Call if you can text if you can't
Guidelines for Interim Text-to-911 Deployment

Please Note: These guidelines are in the process of evolving as the interim text to 911 solutions mature. Each version of this document will be dated and numbered as it is revised and updated. Please check the State 911 Committee's Web site at www.michigan.gov/snc for the most current version. If there is information that should be added to the document, please notify Harriet Rennie-Brown at rennie-brownh@michigan.gov

What is SMS and interim text-to-911?

Full NG911 deployment is still in development and will likely be so for several years going into the future. The interim solution was developed as a way to allow 911 to be activated via SMS text messaging prior to full NG911 development. The interim text-to-911 solution utilizes the most commonly available texting technology, carrier native Short Message Service (SMS) texting. Carrier native SMS is that feature provided by the carrier, and ***not*** third party texting or messaging applications (apps) that may be installed on the mobile device.

The SMS interim text-to-911 service provides support for wireless subscribers to send 911 SMS text messages to PSAPs and for subscribers to receive text replies from PSAPs. Wireless customers with SMS service are able to send emergency SMS messages to a PSAP by using the single code "911" as the destination address of the SMS message.

Why is interim text-to-911 needed?

According to the National Organization on Disability (2007), there are an estimated 57 million individuals with a disability in the United States, which has a total population of more than 300 million. Over 37 million individuals are deaf, hard of hearing, or have a speech disability.

There are also countless wireless users who are not deaf or hard of hearing who use text as routine means of communication. Additionally, there may be circumstances, such as domestic violence or in-progress incidents in which a voice call is not practical or dangerous to make.

Is text-to-911 service mandatory?

Not at this time. However, under a consent agreement with APCO, NENA, the FCC, and the four major wireless carriers, the FCC is requiring that the carriers provide it within six months of a PSAP requesting it. Based on the current political atmosphere and discussions, it is likely that some mechanism such as industry best practices or some type of governmental mandate (for example DOJ or the FCC) will likely require that PSAPs provide it in the future, much like TTY access.

How does the Interim SMS text-to-911 work?

The interim solution will have three interface options; all three are explained in further detail later in this document. Two of the three options allow Public Safety entities that have not begun deploying IP-based 911 services the capability to receive text messages without making substantial changes to their existing equipment.

What will happen in areas that do not implement text-to-911?

All wireless carriers are required to send a “bounce back” message to anyone who attempts to use SMS text-to-911 prior to local service availability or when the service may be otherwise unavailable.

What is a “bounce back” message?

If text to 911 is not available, the subscriber will receive a text message back explaining that SMS text-to-911 service is not available and to contact 911 by another method, such as a voice call or relay service.

What are other causes of a “bounce back” message?

There are a number of reasons including:

- The 911 message was not sent as a SMS message.
- The PSAP has lost connectivity to its text-to-911 service.
- The PSAP text-to-911 service is in overload mode.

Will the Interim SMS text-to-911 work in roaming mode?

No, the Interim SMS text-to-911solution will not be supported when a subscriber is roaming due to SMS service limitations and the customer will receive the “bounce back” message. In the context of SMS text-to-911, roaming means the subscriber is receiving wireless service from any carrier other than his/her home carrier regardless of the subscriber’s current location.

How does my PSAP begin to implement text-to-911?

First, each PSAP will need to choose the **solution** (not necessarily the solution vendor Text Control Center [TCC]) with which they plan to receive text-to-911. The PSAP will notify the first wireless carrier they intend to implement text-to-911 with. Each wireless carrier works with a particular TCC by agreement, and all wireless carriers and TCC options will interface. In other words, a PSAP does not request service through the TCC, but which TCC the PSAP uses is determined by which wireless carrier they initiate text-to-911 services with first. It is suggested that you contact your wireless carriers first and then work with that carrier’s TCC for your PSAP.

TCCs are communications providers that will move text-to-911 sessions to PSAPs using one of the three interim solutions. Nationally, there is a small network of TCCs to interface between carrier-originated wireless 911 text users and the PSAP environment. The TCCs use some of the functions of core NG911 system design, with specialized functionality to fit the SMS text needs. The TCCs are in the process of establishing connectivity between each other to transport text messages so they are able to interoperate with each other. This will allow PSAPs to connect to multiple carriers through a single TCC.

What are my PSAP's text- to-911 Delivery Options?

There are three text-to-911 delivery options and there are certain prerequisites prior to requesting SMS through wireless carriers. Those options and prerequisites are as follows:

1) **ESInet/IP Network Service Interface**

   This option requires that the PSAP has IP-capable equipment and IP connectivity to the carrier's TCC provider. The text message can be delivered into either an i3 compliant Web-Portal or an i3 compliant Customer Premise Equipment (CPE) interface. The ALI will display the number associated with the text and information similar to but not the same as a Phase 1 wireless call does today. The prerequisites are:

- PSAPs may need to install dedicated, redundant IP circuits to the Text Control Center at their own expense or have an ESInet in place.
- PSAPs must either utilize an i3 compliant Web-Portal or i3 compliant CPE that is capable of receiving IP messages on standard (NENA i3 and ATIS J-STD-110 defined) IP interfaces (SIP/MSRP).
- CPE call taker workstations must have integrated text handling software if choosing the i3 CPE solution.
- PSAP is responsible for CPE equipment (upgrades/maintenance/technical support), firewall configurations and text call taker training.
- PSAP must provide point of contact for CPE and IP/ESInet customer support.
- Will need to work with CPE and CAD vendor to see about transfer of data from texts to CAD.

2) **Interim Solution Web-Portal**

   This option requires that a PSAP have IP-based access, either through a private IP network or over the public Internet. A separate web portal would be opened at the beginning of the shift and would need to be monitored for incoming text messages.

   This solution requires a monitor separate from the CPE equipment for the web portal. The ALI will display the number associated with the text and information similar to but not the same as a Phase 1 wireless caller today. The prerequisites are:

- PSAP must have public Internet or private IP network connectivity into workstations readily available.
- PSAP workstations must have web browser capability (IE8 or higher, Chrome or Firefox).
- PSAP is responsible for CPE equipment (upgrades/maintenance/technical support) and Firewall configuration (if applicable).

- Text is not delivered to 911 directly; it is delivered through a web server via the Internet or a private IP network.

- MIS/RMS and PSAP logging/recording functions are not active during the text session, and data is obtained from the TCC separately.

- PSAP must provide point of contact to the TCC for customer support.
- PSAP needs to be logged in to the Web Portal in order to receive text messages. It will be important that the telecommunicators know how the portals work and the PSAP establish internal policies for monitoring connectivity.

3) Text-to-TTY/TDD

This option allows the PSAP to receive incoming text messages via E911 and their current TTY/TDD system. The text would display on the 911 equipment similar to a TTY call. The ALI display will show the caller's text number in the location where the wireless caller's Call Back Number is displayed on voice calls, and the x/y coordinates of the cell site or the sector centroid associated with the texting device.

The text messages would be delivered via the existing 911 trunks, which would mean that once a text came in via this method, the 911 trunk over which it arrived would be tied up and unable to accept another voice call or text session until the PSAP ends the session. Text sessions will likely tie up trunks for a longer period of time than a normal 911 call. The prerequisites are:

- SMS converted to TTY (Baudot code) before sent to Public Safety 911 network.

- TTY messages sent to E911 Selective Router for delivery to the PSAP TTY call station.

- PSAP should bid ALI with ESRK/pANI for coarse location (e.g. cell site and sector centroid) related to the subscriber's call.

- PSAP is responsible for CPE equipment (upgrades/maintenance/technical support) and call taker training, if required.

- PSAP must provide point of contact for CPE customer support.

- SMS text as TTY messages are delivered directly to the PSAP, and MIS and recording capability are included if TTY functions are integrated with CPE.

- 'Garbling' with SMS sent as TTY is expected to be no different than TTY at a PSAP today.

- Proper setup, prior to deployment, is required in the interconnecting networks and elements, and at the PSAP to minimize Bit Error Rate.

- Observed PSAP considerations to date include: Local TTY terminal modem settings, volume settings, PBX configurations, CPE configurations, etc.

Is one of the three above methods preferred?

This is up to the needs of the PSAP. Each of the three methods have distinct benefits. The PSAP will need to determine the best fit for their operation. Items to consider when looking at each of the methods are listed below.

1) Direct IP – The connectivity allows call takers to have one seamless location for all types of call processing that includes voice, text and TTY. Things to consider when determining if this is the best option for your PSAP:

    a. CPE Vendor must be consulted to determine if the CPE has a text integration platform and what the costs associated to upgrade will be.
    b. Cost associated with integration, circuits, and if you will be receiving both text-TO-911 and text-FROM-911.
    c. What are the functionality differences between the Direct IP and Web-Portal methods; including but not limited to transfer, conferencing, barge capabilities, rebid, analytics, text session recordings, the ability to see other text sessions, etc.
    d. Can CPE export the data to your CAD
    e. Verify with PSAP IT Security that the texting solution will meet all local security requirements

2) Web-Portal – This method has a separate screen for taking the text-to-911 messages. Things to consider when determining if this is the best option for your PSAP:

    a. Costs associated with cutover and on-going services being provided.
    b. Do they offer both text-TO-911 and text-FROM-911?
    c. What type of connectivity do they need; public internet or IP circuits?
    d. What functionality differences does their Web Client offer, including but not limited to transfer, conferencing, barge capabilities, rebid, analytics, text session recordings, the ability to see other text sessions, etc.
    e. Can this be placed on a CAD terminal or does there need to be a separate PC to access the web portal?
        a. If this cannot be placed on a CAD terminal can the data be transferred to CAD?
    f. Verify with PSAP IT Security that the texting solution will meet all local security requirements

3) Text-to-TTY – This method utilizes your 911 trunks to receive the text messages. There are issues with baudot conversion when using this method. There are some characters lost in the text conversion process. Things to consider when determining if this is the best option for you PSAP:

    a. This method is typically used when internet connectivity is not available in the PSAP.
    b. Costs associated with cutover and the services being provided.
    c. What are the functionality differences associated with using text-to-TTY? Items to ask about include but are not limited to transfer, conferencing, barge capabilities, rebid, analytics, text session recordings, the ability to see other

text sessions, can you use both text-TO-TTY and text-FROM-TTY in this environment, etc.

How do I know if my PSAP has met requisites for connectivity for text-to-911?

There is a standard checklist that goes into detail on the SNC web site. The link is:

http://www.michigan.gov/documents/msp/NENA_Carrier_Readiness_SMS_911_Questionnaire_IPG_Appendix_C_458142_7.pdf

A list specific to each provider can be found at the SNC web site:

www.michigan.gov/snc

How do I request text-to-911?

After you have decided which option you are going to use for your system's deployment, you will need to take steps with the wireless carrier to enable your PSAP to become text-to-911 ready. You will need to send a letter to each wireless carrier in your area to request text-to-911. A template letter is included as Attachment A. At this time, the four major carriers, Sprint, T-Mobile, Verizon, and AT&T are under the consent agreement with the FCC to provide text-to-911.

If you have other providers in your service area, you will need to check with them to find out if they can provide text-to-911. The PSAP would then send the requests to each carrier you are requesting service from. You may want to consider doing this via registered mail in order to establish a receipt date as a basis for the implementation process.

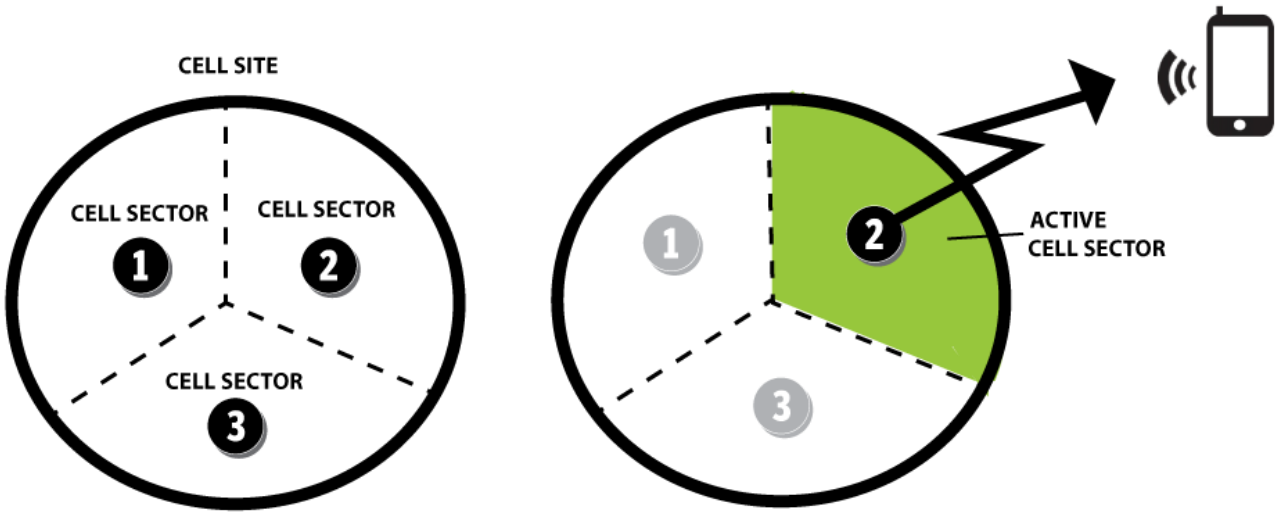
Do I have to request all the carriers in my area at the same time?

No, you may time your requests based on your individual PSAP's and community's needs. Remember, the TCC your PSAP will be participating is based on the first carrier implemented with both the IP and Web based interim solutions.

Will we receive location information on text-to-911 calls?

Minimally, your PSAP will receive a location that is similar to, but slightly better than Phase I information. The location delivered for text-to-911 sessions is the cell sector centroid. Cellular towers typically have a 12.56 mile radius. There are three cell sectors for every tower. This cuts the tower direction into a third. The Phase I location delivered in a wireless voice call will deliver the tower address along with the cell sector. That narrows down the caller's location from a 12.56 mile radius to a 3.14 mile area from the tower. In a text

message, the location is not the tower address but the latitude and longitude of the center of the cell sector. This does narrow down the location of the texter much closer than that of the tower itself, however it is not as accurate as a Phase II location. See the diagram below:



Consult with the individual wireless carriers and TCCs about additional location information that may be available. As with all 911 calls, information verification will be important in text-to-911.

There are multiple PSAPs in my jurisdiction. Can we divide text-to-911 geographically?

While it is currently a PSAP's choice whether to accept text-to-911 calls or not, NENA guidelines recommend if there are multiple PSAPs within a service district (in Michigan that would be **by county or Wayne County Service District**) that either only one PSAP (or a several select few) process ***ALL*** the text-to-911 calls or all the PSAPs in the county process ***ALL*** text to 911. Text-to-911 should not be deployed on a sporadic basis across a county.

The location-based routing of SMS text-to-911 sessions parallels that of wireless Phase I, that is, based on cell site and sector centroid. Because cell sector coverage does not always follow PSAP jurisdictional or county boundaries, SMS text-to-911 cannot be limited to these geographic-oriented boundaries. Consumers who wish to use SMS text-to-911 must have some clear, understandable idea of where they can and cannot utilize the service. However, please bear in mind, a 911 text may not route in the same manner as regular wireless 911 call. You should consult with each wireless provider during deployment in regard to specific routing details.

For various reasons, it is believed that county-oriented service is preferable at the onset of deployment - either to a single PSAP in multiple PSAP counties, or to all PSAPs in a county. PSAP-by-PSAP implementation within a county can be confusing to the consumer, due to lack of service area clarity. It is the recommendation of the SNC's Emerging Technology Subcommittee that deployments be done on a county-wide basis. If a single PSAP serves multiple counties, then all counties served by that PSAP should be deployed.

How do I tell my citizens they can text to 911?

Each 911 system should plan communication/public education of their community in a manner that meets its deployment needs and schedule.

1. Some may opt to deploy one carrier at a time and advise the public of each deployment.
2. Some may not release information until all four major carriers are deployed in their service area.
3. Some may wait for a period of time after deployment and delay making the announcement for internal or policy reasons.
4. Local media announcements
    - Paper, web, television, social media
5. Local school programs
6. The deaf and hard of hearing community in your area
    - Schools
    - Governmental Agencies
7. Local Governments
    - Township board meetings
    - City council meetings
    - Social media
    - Local government cable television
    -

No matter how or when you decide to educate your community's public, public education is **very** important in deploying text-to-911 for a number of reasons, including:

1. It does not provide location service in the same level that E911 does.
2. It is not real time.
3. It should only be used when a voice call cannot be made.
4. Only the carriers that have been deployed in the PSAP's service area will work for the area the PSAP covers, which makes it very important for citizens to know the limitations of their text capabilities.
5. A person initiating text-to-911 in an area that has not deployed the service will receive a bounce back message telling them to make a voice call to 911.
6. It is important for people who use smart phones to recognize that text-to-911 will not work on messaging applications that may "look" like SMS texting, but are actually "over the top" applications using features that are not SMS texting, such iPhone messaging.

7. Because the features and applications can vary significantly between devices, consumers should be made aware that they are responsible for knowing what the limitations and functions of their individual devices are.

PSAP directors and managers will need to work closely with their neighboring PSAPs to establish systems for relaying out-of-jurisdiction information that may be received via text-to-911.

Are there additional resources available to me to help me with text-to-911?

National NENA has made resources available to PSAPs to assist them in educating citizens about text-to-911. Visit: http://www.nena.org/?page=textresources

The FCC also has resources and information on text-to-911 education at:
http://www.fcc.gov/text-to-911

The National 911 Office at NHTSA has a number of text-to-911 resources at their web site:
http://www.911.gov/911-issues/texting911.html

Will my PSAP be able to transfer text-to-911 calls to another PSAP?

Transfer capabilities are available, but are generally only available when using the same TCC as another PSAP. TCC to TCC transfer capabilities are being worked on, but are not available at this time. Changing technology may allow for this function in the future. It is important to work with the PSAPs in your area to establish protocols for relaying text-to-911 information.

Can a PSAP initiate an outgoing text through its portal to text a 911 texter back?

Yes. Some of the TCCs are now providing outgoing text. Due to the connectivity necessary for this type of service, there is generally a cost associated with it. You will need to discuss this option with the TCCs to see which options are right for your PSAP.

How does text-to-911 present itself at the PSAP?

Text-to-911 will come into the PSAP similar to a Phase I call, but the latitude/longitude location delivered will be the cell sector centroid (refer to the diagram on page 6). Phase 2 information is not currently available, so it will be crucial for 911 operators to ascertain accurate location information. A more precise location may be available, but it is wireless carrier/vendor implementation specific. Therefore you will need to discuss this with the wireless carrier and TCC prior to implementation.

Will my PSAP receive other data such as pictures with text messages?

Possibly. The current solution to receive text-to-911 is an interim solution only and pictures and other data cannot be transmitted to the PSAP via SMS. However, some wireless carrier are providing links within the message that when copies and pasted into another browser window will provide a picture and sometimes enhanced location information.

The interim solution was designed to only process text-to-911 messages via carrier native SMS. This means that photos, videos, or multiple recipients for a text message are not supported as those cause the message to be sent as a Multimedia Messaging Service (MMS) message and the current solutions do not support MMS. If a MMS message is sent to 911, the sender will receive a bounce back message directing them to place a voice call to 911.

What if the caller (texter) uses texting lingo that the 911 operator doesn't understand?

Each PSAP will need to put policies and procedures in place that fit their individual circumstances and operating processes. One option may be to have a standard introduction message response requesting that plain language be used to all extents possible. The simplest solution if this occurs is to send a clarifying message to the recipient asking them to speak using full words.

What if we need to do EMD/pre-arrival instructions via text?

Because the circumstances of any text-to-911 will vary and the use of EMD/pre-arrival instructions may differ accordingly, each PSAP will need to determine how to manage text-to-911 EMD within its circumstances. It is recommended that you consult your EMD provider, your Medical Control Board as well as your risk manager as part of implementing your local policy on EMD/pre-arrival application and protocols. Some EMD providers are currently looking at text versions for their EMD.

Will text-to-911 work on a Lifeline phone?

It depends on the services they have on the phone. If there is no text service on the phone, there is no text-to-911. This applies to all wireless phones.

Can a non-initialized cell phone text-to-911?

No, if the phone is inactive and does not have a data or texting plan, it cannot text-to- 911.

What do I do if someone abuses text-to-911?

As with voice callers, once the perpetrator has been identified, refer the issue to your jurisdiction's prosecutor for review under MCL 484.1605.
Depending on the texting solution it may be possible to block incoming texts from specific numbers. This is something that will have to be reviewed by local legal counsel and handled as per local agency policy based off of legal counsel review.

Can text-to-911 sessions be recorded?

You will need to check with your logging recorder vendor to see if they provide this type of logging. If you choose to use the direct IP-based or Web-Portal methods of connectivity, the TCCs, West Safety Systems, TCS and INdigital will store the call/transaction dialog/sessions. All of the Web-Portal solutions have access to pull reports, including individual text sessions for FOIA and QA purposes. In the event you do not have direct access you can request the information directly through the TCC. The TCCs also time and date stamp the session.

How long will the session dialogs be held by the TCCs?

Currently, there are no restrictions on the length of time the text will be kept. At this point the amount of data is very small. In the future, as the TCCs continue this practice and the data storage space required becomes larger, the TCCs may decide to limit the storage time.

Each TCC may have different systems that allow each PSAP to search, view, download, and store to local storage. Check with the TCCs during your deployment process for details.

Will there be fees or charges for making the request?

There may be fees associated with the deployment and ongoing services. You will need to contact the TCCs or more information.

Is my PSAP going to see a significant increase in workload with text-to-911?

No. To date, those PSAPs who have deployed text-to-911 have reported being underwhelmed with text sessions. So much so, that PSAPs typically will build in a daily testing protocol for their staff to stay fresh using the technology.

Is there any follow-up that needs to be done once I have deployed text-to-911?

Routine testing of all systems is recommended for all components of 911 service. While not mandatory, the FCC would like all service areas that are providing text-to-911 to file their status when its deployments are completed. The link for filing can be located on the web at:

https://www.fcc.gov/general/psap-text-911-readiness-and-certification-form

Will my PSAP be exposed to liability if we do or don't accept text-to-911?

Prior to deciding to deploy text-to-911, the PSAP and the county 911 coordinator should thoroughly explain and discuss text-to-911 with their jurisdiction's legal counsel and risk managers in regards to liability issues. The pertinent section on liability in the 911 statute may be found at: MCL 484.1604.

Is there additional funding available for providing text-to-911 to my PSAP's service area?

Currently in Michigan our 911 fees and surcharges, both state and local, already apply to any device that can access 911. Texts are made on wireless devices that can access 911 and those devices are already paying both state and local 911 fees; there is no additional funding available for text-to-911. Fortunately, costs incurred that are directly related to deploying text-to-911 are allowable expenses of both state and local 911 revenues.

Additionally, other than training staff, public education, and possible software upgrades to existing equipment, costs should be low.

How do I find out what other counties in Michigan are doing in regard to text-to-911?

There is information posted on the SNC web site with information about text-to-911 deployments across the state, they can be found in the map at: http://www.michigan.gov/documents/msp/Map_of_text-to-911_plans_2014_464864_7.pdf . Your assistance in providing information about your text-to-911 deployments will be greatly appreciated.

Acknowledgements:

Resource materials from NENA National and the FCC were utilized throughout this document, their contribution and information is greatly appreciated.

Before implementation of a Text-to-911 solution PSAPs should have local policies written that cover the following:

- Foreign Language Texts
    - How will a text from a foreign writer be handled
        - Use Google Translate type program
        - Call the subject and transfer to Language Line type service
- FOIA & Subpoena Requests
    - PSAPs need to figure out how FOIA and Subpoenas will be handled
- Statistics
    - The texts should be included as a statistic for any monthly or yearly report
    - Things a PSAP may want to include in the Text-to-911 stats:
        - Does PSAP count every incoming message or every texting session
        - How many texts received
        - How many unique texts received
        - Number of actual requests for assistance
        - Number of false texts
        - Length of time handling texts
        - Length of time between texts in sessions
        - Length of time on each text session
        - Length of time between texting sessions
        - Types of requests
        - Phone numbers texting
            - This will help track abusers
        - Cities texts received from
- Blocking Numbers