

# The “State of 911” Webinar Series

National 911 Program  
July 9, 2014  
12:00 PM EDT

**911**.gov

- The National 911 Program designed this webinar series to provide a unique combination of useful tools, information about Federal and State participation in the NG911 process, and real experiences from early adopters about the NG911 transition process underway in regions around the country
- Webinars will be held bimonthly and consist of presentations from a Federal-level 911 stakeholder and state-level 911 stakeholder, each followed by a 10 minute question and answer period
- For more information on future events, past webinar recordings and presentations, and to learn more about the National 911 Program, please visit [www.911.gov](http://www.911.gov)

## **"State of 911" Webinar Series**

- 12:00 – 12:20 PM
  - Tim May, E911/NG911 Projects Manager, FCC Public Safety and Homeland Security Bureau
    - Tim’s presentation will feature an update on key 911 initiatives
- 12:20 – 12:30 PM
  - Q&A
- 12:30 – 12:50 PM
  - Maria Jacques, Director, State of Maine Emergency Services Communications Bureau
    - Maria will present on implementing a statewide text-to-911 network in Maine
- 12:50 – 1:00 PM
  - Q&A

# Agenda



Federal Communications Commission  
Public Safety and Homeland Security Bureau



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# Update on FCC 911/NG911 Initiatives

State of 911 Webinar  
National 911 Program  
July 9, 2014

Timothy May  
Policy & Licensing Division  
[timothy.may@fcc.gov](mailto:timothy.may@fcc.gov)  
202-418-1463



# Overview



- Cybersecurity
- 911 Transparency & Reliability
- IP Transition
- Facilitating Nationwide Deployment of NG911
  - Develop Enhanced Location Accuracy Mechanisms
  - Enable Text-to-911
  - Develop an NG911 Funding Model



# Cybersecurity



## A Core FCC Mission:

Ensure that the Nation's Communications Infrastructure is Secure and Reliable

NIST Cyber Framework for Improving Critical Infrastructure Cybersecurity  
(February 2014)

FCC Three Pillars  
(June 2014)

Provide organizations with structure to organize and manage cyber security risk in their infrastructure

DHS Cyber Resilience Review

Information Sharing and Situational Awareness

Cybersecurity Risk Management and Best Practices

Investment in Innovation and Professional Development



# 911 Transparency & Reliability



## December 2013 – Report and Order

- Adopted in response to preventable 911 outages during **June 2012 derecho storm**
- **Covered 911 Service Providers** must take **reasonable measures** to provide reliable service, as evidenced by an **annual certification** of compliance with best practices or reasonable alternative measures.
  - **Critical 911 circuit diversity**
  - **Central office backup power**
  - **Diverse network monitoring**
- If a service provider relies on alternative measures or claims that a portion of the certification is not applicable to its network, it **must provide a brief explanation**.
- PSHSB has delegated authority to **administer certification process, develop and revise forms**, review certification information, and order remedial action if necessary.



# IP Transition



- Transitioning legacy communications into all-IP environment will impact all emergency communications and set the foundation to enabling NG911 applications
- January 2014: *IP Transition Order*
  - The FCC issued an order which called for experiments that would simulate how communications operate in an all-IP environment
  - Experiments to begin in 2014
    - <http://www.fcc.gov/document/fcc-oks-voluntary-experiments-testing-impact-technology-transitions-0>
- April 17-18, 2014: Workshop on Technology Transitions and Public Safety - <http://www.fcc.gov/events/technology-transitions-and-public-safety>
  - Explored the extent to which 911 networks will be affected by the IP Transition
  - Discussed the impact of the transition on public safety day-to-day operations; preparedness and response to a physical disaster; and preparedness and response to a cyber attack
    - <http://www.fcc.gov/events/technology-transitions-and-public-safety>





# Facilitating Nationwide Deployment of NG911



## What is Needed to Complete the NG911 Transition?

- **Effective location accuracy determination for all NG911 applications**
- **Enhanced consumer and PSAP capabilities to support delivery and use of multimedia information (voice, text, data, photos, and videos)**
- **Adequate and sustainable funding**
- Comprehensive and consistent technical standards to ensure functionality, interoperability, and security of all system elements
- Workable framework for NG911 governance



# Facilitate NG911: Enhanced Location



## Current Phase II E911 Requirements

The Commission's Enhanced 911 (E911) location accuracy rules require two essential pieces of information

- Caller's phone number
- Caller's approximate location

Section 20.18 of the Commission's rules requires CMRS providers to deliver Phase II E911 location information based on the following accuracy and reliability standards

- Network-based technologies:  
100 m for 67 percent of calls, 300 m for 90 percent of calls
- Handset-based technologies:  
50 m for 67 percent of calls, 150 m for 90 percent of calls

These requirements are being phased in over an 8-year period that will conclude in 2019, with interim benchmarks

- Compliance is measured on a per-PSAP or per-county basis

Compliance is currently based on outdoor measurements only



# Facilitate NG911: Enhanced Location



## Trends in E911 Calls

- There have been considerable changes in wireless usage since the Commission last made significant revisions to its location accuracy rules in 2010:
  - ⤴ Increase in number of wireless callers (now upwards of 326 million)
  - ⤴ Increase in the number of wireless-only callers (now about 40% of American homes)
  - ⤴ Increase in wireless calls from indoor environments
  - ⤴ Increase in number of wireless calls to 911 (for some jurisdictions, 70% or more of all such calls)
- Recent data suggests a potential decline in the delivery of E911 Phase II information



# Facilitate NG911: Enhanced Location



## CSRIC Indoor Location Test Bed

- In 2012, the Commission tasked CSRIC III with evaluating technologies for locating wireless callers in indoor environments.
- Conducted over winter 2012-2013 in the San Francisco Bay Area, CSRIC tested location technologies in a variety of buildings of differing heights and construction materials.
- The test bed demonstrated that technologies exist that can provide horizontal location information for indoor calls at a comparable level of accuracy as for outdoor calls.
  - One vendor was able to provide relatively accurate vertical location information



# Facilitate NG911: Enhanced Location



## CSRIC III Test Bed Results by Technology

Morphology	Technology					
	NextNav		Polaris		Qualcomm	
<b>Percent of Calls</b>	67%	90%	67%	90%	67%	90%
<b>Dense Urban</b>	57m	102m	117m	400m	156m	268m
<b>Urban</b>	63m	141m	198m	448m	227m	449m
<b>Suburban</b>	29m	53m	232m	421m	75m	205m
<b>Rural</b>	28m	45m	576m	3005.1m	48m	210m

- June 18, 2014: CSRIC IV issued a report with recommendations on methodologies for a permanent indoor location test bed
- <http://www.fcc.gov/encyclopedia/communications-security-reliability-and-interoperability-council-iv>



# Facilitate NG911: Enhanced Location



February 21, 2014: Commission adopted a *Third Further Notice of Proposed Rulemaking* - <http://www.fcc.gov/document/proposes-new-indoor-requirements-and-revisions-existing-e911-rules>

- Proposed to revise its regulatory framework to require delivery of accurate location information to PSAPs for wireless 911 calls placed from indoors
- Proposed specific measures to ensure accurate indoor location information, including both near- and long-term components
- Examined additional means to strengthen the Commission's existing location accuracy rules for *all* calls to 911, including providing more timely, accurate, and actionable location information
- Comments were due May 12 and **reply comment deadline has been extended to July 14, 2014**



# Facilitate NG911: Enhanced Location



## Location Accuracy 3<sup>rd</sup> FNPRM

- Key objectives for the proposed indoor location requirements:
  - Make indoor location as widely available as technically and economically feasible;
  - Help the FCC and other stakeholders monitor performance and compliance; and
  - Be technology-neutral, as well as cost-efficient and easy to understand and administer
- The Commission intends to ensure that all wireless calls to 911 receive the support they need in times of emergency



# Facilitate NG911: Enhanced Location



## Location Accuracy 3<sup>rd</sup> FNPRM: Proposed Indoor Requirements

<b>Indoor Parameter</b>	<b>Deadline</b>	<b>Accuracy</b>	<b>Percent of Calls</b>
Horizontal (x-y)	Within 2 years of Effective Date of Rule	50 meters	67%
	Within 5 years of Effective Date of Rule	50 meters	80%
Vertical (z-axis)	Within 3 years of Effective Date of Rule	3 meters	67%
	Within 5 years of Effective Date of Rule	3 meters	80%





# Facilitate NG911: Enhanced Location



## Location Accuracy 3<sup>rd</sup> FNPRM Proposed Indoor Requirements

- CMRS providers would demonstrate compliance through participation in an independently administered test bed program
- As with our existing E911 location rules, CMRS providers would be required to meet these indoor accuracy requirements at either the county or PSAP geographic level
- PSAPs would be entitled to seek Commission enforcement of these requirements within their jurisdictions, but only if they have implemented location bid/re-bid policies that are designed to obtain all 911 location information made available by CMRS providers pursuant to our rules



# Facilitate NG911: Enhanced Location



## Location Accuracy 3<sup>rd</sup> FNPRM Long Term Indoor Requirements

- Ultimately, indoor location accuracy requirements for wireless E911 should include “dispatchable address” information, including building address, specific floor and suite/apartment number
- The 3<sup>rd</sup> FNPRM sought comment on ways to leverage indoor network access technologies and commercial indoor location technologies that CMRS providers already, or will, deploy



# Facilitate NG911: Enhanced Location



3<sup>rd</sup> FNPRM sought comment on additional proposals to strengthen E911 rules:

- Establish a 30-second maximum time period allowed for a CMRS provider to generate a location fix
- Standardize content and process for delivery of confidence and uncertainty data
- Accelerate the timeframe for replacing current accuracy requirements with a unitary requirement
- Require CMRS providers to inform PSAPs of the specific location technology or technologies generating the location information for each 911 call
- Require CMRS providers to periodically report E911 Phase II call tracking information, indicating what percentage of wireless 911 calls include Phase II location information
- Establish a separate process by which PSAPs or state 911 administrators could raise complaints or concerns regarding the provision of E911 service
- Require CMRS providers to conduct periodic compliance testing



# Facilitate NG911: Text-to-911



- December 2012: Carrier-APCO-NENA Voluntary Commitment



- June 30, 2013: Automatic Bounce-Back Message capability
- July 2013: Began filing quarterly progress reports to FCC
- May 15, 2014: Carrier deadline to achieve network-wide text-to-911 capability – all four carriers met their commitment
- Ongoing commitment to consumer education efforts



# Facilitate NG911: Text-to-911



- December 2012: Further Notice of Proposed Rulemaking
- May 2013: Bounce-Back Report & Order
  - Requires covered text providers to issue an automatic “bounce-back” message to subscribers who attempt to text 911 in an area where the local PSAP does not support text-to-911
  - Covered text providers must support this capability as of October 29, 2013
  - Sample bounce-back message:
    - *There is no text-to-911 service available. Make a voice call to 911 or use another means to contact emergency services.*
- September 2013: Bounce-Back Order on Reconsideration
  - Clarified that covered text providers were not responsible for the bounce-back message for customers roaming on their networks
- January 30, 2014: Policy Statement and Second Further Notice of Proposed Rulemaking
  - <http://www.fcc.gov/document/text-911-policy-statement-and-second-fnprm>



# Facilitate NG911: Text-to-911



## January 2014 Policy Statement

- Commission believes that all CMRS carriers and providers that enable a consumer to send text messages using numbers from the North American Numbering Plan should support text-to-911 capabilities
- Welcomes voluntary agreements from other providers not party to Carrier-APCO-NENA Agreement, as long as they develop implementation details in a manner that would allow relevant industry bodies, 911 and public safety authorities, and regulatory agencies to monitor their progress
- Commission intends to take a technologically neutral approach to adoption of any rules
- Expects that parties to Carrier-APCO-NENA Voluntary Commitment will fulfill their commitments by May 15, 2014



# Facilitate NG911: Text-to-911



## January 2014 Second Further Notice

- Sought comment on a variety of text-to-911 issues:
  - Proposal that text-to-911 service should be implemented no later than Dec. 31, 2014 and be available within a reasonable time after a PSAP requests service (not to exceed 6 months)
  - Application of text-to-911 rules to “over the top” (OTT) text messaging providers
  - Implementation for OTT providers
  - Roaming and routing issues
  - Location accuracy for text
- Comment/Reply Comment record closed May 5, 2014



# Text-to-911 Deployments

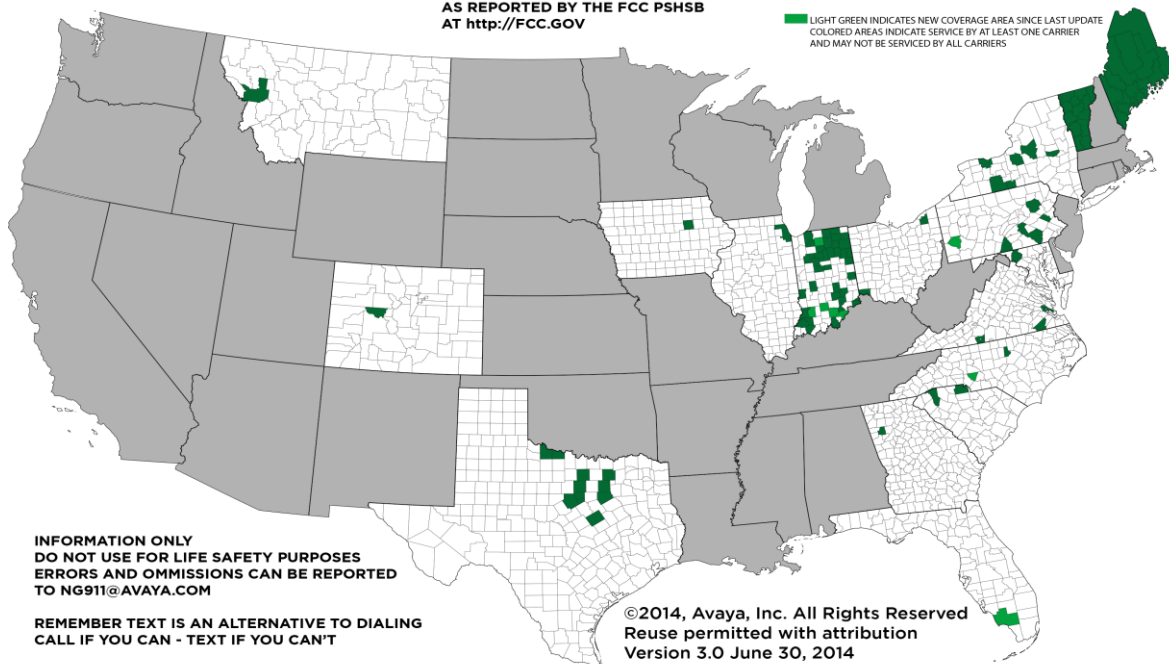
[[http://transition.fcc.gov/pshs/911/Text\\_911\\_Deployments.pdf](http://transition.fcc.gov/pshs/911/Text_911_Deployments.pdf)]



## TEXT to 9-1-1 DEPLOYMENTS IN NORTH AMERICA CURRENT AS OF JUNE 30, 2014

AS REPORTED BY THE FCC PSHSB  
AT <http://FCC.GOV>

LIGHT GREEN INDICATES NEW COVERAGE AREA SINCE LAST UPDATE  
COLORED AREAS INDICATE SERVICE BY AT LEAST ONE CARRIER  
AND MAY NOT BE SERVICED BY ALL CARRIERS



Adopters	Total
States	17
Counties	110
PSAPs	102

Delivery Method	Total PSAPs
Direct IP	41
Web Browser	50
SMS to TTY	11





# Facilitate NG911: Text-to-911



## CSRIC IV Working Group 1 - June 2014 Reports

- PSAP Request for Service for Text-to-911
  - Recommends best practices that wireless carriers, PSAPs, and third party service providers should follow in provisioning PSAP requests for text-to-911 service
  - Best practices include testing and trialing, operational procedures, and security requirements
- Investigation into Location Improvements for Text-to-911
  - Assesses the technical feasibility for wireless carriers to include E911 Phase 2 location accuracy and information in texts sent to 911 and makes recommendations for including enhanced location information in texts to 911
- Reports available at: <http://www.fcc.gov/encyclopedia/communications-security-reliability-and-interoperability-council-iv>



# Facilitate NG911: Developing a Funding Model for NG911



- Annual report on the collection and distribution of 911 and E911 fees and charges by states, the District of Columbia, U.S. territories, and Indian territories
  - Data collected pursuant to the New and Emerging Technologies 911 Improvement Act of 2008 (NET 911 Act)
  - Fifth Report (for 2012) released December 31, 2013
  - [http://transition.fcc.gov/pshs/911/Net%20911/NET\\_911\\_Act\\_Report\\_to\\_Congress\\_123113.pdf](http://transition.fcc.gov/pshs/911/Net%20911/NET_911_Act_Report_to_Congress_123113.pdf)
- How did states use 911 fees in 2012 to address NG911 costs?
  - “Forty-four respondents indicated that their 911 funding mechanism allows for the distribution of 911 funds for NG911 implementation” - *Fifth Annual NET 911 Fee Report* at ¶ 23
  - “Of the states that indicated that their funding mechanism allows for NG911 funding, twenty-four states, the District of Columbia, and Puerto Rico indicated that they used 911 funds for NG911 programs in 2012.” - *Fifth Annual NET 911 Fee Report* at ¶ 24
- 6<sup>th</sup> Report: Data collection underway; due to Congress by December 31, 2014
- Blue Ribbon Panel on 911 Funding
  - <http://911.gov/pdf/BlueRibbonPanel-911Funding-report-dec2013.pdf>



# Summary



The Commission is focused on:

- Ensuring current networks are secure and reliable
- Protecting access to and maintaining oversight of emergency communications networks for consumers and public safety during and after the transition from TDM-based networks to IP-based networks
- Facilitating the deployment of Next Generation 911 systems, including enhancing location accuracy, implementing text-to-911, and identifying sustainable funding mechanisms



# Questions



[timothy.may@fcc.gov](mailto:timothy.may@fcc.gov)

202-418-1463

[www.fcc.gov](http://www.fcc.gov)



Please use the "Raise Hand" feature to ask a question.

**Questions**

# Maine's SMS to 911 Journey

Presented by: Maria Prosser Jacques, ENP, Director  
Maine Public Utilities Commission  
Emergency Services Communication Bureau

[www.maine911.com](http://www.maine911.com)



# Maine's SMS to 911 Journey

- About Maine's 911 system
- Why Maine chose to be an Early Adopter
- Selection of Interface
- Getting Ready Process
- PSAP Training
- Going Live: Public Education Strategy
- Operational Experience
- What's Next
- Questions



# About Maine's 911 System

- Statewide 911 Service beginning in 2001
  - Staff of 9
  - Advisory Council
- 26 PSAPs
  - 4 state
  - 13 County
  - 9 Municipal/Regional
- Currently in the final month of an end-to-end NG911 deployment





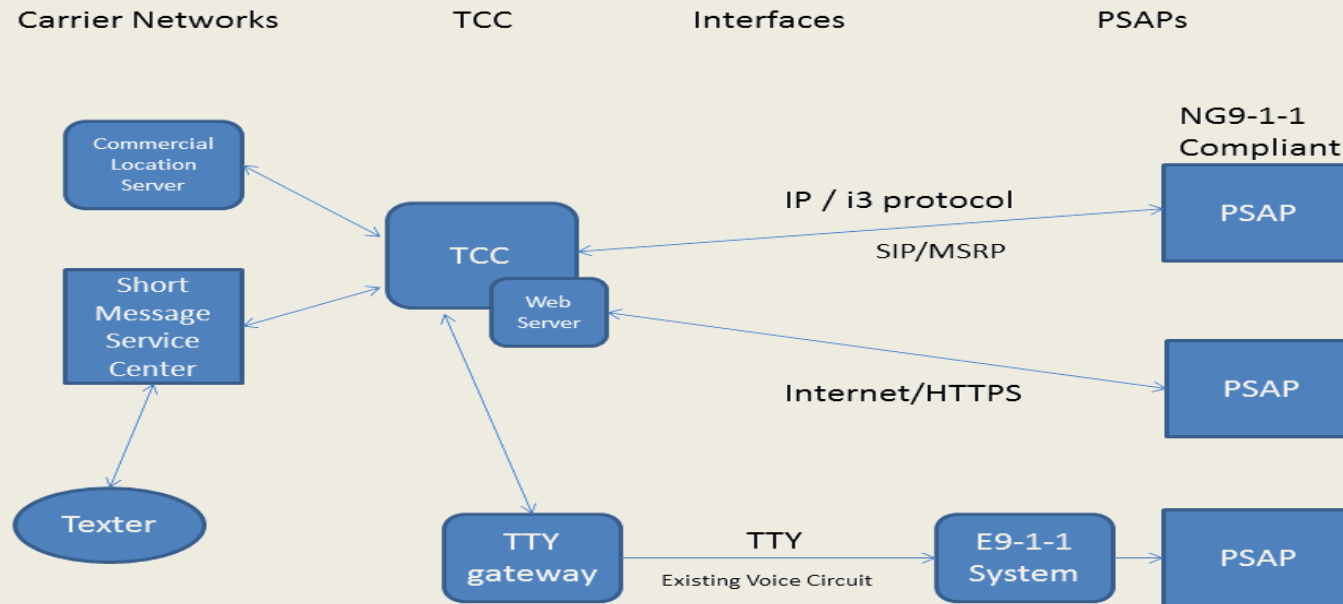
# Why SMS to TTY

- 25,705 people with hearing disability living in Maine  
Source: US Census Bureau
- Deaf community abandoning the use of TTY in favor of newer, more flexible technologies such as text messaging
- Text messaging has made communication easier for them with everyone else *EXCEPT* 911
- Waiting for NG911 implementation or other action was too long to wait
- Maine's 911 system is for all citizens and visitors
- Opportunity to work with Verizon Wireless presented itself



# Selection of Interface

## Three Choices



*High Level SMS Text-to-9-1-1 Diagram*



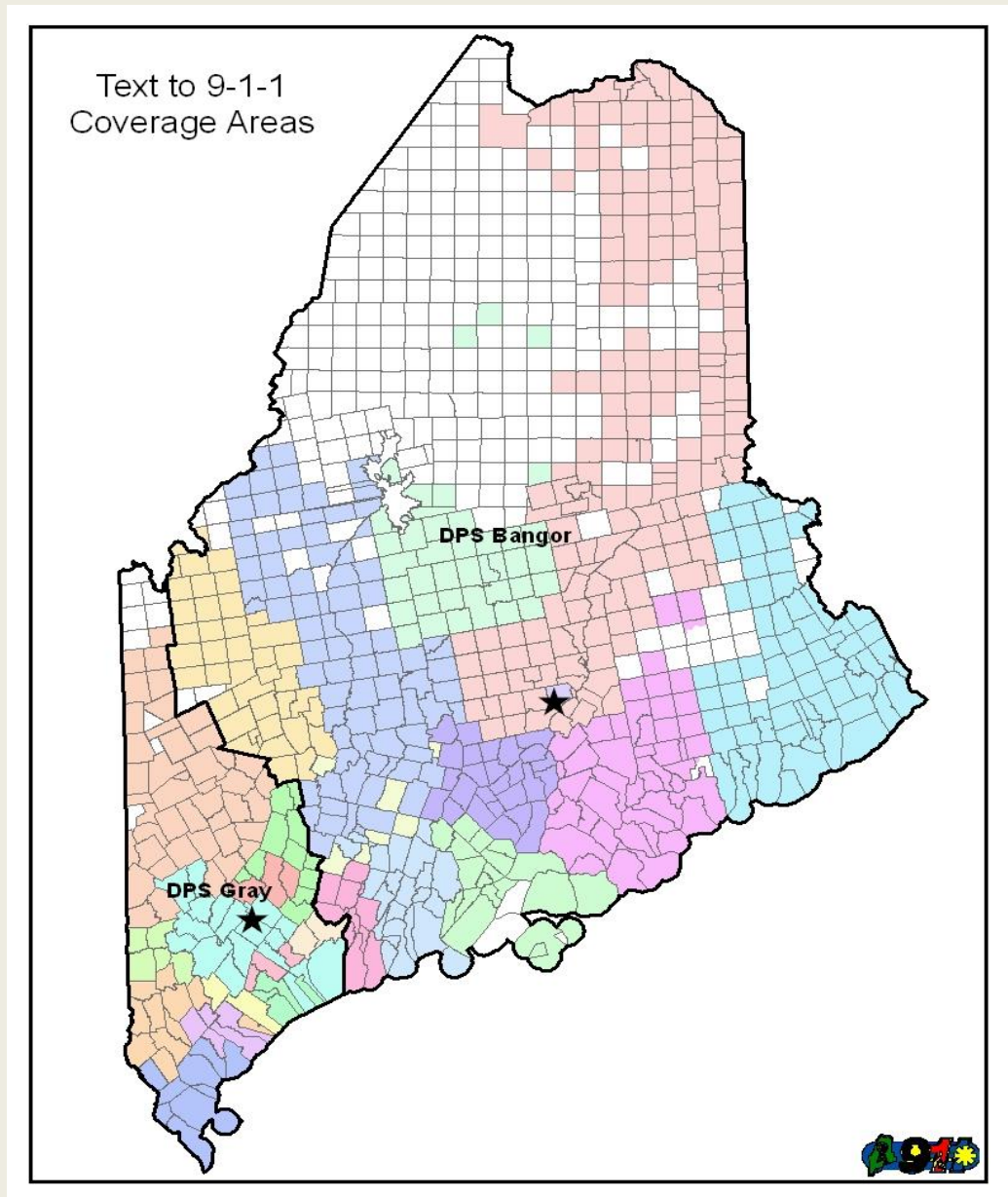
# Selection of Interface

- Chose SMS to TTY solution
- Ability to have all calls/text in legacy E911 CPE that is capable of logging and recording the event
- No CPE modifications needed
  - Turned off auto answer
  - Adjusted audio levels
- No internet connect on CPE provided by State
- No cost



## Getting Ready Process

- Selected two PSAPs to serve the whole state
  - Serve as alternate and default routes already
- Split the state by population and county
- Provisioned two new coverage areas for text



# PSAP Training

- Developed a PowerPoint explaining features of service
  - How to recognize a text call
  - Limitations of location information: Course location only
  - Inability to call back or transfer
  - Limited to Verizon Wireless: no roamers; no uninitialized phones; only in Maine
- Easy transition because it is handled within the TTY interface
- Addition of a second carrier required no additional training



# ANI / ALI

204

WPH1 16:22 05/02

[REDACTED] COID=VZW

VERIZON WIRELESS

1

TEXT MESSAGE VERIFY

DPS - ORONO RCC

ME

ESN=00949 MTN:207-511-8974

LAT:+044.875877 LON:-068.678368

ELV: COF:7170 COP:075

TEXT MESSAGE VERIFY

TEXT MESSAGE VERIFY

TEXT MESSAGE VERIFY

This is a Course location, not the caller's location

Identifies it as a text session

# Public Education Strategy

- Joint press release with Verizon Wireless which generated some news stories
- Articles in newsletters serving the deaf and hard of hearing
- Kept it low key because it involved only one carrier



# Operational Experience

- Verizon Wireless First Office Application
  - Went live May 2013
  - Very few text calls
  - No noticeable impact on call taking; easy to use
- Sprint went live June 2014 with a different Text Control Center
- Proved no need to wait for NextGen as it can work on legacy E911 equipment
- Two PSAP serving state dispelled rumors that texts would consume voluminous resources
- Transitioned seamlessly to different CPE





# Next Steps

- Move service to IP/i3 connection
- Expand to other PSAPs
- Add other carriers
- Continue public outreach



Questions?





Please use the “Raise Hand” feature to ask a question.

**Questions**

- Thank you to all of today's presenters and participants and we look forward to seeing you at our next "State of 911" webinar

Tentative Date	Presenters	Registration
<p><b>Wednesday, September 10, 2014</b></p>	<ul style="list-style-type: none"> <li>• <b>911 Wellness Foundation</b> (Presenter: Jim Marshall)</li> <li>• <b>Pennsylvania Emergency Management Agency (PEMA)</b> (Presenter: David Holl)</li> </ul>	<p>Registration will open in early August 2014</p>

## Future "State of 911" Webinars

Laurie Flaherty  
National 911 Program Coordinator  
202-366-2705  
[laurie.flaherty@dot.gov](mailto:laurie.flaherty@dot.gov)

For questions regarding future webinars, please contact  
[NG911wg@bah.com](mailto:NG911wg@bah.com)

**Contact Us**