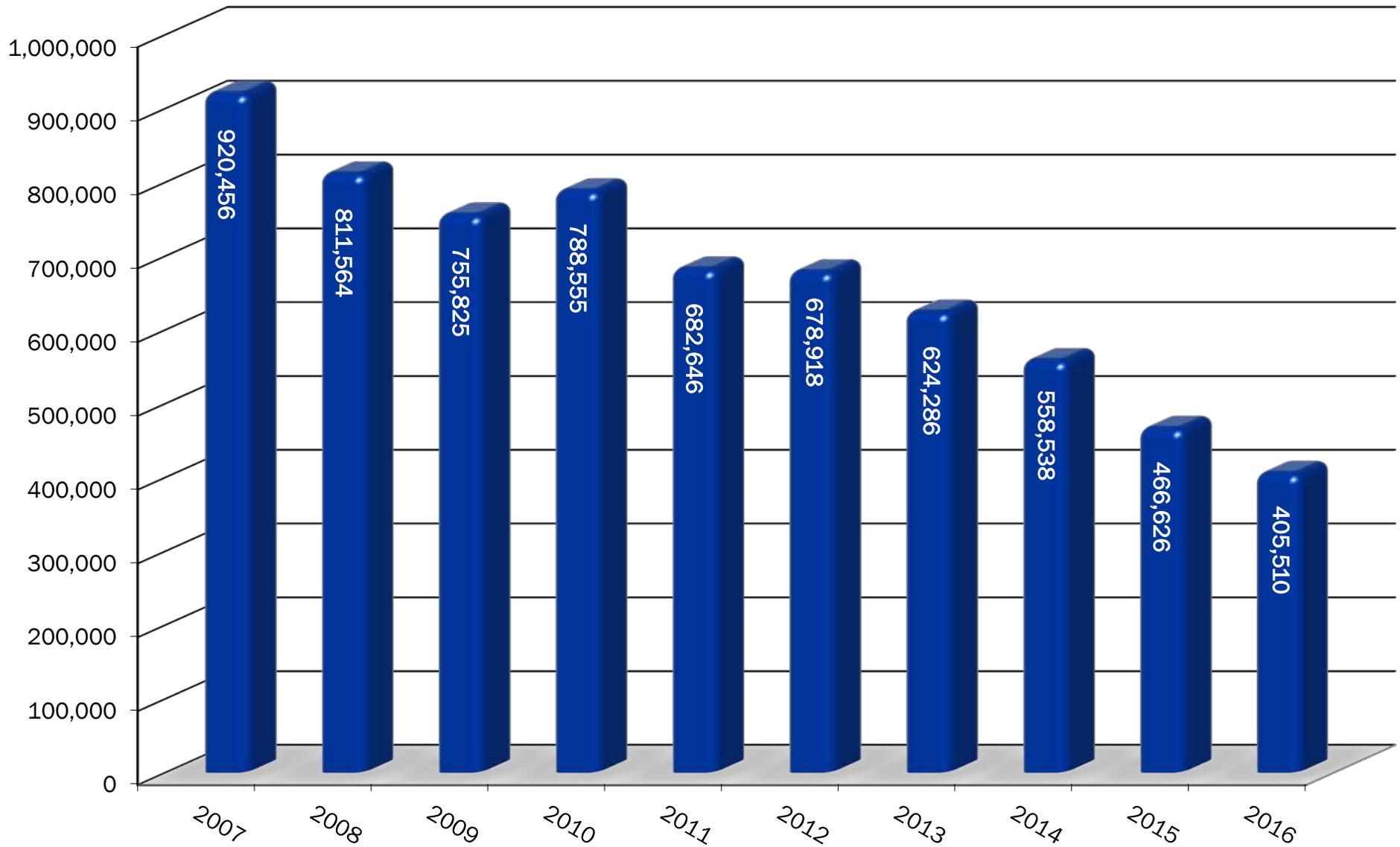
# Appendix A

## Minnesota Relay Call Charts

# 2016 Minnesota Relay Conversation Minutes by Type

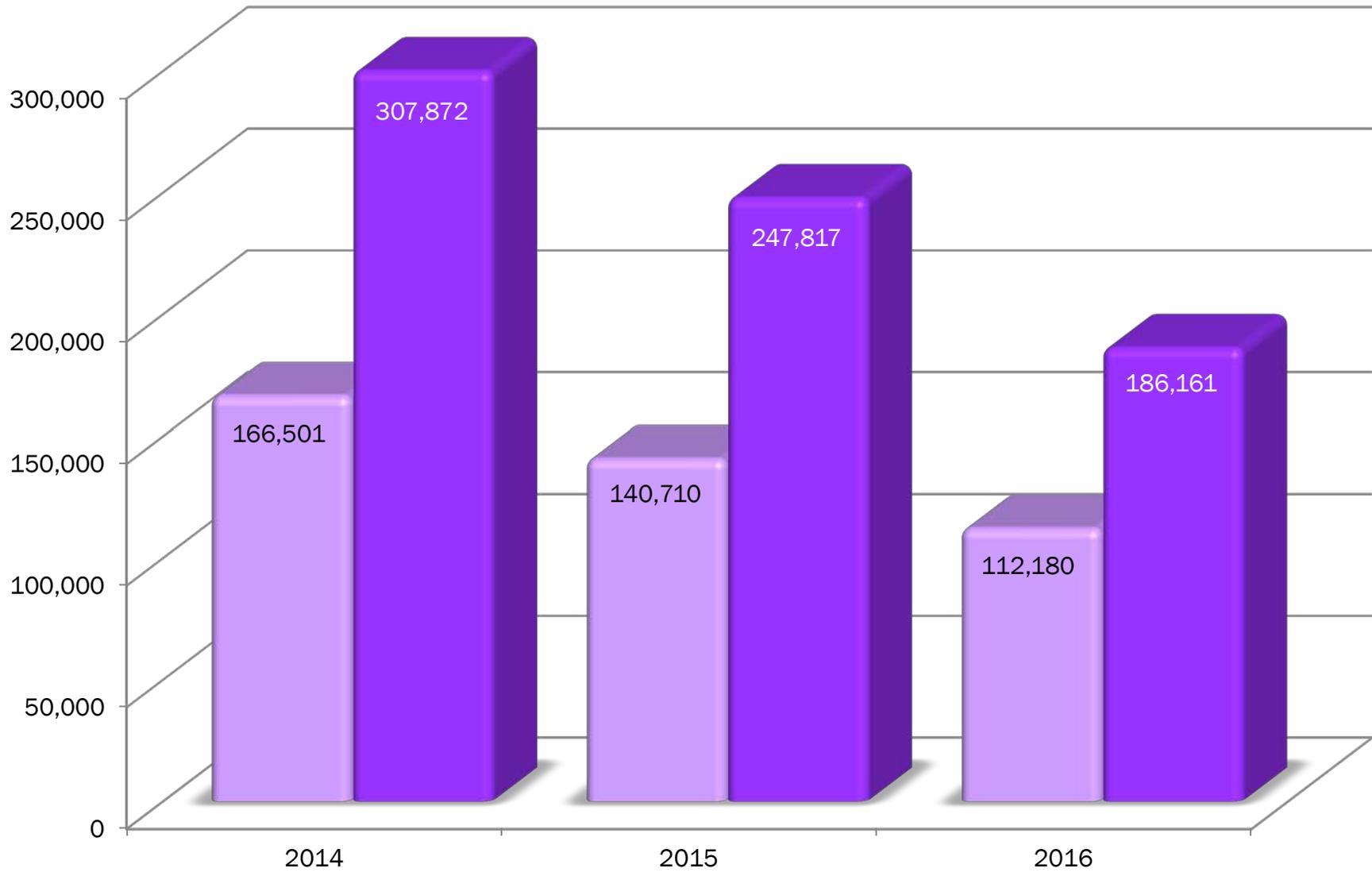


## 2007 - 2016 Minnesota Relay Call Volume (total number of traditional TRS, STS, and CapTel calls)



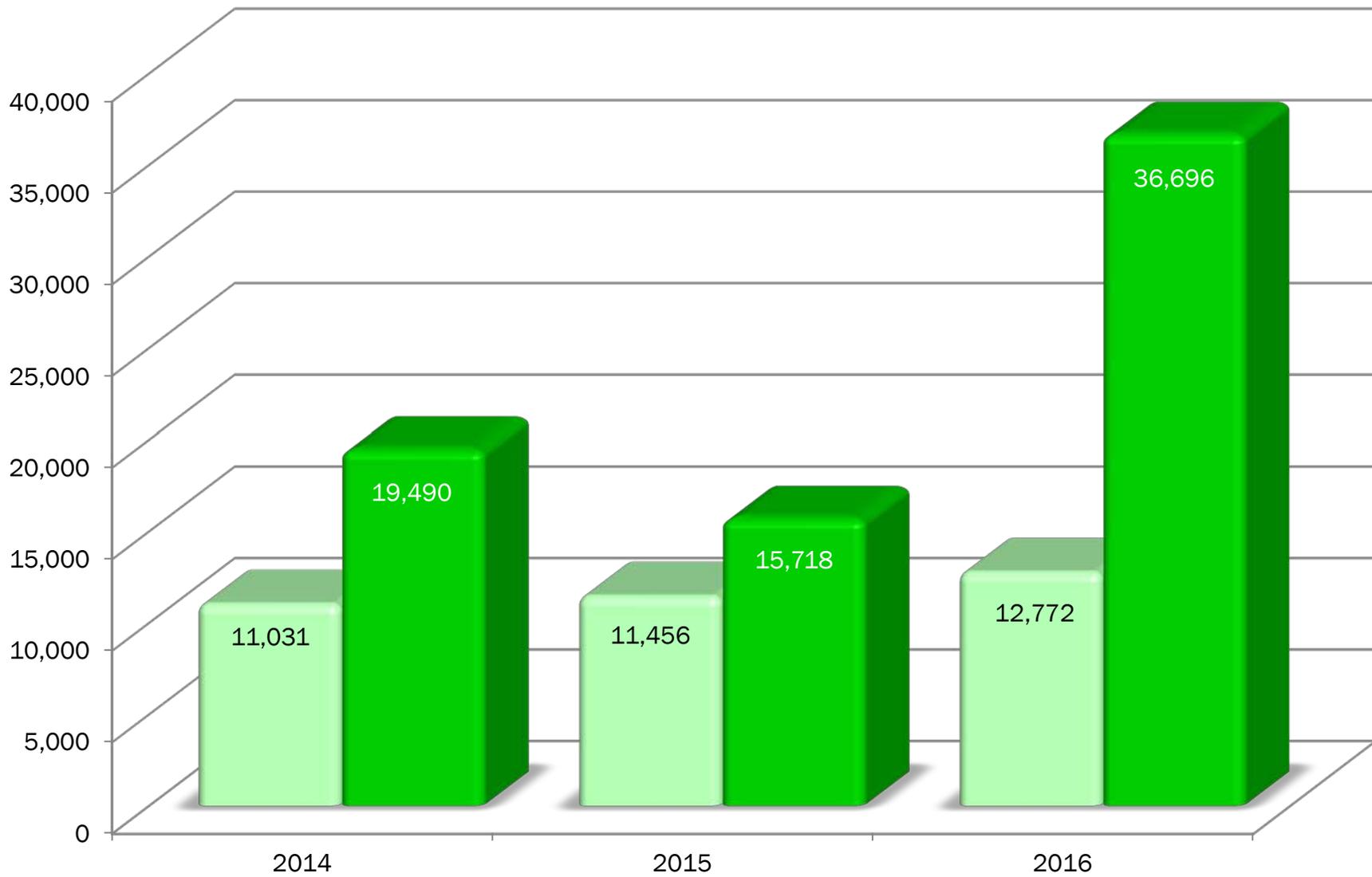
# Traditional (TTY-Based) TRS Call Volumes

■ Total Calls ■ Conversation Minutes



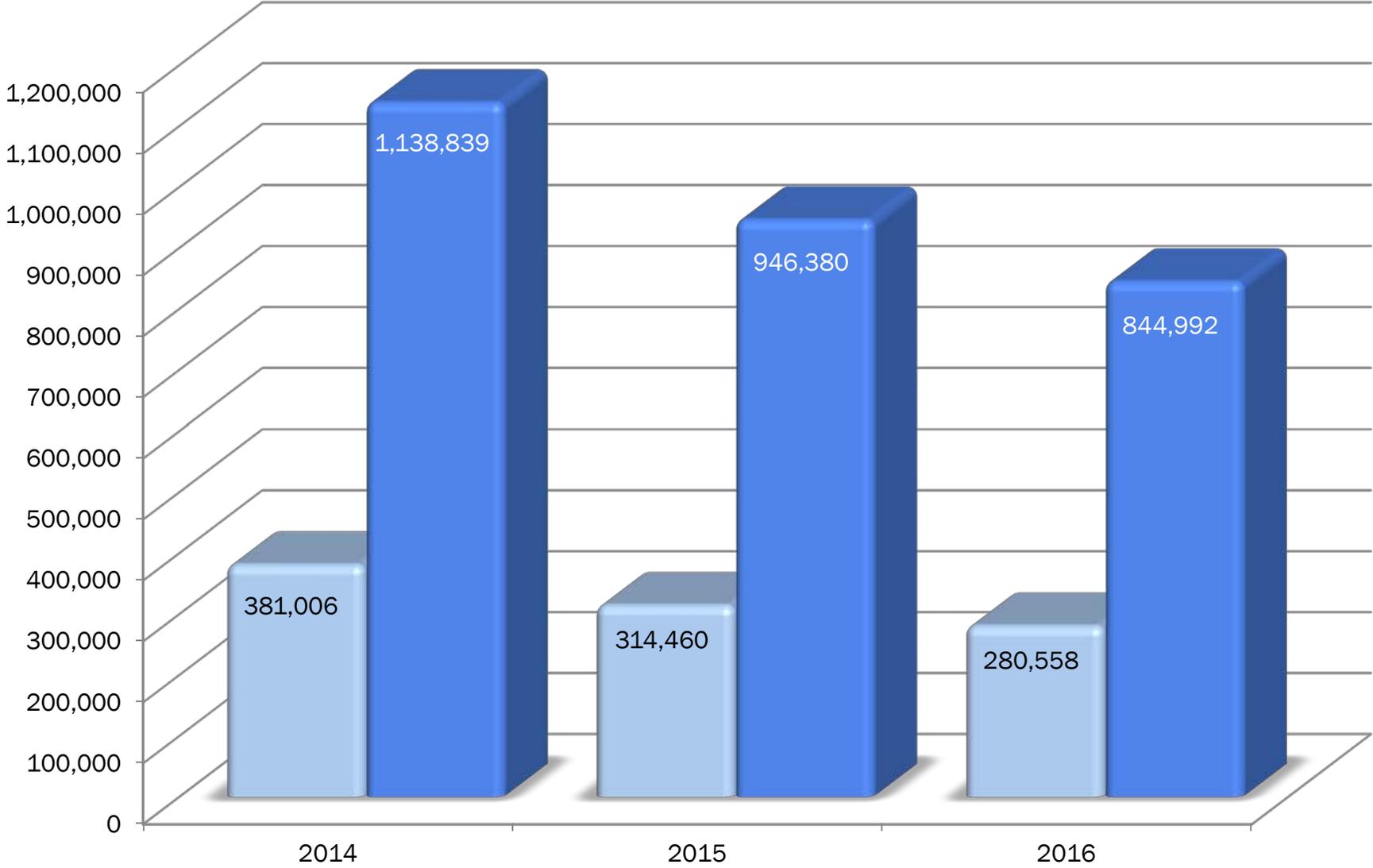
# Speech-to-Speech Call Volumes

■ Total Calls ■ Conversation Minutes



# CapTel Call Volumes

■ Total Calls ■ Conversation Minutes



# Appendix B

## Long Distance Carriers of Choice

## Long Distance Carriers for Minnesota Relay Services (except CapTel)

- 011 Communications
- 10-10-220 Telecom USA
- 10-10-321 Telecom USA
- 10-10-502 WorldxChange
- 10-10-636 Clear Choice
- 10-10-752 EXCEL
- 10-10-811 Vartec
- 10-10-834 WorldxChange
- 10-10-987
- 702 Communications
- ACN Communications, Inc.
- ACS Connections LD
- ACS Long Distance
- ANI Networks
- AT&T
- Ace Long Distance
- Advantage Communications
- Affinity Network, Inc.
- Albany Telephone LD
- Arrowhead LD
- Barnesville LD
- Benton Telephone LD
- BEVCOMM, Inc.
- Birch Telecom/Ionex Comm
- Blackduck LD
- Blueridge Telecom Systems
- Broadwing Communications
- Broadwing Telecom
- CI Long Distance
- CP Telecom
- CTC Long Distance
- CTI Long Distance
- Cannon Valley LD
- CenturyLink
- CenturyTel LLC
- Charter Communications
- Christensen Communication Company
- CierraCom Systems
- Citizens Communications
- Comcast
- Comcast Business Communications
- Connections Long Distance
- Consolidated Communications LD
- Cooperative Light & Power
- Crosslake LD
- Crystal Communications, Inc.
- Delavan LD
- Dunnell LD
- Eagle Valley LD
- EliteView, LLC
- Embarq Communications
- Emily Long Distance
- En-Tel Communications
- Enventis Long Distance
- Eschelon Telecom, Inc.
- Exit Mobile
- Farmers LD
- Federated LD
- Felton LD
- Frontier Communications
- GTC Telecom
- Garden Valley LD
- Gardonville LD
- Global Crossing
- Granada LD
- GroveLine
- HBC Long Distance
- Halstad LD
- Hancock LD
- Harmony Telephone Company
- HickoryTech
- Home Telephone LD
- Hometown Solutions LD
- Horizon Telecom, Inc.
- HorizonOne Communications
- Hutchinson Telecommunications
- ITC Long Distance
- Integra
- Integra Telecom
- Inter-Tel NetSolutions, Inc.
- International Plus
- Internet Business Association
- iVantage Network Solutions
- KMTC Long Distance
- LDDS
- Lakedale Communications
- Level 3
- Lightyear Network Solutions
- Lismore LD
- Lonsdale One Plus

- Loretel LD
- Lowry Long Distance
- MCIWorldCom
- MIDCO
- Mabel Cooperative Telephone Co.
- Madelia LD
- Mainstreet Communications Long Distance
- Mainstreet LD
- McLeod USA
- Melrose LD
- Metromedia
- Midcontinent Communications
- Midwest LD
- Milaca Local Link LD
- Minnesota Valley Communications, Inc.
- NOS Communications, Inc.
- NOSVA Limited
- NU-Telecom
- New Ulm LD
- Norlight Telecommunications Inc.
- North Dakota Long Distance
- Northstar Access LD
- OPEX LD
- Onvoy
- Optic Communications
- Orbit Com, Inc.
- Osakis Long Distance
- OtterCom, Inc.
- Ottertail Telecom LD
- PAETEC Communications, Inc.
- POPP.Com
- Park Region LD
- Peoples Long Distance
- Pine Island LD
- Pioneer Telephone
- PrairieWave Communications
- QuantumLink Communications
- Qwest
- Red River LD
- Reduced Rate Long Distance, LLC
- Redwood Long Distance Company
- Reliance Telephone Inc.
- Rochester Telecom System, Inc.
- Rothsay Long Distance
- Royale Comtronics, Inc.
- Runestone LD
- SBC Long Distance
- Sleepy Eye LD
- Speedway Long Distance
- Spring Grove Communications
- Sprint
- St. James LD
- Sytek Comm LD
- TCG Minnesota Inc.
- TCO Network
- TDS Telecom
- TTI National
- TW Telecom Inc.
- Telecom One, Inc.
- Telegroup
- Telephone Associates, Inc.
- Touch America
- TouchTone Communications
- Trans National Communications International, Inc.
- TransWorld Network Corp
- U.S. Telecom Long Distance, Inc.
- USL
- Unitel Long Distance
- Velocity Telephone, Inc.
- Venture LLP
- Verizon LD
- Verizon Select Services(VSSI)
- VoIP Communications
- WCTA Long Distance
- WH Comm
- WTC Long Distance
- WiTel
- Windom Long Distance
- Windstream Communications, Inc.
- Woodstock LD
- Working Assets
- WorldCom
- XO Communications

## Long Distance Carriers for Minnesota CapTel Relay Services

- 011 Communications
- 702 Communications
- Ace Long Distance
- ACN Communication Services
- ACN Communications, Inc.
- ACS Connections LD
- ACS Long Distance
- Advantage Communications
- Affinity Network, Inc.
- Albany Telephone LD
- ANI Networks
- Arrowhead LD
- AT&T
- Barnesville LD
- Bell Atlantic Communications, Inc. dba Verizon LD
- Benton Telephone LD
- Birch Telecom/Ionex Comm.
- Blackduck LD
- Blueridge Telecom Systems
- Broadwing Communications
- Broadwing Telecommunications
- Cannon Valley LD
- CenturyLink (formerly Qwest)
- CenturyTel Long Distance
- CenturyTel Solutions
- Charter Communications
- Christensen Communication Company
- CI Long Distance
- CierraCom Systems
- Citizens Communications
- Comcast
- Comcast Business Communications
- Connections Long Distance
- Consolidated Network, Inc.
- Cooperative Light & Power
- CP Telecom
- Crosslake LD
- CTC Long Distance
- CTI Long Distance
- Delavan LD
- Dunnell LD
- Eagle Valley LD
- EliteView, LLC
- Emily Long Distance
- En-Tel Communications
- Eschelon Telecom, Inc.
- Excel/Vartec
- Exit Mobile
- Farmers LD
- Federated LD
- Felton LD
- FONETEL
- Frontier Communications
- Garden Valley LD
- Gardonville LD
- Global Crossing
- Granada LD
- Group Long Distance
- GroveLine
- GTC Telecom
- Halstad LD
- Hancock LD
- Harmony Telephone Company
- HBC Long Distance
- HickoryTech
- Home Telephone LD
- Hometown Solutions LD
- Horizon Telecom, Inc.
- HorizonOne Communications
- Hutchinson Telecommunications
- Incomnet Communications Corporation
- Integra Telecom
- International Plus
- Internet Business Association
- Inter-Tel NetSolutions, Inc.
- ITC Long Distance
- iVantage Network Solutions
- KMTC Long Distance
- La Conexion Familiar, Inc.
- Lakedale Communications
- LDDS
- LDMI
- Lightyear Network Solutions
- Lismore LD
- Lonsdale One Plus
- Loretel LD
- Lowry Long Distance

- Mabel Cooperative Telephone Co.
- Madelia LD
- Mainstreet Communications LD
- Mainstreet LD
- Matrix Telcom
- MCI
- MCI/WorldXchange (Acceris Communications)
- MCI/WorldCom
- McLeod USA
- Melrose LD
- Metromedia
- Midcontinent Communications
- Midwest LD
- Milaca Local Link LD
- Minnesota Valley Communications, Inc.
- MRC Communications
- New Ulm LD
- Norlight Telecommunications Inc.
- North Dakota Long Distance
- Northstar Access LD
- NOS Communications, Inc.
- NOSVA Limited
- Onvoy
- OPEX LD
- Optic Communications
- Orbit Com, Inc.
- Osakis Long Distance
- OtterCom, Inc.
- Ottertail Telecom LD
- PAETEC Communications, Inc.
- Park Region LD
- Peoples Long Distance
- Pine Island LD
- Pioneer Telephone
- POPP.Com
- PrairieWave Communications
- PT-1
- QuantumLink Communications
- Red River LD
- Reduced Rate Long Distance, LLC
- Redwood Long Distance Company
- Reliance Telephone Inc.
- Rochester Telecom System, Inc.
- Rothsay Long Distance
- Royale Comtronics, Inc.
- RSLCom
- Runestone LD
- SBC
- SBC Long Distance
- Sleepy Eye LD
- Speedway Long Distance
- Spring Grove Communications
- Sprint
- St. James LD
- Switched Services Comm. LLC
- Sytek Comm LD
- Talk America (formerly AOL Long Distance)
- TCG Minnesota Inc.
- TCO Network
- TDS Metrocom
- TDS Telecom
- Telcom Group, Inc.
- Telec Inc.
- Telecom USA
- Telegroup
- Telemanagement Consultants Corp
- Telephone Associates, Inc.
- The Furst Group, Inc.
- Touch America
- TouchTone Communications
- TransNational Communications Int'l, Inc.
- TransWorld Network Corp
- TTI National
- U.S. Telecom Long Distance, Inc.
- Unitel Long Distance
- US Xchange
- USL

# Appendix C

## Minnesota Relay Outreach

2016 Minnesota Relay Outreach				
Date	Type of Outreach	Location	City	Participants
January 19	Presentation	Senior Center	East Grand Forks	15
January 26	Presentation	Lion's Club	Battle Lake	10
February 6	Presentation	River of Life Church for Ruby's Pantry	Pine City	300
February 7	Booth	Latino Health Fair	St. Cloud	10
February 8	Presentation	Lyngholmsten Apartments	St. Paul	33
February 10	Presentation	Greenleaf Senior Living	Thief River Falls	20
February 10	Presentation	Advocate, Connect, Educate (ACE)	Redwood Falls	20
February 19	Booth	St. Cloud Ability Event	St. Cloud	3
March 10	Meeting	South Country Health Alliance	Owatonna	1
March 1	Presentation	Keystone Community Services	St. Paul	15
March 5	Booth	Wellness Expo	Sartell	20
March 9	Presentation	Cochlear Implant Support Group	Rochester	12
March 11	Presentation	Mankato Schools	Mankato	18
March 16	Booth	C.A.R.E Program	Grove City	9
March 22	Presentation	North Park Plaza Apartments	New Hope	18
March 30	Presentation	Peace Villas (Ecumen)	Norwood Young America	27
April 5	Presentation	Norris Square Presbyterian Homes	Cottage Grove	12
April 8	Booth	Helping Hands Outreach	Holdingsford	4
April 8	Booth	MSAD	Faribault	40
April 12	Presentation	Senior Citizen's Center	Wadena	35
April 19	Booth	Senior Expo	Gaylord	48
April 20	Booth & Presentation	Inver Grove Heights Senior Center	Inver Grove Heights	48
April 20	Drop-In	Prairie River Home Care	Rochester	2
April 21	Presentation	Cherrywood Pointe	Forest Lake	13
April 21	Presentation	Prince of Peach	Hutchinson	14
April 23	Booth	OurLife Expo	Edina	100
April 28	Booth	Pope County Triad	Glenwood	18
April 29	Presentation	South Country Health Alliance	Owatonna	60
April 30	Booth	DHHS Family Event	Moorhead	10

2016 Minnesota Relay Outreach				
Date	Type of Outreach	Location	City	Participants
May 03	Presentation	DHHS Dispelling the Myths Training	St. Cloud	5
May 07	Booth	Anoka County Senior Expo	Ramsey	51
May 09	Presentation	St. Paul Community Education	St. Paul	12
May 10	Booth	Senior Expo	Mankato	81
May 11	Presentation	Heartland Apartments	Pine River	16
May 11	Booth	Mayo Clinic Health System	Springfield	15
May 12	Presentation	Brookside Senior Living	Montevideo	8
May 12	Presentation	Brookside Senior Living	Montevideo	1
May 12	Booth	Maplewood Community Center	Maplewood	25
May 17	Presentation	Shelly Senior Center	Shelly	11
May 26	Presentation	MN Nursing Home Social Workers Association	Rochester	6
May 26	Presentation	The Ramsey Seniors	Ramsey	23
June 6	Booth	Mille Lacs Health System	Onamia	8
June 9	Booth	LSS Senior Nutrition Bemidji	Bemidji	47
June 9	Presentation	Old Main Village	Mankato	8
June 13	Presentation	Ashby Senior Center	Ashby	29
June 13	Presentation	Community Center	Barrett	21
June 13	Presentation	Thorson Memorial Library	Elbow Lake	10
June 21	Presentation	Douglas County Senior Office	Alexandria	52
June 22	Presentation	Veteran's Affairs Health Care System	Minneapolis	14
June 23	Presentation	Tweeten Apartments	Spring Grove	7
June 24	Presentation	Senior Center	Slayton	47
July 13	Presentation	Silver Lake Pointe	Mounds View	12
July 19	Presentation	Arbor Lakes Commons	Maple Grove	10
July 21	Booth	Land of the Dancing Sky Agency Area on Aging	Warren	16
July 21	Presentation	Senior Center	Warren	22
July 26	Presentation	MN Assoc. of Financial Assistance Supervisors	Blue Earth	36
July 27	Presentation	Family Event sponsored by DHHS Moorhead	Moorhead	12
July 28	Presentation	Golden Horizon Assisted Living	Worthington	7

2016 Minnesota Relay Outreach				
Date	Type of Outreach	Location	City	Participants
August 25	In Office Training	Dept. of Human Services	St Cloud	1
August 26	In Home Training		Waite Park	1
August 04	Presentation	MN Home Care Association	Marshall	13
August 10	Presentation	Senior Center	Warren	22
August 16	Presentation	Elder Network	Rochester	15
August 17	Presentation	Senior Center	Hallock	24
August 20	Booth	Whitney Senior Center	Saint Cloud	37
August 24	Booth	Caregiver Connections Expo	Rochester	26
August 24	Meeting	Amy Swain Hearing Centers	Owatonna	2
September 12	Presentation	Elder Network	Alexandria	27
September 13	Booth	Eastside Neighborhood Services	Minneapolis	48
September 19	Presentation	Renville County Public Health	Olivia	14
September 20	Booth	Living at Home Block Nursing Program	Atwater	19
September 20	Booth	Land of the Dancing Sky AAA	Detroit Lakes	44
September 27	Booth	Senior Expo	Hutchinson	23
September 29	Booth	Living at Home Block Nursing Program	Foley	12
September 29	Presentation	Lincoln Park Assisted Living	Detroit Lakes	13
September 30	Presentation	MN Nursing Home Social Workers Association	St. Cloud	250
October 05	Booth	Holdingford Helping Hands	Holdingford	12
October 07	Booth	CentraCare	St. Cloud	18
October 10	Presentation	Rollag Senior Citizens Center	Hawley	22
October 12	Booth	Project Connect	Waite Park	7
October 17	Presentation	Brookside Senior Living	Montevideo	10
October 17	Booth	Trust, Inc.	Minneapolis	35
October 17	Presentation	St. Paul Community Education	St. Paul	10
October 19	Presentation	Shingle Creek Commons (CommonBond)	Minneapolis	5
October 19	Presentation	Kinglsey Commons	Minneapolis	12
October 19	Booth	Project Connect	Waite Park	10
October 19	Meeting	South Country Health Alliance	Owatonna	4

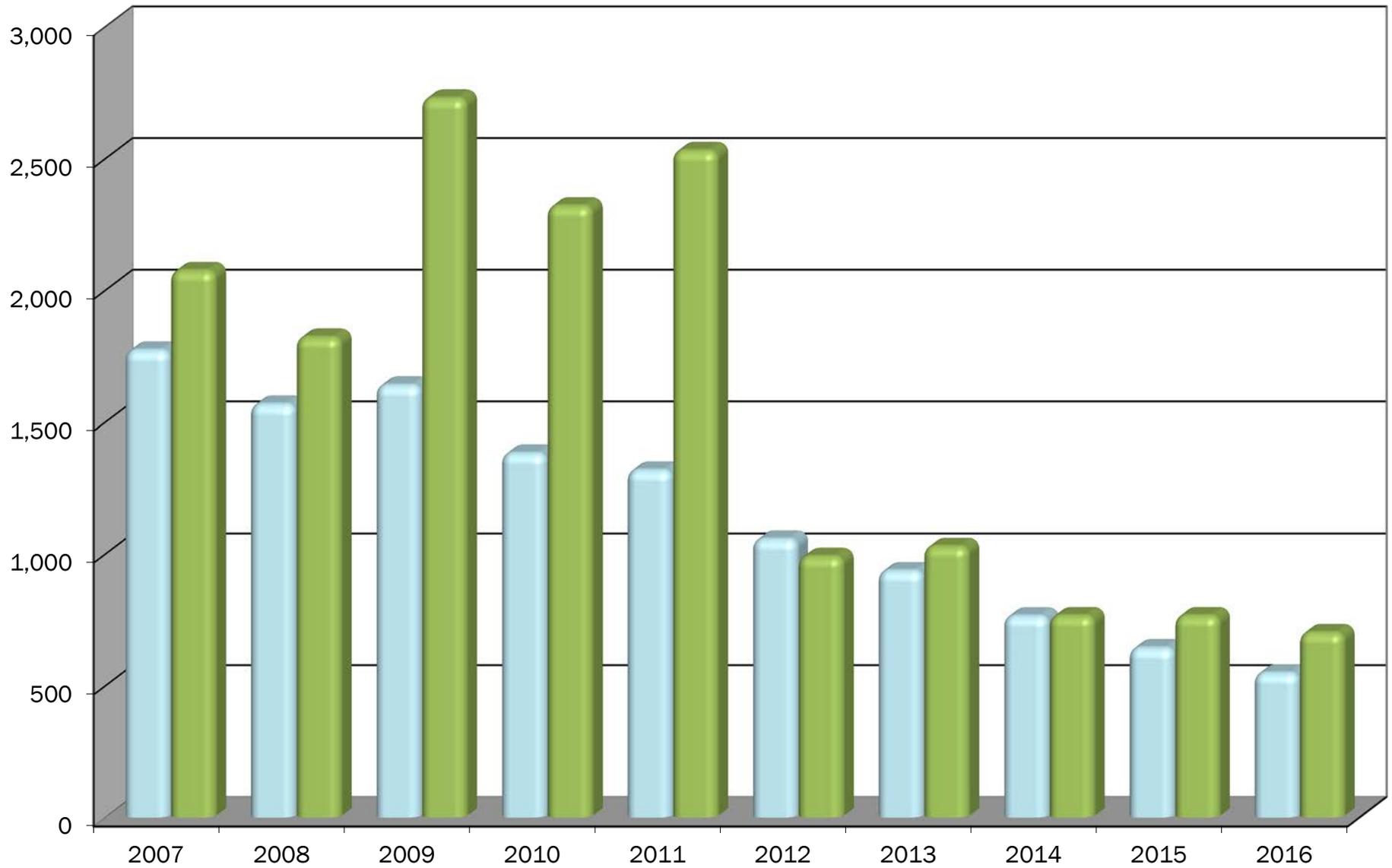
2016 Minnesota Relay Outreach				
Date	Type of Outreach	Location	City	Participants
October 20	Booth	Mille Lacs County Community & Veterans Services	Milaca	45
October 21	Booth	Alternative Senior Care	Sauk Centre	25
October 25	Presentation	Ecumen Bethany Community	Alexandria	15
October 29	Booth	Minnesota Hands and Voices	St. Paul	12
November 3	Presentation	Mower County Health & Human Services	Austin	16
November 7	Presentation	Linden Tree Circle Assisted Living	Moorhead	10
November 8	Presentation	Appletree Court, Senior Housing	Breckenridge	10
November 9	Booth	Stand Down	Mankato	43
November 14	Presentation	Renville County Human Services	Olivia	2
December 4	Presentation	Cochlear Implant Support Group	St. Paul	26
December 8	Presentation	DHHS Hearing Loss Support Group	Moorhead	3
December 12	Presentation	Lac Qui Parle County Family Services	Madison	1
December 15	Presentation	SW MN Private Industry Council	Marshall	22

# Appendix D

## TED Program Activities

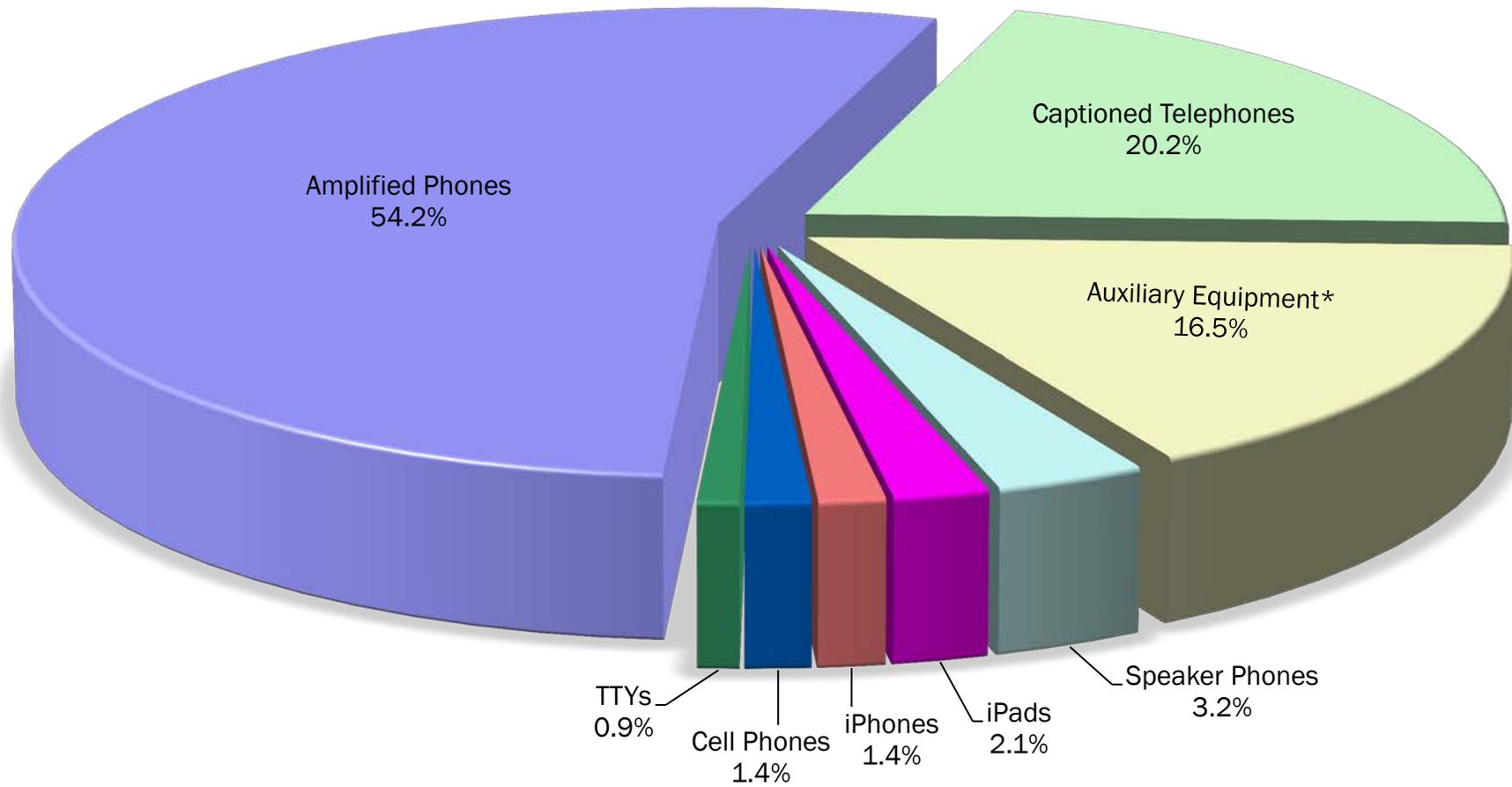
# 2007 - 2016 New TED Program Participants

■ New Program Participants Served ■ Devices Distributed to New Program Participants



# TED Program

## Types of Equipment Distributed in 2016



\*Auxillary equipment includes ring signalers, neck loops, headsets, pendants, switches, etc.

# Minnesotans Being Served by the TED Program in 2016

